

SKILL MISMATCH, FAMILY INFORMATION, AND HIGH SCHOOL TRACK CHOICE IN ITALY

POLICY BRIEF 07

Employment Skills and Productivity in Italy
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Skill Mismatch, Family Information, and High School Track Choice in Italy

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Policy Brief

Introduction

Economic and social progress rests on the development of human capital – in the form of skills – and on the matching of skills to jobs. Worldwide empirical evidence, however, points to the existence of a pervasive skills mismatch, whereby workers have different levels and/or types of skills from those that jobs require (WEF, 2014).

The incidence of skills mismatch in the Italian labor market appears quite severe. In Montt (2017)'s recent analysis of field-of-study mismatch and overqualification in 23 countries, (including most EU countries, the UK, US, Canada, Japan, Korea and Russia, among others), Italy features the third highest rate of field-of-study mismatch (49%), after Korea and England/N. Ireland. Additionally, Italy is one of the three countries, with Estonia and Ireland, where field-of study mismatch is associated with a sizable and statistically significant wage penalty (9%) even among workers who are well-matched in terms of qualification.

The presence of some amount of skills mismatch in the labor market is commonly accepted and viewed as largely unavoidable. However, high and persistent skills mismatch is considered too costly for the labor market – and for society more generally – to be borne without action. Due to its increased prominence since the economic crises, skills mismatch has

recently become a high-priority policy concern, especially in the EU (Cedefop, 2009; ILO, 2014). As the main investments in human capital and production of skills occur in school, long before workers supply those skills to employers in the labor market, schools and school choices are natural starting points for any long-term strategy aimed at addressing skills mismatch. Indeed, a major policy recommendation advanced by the Global Agenda Council on Employment (WEF, 2014) was the development of a system of communication and collaboration between employers and relevant actors of the education system, aimed at improving alignment of the knowledge and skills students acquire in school with those required by employers and needed to find work. Special emphasis has been placed on the role of effective career guidance in the educational and career choices of students and their families, with the goal of making them more in line with available and foreseen labor market opportunities.

As sensible and promising as it sounds, effectively implementing these proposals requires an in-depth understanding of how students actually make major educational and career decisions, and of what guidance schools currently provide to help students and their families navigate these important decisions. Our research aims to shed light on the process by which Italian students and their families make the choice of high school track, an important and highly consequential educational early career decision, whose quality is directly linked to that of college choice and of the matching of skills to jobs. Our analysis focuses on the importance of family expectations over the consequences of making alternative high school track choices and on the evolution of the information, knowledge, and beliefs held by students and their parents over a period preceding student pre-enrollment in high school.

High School Track Choice in Italy

The Italian Secondary Education System. The Italian secondary education system is predominantly public (tuition-free) and characterized by early curricular specialization, with tracking of students starting at the transition between junior high school (ending in 8th grade) and high school (beginning in 9th grade). The three main tracks encompassing the Italian tracking system are general, technical, and vocational education, each featuring additional sub-tracks, or curricula, characterized by specific areas of study (e.g., humanities, math & science, etc.). Table 1 lists the main tracks and curricula of Italian secondary education in the school year of our second study (2011–2012). Two of the general curricula, the Music & Choral *Liceo* and the Learning and Social Sciences *Liceo*, were newly introduced at that time.

The enrollment of Italian students into tracks occurs largely non-selectively, that is under a regime of “open enrollment”, from family choice during the final year of middle school. Students and their families receive choice guidance by junior high school teachers and orientation counsellors, including explicit choice recommendations. However, such recommendations are non-binding.

Early curricular specialization makes track selection a consequential transition for Italian students and a stepping stone in the process of human capital investment and accumulation.

First, by the very process of curricular tracking, the knowledge and skills that Italian students acquire from high school onward become increasingly specialized, both in nature (generic vs. technical) and in terms of subject area (humanities, math & science, etc.), as a function of the tracks and curricula that students select.

Second, because of the young age of students at the time of tracking, (typically when they are 13 or 14), curriculum choice is subject to substantial uncertainty over the consequences of choosing alternative curricula. Some of these

consequences will be experienced by students early on, as they enter high school; these include their grades, study effort, their enjoyment of curricular subjects, and so on. Other consequences will materialize much later, when students decide whether to enroll in college and, if so, what field of study they pursue; when they transition into the labor market, etc.

Some of these uncertainties may be either exacerbated or mitigated by different institutional features of the Italian tracking system, which is somewhat “rigid” in some dimensions and more “flexible” in others. For instance, different tracks and curricula are typically offered in separate schools and track-switching can be quite costly time-wise, making it infrequent in practice. On the other hand, high school graduates can enroll in college following graduation from the vast majority of curricula, including 5-year vocational ones. Yet, late adjustments may easily result in skill mismatch due to having received the “wrong” training.

