

# **Culture and the Family: An Application to Educational Choices in Italy**

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*In this essay we show that family background is crucial in determining the choice of high school in Italy. It is the choice of high school that then determines subsequent academic performance. The evidence suggests that graduating from a general high school increases the probability of attending university, whereas no effect can be found for family background. The fact that the majority of students with a poor family background tend to go to technical schools, following family suggestions, has an impact in prolonging the low level of educational mobility and leading to a low rate of college graduates in Italy. [JEL Classification: Z10, Z13]*

*Keywords:* culture, educational choices, family ties.

*Nel presente saggio rivediamo in chiave critica la relazione tra struttura familiare ed economia. Come caso specifico studiamo il ruolo della famiglia nell'influenzare le carriere scolastiche dei giovani in Italia, un paese caratterizzato da forti legami familiari. I dati suggeriscono che il tipo di scuola (licei verso istituti tecnici) sia la variabile rilevante per il successo universitario, mentre la famiglia gioca un ruolo determinante nella scelta della scuola superiore. Influenzando la scelta del tipo di scuola superiore, la famiglia potrebbe implicitamente contribuire al basso livello di completamento degli studi universitari in Italia.*

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## 1. - Introduction

The role of culture as an important factor that shapes economic activity has attracted enormous attention in recent years. It has become increasingly clear that cultural norms, “those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation” (Guiso *et al.*, 2006) are crucial in explaining gender differentials in labor participation (Antecol, 2000), household living arrangements (Giuliano, 2007), women’s work behavior and fertility choices (Fernandez and Fogli, 2009; Alesina and Giuliano, 2007), preferences for redistribution (Luttmer *et al.*, 2009), economic development in the regions of Europe (Tabellini, 2008) and trade (Guiso *et al.*, 2008).

In this essay we review the role of one particular cultural aspect of a society: the strength of family ties, showing its importance in determining a large variety of economic outcomes and attitudes. Furthermore, we analyze in details how the family can play a crucial role in determining educational choices in Italy, a country with particularly strong family ties.

While the emphasis on cultural aspects is fairly new in economics, mostly for the difficulty associated with its measurement and for issues related to causality, political scientists and sociologists have extensively studied the importance of cultural norms and of the socio-economic role of the family. Todd (1990) noted strong patterns of family structures, with clear regional variations and persistence over time, and linked them to significant social and economic outcomes. Banfield (1958) identified “amoral familism” as one of the main causes of Southern Italy’s underdevelopment, and Putnam (1993) and Fukuyama (1995) emphasized how the lack of reciprocal trust, typical of strong family ties societies, is detrimental to development. Gambetta (1990) shows how a critical characteristic of mafia “families” is that one can trust only family members and that the mafia family structure enforces trust in a society lacking it. Esping-Andersen (1999) has also argued that difference in welfare systems and employment across different European countries can be traced back to different family structures. Familistic societies are characterized by the “male-bread

winner and female housewife model”, the family is also seen as the institution able to internalize social risk by pooling resources across generations as opposed to the state and the market. Reher (1998) argues that beliefs regarding the respect for parents are normally associated with specific forms of living arrangements; similarly geographic mobility is limited as young people tend to live around their family nest. Coleman (1988) argues that family ties can facilitate or inhibit social actions. On the one hand, the young generation receives support from the old one; on the other hand, this sense of belonging to a small community can inhibit individual innovation and openness to new ideas in general. Economists have also noted how in developing countries, especially in Africa, extended family links have substituted for missing credit markets, as discussed for instance in La Ferrara (2003); there is also a large literature on the relationship between family-controlled firms and institutions (La Porta, Lopez-de-Silanes and Shleifer, 1999); and on the relationship between family structure, inheritance norms and the performance of family businesses (Perez-Gonzales, 2004). Bentolilla and Ichino (2006) study how countries with different family ties (namely Italy and Spain with strong family ties, the US and the UK with weaker ties) cope with unemployment shocks, finding that stronger family ties provide more insurance.

The intuition provided by the sociological literature has been comprehensively empirically analyzed by Alesina and Giuliano (2007, forthcoming 2010). The authors combine three questions taken from the World Value Survey<sup>1</sup> to define a variable summarizing the strength of family ties. This indicator combines beliefs on the importance of the family in an individual’s life, the duties and responsibilities of parents and children and the love and respect for one’s own parents<sup>2</sup>. The authors show that in

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<sup>1</sup> The World Value Survey (WVS) is a compilation of national surveys on values and norms on a wide variety of topics, carried out four times (1981-84, 1990-1993, 1995-97 and 1999-2004). The authors use the fourth wave, which covers the largest set of countries (81).

<sup>2</sup> The first question in particular assesses how important the family is in one person’s life and can take values from 1 to 4 (with 1 being very important and 4 not important at all). The second question asks whether the respondent agrees with one of the two statements (taking the values of 1 and 2 respectively: 1) Regardless of what the qualities and faults of one’s parents are, one must always love and respect them; 2) One does not have the duty to respect and love parents

families with strong ties there is more reliance on home production and less participation in market activities, especially in the case of youngsters and women. In particular, the role of women in the family and in society is different. Strong family ties imply a stricter division of labor with the male working in the market and the female working at home performing a variety of services, probably including maintaining family ties strong. Consistent with this, the authors find lower female education and labor force participation in strong family ties societies.

Since strong family ties produce social insurance, less is needed from the government. In addition, family ties and the insurance that they provide can work only if extended families live close to each other. Consistently with this story, the authors find less preferences for redistribution for individuals with strong family ties and less geographical mobility. Consistently with the “amoral familism” view of Banfield, the authors document a strong negative association between trust in the family and social capital, as measured by generalized trust. Strong family ties are by no mean associated with only economic “bads” on all grounds. The authors, indeed, find that there is a trade-off between participation in market activities with their ups and downs and uncertainty and happiness or life satisfaction. The authors do a careful analysis trying to establish causality and finding a correspondence between immigrants and country of origin behavior. This duplication of the same outcomes between the country of origin and a variety of destination countries point out to the importance of the strength of family ties as an important cultural trait of a country<sup>3</sup>.

