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(doi: 10.12828/77685)

Scuola democratica (ISSN 1129-731X)

Fascicolo 2, maggio-agosto 2014

Ente di afferenza:

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Tracking, inequality and education policy. Looking for a recipe for the Italian case

di Davide Azzolini e Loris Vergolini

ABSTRACT: *This contribution has two main goals. First, we review the most relevant empirical literature that has focused on the relationship between tracking and inequality in Italy. We address the issue of inequality in access to the different school branches. We pay particular attention to the role played by social background, but we also consider migration background and gender. Second, we consider policy solutions that might reduce the effects of ascriptive factors on individuals' school choices in Italy. We examine the empirical literature about two possible interventions: (a) de-tracking reforms such as postponement of age at first tracking and reduction of curricula differences between tracks; (b) interventions aimed at reducing students' misallocation across schools through guidance initiatives and teacher recommendations.*

KEYWORDS: *Tracking, Inequality, Education Policy, Italy*

Introduction

At the age of 14, upon completion of lower secondary education, all students in Italy are faced with a choice between four different school branches (*licei, istituti tecnici, istituti professionali and formazione professionale*). This choice is crucial for subsequent individuals' attainments, as the type of education acquired affects skills development (van de Werfhorst and Mijs, 2010), higher education participation (Checchi and Flabbi, 2006), occupational attainment (Dustmann, 2004; Bol and van de Werfhorst, 2013) and, as least indirectly, also other life dimensions such as health and civic participation (Terwel, 2005; Ten Dam and Volman, 2007). While scholars generally agree that tracking is detrimental for equality in educational opportunity, an ultimate recipe to contrast the inequality generated by tracking is far from being written. This contribution has two main goals. The first one is to review the most relevant research that has focused on the relationship between individual ascriptive factors and school choices in Italy. We pay particular attention to the association between family social background and school choices, as parental education and occupation have been repeatedly found to be among the most relevant sources of educational inequality. We also look at the role played by two other ascriptive factors, like gender and migration background.

Second, we shift our focus to policy solutions that might reduce the effects of ascriptive factors on individuals' school choices and consequently mitigate the alleged negative effects of tracking on educational equity. The first type of intervention are reforms that aim at either postponing the age at first tracking or reducing curricula differences between tracks. Such policies might be of particular interest in the Italian case, as tracking in Italy occurs at the age of 14, i.e. two years before the age of compulsory education. Hence, such reforms would go in the direction of ensuring that all students are exposed to the same educational contents and environments until they have reached the compulsory school age.

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A second group of policies comprehends interventions aimed at reducing students' misallocation in schools by providing students and their families with the right information they need to take their school decisions. Possible areas of interventions are teacher recommendations and guidance initiatives. The article concludes by discussing the potential of these research findings to inform public policy in the Italian context.

1. The Italian upper secondary education: a quick overview

Today's Italian education system is the result of a major comprehensive reform that was adopted in 1962. This reform replaced the former system with a new middle school ('*scuola media unica*', the actual lower secondary school) and postponed the aged at first tracking from 11 to 14. As a consequence, after completing lower secondary education, all students today are faced with the choice between four school branches. This transition is mandatory, as school leaving age is 16.

The first three branches offer general curricula (*licei*), technical education (*istituti tecnici*) and vocational education (*istituti professionali*). All these tracks last five years and allow students who successfully complete a final state exam (*esame di maturità*) to access tertiary education. However, curricular differences between the three branches are quite pronounced. *Licei* prepare students to further education at the tertiary level. These schools provide a general and academic oriented *curriculum*. *Istituti tecnici* have the goal to prepare students for technical occupations in economic or technological sectors. Vocational schools have traditionally lasted three years with the possibility of additional two years, but they now last five years as the two previous branches. These schools aim to transfer vocational oriented education and are subdivided into different curricula within two main sectors (services and industry and handicraft).

Besides these three branches, youths can opt for a fourth branch, organized at regional level. It consists in vocational training courses (*formazione professionale*) that last from two to four years. These vocational training centres are closely linked to the labour market needs and allow students to fulfil their compulsory education, but they do not allow direct transition to the university. Students completing these courses can continue their education and obtain *diploma di maturità* by enrolling in one of the three 'regular' school branches.

