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Overeducation and overskill in the Italian labour market: the role of fields of study

by

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Abstract

In a period of expanding higher education, the labour market opportunities associated with the attainment of a university degree are no longer generalized, but limited to a selection of well-established study programs and institutions (Berggren, 2008). While previous research has focused on fields of study as a selection mechanism affecting overeducation, the main novelty of this paper is to disentangle the role of skill heterogeneity in affecting differences in occupational mismatch across fields of study. By relying on measures of overeducation and overskill collected in the 2014 ISFOL survey we test to which extent the two phenomena differ across fields of study and the role played by merit and non-cognitive skills. We find that having an excellent graduate curriculum significantly decreases overeducation and overskill, while non-cognitive skills do not matter. Finally, while graduates in humanities and social sciences are more likely to be overeducated than graduates in scientific disciplines, these differences disappear when we control for merit in the case of humanities and hard social sciences but not in the case of soft social sciences. This result suggests that in the Italian labour market the perception of an increasing demand for students with good communicative and relational skills and well prepared for a flexible labour market can be misplaced.

Keywords: Overeducation, overskill, fields of study, merit, non-cognitive skills
JEL classification: I23, J21, J24

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1. Introduction

In Italy, in 2014, 20.7% of graduates declared that their level of schooling was not necessary for their job, such percentage decreases to 13.4% for graduates declaring to be overskilled[1]. The share of overeducated Italian graduates is surprisingly high considering that Italy is one of the industrialised countries with the lowest percentage of graduates[2] and is a sign of a weak labour demand in a country characterised by a diffused presence of family managed small and medium enterprises. However, overeducation is a rather diffused phenomenon in Europe and is often ascribed to the increasing supply of graduates not been matched by a similar increase in their demand.

In a period of expanding higher education, the labour market opportunities and privileges traditionally associated with the attainment of a university degree are no longer generalized, but limited to a selection of well-established study programs and institutions (Berggren, 2008).

Among the possible selection mechanisms, recently some attention has been devoted to the role of fields of study. In particular, it has been argued that individuals having attended different studies have different stocks of human capital that can be differentially valued by employers resulting in different levels of overeducation (Ortiz and Kucel, 2008). A possible explanation for the different incidence of overeducation across fields of study is the different difficulty to assess workers' skills. While some fields of study (such as law, medicine or architecture) train for specific occupations or professions, others (such as social sciences, humanities or hard sciences) are based on liberal learning and aim at pursuing knowledge and intellectual growth (Goyette and Mullen, 2006). For occupationally focused fields of studies, it is easier to assess skills while for transversal fields of study assessment is more difficult and other factors, such as social origin or non-cognitive skills, may become important for avoiding overeducation. Consistently with this view, Capsada-Munsech (2014) finds that graduates from fields of study that do not lead to a specific occupation decrease their risk of overeducation when their fathers belong to the professional class, while social origin has no influence on graduates from occupationally focused fields of study.

[1] The last release of the new wave relative to 2014 of ISFOL Plus provides additional and detailed information on the phenomenon of occupational mismatch.

[2] In 2015, according to Eurostat data, the lowest proportion of higher education graduates from 25 to 34 years in Europe was found in Italy (25.2%), followed by Romania (25.5%) and Turkey (26.5%).

Differently from previous work, we argue that another reason for fields of study affecting overeducation can be the relative demand and supply of graduates across disciplines. Over time, many European countries registered an absolute or relative reduction of students and graduates in Scientific disciplines (the so called "crisis of scientific vocations"). In the case of Italy, Benadusi et al. (2005) argue for the importance of this phenomenon and provide some explanations. First, Scientific studies are perceived too difficult by students, which in order to be successful in these degrees, are required to regularly attend lectures. Secondly, at the secondary school level little time is devoted to scientific education compared with humanistic disciplines. On the basis of these arguments if the relative demand for graduates in scientific disciplines has been stable or increasing over time, we may expect overeducation to be higher among graduates in Social Sciences and Humanities with respect to graduates in scientific disciplines.

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If this is the case, we argue that selection mechanisms will be more important to avoid overeducation for graduates in humanistic disciplines than in scientific ones. In a different way, we investigate the role of merit and non-cognitive skills as possible selection mechanisms and we test whether their importance varies across fields of study. In so doing, we also bridge the literature on overeducation with that on overskill. In particular, it has been argued that overeducation might arise as a consequence of skill heterogeneity across graduates with the same degree. If this is the case, we should expect to observe null or smaller differences across fields of study in overskill than in overeducation. By relying on different measures of overeducation and overskill we test this hypothesis and we relate it to the extent of skill heterogeneity across fields of study. Finally, in order to shed further light on the consequences of overeducation and overskill we test their impact on job satisfaction also distinguishing across fields of study.