In this paper, we look at how the family can affect educational choices in Italy, a country with very strong family ties. The paper is structured as follows: in Section 2 we discuss the importance

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who have not earned it. The third question prompts respondents to agree with one of the following statements (again taking the values of 1 or 2 respectively): 1) It is the parents' duty to do their best for their children even at the expenses of their own well-being. 2) Parents have a life of their own and should not be asked to sacrifice their own well being for the sake of their children. The authors combine the three questions taking their principal components.

<sup>3</sup> The authors look not only at immigrants in the US but also at immigrants in 32 different destination countries.

of the family in determining educational choices in Italy. In Section 3 we review the literature on educational choices. In Section 4, we present evidence that supports the view that low mobility is due to the wrong choice of high school from students coming from poor families. In the fifth section we conclude.

## **2. - The Importance of the Family for Educational Choices in Italy**

In this section we will discuss a possible implication of the strength of the family on educational choices in Italy. The fraction of college graduates is much lower in Italy compared to the US. Moreover intergenerational mobility in income and schooling shows much greater persistence in Italy than in the US. The phenomenon is particularly puzzling, given that the Italian school system is centralized and provides the same quality of education to everybody, regardless of income. Human capital investment and upward mobility should then be higher in Italy than in the US, where the educational system is decentralized, financed at the local level and with a significant fraction of students in private schools.

What is responsible for the low Italian educational mobility? Previous research (Cecchi, Ichino and Rustichini, 1999) has argued that the Italian schooling system might have failed to provide poor families with the incentives to invest in the human capital of their offspring. A decentralized and private system, the authors claim, does a better job in raising the return to schooling, thereby making the investment in human capital more attractive to poor families even if more costly. The Italian public university system does not offer a real opportunity for children of lower income families to emerge and keep the returns of their educational investment.

We propose a different reason for low educational mobility in Italy. We argue that poor families do not take advantage of the possibility of investing in human capital, despite the low cost offered by a public system, not because returns to education are low, but because families with low education are unaware of the value of education. Fathers with low education, we suggest, tend

to send their children to technical and vocational schools, because they perceive this level of education as an improvement compared to their own level and in any case sufficient to guarantee their children a decent job. Given the strength of family ties in Italy, children follow their family's suggestion at first, though they later may decide to invest in education and go to college. The wrong initial choice of high school, however, affects the likelihood of completing college. Obtaining a college degree is obviously more difficult for vocational school students, who are not sufficiently prepared to take college classes, than for general high school students. Thus family background acts as a reinforcing mechanism in perpetuating low educational mobility. The trend is amplified by the fact that in Italy only 5 years of schooling were compulsory until 1962; the fraction of fathers with only a primary school degree is extremely high compared to the US.

This paper will shed some light on the extent to which the family in Italy could affect the choice of high school. The initial family influence on the choice of a high school track will then affect access to higher education and academic performance. Using survey data on a cohort of high school graduates we estimate the impact of family background on the choice of high school and also the impact of high school type (general *versus* technical) on academic performance.

Our empirical analysis provides evidence that supports our basic intuition- the hypothesis that mobility is low because children choose the wrong type of high school, making college completion more difficult. The probability of choosing general high school is positively and significantly correlated with fathers' education. Even after controlling for factors such as grades in middle school as a measure of individual talent, we find that having a father with a low level of education reduces the probability of going to the general high school by more than 50%.

There is the further link between choice of high school type and subsequent academic performance in college. As a measure of academic performance we use the average number of exams passed. The probability of completing college is more closely related to the type of high school attended than to father's

education. We do believe that it is the choice of high school, rather than family background, to determine success in college and rate of dropout. Once talented children from poor families choose the right type of high school, their chances of college completion will be not very different from children coming from rich families.

If family ties are so relevant in the choice of high school, the policy implication could be fairly important. If our hypothesis indeed describes reality, a privatization of tertiary education would make it more difficult and costly for talented poor children to obtain a college degree, with little impact on the children of the rich. Increasing information on the value of education among poor families would be the crucial strategy. A main concern in Italy is the long duration of university studies, so that studying the impact of high school choices on the number of exams passed will yield insight on an issue at the core of Italian educational policies.

### **3. - Literature Review**

The choice of general *versus* technical or vocational high school has been little explored in economics, perhaps not surprisingly, given that most of the research has been done in the US, where high schools are more homogeneous in that respect than in other countries. There are some papers for Europe. Evidence for Germany indicates that family income plays a limited role in determining the probability of attending general high schools, other factors such as parental education being more relevant (see, Buchel *et al.*, 2001, and Jenkins and Schluter, 2002). A strong association between secondary school track choice and parental education in Germany has been found also by Dustmann (2001), but without controlling for parental income. For France, Margolis and Simonnet (2002) show that technical high school graduates outperform graduates of general high schools in the school-to-work transition, because they can access more effective labor market networks.

Sociologists, on the other hand, have been devoting a lot of attention to choice of high school and school-to-work transition issues. The classic work of Paul Willis (1977) is an authoritative

account of working class responses to schooling in general. Though his ideas were originally developed from research in a very different context — the English Midlands in the mid 1970s — they have inspired a generation of school ethnographies in the US (Everhart, 1983; MacLeod, 1987; McLaren, 1986; Eckert, 1989; Weiss, 1990; Gaskell, 1985 and Tanner, 1990).

Willis' famous thesis consists of two elements. First is his expectation of class disparities in education: working-class school failure is due not only to the biases of the educational system, but also due to working-class insubordination in school. Informal peer groups are claimed to subvert school-sponsored aspirations. Willis assumes that his Hammertown "lads" learn in their local environment — family, neighborhood, peer group — a discrete culture that clashes with a middle class oriented school system. This is said to activate a rebellion characterized by disinterest in school and troubled relations with teachers, thereby leading to poor grades and streaming into non-academic tracks. Working-class kids get working-class jobs by developing rebellious subcultures and condemning themselves to educational failure.

The inclusion of sociological elements in the choice of high school is crucial, in our view, to understand the problem, however our interpretation is slightly different from Willis' thesis. In our view, the relationship between class and subculture is different in Italy than in Britain. We do believe that class identity of Italian working class youth insulates students from internalizing educational aspirations in the first place. School failure reinforces their humble expectations, while school success can cause them reorient the path pre-assigned to them by working-class fathers.