2. Social-background inequality in upper secondary school choice

As also found in other countries characterized by tracked systems (Dustman, 2004, Kerckhoff, 2001), in Italy members of lower social classes are systematically under-represented in the academic-oriented school tracks (i.e., *licei*). Schizzerotto and Barone (2006) analyse the type of upper-secondary school completed by individuals born between 1970 and 1979 using data from the *Indagine Longitudinale sulle Famiglie Italiane* (ILFI). The authors find evidence of large differences between social classes. For instance, 71% of children of the upper class obtain a *maturità liceale* versus only 23% of children of urban working class. Conversely, 3% of high-class descendants attain a vocational qualification versus 19% of urban working

class children and even 46% of rural working class families. Results are confirmed also by other studies that employed the same data (Pisati, 2002).

Mocetti (2012) finds that, beyond parents' employment status, also their education is a main determinant of children's educational choices. Checchi and Flabbi (2006) use *Programme for International Student Assessment (PISA)* data and find that young males having at least one parent with tertiary education enjoy a 25 percentage-points higher probability to choose a *liceo* relative to their counterparts whose parents attained secondary education. The authors also find that the effect for women is slightly smaller than for men, suggesting that women would be more prone to general education careers and their choices would be less affected by their social origins. Also Cappellari (2006), using data from *Indagine ISTAT sui percorsi di studio e lavoro dei diplomati*, finds significant effects of parental education on children's types of upper secondary education completed.

Some research has attempted to uncover the underlying mechanisms of these social-background differentials. Mocetti (2012), for instance, using *Italian Labor Force Survey* data, finds that social-background differences in transitions to upper secondary education are partly mediated by prior school failure, being this more likely for students from lower social backgrounds. Interestingly, Cappellari (2006) shows that only a minor part of social-background differences in school transitions are accounted for by prior performance. Contini e Scagni (2013) develop further this point by decomposing social-background differentials into 'primary' and 'secondary' effects (Boudon, 1974). The former indicate that part of social-background differences in school transitions that are mediated by the different distribution of previous performance across groups, while the latter identify the residual social-background differences that persist net of prior performance and thus measure differences in family decision models. Contini e Scagni (2013), combining several data sources (*Indagine ISTAT sui percorsi di studio e lavoro dei diplomati*, *IARD* data and ISTAT administrative data on schools), find that primary effects account for at most 30-40% of the differences between children with high- and low-educated parents in transitions to *licei*. Previous performance plays an even smaller role in explaining social-background differences when considering transition to *formazione professionale*, as found by Ressa and Azzolini (2014), who use administrative data on an entire student cohort that enrolled in upper secondary education in school year 2010/11 in the province of Trento.

Overall, research suggests that the strong role played by social origins on individual attainment in Italy can be explained by the existence of pronounced secondary effects and thus by social-background differences in the way family take educational decisions (Jackson, 2013). As we are going to argue below, these results call for policy measures that specifically target this transition point.

Finally, research shows that females tend to choose schools that prepare for traditionally feminised occupations (e.g., schools for teachers, secretaries or linguistic schools) and are less likely to enrol in vocational and technical schools (Pisati, 2002; Mocetti, 2012). Regarding students with immigrant background, first-generation youths show a marked segregation into vocational schools and training centres even net of prior school outcomes (Barban and White, 2011).

3. The effects of tracking on social inequality and the impact of comprehensive school reforms

A bulk of empirical research has attempted to identify the causal effects of tracking on educational inequality. This research can be divided into three groups: cross-national studies; impact evaluations of national reforms; experimental studies. We do not consider the latter here because such studies have been implemented in very different institutional and socioeconomic contexts.¹

3.1. Cross-national studies

The practice of tracking students into different schools differs widely across countries. Some countries offer a single comprehensive school path until compulsory education is absolved, while some others track students also during compulsory education. Moreover, tracking varies with respect to key features like age at first tracking; number of tracks; differences in curricula between tracks; degree of flexibility to allow students to shift from one track to another. Empirical studies have tried to exploit these cross-national variations with the aim of disentangling the link between tracking and inequality. Overall, this link has found to have positive sign: countries with tracking tend to display higher inequality. More precisely, student achievement variance increases between primary schools and secondary schools in countries where tracking takes place between the two school levels whereas it decreases - or remains unchanged - in countries with comprehensive systems (see Wößmann 2009, for an overview). This regularity also applies to Italy, where the standard deviation of test scores increases more than the international mean between 9 year-old and 15 year-old students (*ibid*).

These patterns have been corroborated further by Hanushek and Wößmann (2006). In their study, the authors use several international education surveys to compare student achievement dispersion in test scores within countries and between two grades (4th grade, before tracking ever takes place) and 8th grade, exploiting the fact that this latter grade, is affected by tracking only in a subset of countries. The authors apply a differences-in-differences design to provide evidence that tracking significantly increases dispersion in test scores.