Table 1. High School Tracks and Sub-Tracks Offered in Vicenza in 2011-2012

Track	Sub-track (or curriculum)	Note
General (“Traditional”)	Humanities	
General (“Traditional”)	Languages	
General (“Traditional”)	Math & Science	
General (“Other”)	Art	
General (“Other”)	Music & Choral	Newly introduced
General (“Other”)	Learning and Social Sciences	Newly introduced
Technical	Economic Sector	
Technical	Technology Sector	
Vocational	Services	
Vocational	Industry & Crafts	
Vocational	Professional Training	

Determinants of High School Track Choice. Schooling and early career decisions are shaped by family awareness, or lack thereof, of the

available choice alternatives. For example, some youths and their parents might not be aware of the existence of specific schools or careers that may be good matches for them. Even when aware of their existence, they might not know the relevant institutional attributes of schools such as the curriculum content, student body composition, and the graduation rates of various institutions.

We use the term *limited awareness* to denote situations of incomplete knowledge about choice alternatives. Despite the obvious importance of (limited) awareness for human capital investments and decisions, empirical economic studies on this topic are scant at best. We start to fill this gap by eliciting and analyzing the levels of awareness in a sample of Italian 8th graders and their parents regarding the high school tracks and curricula available to them.

Family *expectations*, or *beliefs*, are another essential element of schooling and early career decisions, as people evaluate their options by their prospective consequences or outcomes. For example, a student's school choice may depend on the student's belief about the likelihood of a successful and timely completion of the curriculum. A student's decision may additionally depend on the student's belief about their chances of continuing to college and/or finding a job after graduation. Empirically, students' and parents' expectations are significant determinants of high school track choice (Giustinelli, 2016). Nevertheless, in their choices families tend to weight short-term outcomes (e.g., child's enjoyment, school achievement, and effort) much more than longer-term ones (e.g., facing flexible college and work choices after graduation).

Traditional economic theories, however, have limited ability to capture some key features of these kinds of decisions and of the process underlying them. In particular, they assume that individuals have a very precise assessment of the probability with which the potential consequences of choosing alternative options

will occur (i.e., they assume that choice is made under "pure risk"). By contrast, the probability of the prospects of alternative schooling decisions might be perceived as partly unknown and to some extent unknowable by students and their parents at the time of choice. Moreover, family expectations are likely based on a mix of information and messages students and parents assimilate from the media and the internet (e.g., schools' webpages), friends and experts (e.g., school teachers), and personal experiences and observations of the experiences of others (e.g., older relatives and friends). An important premise of our study is that family perceptions of uncertainty and their choice behaviors are likely more germane to a choice situation under "ambiguity" rather than to one under "pure risk". We will use the terms *belief confidence* or *belief ambiguity* to refer to situations wherein families are unable to assign a precise probability to a given event or outcome, e.g., whether the child will graduate timely from a certain track if they were to enroll in it. In such situations, family beliefs are better represented by a probability "range" or "interval" than by a single probability. To begin addressing this issues, we elicited and analyzed the levels of confidence, or belief ambiguity, in a sample of Italian 8th graders and their parents regarding the chances that the child would successfully and quickly graduate from each of the curricula available to them, if they were to enroll in that curriculum, and regarding the chances of additional consequences of choosing alternative curricula. We measured students' and parents' awareness levels and degrees of belief confidence (ambiguity), multiple times during the decision process. This enabled us to document and investigate how these evolved over the months approaching the decision. Although observed decisions are determined by the levels of awareness, beliefs, and the belief confidence families hold at the time of choice, analyzing the evolution of these measures before the choice is important, as it might help to shed light on how

knowledge and beliefs are formed, on their determinants, and on the reasons for biased and incomplete knowledge. These aspects are particularly relevant for policies aimed at affecting choices through the provision of information, sensitization, etc.

Finally, our research explicitly accounted for the possibility that persons other than the student, particularly their parents and teachers, may play active roles in the decision by influencing the student's choice. For this reason, we analyzed and compared the awareness levels and belief ambiguity of children and parents.

Data Collections and Survey Measures. The evidence comes from two distinct but related studies, whose common goal was to collect novel survey information from Italian students and their parents about the process of high school track choice. The first study took place in the Italian North-East city of Verona in the Fall of 2007 (henceforth the "Verona Study"), and the second took place in the nearby city of Vicenza during the school year 2011-2012 (henceforth the "Vicenza Study").

In the Verona Study, participating families (approx. 1,000) were interviewed one time at the beginning of 9th grade, shortly after the final enrollment decision was made, but way before the outcomes over which beliefs were elicited were realized.