Working-class students internalize their fathers' view. Working-class fathers hold a more vocational frame of reference, which buttresses their antipathy towards the student role and leads them to devalue school for its irrelevance to their perceived future in manual employment (probably this orientation is also informed by a pessimistic view of the economic situation).

The second part of our analysis will look at how academic performance in college is affected by differential school paths. The literature on the evaluation of school type effects on measures of

performance is richer. For example, the impact of Catholic schools on academic performance has received considerable attention in the United States. Evans and Schwab (1995) highlight the endogeneity issues that can arise from self-selection of students into catholic schools and use instrumental variables to identify the effect of catholic school attendance on measures of academic success, concluding that catholic schools raise subsequent educational outcomes. Neal (1997) uses area-level measures of catholic schools' availability as instruments for school choice, showing that the benefits of catholic schools are confined to urban minorities, possibly as a consequence of the low quality of available public schools. An instrumental variable procedure is employed by Figlio and Stone (1999) to assess the effect of religious and non-religious private schools on educational outcomes, finding that, in general, only the former increase individual outputs relative to public schools. The methodological approach developed by Altonji *et al.* (2000) is instead based on the use of observable information as a way of reducing endogeneity bias. Their approach to estimation is based on the idea of using the degree of selection on observables as a guide to how much selection there is on the unobservable. They use their method to estimate the effect of attending a Catholic high school on a variety of outcomes. They find that catholic schools are effective in favoring high school completion and college attendance, while the effect on test scores is less evident. Recently, researchers' interest on the effect of school choices have also started spreading onto other spheres of human life: an example is Figlio and Ludwig (2000), who look at the effect of catholic school attendance on youths' crime, drug abuse and sexual activity, finding that catholic schools are effective in reducing all three.

As for the specific Italian situation, the main issue emerging is a strong intergenerational persistence in educational achievement. Checchi *et al.* (1999) have found less intergenerational mobility in incomes and schooling in Italy than in the US. They argue that the Italian schooling system has failed to provide poor families with incentives to invest in human capital.

With a sample of students at the University of Milan, Bertola

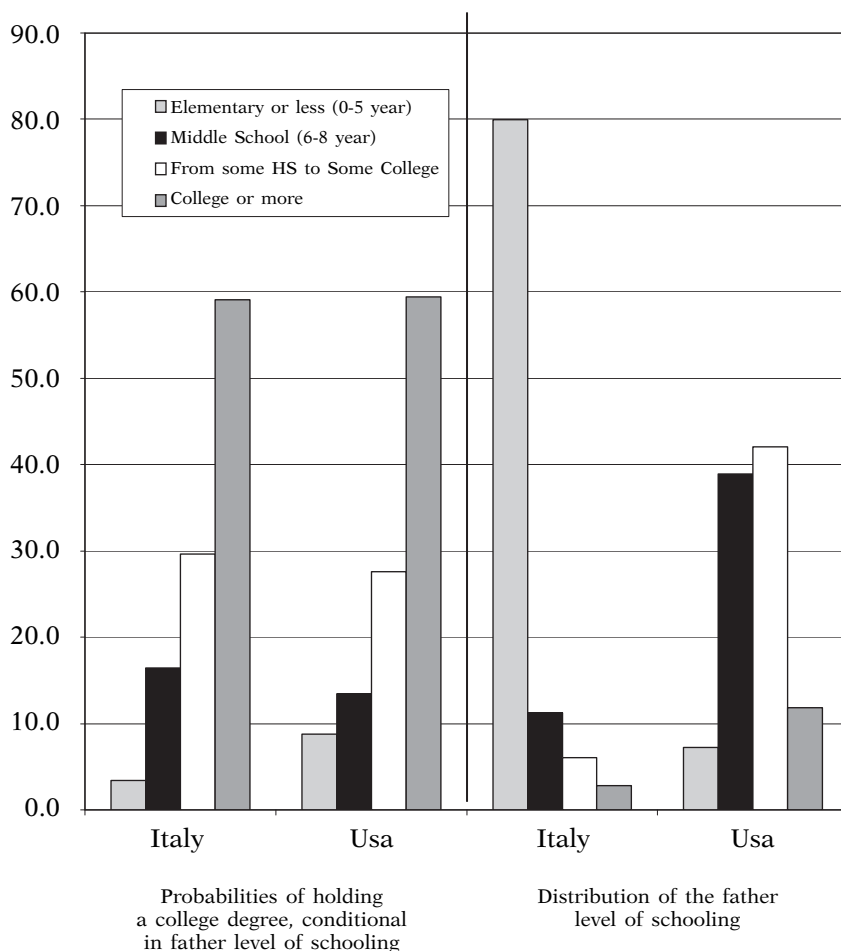
and Checchi (2001) find that those coming from general high schools score better in a range of performance indicators than comparable students from other schools. They also study the differences in academic performance between public and private schools. They find that public schools are associated with better performance than private schools. Student from religious private schools performed better than laic private schools. The importance of high school types for academic performance is confirmed by Boero *et al.* (2001). In a sample of Italian college graduates the final graduation marks are significantly lower for technical high school graduates than for general high school graduates. A theoretical perspective on the optimal school design is provided by Brunello and Giannini (2000), who showed that the desirability of educational stratification cannot be unambiguously drawn from an efficiency point of view.

#### **4. - Empirical Analysis**

This section provides evidence for the basic mechanism discussed in Section 2. We start showing some evidence on intergenerational mobility in Italy and the US. Graph 1 shows the probability of having a college degree, given four levels of father's education (father with elementary school or less — 5 years or less of education; father with middle school — 8 years or less of education; fathers with high school; and fathers with college degree). Comparing Italy with the US, the probability of obtaining a college degree for Italians is lower only for the sons of fathers with elementary degrees or lower. For sons of fathers with middle school or high school, the probability is higher for Italy; finally the probability is similar for children whose father has a college degree. In 2000, according to the Survey of Income and Wealth for Italian households, 80% of male heads of households in Italy have at most an elementary degree; in the US the comparable fraction is 10%. This huge difference in the distribution of educational attainment is partially related to the fact that compulsory education in the US is at least 10 years. In Italy, only

GRAPH 1

PROBABILITIES OF HOLDING A COLLEGE DEGREE,  
CONDITIONAL ON FATHER'S SCHOOLING; AND DISTRIBUTION  
OF FATHER'S SCHOOLING: USA *VERSUS* ITALY



Source: PSID (1992 waive), SHIW (1998 waive).