Brunello and Checchi (2007) complement these results by investigating the long-term consequences of tracking. The authors analyse time and geographical variations in tracking policies (measured with the length of school-type differentiation and the share of students enrolled in secondary vocational education). More precisely, they exploit changes within countries in tracking policies and compare cohorts of individuals under different school settings. For their analyses, the authors use several data sources and find that the earlier the age of tracking, the higher the influence of parental education on long-term outcomes like years of schooling, dropout risk, employment and earnings.

Substantively coherent results come from Ammermüller (2005), who finds that the number of tracks correlates positively with inequality and from Bauer and Riphahn (2006) who find that early tracking reduces intergenerational mobility.

Overall, most studies based on cross-country analyses conclude that tracking increases educational inequality by strengthening the importance of parental background effects. However, there are also studies that contradict these findings (Waldinger, 2006), raising the question about the actual capability of cross-country

¹ These studies focus on within- rather than between-school tracking and are carried out either in the United States (Slavin, 1990) or in developing countries (e.g., the experiment carried out in Kenya by Duflo *et al.*, 2011). See also Betts (2011) for a review.

studies to deal with the problem of unmeasured differences between countries that can bias the estimates of tracking effects.

3.2. *Impact of school reforms*

A second stream of studies, closest to our interests, assesses the effects of tracking on inequality by exploiting specific de-tracking reforms.

In Italy, some studies have tried to estimate the effects of the above-mentioned 1962 comprehensive reform. Brandolini and Cipollone (2002), using data on school enrolments, and Fort (2012), using 1981 and 1991 census data, report the existence of significant effects of the reform on school participation, measured in terms of average number of schooling years and likelihood to complete lower secondary education. These effects have been found especially pronounced for women. Barone and Fort (2011) use ISTAT data from *Indagine Multiscopo* and compare two cohorts of individuals born before and after reform. They find that the reform increased school participation and the number of years spent at school, but no effects have been detected on social-background nor gender differences. Hence, mixed evidence exists on whether this reform has led to a reduction in educational inequality. Moreover, due to the unavailability of data on students' achievement, it has not been possible to assess the effects of the reform on this key outcome.

An important group of studies deal with the wave of reforms that took place in Scandinavian countries during the 1950s and 1960s. The first of these reforms that we consider took place in Sweden between 1949 and 1962. The reform was a mix of increased compulsory schooling, de-tracking and unified curriculum at the national level. The reform was phased in progressively in the country allowing for a quasi-experimental setting of analysis. Meghir and Palme (2005) and Meghir *et al.* (2013) assess the impact of the reform on several outcomes using a differences-in-differences approach. Their main findings are that the reform increased school participation after compulsory schooling for children of low-educated parents, especially for those with high ability and for girls. No effect is detected for children of high-educated parents, hence differences between the two groups decreased with the reform. The authors also find long-term positive effects on earnings for children with low-educated parents and negative effects for those with high-educated parents. This latter finding might be a consequence of the reduced quality of the education these students receive, but it could also be due to increased competitiveness in the labour market (i.e., increased supply of graduates). In a more recent work, Meghir *et al.* (2013) find that the reform had stronger effects on the cognitive skills of those students that are more at risk of drop-out (i.e., low-ability male children with low-educated parents). The authors also find that male children of high-educated parents improved their social skills, thanks to the more social-heterogeneous class/school environments created by the reform. Near-zero effects are found on various health outcomes, although a marginally significant negative effect on early mortality is found for children of low educated families. In sum, the reform has contributed to reducing inequality on various outcomes, but because the mix of components of the reform took place simultaneously, it is not possible to disentangle the specific contribution of each of these components.

A roughly similar evaluation design has been carried out by Pekkarinen *et al.* (2009) exploiting a comprehensive reform implemented in Finland between 1972 and 1977. Compared to the Swedish reform, the Finnish one had only one main de-

tracking component. With this reform, the previous education system, according to which students were selected into a vocational and an academic track at age 11, was replaced by a single comprehensive school until the age of 15. The authors employ a similar identification strategy as the one described for the Swedish reform, exploiting the gradual implementation across the country. The authors find that the reform significantly reduced the correlation between fathers' and male children's income. In a subsequent paper, the authors (Pekkarinen *et al.*, 2012) find that the reform significantly reduced social-background disparities on mathematical, verbal and logical skills. However, a limitation of this study is that, due to data constraints, the analyses are restricted to males only.