In addition to actual choices, the survey measured the individual preferences of children and parents over high school curricula; the subjective expectations of children and parents about the consequences for the children of choosing alternative schooling options; and the roles played by child and parents in the decision. Expectations (or beliefs) were elicited probabilistically, using a numerical scale of chance from 0 to 100, where 0 percent means that the event or consequence in question will not happen for sure and 100 percent means that the event will happen for sure.

In addition to eliciting choice preferences, expectations over choice consequences, and

locus of decision within the family, the survey included questions covering the respondents' demographic and socioeconomic characteristics, the grades of the child in junior high school, and the choice recommendation the student received from the junior high school teachers.

The Vicenza Study built on the Verona Study and extended its design in several ways.

First, in the Vicenza Study children and parents were interviewed three times during 8th grade before the deadline to pre-enroll in high school. Moreover, children were interviewed a fourth time after pre-enrollment.

Second, the Vicenza Study featured many more questions than the Verona Study. Among the new measures, two that are particularly relevant for the analysis are the levels of awareness of children and parents about the available curricula and their degrees of confidence in their subjective expectations over choice consequences.

To elicit awareness the survey asked respondents to choose, among the following statements, that which best described their familiarity with each of the curricula listed in Table 1: (a) "I know"; (b) "I have heard the name only"; (c) "I have never heard of".

The questions eliciting respondents' awareness levels about alternative curricula offered in Vicenza were followed by a sequence of questions eliciting respondents' expectations of choosing each curriculum and their expectations for a range of future outcomes or consequences of choosing alternative curricula. In particular, respondents were first asked to rank the curricula listed in Table 1 from their most preferred to the least preferred. Next, they were asked about the chance that they would choose each of the listed curricula. Finally, respondents were asked their perception of the likelihood of a range of future events, some of which occur during high school (e.g., enjoyment, effort, graduation, etc.) and others are

contingent on graduating from high school (e.g., enrolling in college or finding a job).

The latter questions had three parts. The first part asked the respondent to assign an individual value between 0 and 100 percent to the likelihood of the event specified in the question ("point belief"). The second part asked the respondent to indicate how sure they felt about their point belief. They could choose among: (a) "I am sure about my answer"; (b) "I am unsure about my answer"; (c) "I have no idea about my chances". The third part asked the respondent to provide a range of chances, that is, a minimum percentage chance and a maximum percentage chance.

How Do Families Learn about High School Curricula?

Awareness of choice alternatives. Figure 1 displays respondents' levels of awareness about the curricula available to families in Vicenza at two points in time during the decision process.

There is a clear general increase in awareness among both children and parents and for all tracks. However, children and parents feature important differences in their learning patterns over the decision process.

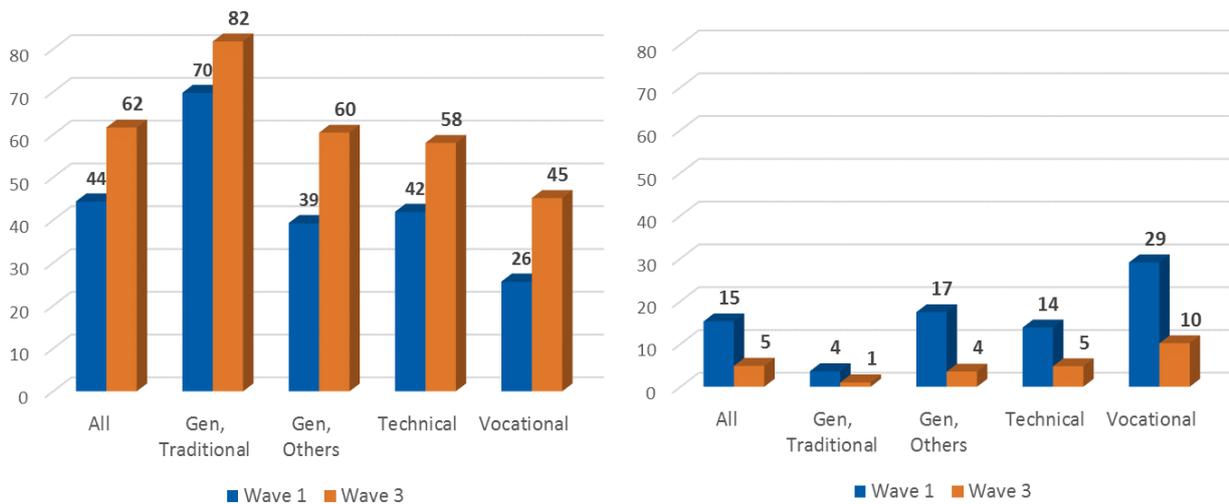
In wave 1, parents display higher levels of awareness and knowledge than students. In particular, a higher proportion of parents are aware of the vocational curricula and of curricula inside the technical and "non-traditional" general tracks, whereas a lower fraction of parents are aware of the traditional