5 years of schooling were compulsory until 1962. After 1962, a reform extended the number of years of compulsory education to eight. Only towards the end of 1970s' eight years of compulsory education became the norm in Italy.

According to a more detailed classification of levels of education of fathers, we found that intergenerational mobility is low only for the lowest educated fraction of the population (Graph 1). Overall college attainment is 16% lower in Italy than in the US. The difference in college attainment in Italy and US per father's education can be decomposed in the following way:

$$\sum \alpha_i f_i - \sum \alpha'_i f'_i = \sum (\alpha_i - \alpha'_i) f_i + \sum (f_i - f'_i) \alpha_i - \sum \Delta f_i \Delta \alpha_i$$

where  $\alpha_i$  and  $\alpha'_i$  is the fraction of students going to college for a certain education of fathers in Italy and the US, and  $f_i$  and  $f'_i$  is the fraction of father with a certain education (we distinguish between 5 years or less of education, between 6 and 8 years of education, high school completed and college). The decomposition simply allows us to see if the difference in intergenerational mobility is driven by low college attainment or simply by a different composition of the population, specifically father's education (the second term). In our case we found that almost all the difference in college attainment is driven by the second term ( $-16\% = -4\% -18\% +6\%$ ). The lower Italian intergenerational mobility depends almost completely on the high fraction of low educated fathers in Italy.

Our fundamental hypothesis is that low mobility in Italy is driven by a wrong high school track and that a student's probability of choosing a certain type of high school is affected, in turn, by family background, regardless of individual talent. Students with poor family background get trapped in the wrong track because of family suggestions. In order to test this hypothesis, ideally we would like to see how the decision of a child would change, if he had the possibility of modifying his choices, given a new set of information regarding college degree. According to our hypothesis, poor people should modify their choices more frequently, since there are a lot of them who wanted to go to the general high school but they could not because of family influence. Since it is impossible to perform such a controlled experiment, we will use some evidence from different sources.

As a first set of evidence we look (unfortunately only at the aggregate level, since micro data are not available) at the change in enrollment rate to college, after a reform of education that took place in Italy in 1969. Before 1969, only students coming from general high schools could go to college; after the reform, students from any kind of high school could enroll in college. This reform is a sort of natural experiment, which allows us to evaluate the change in college attendance for students who were attending high school during the reform: those children were supposed to decide at age 14 whether they wanted to go to college or not. Students coming from poor families, and usually attending vocational and technical schools, should change their mind more frequently because when they decided about high school, they did not have enough information on the value of education itself and were merely following fathers' suggestion. We should then observe, after the reform, an increase in college attendance for students from low education families, compared to students from high education families, who usually attend general high schools.

In the second part of the analysis, we would like to investigate the effect of family background on children's decision of choosing a particular type of high school and consequently of completing college. This second part is based on two regressions. In the first we analyze whether father's education affects the probability of choosing a certain type of high school. We show that family background has a strong impact on the likelihood that a student coming out of middle school chooses a general high school even after controlling for student's talent and various other variables. The second regression examines the relationship between the probability of completing college and the type of high school attended. We find that the probability of completing college is very similar for students with different family background, who attended the right type of high school, indicating that a publicly funded system cannot be blamed for the low level of college attendance or for high dropout rates. The effect of father's education is quite small and/or insignificant in this final stage, whereas it is crucial in the first stage of children choice.

#### 4.1 *Data*

We shall use a cross-sectional survey on educational and job paths of students finishing high school (*Indagine sui percorsi di studio e lavoro dei diplomati*), conducted by the Italian National Institute of Statistics (ISTAT) both in 1998 and 2001.<sup>4</sup> The goal of the survey is to analyze educational and labor market outcomes of students, three years after they completed high school.<sup>5</sup> The choice of conducting the survey three years after the end of high school is crucial for our purposes, because it allows us to look at dropout rates and academic performance according to high school type and family background. The samples for 2001 and 1998 have 23,262 and 18,843 observations, respectively, and respondents are asked about educational choice after high school, demographic, and labor market outcomes. Information on family background (including education of parents) was also collected.

Our hypothesis is that belonging to a particular family, independent of talent, affects student's choice of high school. For this purpose, we need information on the final grade at the end of middle school, and father's education of students going to vocational *versus* general high schools. We decided to look at the final grade at the end of middle school *versus* father's level of education, because it could be that there may be no such thing as family influence. It could simply be that those who decided to go to general high school are those who are smarter and more academically inclined.

The Italian high school system may be broadly described by three types of schools:

— *vocational diploma*: it is a vocational training school certificate; it provides job-specific education (mainly for skilled blue-collar jobs);

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<sup>4</sup> We shall use mainly the 2001 survey, since it contains more information regarding number of exams in college, year of enrollment in college, which will be especially useful for the second part of the empirical analysis. For the first part of the empirical analysis, for which both samples are compatible, we report in the appendix the results of the regression for 1998 and of the pooled regression for the two years. Our results did not change.

<sup>5</sup> Since the survey has been conducted in 2001, the sample consists of people who completed high school in 1998.

— *technical diploma*: it is a technical school certificate; it provides a technical education (mainly for non-graduate white-collar jobs, such as accountancy);

— *liceo*: it is a high school certificate preparing students mainly for a university education. It specializes students either in scientific studies — “liceo scientifico” or in classical studies — “liceo classico”.