The paper exploits the rich information contained in the 2014 ISFOL survey allowing to construct different subjective measures of overeducation and overskill and

different indicators of graduates' merit and non-cognitive skills. The work is structured as follows: the next Section reviews the literature on overeducation and overskill. Section 3 sets up the hypotheses and discusses the econometric methodology. Section 4 describes the data and reports descriptive statistics. Section 5 reports and comments on the results. Finally, the last Section concludes.

2. Review of the literature

In recent decades a growing literature has estimated the phenomenon of occupational mismatch in many European countries (Büchel et al., 2003; Rubb, 2003; McGuinness, 2006; Leuven and Osterbeek, 2011) as well in Italy (Di Pietro and Urwin, 2006; Di Pietro e Cutillo, 2006; Franzini and Raitano, 2012; Ortiz, 2010; Caroleo and Pastore, 2013). Most of them have focused on educational mismatch and a smaller literature on skill mismatch, information on which has only recently become available in a limited range of data-sets[3]. The literature usually considers workers as mismatched when their level of education or skill is less or more than the required level in the current job. However, there is no consensus on how to measure the occupational mismatch, in fact, different studies found in what way diverse methods[4] can lead to a different results (see Hartog 2000, Kucel 2011, Quintini 2011a). In addition other analysis (Mavromaras et al. 2007a,b; Sloane, 2014,) find a weak correlation between education and skill mismatch: only a small percentage of mismatched individual are mismatched with respect to both educational and skills (Flisi et al. 2016). So it is important to analyze separately both the phenomena since a degree in itself does not guarantee a good knowledge, skills or efficiency of its holder[5]. Moreover, taking into account the massive expansion of higher education undergoing in the last decade[6], the type of studies undertaken is a key determinant of individual labour market outcomes. In fact, the fields of study might be one of the factors helping to identify different stocks

[3] The recent release of PIAAC represents an additional relevant source in this field (OECD 2013).

[4] In the literature traditionally the first main distinction to measuring educational mismatch is between objective (*normative/job analysis* (JA) method or *statistical/realised matches* (RM) method) and subjective approaches (Direct - DSA or Indirect self assessment (ISA) Self-Declarede(Grot and Maassen va den Brink 2000), each of them has its own advantages and disadvantages. The same type of approaches have been adopted to measure skill mismatch.

[5] "More education does not automatically translate into better skills" (OECD 2012) , *Better Skills, Better Jobs, Better Lives. A Strategic Approach to Skills Policies*.

[6] The growth of higher education has been very uneven across the fields, with few young people choosing generally more challenging fields such as engineering or natural sciences.

of human capital by generating differing degrees of specificity in terms of knowledge and skills, which lead in turn to different recognition of pre-existing cognitive and non-cognitive (personality traits) abilities and family background. Several empirical evidences confirm the relationship between field of study and labour market outcomes, also in terms of risk of mismatch.

Ortiz and Kucel (2008), using European Union Labour Force Survey 2003-2005, find that fields of study influence the odds of being overeducated in Spain and in Germany. They underline different effects between fields occupationally focused (e.g. engineering, medicine) and fields occupational transversal (e.g. political and social sciences, humanities). Engineering, Natural Sciences, and Health and Welfare graduates are less prone to become overeducated than their Social Science graduate peers. Also, Dolton and Vignoles (2000), using the National Survey of Graduates and Diplomats of U.K. find that graduates from Social Sciences, Arts and Languages are more prone to overeducation, compared to Engineering, Technical, and Medicine graduates.

Capsada-Munsech (2014), using data from Italian Graduates Employment Survey (GES –Istat), analyze the differential risk of overeducation across fields of study, assessing the influence of social origin (parental education and father's occupational). They find that the risk of overeducation for graduates in occupationally transversal fields of study decreases when their fathers belong to the professional class, while this is not the case for graduates from occupationally focused disciplines.

Ballarino and Bratti, (2009) look at the evolution of the effect of field of study on employment over time[7], find that the Hard Science, Hard Social Science and Technical fields[8] were and remain the best performing fields of study in terms of finding a stable job three year after graduation, but also they signal a relative decline in this regard in the 1990s, in terms of both employment chances and permanent employment opportunities. They explain this result with different hypotheses. On the one hand the skill biased technological change, by increasing the demand for quantitative skills, may favour graduates in Hard disciplines over graduates

[7] They compared four waves of Graduate Employment Survey (GES) of Istat, in 1995, 1998, 2001, and 2004.

