



ITALIAN JOURNAL OF SOCIOLOGY OF EDUCATION

Editor-in-Chief: Silvio Scanagatta | ISSN 2035-4983

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Article first published online

June 2015

HOW TO CITE

Spartaco, C., Castelli, L., Marcionetti, J., Crescentini, A., & Cattaneo, A. (2015). Inequality in Canton Ticino's School System: Between Conservation and (some) Openings. *Italian Journal of Sociology of Education*, 7(2), 186-224. Retrieved from <http://journals.padovauniversitypress.it/ijse/content/inequality-canton-ticinos-school-system-between-conservation-and-some-openings>



PADOVA UNIVERSITY PRESS

Inequality in Canton Ticino's School System: Between Conservation and (some) Openings

*Spartaco Calvo**, *Luciana Castelli*, *Jenny Marcionetti*, *Alberto Crescentini* and *Angela Cattaneo*

Abstract: The purpose of this paper is to compare results from five surveys conducted in Canton Ticino, Switzerland, which show the role of socioeconomic origin on educational achievements from the very beginning of scholarization. A pseudo-longitudinal approach was used: different groups with similar characteristics at the same time in a different stage of education, from primary school to post-secondary education, were observed. The empirical data show that the members of higher social classes are facilitated to start and finish the career that is considered to be of greater social value. School results of pupils from Ticino do not move far away from the average, compared to the results of the international standardized assessments programs. Those belonging to the more privileged social groups have better results and tend to enroll more into academic education, rather than into the vocational one. The public education system, being influenced by the Northern European model, offers a great variety of learning opportunities at a tertiary level to those who come from a vocational education career. The longitudinal research shows how these ones are better integrated in the contemporary economic environment than their colleagues

Keywords: socioeconomic origin, educational achievement, career tracking, Switzerland

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Introduction

This paper offers an analysis of data from five surveys conducted over the same period of time by the *Centre for innovation and research on education systems* (CIRSE) of the *University of Applied Sciences and Arts of Southern Switzerland* (SUPSI).

The purpose of these surveys was to monitor the school system of Canton Ticino, Switzerland's main Italian-speaking area; they were not intended to specifically investigate social inequalities in education. Nevertheless the 'inequality' dimension was analysed in all surveys from different perspectives. A pseudo-longitudinal approach (Deaton, 1985; Gardes, Duncan, Gaubert, & Starzec, 2005) was used to study the phenomenon: since it was impossible for us to follow the evolution of the same group of students over time, we opted for observing different groups with similar characteristics at the same time, each of them in a different stage of education, from primary school to post-secondary education.

In particular, two of the five studies focus on the compulsory school system: one investigates students' performance at school and mathematical skills at the end of the fourth year of primary school (CIRSE, 2014); the other analyses the impact of the students' socio-economic background on career tracking in middle school (lower secondary education – or secondary I) and upper secondary school (secondary II) making comparisons on the basis of the PISA results and official data (GAGI) provided by the Ministry of Education. In keeping with the PISA report, this latter study considers mathematical, literature and science skills (Castelli, 2015).

Another study presents some figures about the social composition of the different types of upper secondary school and looks into the relationship between students' socio-economic origin and success rates at school (Castelli, 2015).

The fourth study was conducted with the aim of analysing the available pathways for the transition from the middle school to the upper secondary school (Marcionetti, Zanolla, Casabianca, & Ragazzi, in press). The impact of the socio-economic status on successful transition was considered and a longitudinal account was provided of the way in which these pathways continue into the upper secondary school and take shape over time.

Finally, the last survey considers the very concept of 'success' at school, with reference to life satisfaction as expressed retrospectively by thirty-year-olds looking back on their educational choices (Cattaneo, 2012).

The corpus of empirical data available encompasses all levels of education but before any further discussion we need to clarify concept of inequalities in education we are looking at. To that end, we will first refer to the definition proposed by Schizzerotto and Barone (2006), who regard inequalities as the different chances that the members of a given social class have of accessing a certain level of education, compared with the corresponding chances of other groups.

Gender differences will not be taken into account – although they are an important subject of study from a historical evolution perspective (among others: Brown, 2004; Castles and Marceau, 1989; Stromquist, 1990). Also differences linked to a student's migration background will not be considered notwithstanding the growing importance of that aspect in today's increasingly multiethnic society. In fact, a number of recent studies, especially in North America and Europe, have evidenced significant ethnicity-related differences, both in terms of academic achievement (Felouzis, 2003; Fekjaer & Birkelund, 2007; Portes & Hao, 2004; Szulkin & Jonsson, 2007) and in terms of educational choices after compulsory education (Van Ewijk & Slegers, 2010; Veerman, van de Werfhorst & Dronkers, 2013).

For the purpose of this paper, only differences related to the socio-economic background of the students will be discussed. In three out of the five studies presented here the ISCO (International Standard Classification of Occupations) criteria were used. ISCO classification assumes that a correlation exists between a given profession and a certain socio-economic status. In some cases, only the profession of the student's father was considered; in other cases the professions declared by both parents were taken into account to then choose the one which had a higher social and economic standing. On this basis, the following four categories were identified:

- White-collar high-skilled (ISCO 1, 2, 3 levels: high socio-economic status);
- White-collar low-skilled (ISCO levels 4, 5: medium-high socio-economic status);
- Blue-collar high-skilled (ISCO levels 6, 7: medium-low socio-economic status);
- Blue-collar low-skilled (ISCO 8, 9 levels: low socio-economic status).

PISA results were analysed on the basis of the ESCS (Economic, Social and Cultural Status) classification index, which considers three main pieces of information: professional position and education level of the student's parents (in both cases the parent with the higher profile was considered) and family assets. The division into quartiles reflects four levels of social status similar to those used in other studies: low (lower quartile), medium-low (second quartile), medium-high (third quartile) and high (upper quartile).

For the longitudinal study a classification based on three breakdowns has been used. This classification is provided every five years by the government on the basis of the official statistics and considers occupation, hierarchical position in the work place and educational degree of both parents.

Although these simplified categories proved suitable for monitoring and providing guidance to the Ticino's schools involved in the research project, they do not allow us to determine the specific influence exerted by the economic capital versus the cultural capital on the students' performance. According to recent research (Dubet, 2014; Marzadro & Schizzerotto, 2014), in the education systems of Western European countries which have a large middle class with relatively small economic disparities, the qualification attained by the parents has a greater influence on the student's education pathway than their wealth.

The systematic comparison of these five surveys allows considering two closely interrelated issues, namely the issue concerning differences in the acquisition of skills and competences within the same level of education (educational achievement) and the issue of inequalities in achieving a specific school grade (educational attainment).

Regarding the first issue, a vast literature has been generated in recent years by international surveys such as PISA, TIMSS and PIRLS. Benadusi and Giancola (2014) claim that the institutional organization of education does influence the performance of students belonging to different social classes: remarkable differences were found between selective school systems - whose curriculum differentiation begins already during Secondary I, with increasingly greater disparities by the end of compulsory schooling - and the inclusive school systems, which tend to keep all students in the same education pathway (Duru-Bellat & Suchaut, 2005; Hanushek & Wößmann, 2006; Schütz, Ursprung, & Wößmann, 2008; Zimmer, Ikeda, & Ludemann, 2011). Moreover, systems with a strong

competition between schools were found to have a greater social differentiation of results (Schleicher, 2014).

That state of affairs could be explained by the fact that in the case of early selection the choice of school tends to reflect the family's decisions rather than the student's autonomous ambitions. So, parents from a higher social status are likely to encourage their children to opt for prestigious school curricula, so as to perpetuate the social competitive advantage of the family (Collins, 1979). On the other hand, if students from lower social classes end up attending less demanding types of school, the resulting segregation might trigger peer effects that could impair learning opportunities (Benito, Alegre, & González-Balletbò, 2014). That could be compounded also by the teachers' attitude. Indeed, according to the theories on the centrality of the teacher, teachers, mostly belonging to the higher social classes, find it easier to communicate with upper class students, whom they see as peers, while they consider students from the lower classes inadequate and difficult to understand (Fele & Paoletti, 2003; Mehan, 1984; Rist, 1970).

Although the characteristics of the education system – i.e. whether it is selective or inclusive – can help explain the social disparities in school achievement during Secondary I, they can hardly account for disparities occurring in the primary school, since the latter has a little-differentiated, rather standard curriculum in most OECD countries. In this case, the phenomenon might be explained by the theory whereby an intergenerational transmission of cultural capital occurs (Bourdieu and Passeron, 1970): that is a set of beliefs, values and aesthetic tastes shared by the upper classes and the teachers, probably associated with a more similar linguistic code they have in common (Bernstein, 1961). According to Esping-Andersen and Mestres (2003), the transmission of beliefs from parents to children occurs in early childhood and takes the form of more or less powerful intellectual stimulation arising from the parents' cultural habits (De Graaf, De Graaf, & Kraaykamp, 2000) and support to school work (Breen, Luijkx, Müller, & Pollak, 2009). In this regard, Sullivan (2007) suggests that educational credentials are transferred through participation in activities typical of 'high culture', exposure to certain vocabulary used in the family and the quality of the relationship between parents and school professionals.

Even though high and low cultures are less clearly distinct than in the past, authors confirm that the more advantaged social groups have more

chances to provide their children an education coherent with the formal learning practices, as, for instance, the learning of foreign languages (Draelants & Ballatore, 2014).