Our dependent variable is captured by an indicator variable (*Liceo*) that is equal to one if students attended general school and is equal to zero otherwise. As a proxy for performance in middle school we use two dummy indicators, one if the student received the highest possible grade, *Highest grade*, one if the student received the lowest possible grade, *Lowest Grade* (we excluded the intermediate grade). At the end of middle school students receive a final mark: “sufficiente”, comparable to C in the US, “buono”, the equivalent of “B”, “distinto” the equivalent of B+/A–, and “ottimo”, the equivalent of A/A+. We defined as lowest grade students, the ones who reported “sufficiente” and as highest grade students, the one who reported “ottimo”. The excluded group is given by students with “buono” o “distinto” as final mark.

As for family background we use two dummy indicators for father’s level of education, one if the father holds a middle school or lower degree and one if the father holds a college degree (the excluded group is father with high school degree).

We control for several characteristics that could possibly influence the choice of high school such as the region in which the student was living (*South* and *Center*), the number of siblings present in the households (*Children*), a female dummy.

The summary statistics for our sample are presented in Table 2. The fraction of students with the highest grade in middle school is 21%. More than 50% of the sample have fathers whose level of education is middle school or lower; only 9% of students have a father with a college degree. The fraction of students going to high school is equal to 33%; a more detailed classification of the types of high schools attended is reported in Table 3.

Table 4 describes the type of high school attended as a function of father’s education. Note that having a father with a

TABLE 1

TRANSITION PROBABILITIES ACROSS GENERATIONS  
IN SCHOOL ACHIEVEMENTS

		Usa Son			Italy Son		
		<i>No college</i>	<i>College</i>	<i>Total</i>	<i>No college</i>	<i>College</i>	<i>Total</i>
Father	<i>No college</i>	80.2	19.8	100	93.5	6.5	100
	<i>College</i>	40.5	59.5	100	40.9	59.1	100
Son: head of household in 1992 present in the Family					Son: head of household in 1998		
Father education is based on son's recollection					Father education is based on son's recollection		

Source: PSID (1992 waive).

Source: SHIW (1998 waive).

TABLE 2

SUMMARY STATISTICS IN THE *LICEO* REGRESSION

Variables	Sample means
Highest grade	21.24
Lowest grade	31.55
Father with college	9.32
Father with middle school or less	56.72
South	43.34
Center	19.07
Number of siblings	1.55
Female	53.24

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 3

STUDENTS HOLDING A HIGH SCHOOL DEGREE  
- DIFFERENT TYPES OF HIGH SCHOOLS

Type of high school	
Vocational schools	15.51
Technical schools	51.37
<i>Liceo classico and liceo scientifico</i>	28.65
<i>Liceo linguistico</i>	1.2
<i>Liceo artistico and istituto d'arte</i>	3.27
Total number of observations: 22,394	Total 100

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 4

STUDENTS HOLDING A HIGH SCHOOL DEGREE, BY DIFFERENT  
TYPES OF HIGH SCHOOLS AND EDUCATION OF FATHERS

	Father with middle school or less	Father with high school	Father with college degree
Vocational schools	20.88	10.01	2.69
Technical schools	58.33	48.86	18.25
<i>Liceo classico and liceo scientifico</i>	16.4	36.58	74.54
<i>Liceo linguistico</i>	0.78	1.59	2.35
<i>Liceo artistico and istituto d'arte</i>	3.62	2.96	2.17
Total	100	100	100
Number of observations	14,244	6,705	1,445

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 5

STUDENTS HOLDING A HIGH SCHOOL DEGREE,  
BY DIFFERENT TYPES OF HIGH SCHOOLS  
AND DIFFERENT GRADES IN MIDDLE SCHOOL

	Highest grade in Middle school	Intermediate grade in middle school	Lowest grade in middle school
Vocational schools	1.69	9.8	33.52
Technical schools	30.21	56.21	54.36
<i>Liceo classico and liceo scientifico</i>	65.95	29.25	6.33
<i>Liceo linguistico</i>	0.86	1.46	0.94
<i>Liceo artistico and istituto d'arte</i>	1.3	3.28	4.85
Total	100	100	100
Number of observations	2,659	9,004	9,532

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

college degree increases the probability of a student going to *liceo* from 20.8% (if the father has middle school or less) to 79.1%. Table 5 describes the type of high school attended as a function of the final grade in middle school. Having the highest grade in middle school increases the probability of going to *liceo* from 12.1% to 68.1%. Lastly, Tables 6 and 7 describe the choice of high school as a function of father's education as well as final grade in middle school. For talented students, having a father with college degree increases the probability of going to *liceo* from 55% to 92.9%. A very high fraction of students with very low grade in middle school still go to the general high school, if the father has a high level of education: if fathers have a college degree, 43% of students with the lowest grade go to the general high school, while the fraction is equal to only 2% for students with a poor family background.

TABLE 6

STUDENTS HOLDING A HIGH SCHOOL DEGREE, BY DIFFERENT  
TYPES OF HIGH SCHOOLS AND EDUCATION OF FATHERS.  
STUDENTS WITH THE HIGHEST GRADE IN MIDDLE SCHOOL

	Father with middle school or less	Father with high school or less	Father with college degree
Vocational schools	3.15	0.79	0.18
Technical schools	41.83	27.75	6.93
<i>Liceo classico</i> and <i>liceo scientifico</i>	52.29	69.53	91.6
<i>Liceo linguistico</i>	0.66	1.01	0.99
<i>Liceo artistico</i> and <i>istituto d'arte</i>	2.07	0.91	0.31
Total	100	100	100
Number of observations	1,212	1,036	411

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

The second part of our empirical analysis examines the relationship between academic performance and type of high school attended. We are interested in evaluating academic performance in college, measured as number of exams passed, for students with different family background and coming from different types of high school.