curricula inside the general track. By wave 3 children display higher awareness levels than their parents about the curricula of all tracks. This pattern is confirmed by the bar graphs shown in the right panels. In wave 1, the proportion of parents displaying complete unawareness is systematically lower than the corresponding proportion of children, with the exception of curricula of the general traditional track. By wave 3 the proportion of unaware students is consistently lower than the corresponding proportion of parents for all tracks.

In sum, the (aggregate) patterns based on comparing the means of awareness perceptions over time and between children and parents suggest that students learn more than parents about the available alternatives over the months before pre-enrollment. Such comparisons, however, might mask heterogeneous changes over time in awareness or knowledge across respondents, some of whom might experience increased awareness or knowledge and others might not.

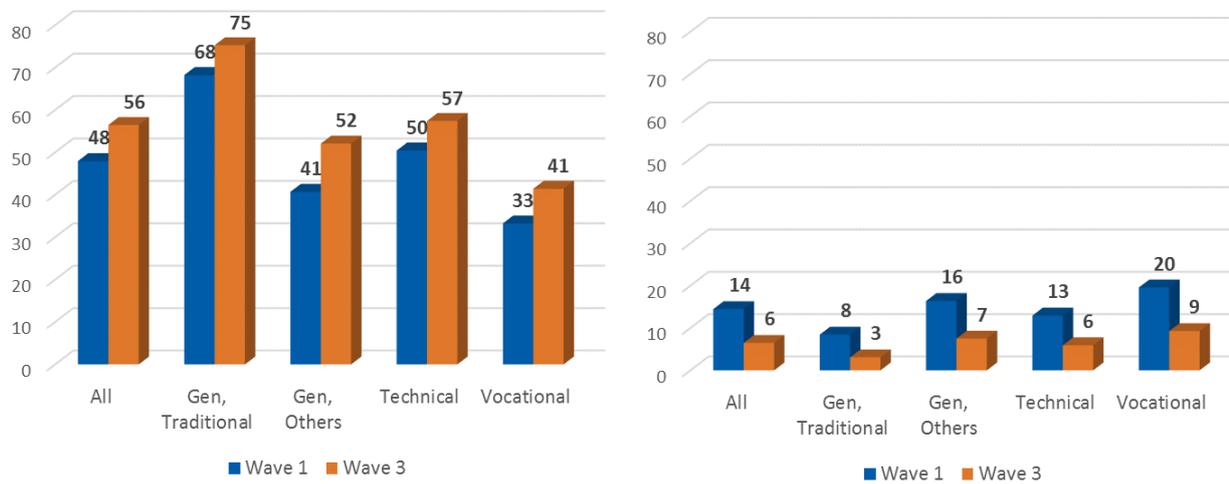
To investigate this possibility, we computed individual-level changes in awareness levels between waves. We find that both children and parents tend to learn more quickly about their preferred alternatives. In particular, the probabilities that children and parents transition to the highest level of awareness or knowledge ("Know") about a certain curriculum by the time of pre-enrollment are substantially larger for the high-ranked curricula than for the low-ranked ones, regardless of the level of awareness or knowledge they reported in earlier waves.

Figure 1: Evolution of the level of awareness of children and parents about school track groups



a) Percent. of children report. 'Know' W1 vs W3

b) Percent. of children report. 'Never heard of' W1 vs W3



c) Percent. of parents report. 'Know' W1 vs W3

d) Percent. of parents report. 'Never heard of' W1 vs W3

Note: The figure is organized in 4 panels. The top two panels (a and b) show responses by children, while the bottom two panels (c and d) show responses by parents. The two left panels (a and c) display the proportions of respondents who report that they "Know" each curriculum (highest level of awareness/knowledge), while the two right panels (b and d) display the proportions of respondents who indicate that they "Never heard of" each curriculum (corresponding to unawareness). Within each panel, response proportions are represented by means of bars, each with the corresponding percentage indicated on top. Each panel shows proportions for all curricula combined ("All") and for four subsets of curricula ("General, Traditional," "General, Other," "Technical," and "Vocational"). For each set of curricula, the blue bar denotes the proportion of respondents displaying the indicated level of awareness in Wave 1, while the orange bar denotes the proportion of respondents displaying the indicated level of awareness in Wave 3. This display aids the comparison of awareness levels between the beginning of 8th grade (wave 1) and the time of pre-enrollment choice (wave 3). In particular, in the two left panels a higher orange bar relative to the blue one denotes an increase in knowledge reports ("Know") with reference to a specific set of curricula and within a given group of respondents, indicating positive learning. By contrast, in the two right panels a higher orange bar relative to the blue one indicates an increase in unawareness reports ("Never heard of"), and hence a drop in knowledge.