In a functioning education system, educational achievement and educational attainment must necessarily go together. One would expect a student's possibility of obtaining certain qualifications to be linked to the acquisition of certain skills and competences in the previous school levels. However, that mechanism is far from being simple and straightforward: in their recent work Azzolini and Vergolini (2014) pointed out, for example, that educational inequalities in Italy have more to do with the choice of school upstream than with the actual learning performance of the students during school attendance.

Barone, Abbiati and Azzolini (2014) reviewed several theoretical approaches which can help explain the educational choices made by members of different social classes. According to the classic rationalist approach (Boudon, 1973), the distinct educational pathways chosen by different social classes result from individual and rational choices. The less privileged classes, who have less money to invest in education, tend to believe that delaying their children's access to the labour market has an unfavorable cost-benefit ratio. The certain economic sacrifices which the family should make to allow their children to continue education are not offset by the uncertainties related to possible academic failure at university or a non-optimal job in the future. Following this line of thought, more recently Goldthorpe (2000) argued that the schooling of individuals might be affected by non-measurable social variables, even of a genetic nature. Risk aversion is a common trait in human beings and families tend to measure the ambitions of the next generation against their current situation: the children of wealthier families are likely to attain higher qualifications because they start from a better position. Following Goldthorpe's reasoning one must admit, however, that the current costs of higher education are extremely high and cannot be afforded by the poorer families. Other authors point out that social differences can be observed also as regards the unequal access to essential information: an OECD survey (2013) on adult literacy shows that the more educated families are better equipped to collect and decode the documentation they need to make informed decisions. Indeed, it is known that better educated parents with a higher cultural capital can estimate the costs of the different education programmes more reliably and can then identify possible sources of funding (Usher, 2005).

For example, they can understand better and are less intimidated by the bureaucratic language of applications for study grants and allowances (Avery & Kane, 2004). Access to informal networks of knowledge is another element that distinguishes social classes: while well-off people generally have contacts who can provide useful information about continuing education, less-favoured groups risk having to rely on stereotyped information provided by the mass media (Avery, 2010; McGuigan, McNally, & Wyness, 2014).

Another strand of research focused on the transition between Secondary I and Secondary II, investigating the role of guidance and advice provided by school professionals. Back in 1952, Becker noted that the latter tend to have little confidence in the ability of students belonging to disadvantaged classes to continue their studies. This finding has been confirmed by a number of more recent studies (Dunne & Gazeley, 2008; Gillborn, 1997; Glock & Krolak-Schwerdt, 2012). This attitude translates in a greater tendency to encourage students from less-favoured classes to attend vocational education and training courses which can help them access the labour market right away (Erickson, 1975; Oakes & Guiton, 1995; Rosenbaum, 1976). According to some studies, this dynamic is exacerbated by the fact that families with a smaller cultural capital are less aware of the possibilities offered by the different education pathways and therefore rely more on recommendations provided by the school staff, without objecting if the advice offered precludes or makes it difficult for their children to access higher education (Ball, 2003; Lareau, 2003; Reay, 1998).

This brief review of the literature lays the foundations for interpreting the results of the studies examined here. However, for the sake of a more accurate interpretation, one should bear in mind the particular cultural and political situation of Ticino within the Swiss Confederation. Ticino is an Italian-speaking region in a federal state with a predominant German-speaking population and hence it represents a minority. In the modern era, belonging to a linguistic community is one of the main elements that build the collective identity (Widmer, 2004). The boundaries of a community - the distinction between 'us' and 'them' - stem, in fact, from communicative exchanges that give rise to a set of shared values and lead to the establishment of institutions (Eisenstadt, 2000).

In fact, the Canton of Ticino enjoys significant autonomy in managing its compulsory school system, which has a smaller curriculum differentiation than other cantons. Instead, the Secondary II and the

Tertiary levels are governed by federal and inter-cantonal rules (Cattaneo et al, 2010) and are, therefore, strongly influenced by the attitudes of the prevailing German-speaking population. As a result, while originating from selective school systems, the Secondary II and the Tertiary levels greatly support vocational education and training (VET), there included higher vocational schools. However, VET in Ticino is perceived as less culturally prestigious than liceo and university (Ghisla, Bonoli, & Loi, 2009; CSRE, 2014).

The sociocultural dimensions defining 'success' at school for students in Ticino

To understand which elements determine whether an education career is considered rewarding or not in Canton Ticino, it is necessary to highlight the Canton's characteristics as a linguistic and cultural minority within the Swiss Federal State.

Switzerland and its education system

Unlike what happens in most European countries, in Switzerland the term 'nation' does not refer to a language, to a country or to a people (Schlöpfer, 1985). On the other hand, the federal Constitution clearly defines the notion of 'linguistic communities', constituted by autochthonous people who share the same language, they come together as a majority in a specific region and specific rights are granted based on the territorial principle (Gohrad-Radencovik, 2007). Indeed, since the Constitution came into force in 1848, legal equality is guaranteed - at national level - amongst the three administrative languages, namely German, French and Italian. The dissemination of these languages within the country differs broadly. Figures from the census conducted in 2000, reveal that the German-speaking population is a clear majority in the Confederation: considering the Swiss alone, the German-speaking population accounts for 72.5%, the French-speaking for 21% and the Italian-speaking for 4.3% of the total population (Lüdi & Werlen, 2005). German is the sole official administrative language in seventeen cantons (and semi-cantons), French in four cantons and Italian in Ticino alone (another four Cantons have more than one official language).

In addition to multiple language communities, the Confederation is also characterised by religious fragmentation. For historical reasons - including the persecution of the Huguenots in France - the French-speaking cantons are mainly Protestant, the German-speaking cantons tend to be split between urban Protestants and rural Catholics, and Ticino is traditionally Catholic (Bovay & Broquet, 2004).

Also as a result of its linguistic and religious composition, modern Switzerland has organised itself as a federal State and each Canton has been equipped with the fundamental institutions required to ensure the State's operation (Kriesi, 1998). The education system is no exception: there is no centralised Ministry of Education and the top authority for education is the *Swiss Conference of Cantonal Directors of Public Education* (CDPE) (CDPE, 2014). Compulsory education falls under the competences held by the Cantons and is currently organised in different ways, especially as regards lower secondary education (Secondary I). Starting from the years 2000, policies have been implemented to harmonise the school curricula based on an agreement called *HarmoS*. Entered into force in 2009, *HarmoS* has produced more nationally integrated curricula which are also very homogeneous within the linguistic communities: the German-speaking cantons drafted the *Lehrplan 21*, while the French-speaking ones have their *Plan d'étude romand* (CDPE, 2007).

As to post-compulsory education, instead, competencies are divided between the Cantons and the Confederation, and the latter has a particularly strong influence on issues associated to vocational training and education (VET). On this topic, a research on the needs of the school system (Crespi-Branca, Berger, & Galeandro, 2008) proved that 25% of financial allocations and 16% of decisions concerning post compulsory education fall within federal jurisdiction, whereas the Cantons enjoy almost total financial and organisational freedom with reference to compulsory education. Tertiary education is covered by inter-cantonal or confederal legal instruments and the Cantons are in charge of their execution. The only exceptions are the Federal Polytechnic Schools which are directly managed by the Confederation (CDPE, 2014).

Ticino: a crossway between two systems?

While identifying a number of general and shared development guidelines common to all continental European countries, a comparative assessment of European school systems put forward by Schizzerotto and

Barone (2006) suggests that there are two main approaches. One is prevalent in Germany and, more in general, in the traditionally Protestant countries of northern Europe: its aim is to enhance, both economically and socially, basic and higher vocational education. The other is more typical of Italy and of other Mediterranean countries: it attributes greater prestige to traditional education tracks granting access to university and tends to include, within the school system, vocational education cycles that are commonly supplied by vocational higher education institutions elsewhere.

These two trends can be observed also in Switzerland, with remarkable differences between the German-speaking and the Italian-speaking regions. Some quantitative indicators indeed show that the people of Ticino aspire, much more than their Swiss-German fellow nationals, to access the traditional academic school system. In fact, in German-speaking areas, on average 70% of students opt for vocational training against 45% in the Italian speaking area (Ghisla et al., 2009). As a result, *Liceo* is the preferred choice of 35-40% of students in Italian-speaking Switzerland, against just over 20% in the German-speaking cantons (CSRE, 2014). A recent study suggests that approximately 50% of Ticino inhabitants (and French-speaking Swiss) considers that the number of youngsters who are awarded a leaving certificate from a *Liceo* is too low, against just 35% of the German-speaking Swiss (CSRE, 2014). The Italian-speaking students outnumber other Swiss nationals when access to university is considered, whereas their percentage is similar to the national average in higher vocational education (Cattaneo et al., 2010).

The institutional organisation of the cantonal education systems reflects this different approach. In Ticino compulsory school - which according to the tripartite socialisation process suggested by Bottani (1986) enhances the individual's *educational* dimension and relates to the transmission of value orientations, normative principles and conduct criteria - is organised differently than in the rest of Switzerland. Compared to the national level, Ticino has less differentiated middle school curricula (CSRE, 2014). Se, infatti, secondo i parametri dell'indagine comparata sui sistemi scolastici europei Eurydice (European Commission, 2013), il sistema scolastico svizzero risulta complessivamente di tipo selettivo, quello ticinese rientra nei parametri di quelli definiti comprensivi.

The aim is evidently to avoid limiting access to an education path that grants access to university and enables one to be recognised as a 'cultured person', a status which is believed to be more socially desirable.

In fact, several empirical studies show that early career tracking tend to split pupils into two lines: those from higher socioeconomic levels move towards academic careers, while pupils from lower socioeconomic levels are more easily enrolled into vocational education (Benadusi & Giancola, 2014). Such empirical evidences are supported by the theoretical paradigms that ascribe great importance to the role played by families, both the neo-Marxist-oriented focussing on the importance of capital culture, and the rationalist ones and those inspired by the concept of credentialism as expressed by Collins (1979).