Wrapping up, the literature on the link between tracking and inequality is not conclusive and little is known about the specific mechanisms that link tracking and achievement (Betts, 2011). Nonetheless, most studies suggest that tracking increases inequality with negligible gain in terms of overall achievements (Van de Werfhorst and Mijs, 2010) and, most important, that comprehensive reforms seem to be successful in reducing social-background inequality.

4. The effect of teacher recommendations and guidance programs on school choice

Advocates of tracking sustain that grouping students by their abilities is efficient as the system tailors educational contents and resources to the specific needs of students (Betts, 2011). This efficiency argument relies on a key precondition: students should be allocated to the different tracks only on the basis of their actual skills and motivations. However, in the reality, several ascriptive factors affect individuals' school choices, over and beyond their actual skills. This problem of students' misallocation seems to be particularly acute in Italy, where secondary effects are found to be stronger than in other Western countries (Jackson, 2013).

Policies that aim at reducing "secondary effects" have to take into account that schooling decisions can be modelled as a function of families' perceptions about direct and indirect costs, probability of success and returns of the educational investments (Breen and Goldthorpe, 1997). A key ingredient in this decision model is information. Information is particularly relevant when analysing inequality as it is unevenly distributed in the society: lower educated parents and families belonging to lower social strata have more difficult access to information and might have higher difficulties in managing and using this information properly (Usher, 2005).

In what follows, we consider two policy interventions that can redress students' and families' information gaps: a) teacher recommendations and b) guidance programs.²

4.1. Teacher recommendations

Beyond students and their families, also teachers play a role in shaping school decisions. Teachers can use their students' evaluations to provide them with useful in-

² In general, these policies try to mitigate the secondary effects providing information and counseling based on pupils' motivations and abilities. This strategy is considered to be less costly and easier to apply than interventions that try to boost children's cognitive skills and thus to reduce primary effects (Jackson, 2013).

formation and possibly objective advices regarding available school options. The importance of teacher recommendations in shaping school choices varies across countries. For example, in some German federal states teacher recommendations play a pivotal role in directing individuals to the various tracks, while in Italy there is no limitation in access to the different schools. In Italy, at the end of the lower secondary school, teachers provide each student with an advice, called *consiglio orientativo*, which is mainly based on his/her scholastic performance. This means that “good” students tend to be directed to *licei*, while less gifted pupils are directed to *istituti professionali* and *formazione professionale*. However, this recommendation is not binding and the final decision is taken by the student and his/her family. Checchi and Flabbi (2013) carry out a comparative study between Germany and Italy and provide evidence that the more binding are teacher recommendations, the lower is the weight of social origins on schooling decisions.

However, teacher recommendations do not come without problems. First, teachers might provide biased advices. For example, Checchi (2008), analysing data about Lombardy, finds a significant correlation between teachers recommendations and students’ parental education, even net of previous scholastic performance. Jürgens and Schneider (2011) finds that, *ceteris paribus*, the younger children in the class are less likely to receive recommendations for the academic track. Moreover, there are studies suggesting that teachers may discriminate against immigrants, by counselling families to enrol their children in short-term educational tracks (Kristen and Granato, 2007).

Second, if teacher recommendations are not binding, there might be social-background variation in the extent to which students and families actually comply with the advices. Parents with a university degree tend not to follow the *consiglio orientativo*, if directed to a vocational school (Checchi, 2008). On the other side, students with less educated parents have lower probability to enrol in the academic track, even if this choice is recommended. Moreover, Ochsén (2011) finds that upgrading choices (selection of a higher-demanding school relative to the one that has been suggested) are positively related with parents education.

4.2. Guidance programs

Guidance programs could be introduced in order to limit the criticisms related to teachers’ recommendations. Moreover, this kind of programs might be very useful *per se* as they can redress information gaps and wrong beliefs regarding costs and returns of educational investments, as found in several studies carried out on higher education enrolment (Hastings and Weinstein, 2008; Oreopoulos and Dunn, 2012).