Table 8 describes the summary statistics for our sample. It shows that 41.2% of high school graduates attend university three years after graduation, while 54% are not enrolled at all. The distribution changes a lot with the type of high school attended and family background. The proportion halves among technical school graduates and doubles among general high school graduates, revealing a strong link between the type of degree held and transition to university. Among students who went to the general high school, only 10% are not enrolled in any type of degree. In contrast the percentage is 68% and 86.4% respectively,

TABLE 7

STUDENTS HOLDING A HIGH SCHOOL DEGREE, BY DIFFERENT  
TYPES OF HIGH SCHOOLS AND EDUCATION OF FATHERS.  
STUDENTS WITH THE LOWEST GRADE IN MIDDLE SCHOOL

	Father with middle school or less	Father with high school	Father with college degree
Vocational schools	38.25	25.95	10.69
Technical schools	53.79	57.99	38.17
<i>Liceo classico and liceo scientifico</i>	2.42	9.99	43.16
<i>Liceo linguistico</i>	0.52	1.48	3.9
<i>Liceo artistico and istituto d'arte</i>	5.01	4.59	4.08
Total	100	100	100
Number of observations	6,756	2,476	300

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 8

SCHOOLING PATHS IN 1998 OF HIGH SCHOOL GRADUATES  
IN 1995 BY DIFFERENT TYPES OF HIGH SCHOOL

Schooling paths	All high schools	General high schools	Technical high schools	Vocational high schools
Enrolled in college	41.21	84.51	27.09	10.71
Enrolled in other types of degree	4.73	5.24	4.89	2.87
Not enrolled	54.06	10.25	68.02	86.42
Total	100	100	100	100

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 9

SCHOOLING PATHS IN 1998 OF HIGH SCHOOL GRADUATES  
IN 1995 BY EDUCATION OF FATHERS

Schooling paths	All high schools	Father with college	Father with diploma	Father with middle school or less
Enrolled in college	41.21	81.76	51.71	29.08
Enrolled in other types of degree	4.73	4.41	5.34	4.42
Not enrolled	54.06	13.83	42.95	66.50
Total	100	100	100	100

*Source:* ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

if the high school is technical or vocational. As for family background the fraction of students enrolled in college doubles if the father has a college degree and almost halves if the father has a low educational degree (Table 9). The combination of high school attendance and family background is also interesting (Table 10); for students who attended general high school, if the father has a college degree, 93% enroll in college, the fraction declines to 79% if father has middle school education or less. Similarly among students who attended technical school, if the father has a college degree, the fraction enrolled in college is 50%, while decline to 22% if the father has eight years of education or less.

Among students who are not enrolled in 1998, 90% never enrolled in any type of college degree, while 8.7% dropped out of college (Table 11). Among students coming from general high schools, 59.8% never enrolled in college, while the percentage increases to 90.7% and 94.8% for technical and vocational schools respectively. Family background is also important in determining enrollment in college. If fathers have a middle school degree or less, the fraction of people not enrolled in college is 66.5%, while it is only 13.8% if fathers have a college degree (Table 12). All this

TABLE 10

**SCHOOLING PATHS IN 1998 OF HIGH SCHOOL GRADUATES  
IN 1995 BY EDUCATION OF FATHERS AND DIFFERENT  
TYPES OF HIGH SCHOOL**

Schooling paths	Father with college	Father with diploma	Father with middle school or less
<b>GENERAL HIGH SCHOOLS</b>			
Enrolled in college	92.87	84.47	78.79
Enrolled in other types of degree	3.94	4.91	6.71
Not enrolled	3.19	10.62	14.51
Total	100	100	100
<b>TECHNICAL HIGH SCHOOLS</b>			
Enrolled in college	49.53	35.32	22.31
Enrolled in other types of degree	5.22	5.61	4.45
Not enrolled	45.25	59.07	73.24
Total	100	100	100
<b>VOCATIONAL HIGH SCHOOLS</b>			
Enrolled in college	34.57	15.59	9
Enrolled in other types of degree	4.02	4.59	2.41
Not enrolled	61.41	79.82	88.6
Total	100	100	100

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

TABLE 11

HIGH SCHOOLS GRADUATES IN 1995 AND NOT ENROLLED  
IN ANY COLLEGE DEGREE IN 1998 FOR DIFFERENT  
TYPES OF HIGH SCHOOL

	All schools	General High School	Technical School	Vocational School
Dropped college	8.74	35.93	8.18	4.16
Dropped other degree	1.24	4.22	1.04	1.05
Never enrolled	90.02	59.85	90.77	94.79
Total	100	100	100	100

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

evidence reveals a strong link between type of degree held and transition to university.

Finally we looked at the educational levels of fathers for students graduated from college, distinguishing between students who went to general high school and students who went to technical schools. For this descriptive analysis we use the survey on job paths of college graduates (*Inserimento professionale dei laureati dell'anno 1995, Indagine 1998*). The survey, conducted by the Italian National Institute of Statistics, is a series of cross sections collected in 1998. The goal of the survey is to analyze labor market outcomes of students, three years after they completed college. The sample for 1998 (the year we use) consists of 17,326 observations, and respondents are asked about demographic, labor market outcomes and family background.

Among students graduated from college in 1995, 60% have a general high school degree. It is interesting to analyze family background for students who went to general high school and not. The fraction of fathers with a college degree is equal to 32% if students attended a general high school, whereas this fraction is equal to 11% for students who went to technical school (Table

12). This evidence indicates that among college graduates, students who went to technical high school and then college come primarily from low educated families.

TABLE 12

HIGH SCHOOLS GRADUATES IN 1995 AND NOT ENROLLED IN ANY COLLEGE DEGREE IN 1998 BY EDUCATION OF FATHERS

	Fathers with middle school	Fathers with diploma	Father with college
Dropped college	29.08	51.71	81.76
Dropped other degree	4.42	5.34	4.41
Never enrolled	66.5	42.95	13.83
Total	100	100	100

Source: ISTAT, *Percorsi di studio e di lavoro dei diplomati*, research 2001.