Instead, as a rule, the German-speaking cantons have maintained a certain degree of performance-related segmentation of students in the middle school. However, they have also enhanced and valued vocational training and education so as to avoid limiting the ability of those who have not chosen a university education, regardless of their social class, to reach the status of *specialist*, which in this case is associated to social success.

Unlike compulsory school, the models for post-compulsory and tertiary education are decided at national level: as a result, they are strongly influenced by the German-speaking area's dominating education approach. In other terms - referring to Bottani (1986) once again - although Ticino enjoys broad autonomy in shaping the educational dimension, when it comes to schools with a predominant *training* or *instruction* dimension (focusing respectively on the acquisition of practical and instrumental skills and abstract general knowledge, cognitive methods and patterns of thought), Ticino has to adapt to the choices made by linguistically and culturally different communities. This concretely translates into embedding a very advanced network of VET schools and higher education institutions within Ticino's education system.

In this paragraph, our focus has been on the differences in the education policies of Italian-speaking Canton Ticino and the German-speaking cantons. The French-speaking region, which also represents a minority community, has been left aside as it appears to have chosen hybrid models of what was presented above. Indeed, the French-speaking cantons have percentages of high school or university students similar or higher than Ticino (CSRE, 2014) but, unlike the latter, they have kept a strong degree of differentiation within the compulsory school system (CSRE, 2014). The reason for this state of affairs might be provided by the traditional Weberian theory of the relation between Protestantism and the organisation of the socioeconomic system. In fact, until a few decades ago, these cantons

had a clear Protestant majority, just like most of the German-speaking regions. The wave of immigration from Mediterranean Europe has led to a remarkable increase of the Catholic population which has probably become the majority in some urban centres like Geneva or Lausanne (Bovay & Broquet, 2004). This might justify the fact that while having a compulsory school system organised in a way similar to that of the Swiss-German cantons - which was developed, as an institution, by the population of Protestant origin -, the French-speaking area seems to have a cultural model more similar to that of Ticino when it comes to value school success.

In sum, in the Italian-speaking and French-speaking areas of Switzerland the prevailing ideal of educational success is linked to the chance of achieving traditional forms of authority, that of the 'cultured person', compared to the rational-legal authority associated to the *specialist*, which tends to be the preferred profile in the German-speaking Switzerland.

However, unlike the French-speaking regions, Ticino does not introduce a strong school tracking system in its compulsory school model, so as to enable broader sections of the population to access the traditional education paths which are perceived to be more rewarding. In fact, the school tracking system in Ticino is limited to the last two years of middle schools, to two subject matters (German language and Mathematics): students attending the third and fourth year of middle school are encouraged to choose between a more demanding 'attitudinal' course and a 'basic' course in German and maths. Students and their families are free to choose even though minimum marks are required to access to attitudinal courses. The attitudinal courses investigate in greater depth several aspects of the subject matter.

Having attended an attitudinal course in mathematics is also a prerequisite to access academic upper secondary education.

The relations between socioeconomic levels and success at school in Ticino

In the previous paragraphs, an analysis was provided of the cultural dimensions that define the social 'success' of a student's school career. Basically, despite the availability of a competitive VET system throughout Switzerland, in the Italian-speaking region, the most socially desirable

education path involves the attendance of a Liceo (academic upper secondary level), leading up to enrolment in a university.

We will now present a secondary analysis on the results of four different studies conducted over several years in Canton Ticino. For the purposes of this paper, they will be presented in order to show the effect of socioeconomic level on careers, choices and success rates at school, from primary up to middle and high school.

Indeed, the studies here presented prove that the less privileged social classes find it harder to access and perform well in a school career that, within their specific context, is considered to be the most 'successful'.

Hereafter results from the above mentioned studies will be presented according to the level of education to which they refer.

Socioeconomic level and skills in mathematics in primary school

An evaluation using a standardised test was conducted in 2012, the aim was to assess mathematical skills amongst pupils attending the fourth year of primary school in Canton Ticino.

The test was created *ad-hoc*; a pre-test stage and the selection of items with the best metrics characteristics were conducted. The test was administered to 2935 pupils (on a population of 2948) of primary school and concerned dimensions and areas of mathematical competences which were part of the school curriculum; such competencies were considered important by a group of experts of the discipline and stakeholders from scholastic institutions. Two different tests were administered to the pupils (one week after the other). Socio-demographic information was separately collected. In the first test the following aspects were assessed: 'Geometry' – knowing, recognizing and describing; 'Numbers and calculating' – arguing and justifying and 'Data and relations' – arguing and justifying. The second test included the following areas: 'Geometry' – executing and use, 'Dimensions and measures' – executing and use, 'Numbers and calculating' – executing and use.

The cross-analysis of test results and the socioeconomic dimension led to some interesting findings: indeed, a clear link emerged between belonging to a privileged socioeconomic class and high performance levels (Annex 1 Figure 1). There was a statistically significant difference between groups as determined by one-way ANOVA (Data and relations; knowing, recognizing and describing; $F= 14.98$, $p = 0.000$; Geometry; knowing, recognizing and describing; $F= 8.944$, $p = 0.00$; Dimensions and measures;

executing and use; $F= 17.631$, $p = 0.00$; Numbers and calculating; arguing and justifying; $F= 22.812$, $p = 0.00$; Numbers and calculating; executing and use; $F= 14.200$, $p = 0.00$; Geometry; executing and use; $F= 14.837$, $p = 0.00$; Mathematics as a whole; $F= 22.156$, $p = 0.00$).

There was a statistically significant difference between groups as determined by one-way ANOVA (Data and relations; knowing, recognizing and describing; $F= 14.98$, $p = 0.000$; Geometry; knowing, recognizing and describing; $F= 8.944$, $p = 0.00$; Dimensions and measures; executing and use; $F= 17.631$, $p = 0.00$; Numbers and calculating; arguing and justifying; $F= 22.812$, $p = 0.00$; Numbers and calculating; executing and use; $F= 14.200$, $p = 0.00$; Geometry; executing and use; $F= 14.837$, $p = 0.00$; Mathematics as a whole (Test value); $F= 22.156$, $p = 0.00$).

Consistent with Erikson and Rudolphi's findings (2010), the results of the standardised test were slightly less affected by socioeconomic origin than the performance at school in the same subject (Annex 2- Figure 2). There was a statistically significant difference between groups as determined by one-way ANOVA (Mathematics as a whole (Test value); $F= 22.156$, $p = 0.00$; Final evaluation (normalized); $F= 28.300$, $p = 0.00$).

A difference between school evaluations and the test' scores can be observed (the latter are lower than the first) and both standardized scores tend to decrease as the socioeconomic level decreases. Even though rather slightly, these results show how inequalities appear since the very first years of school. The transmission of behaviour and relational patterns concerning both work and education is believed to occur at a very early age. In this regard, some authors speak of early socialisation (Scabini, 1999). As a result, children both directly and indirectly receive from their family indications as to the greater or lesser value of school activities; they also receive a set of linguistic and cultural tools which may or may not be consistent with the demands of the educational context (De Graaf et al., 2000). Support to after school homework is supplied differently depending on the cultural assets (capital) available in the family (Breen et al., 2009).

Socioeconomic level and academic performance in lower secondary school

The analyses conducted for monitoring Ticino's education system (Castelli, 2015) reveal that the students' social origin also affects the choice of curriculum in the middle school. Data collected through the PISA 2009 test were analysed and relations were established amongst mathematical skills, social origins and curriculum profiles in the last two years of the

middle school.

Analyses reveal that the students from higher socioeconomic class are more likely to attend an attitudinal course in mathematics, regardless of their real competences. By contrast, the basic courses are predominantly attended by students from the lower social classes. The breakdown between stronger and weaker students based on the PISA test¹, generally mirrors the choices made in terms of curriculum profiles: better skilled students (95th percentile) predominantly attend attitudinal courses, while weaker students (5th percentile) predominantly opt for the basic courses. Nevertheless there are some 'very weak' students enrolled in the attitudinal courses. This percentage rises as the socioeconomic level increases: the higher the students' social status, the greater the chances that they will enrol in the attitudinal course for mathematics, even though they have scored poorly in the PISA mathematics test (5th percentile) (Annex 3 - Figure 3).

Finally, a cross-analysis of PISA results with the student's socioeconomic profile confirmed that socioeconomic status affects a student's school career constantly over time. As observed in 2006, the average scores achieved in reading improve as the student's socioeconomic level increases: this had already been observed in 2000 and in 2003 (Origoni, 2007) (Annex 4 - Figure 4). If we consider the opposite ends of the social spectrum, the difference in scores is important: the minimum average score of students from higher social levels is 383 points against 321 achieved by children on the opposite side of the ranking. The top scores achieved by students from higher social levels is 638 against the 582 achieved by their counterparts on the opposite end of the ranking (with a difference of 56 points). The same difference was observed in 2006, showing that the breakdown of student skills is consistent with their breakdown in social levels.

Further analyses have been conducted in order to demonstrate the tight connection between socio-economic profile and academic achievement.

¹ The percentiles indicate a ranking with respect to a specific variable; they allow a series of data to be broken down into one hundred equal parts in order of size. In this case, the reference points were the 5th and the 95th percentile of scores achieved by students in the PISA test: the 5th percentile is the value below which a student is ranked as the "weakest" in the sample that took part in the test, whereas the 95th percentile is the value above which students are ranked as the "strongest" amongst the participants. The dispersion rate used for Figure 4 was calculated as the difference between the points scored by the strongest students (95th percentile) and those scored by the weakest ones (5th percentile).