Ambiguity. Figure 2 displays respondents' levels of belief ambiguity about the likelihood of a child's successful graduation from each curriculum at two points in time.

As for awareness, learning patterns in terms of belief confidence feature clear differences between students and parents.

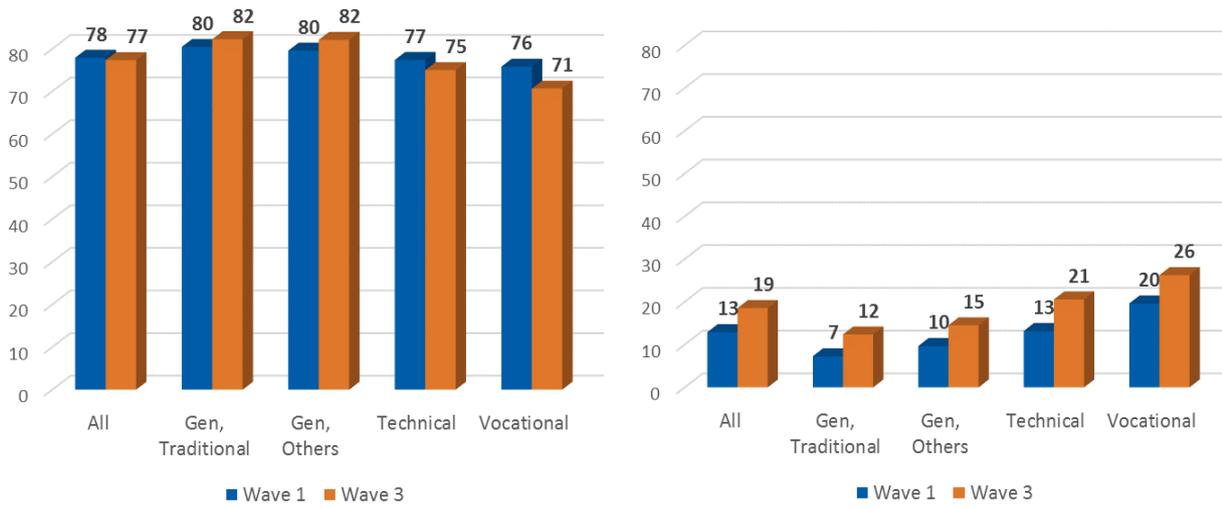
Students display a pattern of learning over time that might be described as "moving to the extremes" for pretty much all tracks and curricula. That is, students move away from the intermediate level of confidence, "Unsure," and in wave 3 are more likely to report one of the extreme categories, "Sure" or "No idea". These changes between waves are generally moderate, 1 to 6 percentage points depending on the track, and fairly symmetric in the learning and unlearning directions.

Parents, on the other hand, display a general pattern of positive learning between wave 1 and wave 3. Specifically, the proportions of "Sure" answers increase by 2-to-6 points depending on the track. Whereas the proportions of "No Idea"

answers decrease by 8-to-14 points, implying that the proportions of "Unsure" increase slightly. It should be noted that the described learning patterns of students and parents have different starting points. In particular, parents are initially less confident than students in their assessments of the likelihood that a child would successfully graduate from the various curricula offered in Vicenza, as revealed by the higher percentages of "Unsure" and "No Idea" responses from parents than from students in wave 1. By wave 3, however, parents are systematically less likely than children to indicate that they have "No Idea" about the chances, although they remain slightly less likely than children to report being "Sure" about the chances.