[8] Engineering, Mathematics, Physics and Natural Science are classified as Hard, Business and Economics are classified as Hard Social Sciences, assessed more occupational specific.

in Soft ones[9]. On the other hand, the fast-spreading sociological theories of the "knowledge society" or "information society" suggest an increasing competitive advantage to graduates with good communicative and relational skills, i.e. graduates in "Soft"[10] disciplines. At the same time, in a labour market characterized by an increasing share of temporary jobs, graduates in "Soft" disciplines might be able to find a job more easily with respect to graduates in scientific disciplines only because of their lower reservation wages ("bad job hypothesis"). Overall, these theories suggest that overeducation may differ across fields of study due to imbalances in the labour market, i.e. excess or shortage demand/supply for graduates in different disciplines. From the supply-side, many European countries registered the reduction of students and graduates in scientific disciplines, especially in Hard Sciences, the so called "crisis of scientific vocations" (see Convert 2005). Several factors could explain in the Italian context the increasing students' disaffection towards scientific studies. First, hard studies are perceived too difficult[11]: students are required to regularly attend lectures, the workload is higher than in other subject and final marks are generally lower (Benadusi et al., 2005). On the basis of these arguments if the relative demand for graduates in scientific disciplines has been stable or increasing over time, we may expect overeducation to be higher among graduates in Social Sciences and Humanities with respect to graduates in scientific disciplines.

Even if the field of study is a very important mechanism to assess workers' skills, Goyette and Mullen (2006) notice that while the fields occupationally focused (such as Law, Medicine or Architecture, called vocational study) give concrete skills and effects (stable job, solid income), which are easier to assess, on the other hand, Art, Humanities and Sciences graduates, carry transversal skills (cultural capital and credentials with high exchange value), which are more difficult to assess. In this case, other selection mechanisms, such as social origin, merit or non-cognitive skills, may become important to contrasting overeducation. Thus, the measures of individual's

[9] The skill biased technological change is expected to raise more the employment returns to 'quantitative' degrees than those to Soft Social Sciences and Humanities, mainly because of the higher speed of absorption of technical progress in the particular jobs and sectors in which the former are prevalently employed.

[10] Humanities and Law are classified as Soft. Political Science is often classified as Soft Social Science, considered less occupational specific

11 The difficulty of scientific subject partly stems from the lack of preparation in Math and Science obtained from Secondary school.

ability, academic performance and skill heterogeneity should be included in models of overeducation, but they are rarely found in data.

Vary studies, in a wide range of disciplines, have highlighted the significant role of non-cognitive skill[12] (e.g. attitudes, motivation and personal characteristics) over and above cognitive[13] skills in affecting labour market outcomes (Farkas, 2003; Heckman et al., 2001 and 2006; Gutman and Schoon, 2013).

Few studies systematically investigate the role of both cognitive and non cognitive skills on overeducation. Chevalier and Lindley (2009) find that individuals with relatively low ability have a higher probability to be overqualified. Green et al. (1999)[14] and Quintini (2011)[15] suggest that cognitive skills are an important determinant of overqualification. Buchel et al. (2004) and Fehse et al. (2007) find that individuals with worse school leaving grades or university grades face a higher risk of being overqualified.

Few studies focus on non-cognitive skills as potential determinants of over education. Blazquez and Budría (2012), using the 2000-2008 waves of the German Socioeconomic Panel (GSOEP) find that high Conscientiousness, Extraversion, External locus of control and low Openness to experience16 reduce the probability of entering or remaining overeducated in Germany. In contrast, Sohn (2010) finds no significant effects of non-cognitive skills on overqualification in the US. While Tarvid (2013), using the European Social Survey (ESS), finds that the personality traits are an important factor affecting the risk of overeducation. In detail, for the females, personality allows to better explain the chances of mismatch than ability, while for the males, ability performs better as an explanatory variable.

So although there are numerous studies looking at the role of skill heterogeneity for overeducation and several contributions investigating whether overeducation varies across fields of study, to the best of our knowledge, there is no study looking at whether

[12] Several studies have taken personal traits and psychosocial variables into account: Step-World Bank; The National Longitudinal Survey of Youth; The British Cohort Survey; The British Household Panel Survey; The National Education Longitudinal Survey; The German Socio-Economic Panel (GSOEP); PIAAC Italia Survey (PIAAC-IT).

[13] The cognitive skills can be measured through different assessments processes (test score) at school (eg. PISA or teacher assessment) or in adult life (such as PIAAC, the programme for the Assessment of Adult Competencies, such as literacy, numeracy and problem solving).