The data provided by the cantonal administration updated to school year 2012/13 confirm the findings of the PISA 2009 surveys, namely that there is an unequal distribution of students amongst the different curriculum profiles in middle school (Annex 5 - Figure 5). It is observed that in the more demanding curriculum profile (two attitudinal courses - in mathematics and in German), the selectivity index² shows that students from the higher social classes are over-represented, while the other social classes are under-represented. At the same time, the students of higher social classes are under-represented and students of less advantaged social origins are over-represented in the profiles with mixed requirements, in basic profiles and in the pedagogical differentiation courses³.

Socioeconomic level and academic performance in upper secondary school

Surveys conducted to monitor the education system in Ticino (Castelli, 2015) reveal that the socioeconomic variable affects the educational choices and success rates at school also in the upper secondary school.

From the 1990's until today, the percentage of young people in Ticino who, after compulsory school, enrolls in an upper secondary school (high school) stands at a stable 35-40% (Cattaneo et al., 2010). Although this percentage is higher than the Swiss average (CSRE, 2014), it is nevertheless lower than the percentage of youngsters who choose either a 'dual' (part-time) or full-time vocational training system. As was anticipated above, within this area a distinction must be made between full-time training and training provided as a 'dual' system, namely a combination of vocational education at school and apprenticeship in a company. Indeed, while full-time training has increased over the years (from 17% in 1991/92 to 24% in 2008/09), the popularity of the 'dual' system has decreased (from

² The selectivity index is calculated as a ratio between the percentage of students who belong to a specific social class and who are enrolled in a certain school level and the percentage of students of the same social class in the entire school population. The selectivity index is a measurement between -1 and +1, with middle values equal to 0. When the selectivity index is equal to 0, it means that the students from a specific social class are equally represented in the student population examined; if the values are lower than 0, then it can be stated that the group considered is under-represented; on the other hand, if the selectivity index provides values higher than 0, then the group is over-represented.

³ Pedagogical differentiation is an option whereby specific school subjects are replaced by practical activities and remedial courses to improve basic notions.

39% in 1991/92 to 27% in 2008/09) (Cattaneo et al., 2010). This is partly explained by the relations between the dual training system and the job market (Perriard, 2005) which, due to the economic situation, is unable to absorb all the youngsters who are interested in apprenticeship programmes. On the other hand, the stable attendance trends observed for the upper secondary school are harder to interpret. As highlighted above, in Ticino students apparently prefer an education career which focuses on general culture (Geser, 2003; Boldrini & Bausch, 2009) and grants direct access to university education, as the latter is believed to pave the way for economic and social success.

Looking at social composition across training and education sectors (Annex 6 - Figure 6), it can be noticed that in high school students from higher socioeconomic backgrounds are over-represented, while students of less privileged social origins are strongly under-represented (over 50% less than the expected percentages).

As to vocational training, the trend is less evident, although it can be observed that students of higher socioeconomic origins are under-represented both in full-time and part-time training.

A comparison was also made to relate failure rates and socioeconomic levels. The Figure 7 (Annex 7) shows the percentage of students who failed their school year broken down by social origin, compared to the total number of students enrolled for the year 2012/13 in all schools and for all classes. Data reveal that students of lower socioeconomic origins have higher failure rates in all school levels.

In high schools, where students of privileged social origins are more represented and where general failure rates are higher, out of 100 students of higher social classes, 14 did not pass the school year against 24 out of 100 students of lower social origins. Similar ratios are observed in full-time vocational training (13% students of higher social classes failed the year against 18% of students from lower social backgrounds).

Finally, a study monitoring the transition from compulsory school to high school highlighted the relations between the socioeconomic dimension and the educational and training tracks available at upper secondary level.

The data were collected in a longitudinal perspective: 2008/09 8th grade students were followed up until school year 2013/14. The variables observed included success rates at school, break down between basic courses and more competitive courses and the linearity of the school career in high school. The study (Marcionetti, Zanolla, Casabianca, & Ragazzi, in

press) confirmed the findings of previous researches here presented: the social origin impacts the educational choices taken at middle school (basic courses and attitudinal courses) and at upper secondary school. It also emerged that those who did not achieve the middle school leaving certificate and received differentiated instruction are less likely to enrol in a course of study leading to an upper secondary school leaving certificate and will probably fall back on the so-called “transitional education” option. The latter is a short curriculum that does not lead to a certificate being awarded and is intended to help access a vocational training course.

Analyses here presented were made to identify which factors can affect the linearity of a student's career (without failing a year or dropping out) over the four years of the middle high school. A logistic regression was in fact conducted to highlight which of the selected independent variables significantly contributed to predict linear careers.

The social, personal and school-related variables considered at the end of the middle school were: gender, Swiss nationality (yes/no), socioeconomic level (low/medium/high), marks in Italian, and Mathematics⁴, and the enrolment in an attitudinal course in German (yes/no). Interaction terms between socioeconomic level and Marks in Italian and Mathematics were also added in the model.

Considering significant an effect having a p value below .05, results of the regression analysis (Table 1) show that among the variables considered gender, nationality, the course attended in German, the marks in Italian and the interaction between socioeconomic level and marks in Mathematics don't have an influence on the linear progression of a student's school career, whereas the marks in Mathematics, the socioeconomic level and the interaction between socioeconomic level and the mark in Italian seem to significantly influence the linearity of the career at Liceo. Results show that the high the marks in Mathematics and the socioeconomic level are, higher is the chance of having a linear career, moreover those having high socioeconomic level and high marks in Italian have better chances of having a linear career.

⁴ It is worth recalling that to access the upper secondary school (high school), students have to enrol in an attitudinal course in Mathematics; hence the decision to include the mark in Mathematics as a relevant variable in this study.

Table 1: Logistic regression to predict linearity of career in Liceo (n=745)

	B	S.E.	P	95% I.C. per Odds Ratio		
				Low	Odds Ratio	High
Constant	.857	.783	.274		2.357	
Gender ¹	-.22	.18	.223	.56	.80	1.15
Swiss nationality ²	-.07	.29	.800	.52	.93	1.64
Socioeconomic level (SES) ³	.94	.25	.000	1.57	2.57	4.20
German attitudinal course ⁴	1.38	.81	.089	.81	3.98	19.52
Mark in Italian	.24	.22	.291	.82	1.27	1.96
Mark in Mathematics	-.70	.17	.000	.36	.50	.69
SES* Mark in Italian	-.25	.07	.000	.68	.78	.88
SES* Mark in Mathematics	-.01	.05	.793	.90	.99	1.08

Note: $R^2 = .24$ (Cox & Snell), $.33$ (Nagelkerke). Modello $\chi^2(8) = 206.74$, $p < .001$.

Categories: ¹female, ²no, ³low, ⁴yes

Source: Marcionetti, Zanolla, Casabianca, & Ragazzi (in press)

Aside the significant effect of socioeconomic level alone, results highlights the importance of marks obtained in Italian and Mathematics. An analysis of variance (ANOVA) revealed that the marks obtained in both disciplines at the end of compulsory school among students who have chosen to attend the Liceo are not influenced by socioeconomic level. Then, the fact that the interaction between socioeconomic level and Mathematics' mark doesn't contribute to explain variance in the linearity of careers let chances to those of lower socioeconomic level who perform well in Mathematics to successfully arrive at the end of Liceo.

Socioeconomic level and satisfaction with career choices fifteen years after the end of compulsory school

The last research addresses the issue from a different perspective, and explores the very concept of successful career (Cattaneo, 2012). In a longitudinal study, a sample of the student population enrolled in the fourth year of the middle school in 1992 was followed up over time.

In this research, lasted for more than 20 years, the subjects were divided by socioeconomic level into three groups. For what concerns the socioeconomic breakdown, the study shows that more than half (58%) of the youngsters from higher social backgrounds have received university-level education or are still in training, against 24% of those who come from less privileged social groups. Furthermore, the study explores the satisfaction with the educational choices made, showing that the more

satisfied are those who followed a basic vocational training career, and, after that, moved on to higher education (Table 2).

Table 2: Satisfaction with career choices by socioeconomic level

		Socioeconomic level		
		High	Medium	Low
Would you make the same school/professional choices?	Yes	39%	54%	44%
	Partially	24%	28%	31%
	No	37%	17%	24%
Total		100%	100%	100%

Source: Cattaneo (2012)

Results also prove that subjects from higher social classes are less satisfied with the choices made (39% declares to be satisfied) if compared to those belonging to a lower socioeconomic level (54% of the medium and 44% of the low socioeconomic level).

Finally, a segmentation analysis reported in the study of Cattaneo (2012) showed that although having a qualification affects the level of satisfaction, personal expectations are still the main issue. In fact, almost half of the subjects of higher socioeconomic origin, whose profession does not meet their expectations, would not make the same educational choices, although they have achieved a university-level qualification (either vocational or academic). This is almost non-existing amongst the youngsters of medium or low socioeconomic level, who had achieved a university degree.

Those who less regret their educational and professional choices, are the young adults who attended a vocational tertiary education course (Annex 8 - Figure 8). The latter are more satisfied than those who achieved a qualification in a traditional academic university or a doctorate. Much less satisfied are those who followed a lower secondary education.

It appears that, although the youngsters today still aspire to attend a Liceo for their secondary level education -which remains the preferred choice of the more privileged social classes- tertiary education after basic vocational training can provide the foundations for a professional career without regrets.