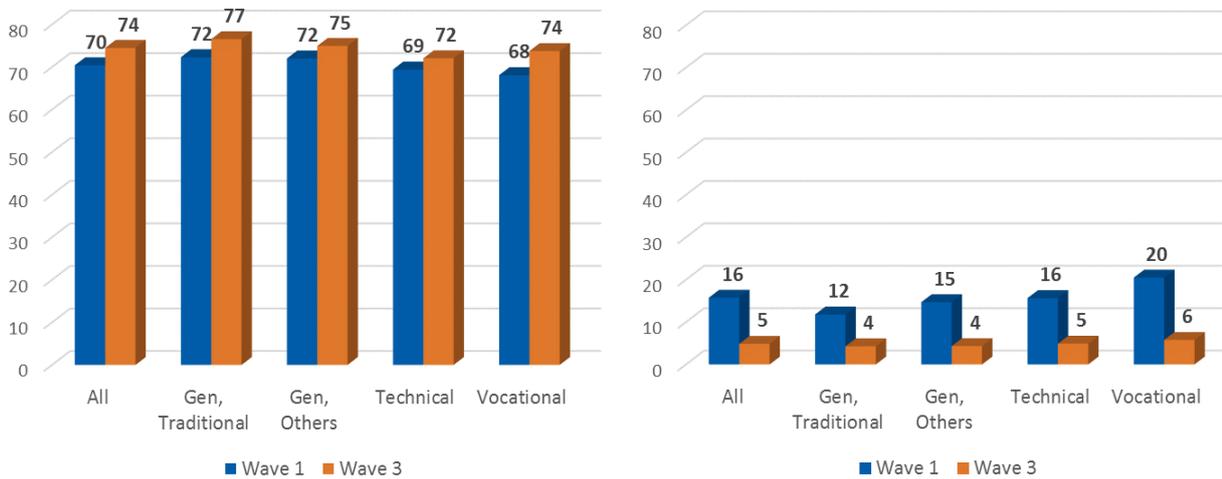
In sum, parents display a homogeneous positive learning over time for all curricula whereas students display positive learning about their chances of success in certain curricula (those of the general tracks), and negative learning or "unlearning" about their chances of success in curricula of the technical and vocational tracks.

Figure 2: Evolution of the level of confidence of children and parents about assessed/reported likelihood of successful graduation



a) Percentage of children reporting 'Sure' W1 vs W3

b) Percentage of children reporting 'No idea' W1 vs W3



c) Percentage of parents reporting 'Sure' W1 vs W3

d) Percentage of parents reporting 'No idea' W1 vs W3

Note: This figure has the same structure as Figure 1. The top two panels (a and b) show responses by children, while the bottom two panels (c and d) show responses by parents. The two left panels (a and c) display the proportions of respondents who indicate that they are "Sure" about the graduation chance they reported in the first part of the question (highest level or confidence), while the two right panels (b and d) display the proportions of respondents who indicate that they have "No Idea" about the graduation chance they were asked about in the first part of the question (corresponding to a maximum level of ambiguity). Once again, the display within each panel aids the comparison of ambiguity levels between the beginning of 8th grade and the time of pre-enrollment choice. In the two left panels a higher orange bar relative to the blue one denotes an increase in confidence reports ("Sure") with reference to a specific set of curricula and within a given group of respondents, indicating positive learning. By contrast, in the two right panels a higher orange bar relative to the blue one indicates an increase in ambiguity reports ("No Idea"), and hence a drop in confidence, indicating negative learning.

Our study further investigated how the learning processes of students vary across individuals and families with different background characteristics by means of multivariate regressions. When interpreting the regression results, it is important to keep in mind that the patterns described with respect to a specific characteristic hold the remaining characteristics constant.

- *Gender* Female students display greater knowledge of the alternatives of the general track than male students over the whole period. Female students initially report higher levels of ambiguity about their beliefs of successfully graduating from non-general curricula, but this gap closes by the time of pre-enrollment.
- *Achievement (GPA)* Students with a higher GPA display lower levels of knowledge about non-general curricula throughout the period and tend to learn significantly less about the curricula of all tracks than children with lower GPA. Additionally, higher GPA students start with higher levels of ambiguity, but end up with significantly greater confidence about their beliefs of successful graduation from the curricula of the general track at the time of pre-enrollment.
- *High SES (mother's education)* Students with a more educated mother display lower initial levels of awareness and knowledge about non-general curricula, but learn over time and close the gap by the time of pre-enrollment. There is no evidence suggesting the existence of mechanisms that prevent these children from learning about the curricula that they are observed to choose less frequently. Indeed, the learning pattern of this group of children does not appear to be concentrated on any specific curriculum or track.
- *Low SES (foreign-born and blue-collar father)* Foreign-born children and children with a father employed in a blue-collar occupation learn significantly less about available choice alternatives over the period. Moreover, these groups of students display more focused learning patterns, concentrated on non-general curricula and/or away from general curricula. In particular, children of blue-collar fathers experience a significant reduction in belief ambiguity about the likelihood of a positive future performance in non-general curricula.

The findings that emerges from comparing aggregate learning patterns across students and parents are confirmed when the comparison is carried out within families, that is, by comparing the perceptions of each child with those of the child's parents. The main figures of the within family analysis are reported in Tables 2 and 3. Table 2 shows sample averages of child-parent differences in awareness levels, subjective (point) expectations, and belief ambiguity within families. Inspection of the figures reported in the middle panel of Table 2, (differences in point expectations), suggests that in wave 1 the parents' beliefs are more optimistic than those of their children, especially about the child's likelihood of a successful performance in general curricula. However, throughout the learning process parents become more pessimistic than their children with regard to the child's likelihood of a positive performance

in general curricula, while reinforcing their (relative) optimism about the child's performance in non-general curricula.