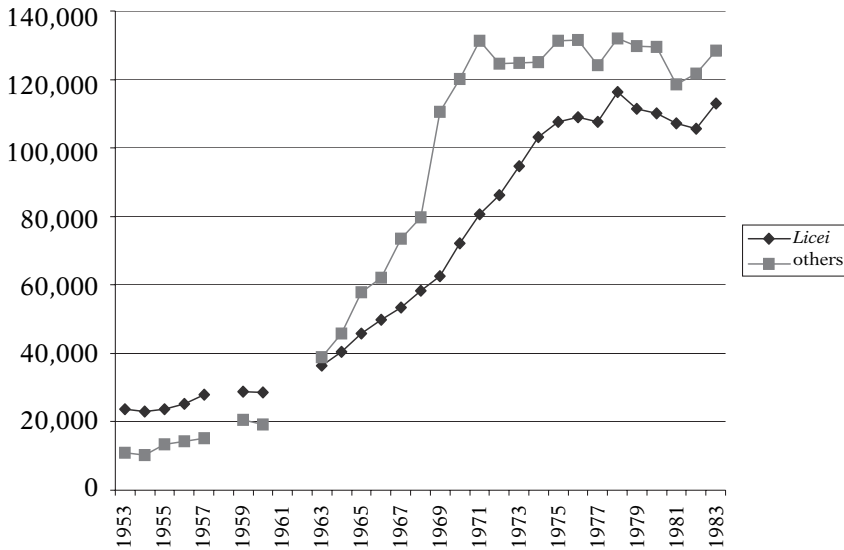
#### 4.2 Results

This section reports the results of our probit analysis and some time series evidence on choice of high school. We show that even controlling for other characteristics that might influence the choice of high school, students coming from poor families are more likely to go to vocational and technical schools. Having a father well educated increases the probability of going to *liceo* by 36 percentage points.

Graph 2 shows the preliminary evidence on the importance of family background in the choice of high school. The graph represents the number of students enrolled in college by different types of high school, from 1953 until 1983. There has been a huge increase in 1969 (the year of the reform) in the number of students enrolled in first year of college coming from vocational and technical schools (“others” in the Graph). The graph should be an indication of the number of people who chose to go to vocational

GRAPH 2

NUMBER OF STUDENTS ENROLLED IN COLLEGE FROM  
DIFFERENT KINDS OF HIGH SCHOOL: 1953-1983



Source: ISTAT, *Annuario statistico dell'istruzione*.

or technical school as a result of family influence and discovered the value of education later on. From Graph 2, it is possible to see that there was a huge increase in the three years following the reform, for students who attended technical or vocational school. If students chose high school on the basis of their talent, then the increase over time in college attendance should be very similar between the two groups. We do believe that the difference in the increase between the two groups represents a measure of the number of low background students who decided to go to technical high school just because family imposes them the choice. The increase represents the number of students who wanted to go to general high school but could not and changed their mind later on.

The data on enrollment to college over time are only at the macro-level. At the micro-level, we start by estimating a probit

model for whether children choose the best high school as a function of family background or their talent, controlling for a set of characteristics.

The probit specification adopted is the following:

$$L_i = \alpha_0 + \alpha_1' X_i + \alpha_2 HG_i + \alpha_3 LG_i + \alpha_4 LE_i^f + \alpha_5 HE_i^f + \varepsilon_i$$

where the dependent variable  $L_i$  is an indicator variable that is equal to one if the student attended the general high school (“liceo”) and zero otherwise.  $HG_i$  and  $LG_i$  are two indicator variables, equal to one if the student received respectively the highest/lowest possible final grade in middle school (students with intermediate grade are the excluded group).  $HE_i^f$  and  $LE_i^f$  are two indicator variables, equal to one if father’s education is college or middle school and less, respectively (the excluded group is given by fathers with a diploma).  $X_i$  is a vector of control variables, including geographic areas dummies (south and middle, north is the excluded group), number of siblings in the family and a female dummy.

We find (Table 14) that the probability that the student goes to liceo is significantly related to both talent (measured by final grades in middle school) and family background. Having a father with college degree increases the probability of going to *liceo* by 34 percentage points, whereas having the highest grade in middle school increases the probability of going to the general high school by 35%. Significant are the number of siblings in the household (negative effect) and a female dummy (negative effect).

We next turn to our analysis of the relationship between academic performance and family background. We investigate to what extent academic performance (measured as average number of exams passed) is a result of individual talent, educational background (given by the type of high school attended) and family background.

Table 15 shows the results of the regression for the average number of exams passed. We use the Heckman correction for this regression to address the sample selection bias. The analysis of average number of exams passed can only be performed conditional on university attendance. People attending college

TABLE 14

## PROBABILITY OF ATTENDING "LICEO"

*Dependent Variable: "Students who attended liceo" dummy*++  
(marginal effects from probit estimation)

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Highest grade in middle school	.3564*** (.0169)
Lowest grade in middle school	-.2347*** (.0102)
Father with college degree	.3599*** (.0239)
Father with middle school degree or less	-.1636*** (.0119)
South	-.0054 (.0129)
Center	.0530*** (.0158)
Number of siblings	-.0317*** (.0065)
Female	-.0202* (.0113)

---

Sample size: 23,132.

The sample includes students interviewed in 2001, who completed high school in 1998.

++ The table reports the change in the probability for an infinitesimal change in each independent, continuous variable and the discrete change in the probability for dummy variables.

\*\*\* = 1% significance level.

\*\* = 5% significance level.

\* = 10% significance level.

might be a selected part of the population. In that case standard OLS regressions would result into a biased coefficient. The direction of the bias depends on the type of selection. If, for example, only the very talented students from poor families manage to enroll into a university program, the coefficient of the dummy indicating poor family background in the equation of number of exams passed could underestimate the effect of coming from a disadvantaged family background. A standard way to correct for

TABLE 15

## DETERMINANTS OF AVERAGE NUMBER OF EXAMS PASSED

	OLS Coefficient	Heckman Coefficient	Select Coefficient
Enrolled in college in 1997-98	2.231*** (.2521)	2.116*** (.8603)	
Final grade in middle school	.34045*** (.0850)	.3417*** (.0853)	
Final grade in high school	.48353*** (.0734)	.48528*** .07376	
Father with college	.2299 (.1879)	.2351 (.1895)	
Father with middle school or less	-.1166 (.1625)	-.1099 .1643)	
<i>Liceo</i>	.59475*** (.1818)	.5903*** .18610	
Female	.39193*** (.1448)	.3928*** (.1468)	
Enrolled Drop-out			-7.328*** (.1858)
Enrolled in college in 1997-98			9.001*** (.1231)
Final grade in middle school			-.0147 .03854
Final grade in high school			.17428*** .04124
Father with college			.5569*** (.1334)
Father with middle school or less			-.2744*** (.0674)
<i>Liceo</i>			1.131*** (.1061)
Female			.4469*** (.0719)