Discussion

Results showed that there is a relationship between school achievements and success and socio-economic origin. Theories previously presented may help in interpreting such results.

The research conducted on the primary school pupils (CIRSE 2014) proves that from a very early age, differences in the ability to learn mathematical skills are linked to the social class belongingness. These results are not consistent with the traditional functionalist approach - which, despite its age, is still broadly esteemed in Western societies - according to which schools allow a universalistic selection, whereby access to the more prestigious professions is based on merit and skills alone and is, as a result, one of the main means for social mobility (Blau & Duncan, 1967).

On the contrary, the study corroborates the importance of the primary socialisation process and, as a result, of the so-called social deprivation theories (Bernstein, 1961; Bourdieu & Passeron, 1970), which suggest that learning abilities at school differ between social groups from an early age. They are basically ascribable to the central role that parents have from early infancy (Esping-Andersen & Mestres, 2003): the language codes and cultural habits transmitted by the families of the more privileged classes are more consistent with the demands of the educational institutions (De Graaf et al., 2000). For instance, the sooner a child learns the pleasure of reading, the better he/she would learn how to process symbolic information and develop a cognitive habitus that is more coherent with teachers' expectations (Nash, 2007).

Following with the analyses conducted on the lower secondary school, the data provided on the direct and positive link between socioeconomic origins and enrolment in attitudinal courses in mathematics and German, in addition to the comparison with the skills measured by the PISA test offered further food for thought.

For a start, better results are recorded - once again - amongst students from higher social classes; this can be interpreted according to the deprivation theories mentioned above.

At the same time, it seems that a high percentage of weaker students from higher social classes still enrol in attitudinal courses in mathematics, which are theoretically intended for the most able students. This contradiction might be justified by the fact that wealthier families support credentialism: they are able and willing to invest more resources - for

example by resorting to private tuition, as recently described by Zanolla (in press) - so as not to deny their children the chance of achieving the certifications that are considered to be more socially rewarding (Collins, 1979).

It is demonstrated that the earlier an educational system is tracked, the more socially selective the system is, and the curriculum profile at middle school has a strong impact on future career choices and achievements (Jacob & Tieben, 2007).

Studies on track mobility provide a confirmation on what just stated. While in the past, studies showed that track mobility was rather unlikely and especially upward mobility, more recent research reveals a high incidence of mobility, in both directions (Hallinan 1992; Lucas 1999, cited in Lucas, 2001; Wilson & Rossman 1993). This could have been related to the fact that, over time, less power has been given to the school authorities (teachers) in tracking students, and more has been shifted to the students and families themselves. At this point, the influence of socioeconomic background becomes more and more prominent, since socioeconomically advantaged families tend to maintain their class status also through school tracking of their children, pursuing for their children the same (or higher) educational level they achieved, given that educational achievement has a large impact on the social status.

This appears to be consistent with the fact that, within the debate on early career tracking and its effect on the quality and equity of education, families from higher socio-economic level are more likely to be in favour of maintaining tracking in the schools (e.g.: Wells and Oakes 1996, cited in Lucas, 2001).

The position that career tracking in secondary school is a way to maintain social inequalities is not actually new (see: Oakes, 1985), and the so-called "effectively maintained-inequality" (Lucas, 2001), could provide a reasonable explanation on how and why students from high socioeconomic classes are likely to be assigned to attitudinal courses, or to maintain their position once the decision is made.

It cannot be ruled out that the social influence of the wealthier families can encourage some teachers to guide their better-off students towards the attitudinal courses (Dunne & Gazeley, 2008; Glock & Krolak-Schwerdt, 2012).

The social composition of the different career tracks available in the upper secondary school shows that there is an over-representation of

youngsters from less favoured classes in vocational training courses and of wealthier students in the Liceo.

It is also interesting to note that, amongst the less favoured pupils - who are *de facto* less likely to attend the upper secondary school - there is a higher percentage of students who fail the year, compared to their peers from higher social classes.

On the other side, results show that the likelihood to succeed in high school is strongly predicted also by the results achieved in Mathematics and Italian at the middle school.

Results from the different researches here presented show how education systems enacts implicit selection mechanisms, which seem to privilege the more advantaged social classes for what concerns the educational attainments. Even when merit criteria seem to prevail (namely: the results obtained in Mathematics and Italian language at middle school), these have to be considered as an expression of a selection that has already took place.

Bearing in mind the cultural specificities of Canton Ticino, where traditional academic careers tend to be considered more socially desirable, it is difficult to interpret these data without acknowledging the Marxist approach, which states that the school is a superstructure aimed at legitimating the different social positions by creating a false awareness that social status depends on merit alone (Bowles & Gintis, 1976).

A less structuralist interpretation may be provided by the concept of a common ground drafted by Clark and Brennan (1991). This refers to the theories on the centrality of the teacher (Mehan, 1984; Rist, 1970) which suggest that the teachers, which, mostly, have a classical academic education, find it easier to establish communication with the children of the higher social classes that are culturally closer to them, while considering the others as being inadequate and difficult to connect.

Irrespectively to their economic level, in fact, teachers share a cultural capital close to the upper social classes and this, in Western societies, has a greater importance than having the same disposition of economic resources (Dubet, 2014; Marzadro & Schizzerotto, 2014).

Clearly, the social groups may also play an active role in increasing this gap (Goldthorpe, 2000).

Being more aware of the advantages related to a more selective scholastic career, parents from higher social classes would invest more

resources in the activities that would improve their children's success at school (Zanolla, in press).

The longitudinal research conducted for fifteen years on the life and professional careers of half of the young inhabitants of Ticino who finished compulsory school in 1992, differs from all the other studies, since the concept of satisfaction (with educational choices) is included in the analysis, aside those of career linearity and successful career.

In fact, while on the one hand, social origins are confirmed to have affected educational and training careers already in the previous generation, on the other hand, the very concept of "success" at school is questioned in relation to the concept of individual satisfaction.

To this respect, two interesting points emerge from the research.

First, among those who obtained an academic university degree, subjects from higher social classes are less satisfied than their less advantaged colleagues. Secondly, those who obtained a tertiary vocational degree seem to be the most convinced, with respect to their educational choices.

The first result may be interpreted in light of a school of thought mainly referred to Boudon (1973), according to which the development and specialization of economic systems, together with the spread of the university courses, led to the increase of jobs destined to graduated people; as a consequence, these kind of jobs lost their socioeconomic status and the privileges associated to it. Such a theoretical approach would lead to the hypothesis that graduated people from higher social classes are less satisfied because they perceive to have a less privileged professional status than those from the previous generation, despite the fact that they had a pretty similar school career.

The second result shows how credentialism of higher social classes may lead to unexpected consequences: within the actual conditions of the job market, it is possible that obtaining an academic grade is not the best guarantee for social success anymore. Tertiary vocational education, which was rather recently introduced in Ticino and is less followed by students from higher socioeconomic level, seems to offer the same – when not better – career opportunities.

Conclusions

Switzerland's linguistic and cultural composition and institutional organisation have encouraged Canton Ticino to develop a distinctive education system. Compulsory school is governed by the Canton's authorities and is characterised by a rather weak career tracking at the lower secondary level; the decision of having little curricular segmentation might arise from the need to avoid limiting access to university too soon, when the influence of the family is still very strong. The upper secondary school is governed by the federal and inter-cantonal authorities, which tend to give a great importance to the vocational education, aside the academic one. This twofold peculiarity seems to be the consequence of the interaction of different cultural influences.

On one side, the influence of the Latin culture, can be seen when the traditional academic career is preferred, since it leads to a university-level qualification and the status of cultured person. On the other side, the creation of institutionally-recognised vocational training careers might be the result of the cultural influence of the German-speaking majority, that apparently identifies professional 'specialisation' with success.

Living in this cultural tension, but regardless of their social background, students in Ticino seem to prefer traditional academic training and education careers and basically consider vocational training as a second choice.

The empirical data presented so far, show that the members of the higher social classes are facilitated and more motivated to start and finish the career that is considered to be of greater social value. A sort of self-protective action undertaken by the leading classes seems to be confirmed.

Different theoretical explanations could be provided to this respect.

First, the credentialism (Collins, 1979), seems to be confirmed in the fact that to maintain their leading positions, high social classes' member make sure their offspring can access those education careers that will earn them a higher social status; this is also coherent with the theory of the effectively maintained-inequality (Lucas, 2001) more recently proposed.

According to the theory of the centrality of the teacher (Rist, 1970; Mehan, 1984) it could also be said that teachers belong to the leading class and share a language and a cultural capital closer to that of the families from higher social classes (Bourdieu & Passeron, 1970). This would explain why students from higher social classes have better educational

achievements (evaluations, career tracking) than their colleagues from disadvantaged social classes, despite their proved competencies.

The theory of rational choice (Goldthorpe, 2000) would explain why wealthier families are more prone to invest more resources in the education of their children, on a long-term perspective; and this would explain their preferences for academic career instead of the vocational one.

Evidences from the retrospective glance of thirty-years-old subjects on their educational choices and career provide further elements to reflect on. Even though the influence of families' expectations on career choices and success is undeniable, there is more to discuss.

Those who are more satisfied are those who attended vocational training courses followed by a specific higher education course, showing that the academic achievement at his higher expression (namely, Liceo and university), is not always the best choice to make.

This fact questions the idea that having more information on the best educational path for social success – which is, in general, a prerogative of the more privileged social groups (Avery & Kane, 2004; Usher, 2005) – is actually a guarantee for the future, considering the potential changes of the economic system.