These differences might look somewhat small at first sight. In reality, observed within-family differences in perceptions between children and parents display significant variability across families. Table 3 indeed shows that in wave 1, over 25% of parents are 20 points (out of 100) more optimistic than their children about the student's likelihood of successfully graduating from any track. By wave 3, this difference decreases for some curricula (general ones) and increases for others (vocational). A somewhat symmetric pattern is displayed for families where the parent is more pessimistic than the child. Here the difference is around 10-15 points in both wave 1 and wave 3.

We also analyzed individual-level changes in subjective ambiguity by constructing transition

matrices of ambiguity levels across pairs of waves, similar to what we did for the awareness measure. Again, both children and parents seem to learn more quickly in their most preferred alternatives. In particular, when comparing transitions between waves for alternatives ranked first and last, we observe that transitions from 'No idea' or 'Unsure' to 'Sure' are more frequent for curricula ranked first than curricula ranked last, and vice versa.

Policy Implications

Documenting the evolution of the knowledge of individuals in consequential real-life decisions under uncertainty can provide useful guidance to researchers on how best to specify choice models and to perform policy counterfactuals. Our analysis can also inform policy by pointing to particular combinations of family profiles and educational alternatives for which informational policies are more (or less) likely to effectively reduce skill misallocation and inequality.

The processes of information acquisition of the kind that we document in this paper may have important consequences for skills mismatch. On the one hand, the learning pattern of families who are observed to learn more slowly (if at all) about their low-ranked alternatives may be rationalized by the existence of a limit to the amount of attention that these individuals can apply to processing and storing new information. On the other hand, the learning pattern of families with "biased attention" toward top-ranked curricula can create important inefficiencies, as we find that learning is still incomplete at the time of choice. Moreover, these findings suggest two ingredients that any informational intervention will likely require in order to be effective: first, *reaching families with uniform information across curricula*, second, *reaching families early in the decision process*.

If choice-relevant information is available for all alternatives but the selection of information and orientation activities is left to family discretion, families will tend to focus on the information and activities concerning their initially preferred alternatives and will disregard information and activities concerning other options. If the initially preferred alternative happens to coincide with the best (optimal) choice for the child, a learning pattern concentrated on this option does not generate concern. However, whenever the initially preferred alternative is not the best option for the child, a concentrated learning pattern will prevent families from learning about alternatives that might be a better match for the child. Our analysis suggests that this second scenario likely applies to a sizeable fraction of the families in our sample, where children and parents change their preference ranking over curricula during the 6-7 months before pre-enrollment. Thus, reaching families with more uniform information across curricula would help to alleviate potential choice inefficiencies related to the concentrated (biased) pattern of learning we document.

Timing too is important. If families are able to form their preferences based on more uniform information across curricula early in the decision process, their subsequent learning trajectories are less likely to generate inefficiencies, even if they tend to become more concentrated over time. On the other hand, providing information late in the decision process when families have already made up their minds will be largely ineffective.

Takeaways

- A possible source of the large skills mismatch observed in Italy is that families do not give sufficient consideration to long-term outcomes regarding college and work when making the high school track choice.
- The potential reasons are that families lack knowledge of the available alternatives and tend to have imprecise and biased assessments of choice consequences, especially in the early stages of the decision process.
- In terms of available schooling alternatives, children are initially less aware than parents, but learn more over the months before pre-enrollment.
- In terms of confidence about the assessed chances of successful graduation, parents are initially less knowledgeable than children, but learn more during the last year before enrollment.
- The learning of both children and parents tends to be concentrated on their initially preferred alternatives, leaving certain groups with an incomplete knowledge even at the time of choice. Indeed, family socio-economic background matters, even conditional on child's GPA. In particular, poor-background families tend to have a very concentrated learning.
- Two ingredients that any informational intervention will likely require to be effective are: reaching families with uniform information across curricula and reaching families early in the decision process.
- A high quality choice requires as inputs child preferences, a correct assessment of the child talent, and the demand for skills. Collaboration among families, schools, and employers in the acquisition and

interpretation of the information most relevant for an efficient choice might hence play an important role in alleviating skills mismatch.