In Italy, an overall policy framework for school guidance is missing and the initiative is essentially left to single schools and localities. Here, we focus our attention on the *Arianna* project, an innovative guidance counselling service introduced in Turin in the early 1990s. This program is particularly interesting for its originality and because it sheds light on the role of information in educational choices. Within this program students take cognitive and non-cognitive tests, and the collected information is used to assist students and their families in school choice. Bernardi *et al.* (2014) evaluate the *Arianna* project exploiting a rich dataset and finds that this service serves as a sort of protection factor against failure in upper secondary school. Students who follow the suggestions are less likely to experience grade retention during the first year of the upper secondary school. On the other side, pupils who decide to enrol in a more demanding school, irrespective of the advice given, show higher

probability to experience grade retention. For what concerns inequality, immigrants and students with low educated parents are more likely to state pre-test intentions discordant with post-test Arianna's advice. Moreover, student from higher social-background tend to persist in their initial choice, even if it is not in line with their actual potential. On the other side, pupils from lower social strata are inclined to limit their ambitions. Hence, the program is able to partially correct the misperception that students have about their aptitudes. But, it is not able to fully remove the effect of the social origins.

Concluding remarks

The reviewed literature indicates that in Italy children from less privileged social backgrounds display much lower transition rates to *licei* and much higher probability to enrol in either *istituti professionali* or *formazione professionale*. Moreover, as compared to other Western countries, the weight of social origins on individual choices net of previous performance is particularly high in Italy. As secondary effects are more malleable by policy than primary effects (Jackson, 2013), a focus on this type of policy gains a particular relevance in Italy.

De-tracking reforms implemented in other European countries have been proved to be effective in reducing social inequality. Hence, Italy should consider taking up initiatives aimed at reforming upper secondary education in a more comprehensive fashion. Actions in this field could comprehend either a postponement of the age at first tracking or a reduction of curricular differences between tracks.

Regarding the former option, it should be recalled that the actual system is a result of a major comprehensive reform that, in 1962, delayed the age of first tracking from the age of 11 to 14. As commented in section 3, there exists poor evidence on the effects of this reform on inequality and, since then, no other major reforms have been put in place and, particularly, no de-tracking reforms have been implemented (Schizzerotto and Barone, 2006). Although several noteworthy changes have been registered in the past decades—e.g., the increase in *licei* enrolments and the recent expansion of the regional vocational training sector (Isfol, 2012)—the tracked nature of the system has not been upset. Also, differences between tracks have not diminished and there is no sign of a turnaround, as recent reforms have stressed further the different identities and missions of each track and therefore amplified the stratifying nature of the system³.

Since a re-organization of this kind would require high financial and organizational costs, a second option aimed at reducing curricula differences between tracks could be pursued. On this point, the identification of basic competences that students should develop in the first two years of upper-secondary education regardless of the school attended has been established at the national level (see *Decreto Ministeriale* n. 139 of 2007). Moreover, some initiatives aimed at enforcing a '*biennio unitario*' have been undertaken at the local level (see for example the initiatives in Emilia Romagna and in the province of Trento). However, a general and systematic effort is lacking. It would be important to further invest on this aspect as the introduction of a *biennio unitario* would guarantee that all students develop a common set of core competences and learning contents until they have reached school leaving age.

³ Daniele Checchi, «E la chiamano riforma», *La Voce*, 23.06.2009.

Moreover, unlike a completely comprehensive system, the *biennio unitario* would not impede students to start developing more specific competences in line with their aspirations and skills, be they vocational, technical or more theoretical. A further advantage of this option is that it would possibly ease students' movements from one track to another, therefore reducing the rigidity of school choices.

The second area of intervention comprehends actions aimed at affecting individuals' and families' choices at the transition between lower-secondary and upper-secondary education. We paid particular attention to the role of information as it affects the way individuals and families form their beliefs about education and evaluate the different school options. Moreover, information is a potential driver of inequality because it is not equally accessible and usable. We considered two types of interventions: teacher recommendations and guidance programs. Teacher recommendations, if mandatory, reduce the weight of family in school decisions. An effort aimed at standardizing and making this practice more binding in Italy would be welcome. However, teacher recommendations have some limitations. In their evaluations, teacher might overweight prior school grades and underweight students' yet unexpressed potential and ambitions. Not to say that teachers evaluations can be affected by several forms of discrimination. In order to avoid these problems, teacher recommendations could be complemented by innovative guidance programs, that might provide individualized information on students' cognitive and non-cognitive skills.

Due to space constraints, we did not consider all policy options that could reduce inequality in education. We concentrated on those that are found to be more effective and that seem to be more easily applicable in the Italian case. However, also in these cases, research hardly provides turn-key solutions. Hence, the most reasonable approach a policy maker should take is one of "cautious experimentation". Priority should be given to those solutions that research considers as the most effective, but they should be gradually implemented and integrated with built-in evaluation designs in order to learn about their actual effectiveness before their scaling up.

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