The select equation includes 19 regional dummies as identifying variables.

this selection bias is to correct the exam equation with the probability of participation into a college program. This procedure faces serious identification problems if the exam and the selection equations include the same explanatory variables. A possible way out is the assumption that the errors term of the two equations are distributed as a bivariate normal density. In this case the correction would amount to include into the exam equation the inverse of the mills ratio, and the identification is achieved exclusively relying exclusively on the non linearity implied in the mills ratio. A more robust strategy would be one in which one can think of variables that shift the participation probability without influencing the number of exams passed. In the spirit of Card (1993), we use a proxy of college availability in the area of residence as a shifter of the probability to enroll in college. In another study that uses the same dataset (Cappellari, 2003), the endogeneity issue is assessed by using multivariate probit models. The author uses as an instrument for general high school choices a dummy for having a grandparent with a university degree, and as an instrument for selection into the university dummies for the number of siblings in the household of origin.

We use regional dummies as identifying variables for the selection equation.<sup>6</sup> Surprisingly, the regression coefficients do not differ greatly between the OLS and the Heckman regression, also the Wald test indicates that selectivity is not a big problem. However this might be an indication that our instruments are weak.

The results confirm our hypothesis. While type of high school attended and individual talent have large and significant impact on the performance in college (as one would expect), family background does not appear to influence performance in college, but it is crucial for enrollment.<sup>7</sup> This provides further confirmation

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<sup>6</sup> The dependent variable of our selection equation is a dummy for being enrolled in college, we control for the same variables present in the Heckman equation, plus a dummy for students who dropped college (and for whom we do not have information about the number of exams passed).

<sup>7</sup> The model is robust to other specifications in which we included mother education and profession of both parents.

TABLE 16

## PROBABILITY OF ATTENDING "LICEO" (YEAR 1998)

*Dependent Variable: "Students who attended liceo" dummy++*  
(marginal effects from probit estimation)

Highest grade in middle school	.3306*** (.0132)
Lowest grade in middle school	-.2083*** (.0089)
Father with college degree	.2863** (.0212)
Father with middle school degree or less	-.1760*** (.0096)
South	.0374*** (.0105)
Center	.0419*** (.0126)
Number of siblings	-.0396*** (.0053)
Female	-.0152* (.0089)

Sample size: 18,843.

The sample includes students interviewed in 1998, who completed high school in 1995.

++ The table reports the change in the probability for an infinitesimal change in each independent, continuous variable and the discrete change in the probability for dummy variables.

\*\*\* = 1% significance level.

\*\* = 5% significance level.

\* = 10% significance level.

that the linkage between family background and education operates *via* the choice of the type of high school rather than later on *via* a low return of tertiary education. Students belonging to a poor family do not obtain a high level of education, not because tertiary education does not guarantee them high returns of education, but because they choose the wrong type of high school at an early stage. If students with a poor family background choose a general high school, they have the same academic performance of students with a highly educated family.

TABLE 17

## PROBABILITY OF ATTENDING "LICEO" (POOLED REGRESSION)

*Dependent Variable: "Students who attended liceo" dummy++*  
(marginal effects from probit estimation)

Highest grade in middle school	.3430*** (.0107)
Lowest grade in middle school	-.2208*** (.0067)
Father with college degree	.3224** (.0160)
Father with middle school degree or less	-.1694*** (.0076)
South	.0162** (.0083)
Middle	.0469*** (.0100)
Number of siblings	-.0357*** (.0042)
Female	-.0173** (.0071)
Year 1998 dummy	-.0035 (.0070)

Sample size: 41,975.

The sample includes students interviewed in 2001 and 1998, who completed high school in 1998 and 1995.

++ The table reports the change in the probability for an infinitesimal change in each independent, continuous variable and the discrete change in the probability for dummy variables.

\*\*\* = 1% significance level.

\*\* = 5% significance level.

\* = 10% significance level.

## 5. - Conclusions

The link between culture, as defined by the strength of family ties, and socioeconomic outcomes deserve attention. We review recent literature on the importance of the strength of family ties

on economic outcomes. We also study the influence that the family can have in determining educational choices in a country in which family ties are very strong: Italy. We started out by posing the question about the factors that can explain the low level of educational mobility in Italy, a country in which the public system of education should guarantee a higher level of mobility compared to a private system, like the one existent in the US.

Our evidence suggests that, once poor children go to general high schools, they are as successful as students from rich families. Family background is instead crucial for the choice of high school, dragging many talented students into the wrong type of high school, reducing the probability of going to college at a later stage.

The high school choices of young Italians largely depend on two factors: family background and ability. This paper has shown that individuals with well educated fathers tend to select into general high schools.

This paper has also provided evidence on the effects of high school choices on subsequent academic performance. Graduating from a general high school increases the probability of attending university, whereas no effect can be found for family background. Once at university, the performance depends crucially on general high school attendance and personal ability.

Some interesting policy issues emerge immediately from the analysis. The effectiveness of resources for education in Italy will depend upon interaction between resources used and family background. Increasing the information about the value of education among poor people could be an effective strategy. We do believe that the mechanism causing the low level of intergenerational mobility is through the wrong high school track. Talented students with a poor family background often choose a technical school, following family suggestion. The information on college performance suggests that the number of exams passed depends mainly on the type of high school attended rather than on family background. Given that the majority of students with a poor family background go to technical school, they will experience a higher difficulty of completing college, should they decide to enroll. This prolongs the low level of educational

mobility and leads to a low rate of college graduates, which is not related to the public educational system but simply to a wrong high school path followed by poorly educated families.

Family background plays a central role in determining school choices and these choices have relevant effects on subsequent educational paths. By deepening the separation between generalist and vocational tracks, the reform of secondary high education, which will be implemented in the near future, might have the effect of increasing the role of parental backgrounds in shaping individual lives. An effective functioning of the mechanism designed in order to guarantee the “equal dignity” of tracks — such as the possibility of track changes after the initial choice — appear as a crucial feature of the implementation phase for preventing intergenerational persistence and social segmentation to increase.

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