Coming to conclusions, school results of pupils from Ticino do not move far away from the average, compared to the results of the international standardized assessments programs. Those belonging to the more privileged social groups have better results and tend to enrol more into academic education, rather than into the vocational one. The public education system, being influenced by the Northern European model, offers a great variety of learning opportunities at a tertiary level to those who come from a vocational education career. The longitudinal research shows how these ones are better integrated in the contemporary economic environment than their colleagues. This trend seems to indicate that attending a tertiary vocational education seems helps in reducing the perceived difference between 'high-level culture' – acquired only by attending the 'noble' courses supplied by the Liceo first and then university – and professional knowledge; in other words the distinction that symbolically separated the higher social classes from the rest of the population in the 1900's.

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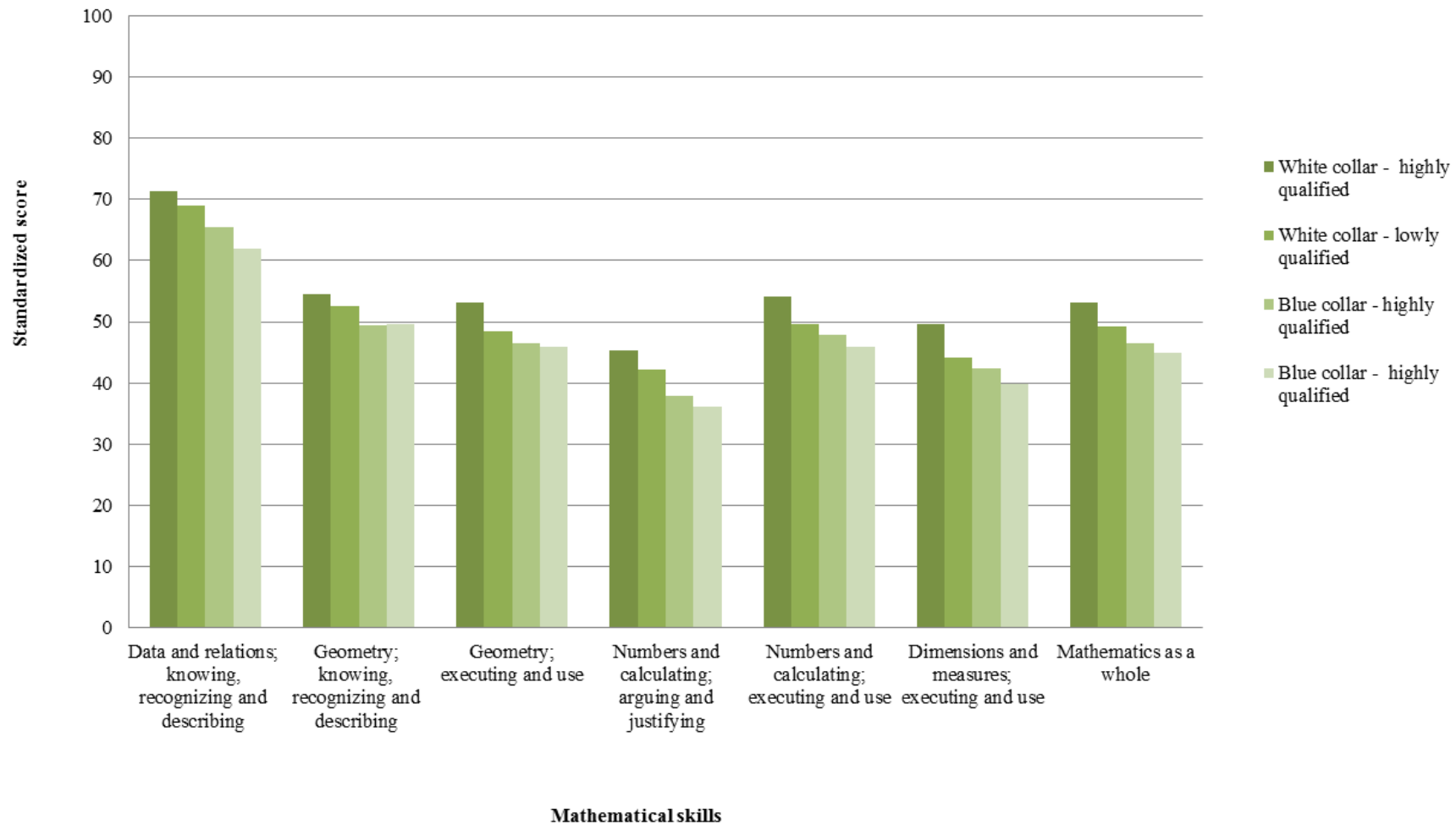
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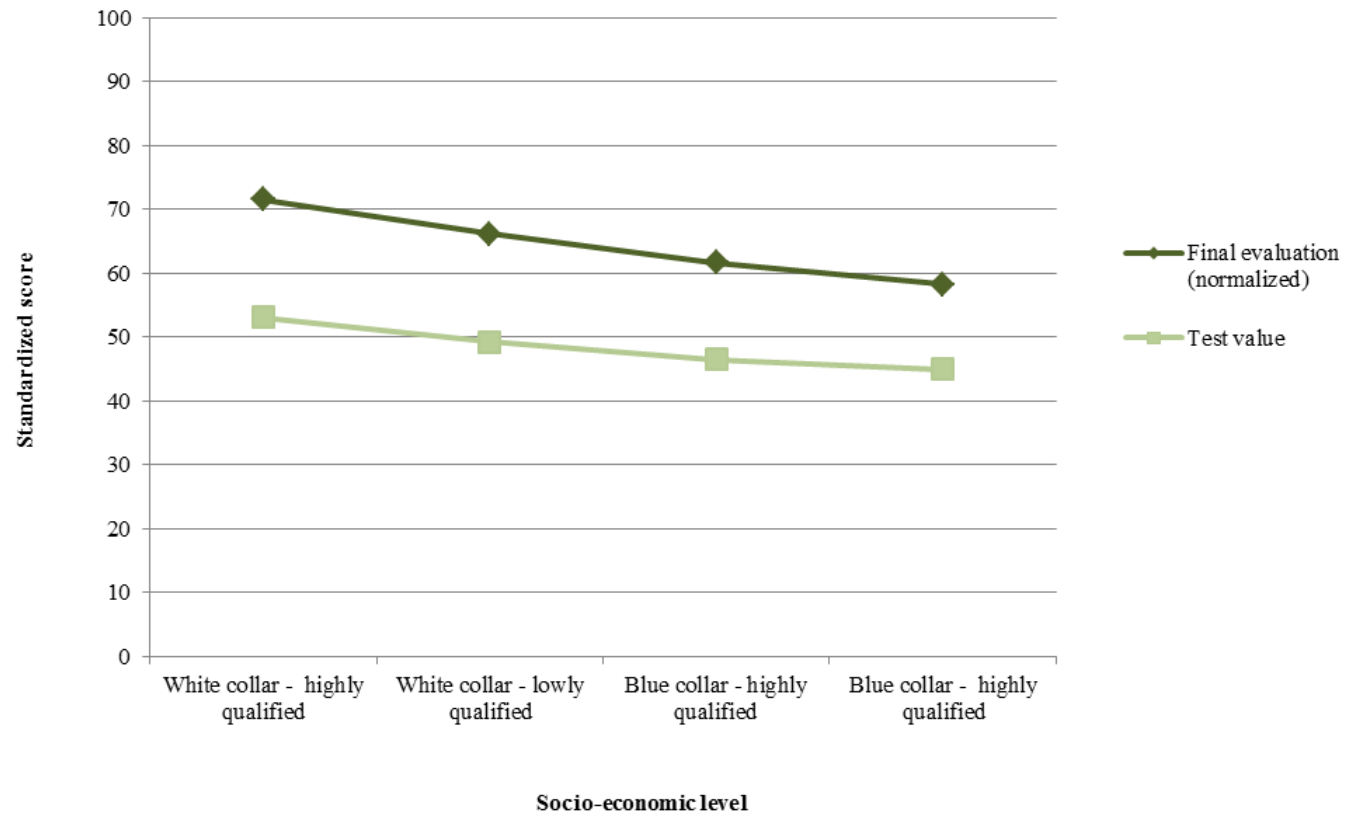
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Annex 1- Figure 1: Performances in maths by socioeconomic status