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Appendix

Table 2: Child-Parent Comparisons in awareness, point beliefs, and ambiguity: Means

	Wave 1 Sample (matched with Wave 3)		Wave 3 Sample (matched with Wave 1)	
	Mean Difference in Awareness Reports of Child-Parent Pairs			
	'Know'	'Heard of'	'Know'	'Heard of'
All curricula	-0.36227	0.29641	0.53307	-0.43558
General curricula	0.01796	0.21856	0.43251	-0.27301
Technical & vocational curricula	-0.38024	0.07784	0.09816	-0.16258
N	334	334	326	326
	Mean Difference in Point Belief Reports of Child-Parent Pairs			
Gen, Humanities	-4.63504		1.14682	
Gen, Languages	-2.81588		1.01976	
Gen, Math & Science	-1.84286		1.27734	
Gen, Art, Music & Choral	-2.55882		1.83730	
Gen, Soc Sciences	-2.57197		-1.22892	
Tech, Economic Sector	-0.36965		-0.00806	
Tech, Technology Sector	0.76046		-1.65217	
Voc, Services	-3.43651		-6.60331	
Voc, Industry & Crafts	-0.86747		-6.80833	
Voc, Prof Training	-0.57895		-6.32766	
N	247-280		235-256	
	Mean Difference in Ambiguity Reports of Child-Parent Pairs			
	'Unsure'	'No Idea'	'Unsure'	'No Idea'
All curricula	-0.33621	-0.25431	-1.83843	1.60262
General curricula	-0.08621	-0.23276	-0.83406	0.50655
Technical & vocational curricula	-0.25	-0.02155	-1.00437	1.09607
N	232	232	229	229

Note: The top panel shows the sample averages of the within-family differences between the number of alternatives the child reports knowing/having heard of and the number of alternatives the parent reports knowing/having heard of for all curricula and by track. A positive difference indicates that the child knows/has heard of more alternatives compared to the parent and vice versa. The minimum logical value for the child-parent difference in awareness is -11 across all curricula, -6 for curricula of the general track, and -5 for curricula for the non-general track. The maximum logical values are +11, +6, and +5, respectively. The middle panel shows the sample average of the within-family difference in point beliefs between children and parents disaggregated by alternative. In this case, a positive difference indicates that the child is more optimistic than the parent and vice versa. The minimum and maximum logical values for the child-parent difference in point beliefs are -100 and +100. The bottom panel presents the sample averages of the within-family differences between the number of alternatives about which the child has ambiguous beliefs and the number of alternatives the parent has ambiguous beliefs about for all curricula and by track. The minimum (resp. maximum) logical value for the child-parent difference in ambiguity is -11 (resp. +11) across all curricula, -5 (resp. +5) for curricula of the general track, and -5 (resp. +5) for curricula of the non-general track.

Table 3. Child-Parent comparisons in awareness, point beliefs, and ambiguity: Distribution

	Wave 1 Sample (matched with Wave 3)			Wave 3 Sample (matched with Wave 1)		
	Distribution of Differences in Awareness Reports of Child-Parent Pairs					
	'Know'					
	Q25	Q50	Q75	Q25	Q50	Q75
All curricula	-3	-1	2	-2	0	3
General curricula	-1	0	1	-1	0	2
Technical & Vocational curricula	-2	0	1	-1	0	1
	'Heard of'					
All curricula	-2	0	3	-3	0	2
General curricula	-1	0	2	-1	0	1
Technical & Vocational curricula	-1	0	2	-2	0	1
N	334			326		
	Distribution of Differences in Point Belief Reports of Child-Parent Pairs					
	Q25	Q50	Q75	Q25	Q50	Q75
Gen, Humanities	-20	0	10	-11	0	12.5
Gen, Languages	-20	0	10	-10	0	15
Gen, Math & Science	-20	0	10	-10	0	10
Gen, Art, Music & Choral	-20	0	10	-14.5	0	20
Gen, Soc Sciences	-20	0	15	-20	0	10
Tech, Economic Sector	-20	0	20	-20	0	20
Tech, Technology Sector	-20	0	20	-20	0	10
Voc, Services	-27.5	0	15	-20	0	10
Voc, Industry & Crafts	-20	0	20	-29	0	5.5
Voc, Prof Training	-20	0	20	-30	0	10
N	247-280			235-256		
	Distribution of Differences in Ambiguity Reports of Child-Parent Pairs					
	'Unsure'					
	Q25	Q50	Q75	Q25	Q50	Q75
All curricula	-1	0	0	-2	0	0
General curricula	0	0	0	-1	0	0
Technical & Vocational curricula	0	0	0	-2	0	0
	'No Idea'					
All curricula	0	0	0	0	0	3
General curricula	0	0	0	0	0	0
Technical & Vocational curricula	0	0	0	0	0	3
N	232			229		

Note: The three panels show the sample quartiles (25%, median, and 75%) of the distributions of the within-family differences described in Table 2.