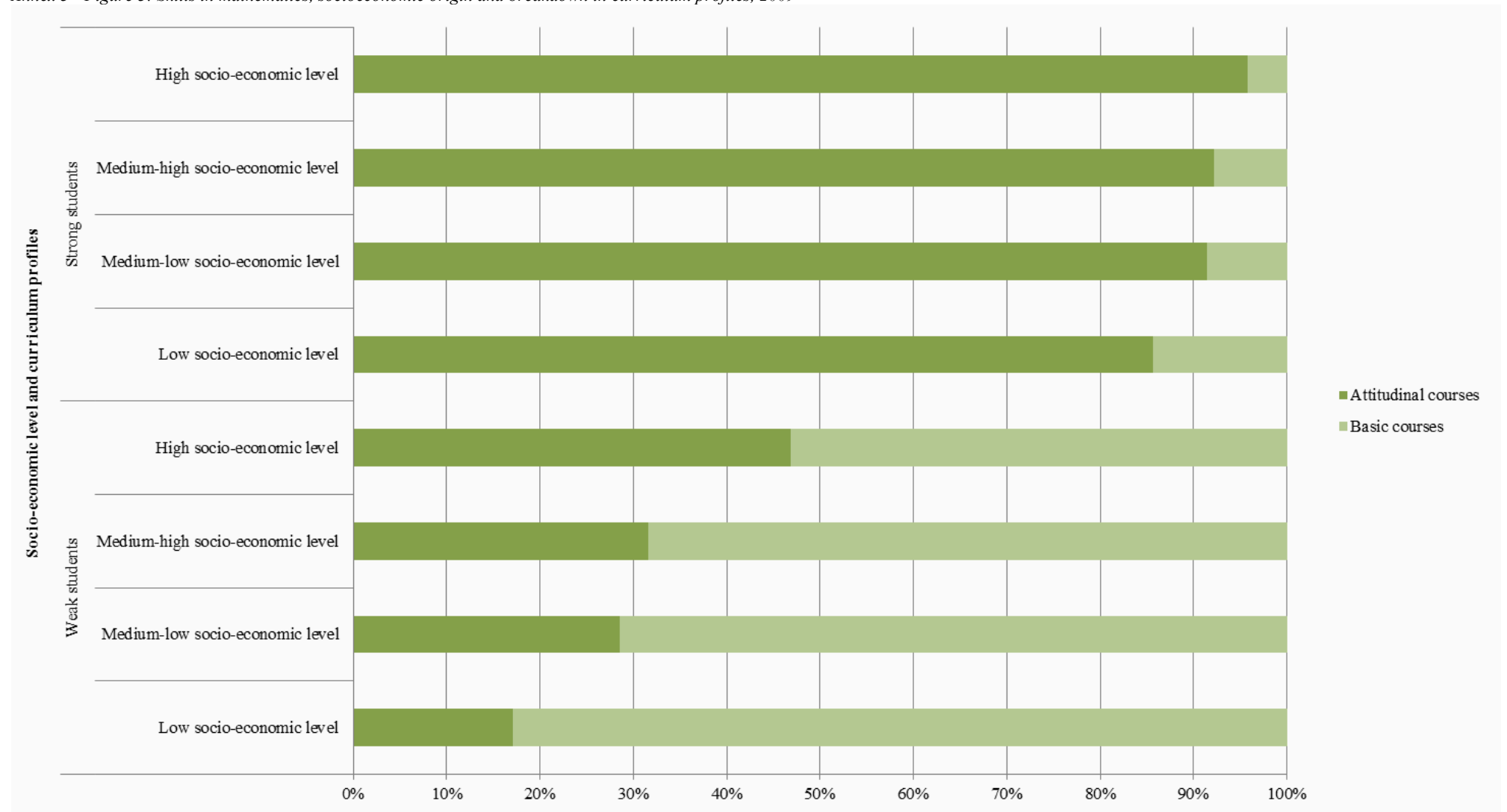
Source: CIRSE (2014)

Annex 2 - Figure 2: Scores in maths by socioeconomic status



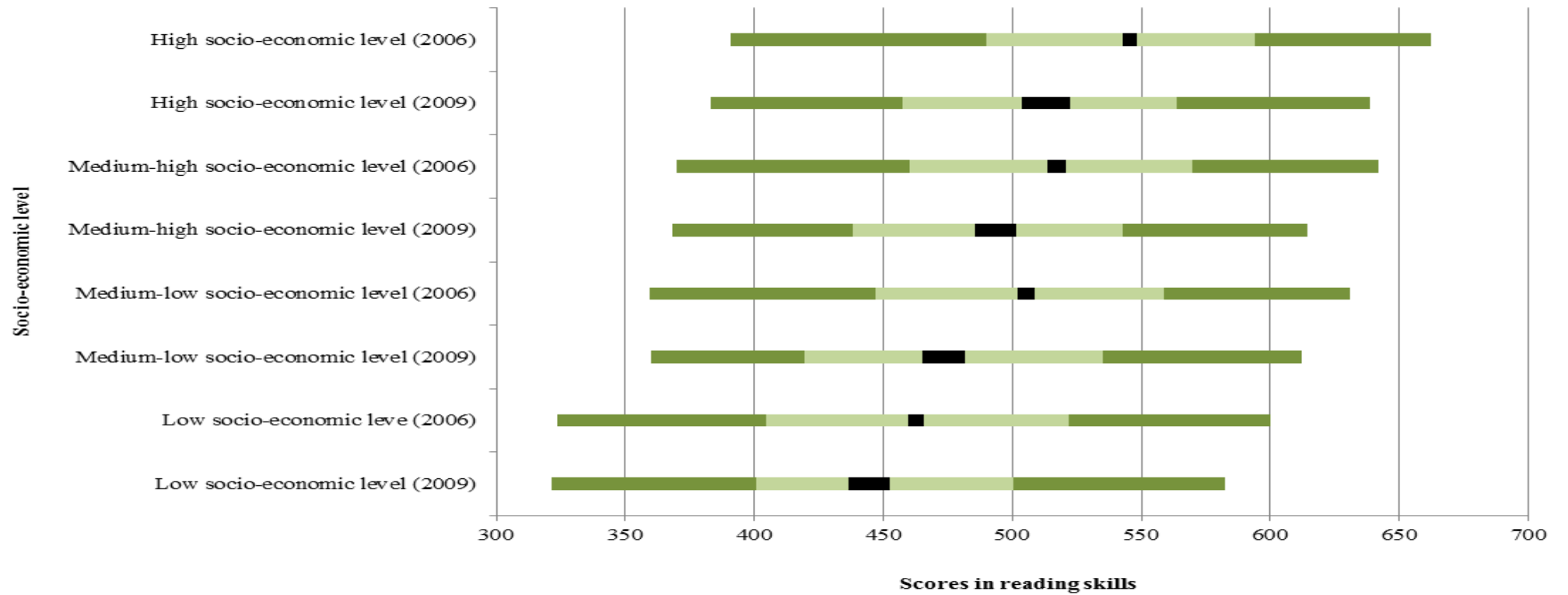
Source: CIRSE (2014)

Annex 3 - Figure 3: Skills in mathematics, socioeconomic origin and breakdown in curriculum profiles, 2009



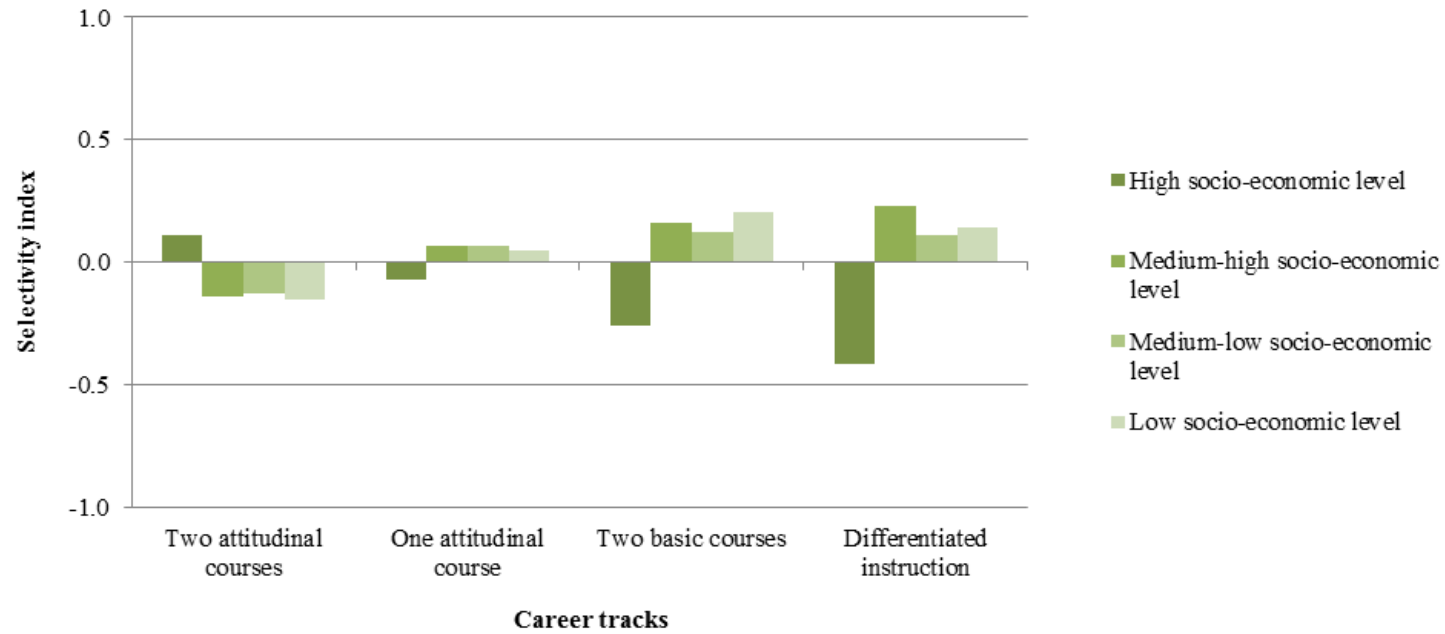
Source: Castelli (2015)

Annex 4 - Figure 4: Reading skills by socioeconomic status, 2006-2009



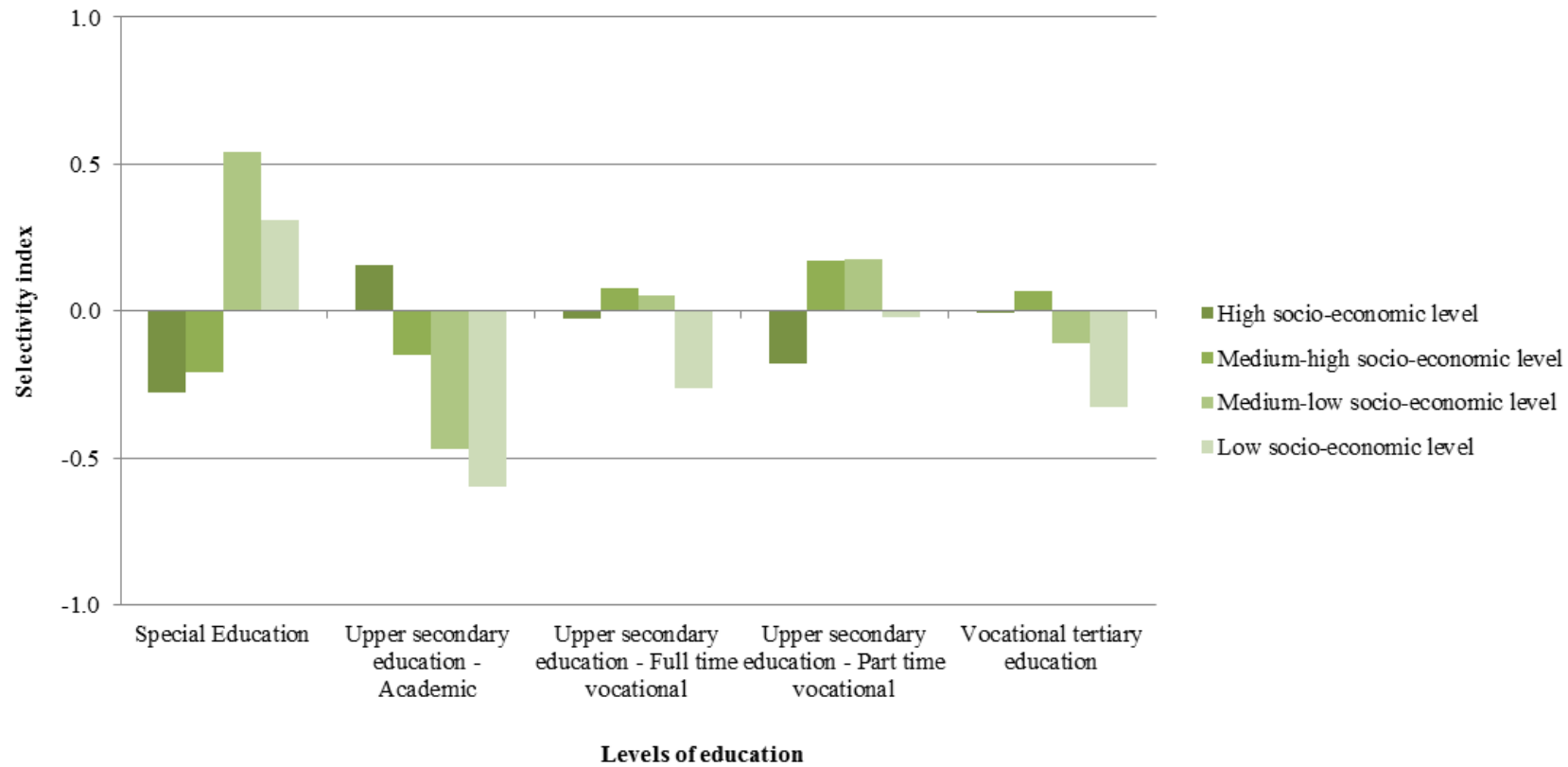
Source: Castelli (2015)

Annex 5 - Figure 5: Selectivity indexes in the last two years of middle school based on curriculum profile, 2012/13



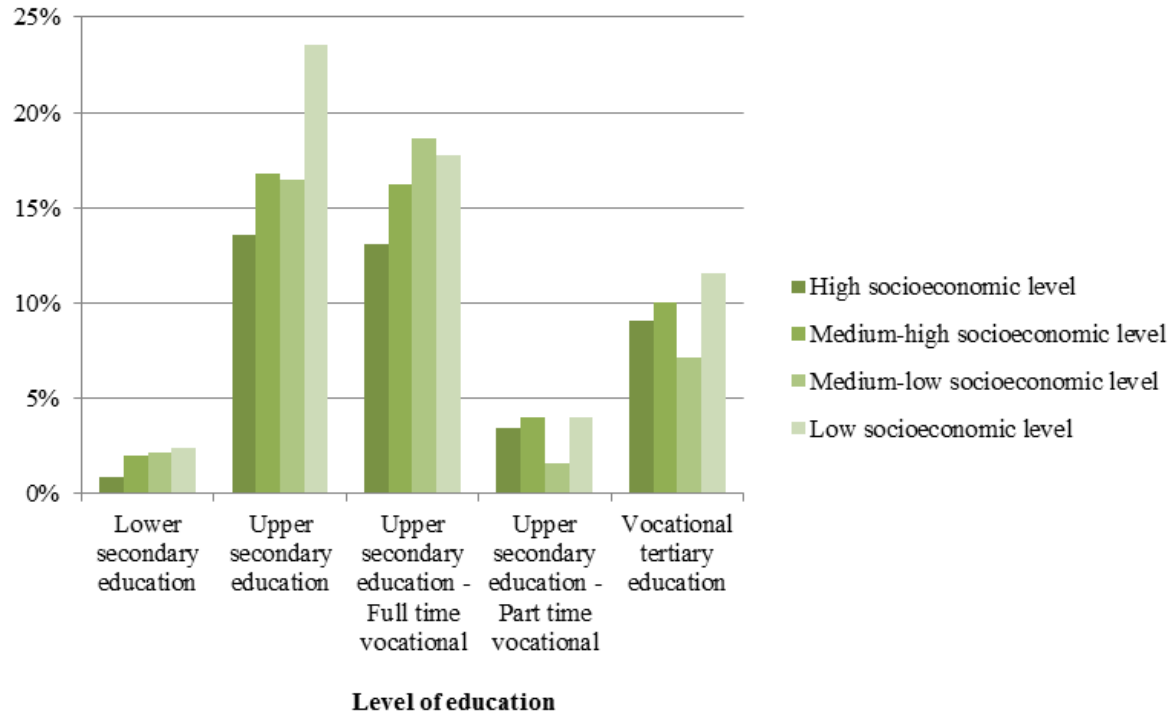
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Annex 6 - Figure 6: Selectivity indexes across school levels, 2012/13



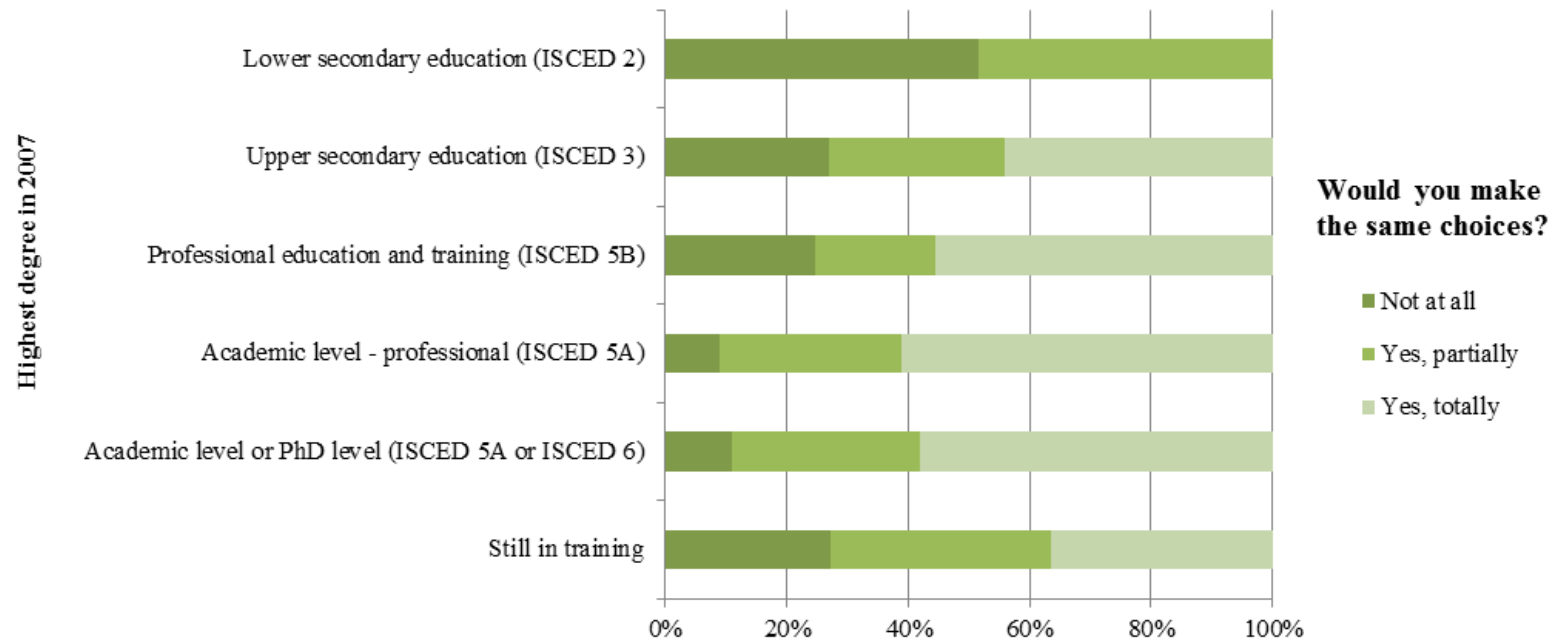
Source: Castelli (2015)

Annex 7 - Figure 7: Failure rates by socioeconomic status and school levels, 2012/13



Source: Castelli (2015)

Annex 8 - Figure 8: Satisfaction with career choices by education degree



Source: Cattaneo (2012)