[14] They use as direct measures for cognitive skills the scores of a math test.

[15] He uses as direct measures for cognitive skills scores of literacy tests.

[16] Also known as the Big Five (McCrae & John, 1992).

differences in both overeducation and overskill across fields of study may be due to skill heterogeneity or are rather the consequence of permanent imbalances between the skills required by employers and those acquired by graduates. In order to shed light on this unexplored issue, we test whether differences in overeducation and overskill across fields of study exist and whether they remain significant also after having controlled for skill heterogeneity captured by a subjective measure of occupational mismatch and by some variables measuring revealed abilities during studies and non-cognitive skills.

3. Hypotheses and econometric methodology

Previous literature has found overeducation to depend on fields of study. While the main explanation for such differences has been the different occupational focus of the degree with more vocationally oriented disciplines performing better than more transversal ones, we put forward the hypothesis that in Italy overeducation can be explained not only by the different occupational focus of fields of study but also by the so called "crisis of scientific vocations" (the fact that over time, many European countries registered an absolute or relative reduction of students and graduates in scientific disciplines). In the case of Italy, Benadusi et al. (2005) argue for the importance of this phenomenon and provide some explanations. First, scientific studies are perceived too difficult by students which, in order to be successful in these degrees, are required to regularly attend lectures. Secondly, at the secondary school level little time is devoted to scientific education compared with humanistic disciplines. On the basis of these arguments and the observation that the relative demand for graduates in scientific disciplines has not decreased over time, we put forward our first hypothesis, H1: *overeducation is higher among Italian graduates in social sciences and humanities with respect to graduates in scientific disciplines.*

A support for this hypothesis would be consistent with a labour market "disequilibrium" explanation of overeducation (Ballarino and Bratti, 2009). In those fields of study where the supply of labour is systematically higher than its demand, graduates are not able to find a job that is in line with their academic curriculum. However, as argued by the Occupational Mobility Theory different fields of study may entail different levels of skill. If one of the explanations of overeducation is the

heterogeneity in graduates' skills, we would expect H2: *overskill to vary less across fields of study than overeducation.*

Moreover, skill heterogeneity could be more important in humanities and social sciences where selection mechanisms are less stringent. This leads to our third hypothesis, H3: *merit and non-cognitive skills matter more in reducing overeducation for graduates in humanities and social sciences when compared to their colleagues graduated in scientific disciplines*.

Finally, according to the Assigment Theory the allocation of workers to jobs is done on the basis of both job characteristics and workers' utility maximization mechanism. Being overeducated, workers may find themselves in jobs which require less education than they possess, but their maximization function may still be satisfied. In order to test for this hypothesis, we look at whether overeducation significantly affects workers' job satisfaction.

Overall, testing these hypotheses will shed light on whether differences in overeducation across fields of study, if they exist, are due to heterogeneity in graduates' skills, or rather signal the existence of permanent imbalances in the labour market. This is an important issue since the implications differ in the two cases. As long as fields of study only proxy different skills or entail different degrees of heterogeneity in graduates' skills, but differences in overeducation disappear when controlling for skill heterogeneity, we cannot conclude that overeducation signals the existence of a job mismatch. On the contrary, if differences in overeducation across fields of study persist also when taking into account of skill heterogeneity, overeducation may be linked to the existence of wrong signals leading students to invest in education and skills that are not rightly rewarded by the labour market.

In order to test these hypotheses we estimate the probability to be overeducated (and to be overskilled) across fields of study and we interact the field of study with proxies of merit and non-cognitive skills. Since overeducation can be observed only if the individual actually works and there could be some unexplained factors that affect both the probability of being overeducated and the probability of self-selecting into work, we estimate a Heckman probit model. In the Heckman model, we use as instrument in the employment equation the number of members in the household (as in

Devillanova, 2013 and Meliciani and Radicchia, 2014) and the channels used to find a job. We, therefore, estimate the following equations:

$$Pover_i = \alpha_1 + \beta_{1j} Field_{ij} + \gamma Skill_i + \delta_j Skill_i * Field_{ij} + \zeta' \mathbf{X}_i + u_i \qquad (1)$$

$$Pwork_i = \alpha_2 + \beta_{2j} Field_{ij} + \lambda' \mathbf{Y}_i + \varepsilon_i \qquad (2)$$

With $Pover_i$ being observed only when $Pwork_i > 0$ and corr $(u_i, \varepsilon_i) = \rho$

$Pover_i$ is the probability of being overeducated of individual *i*, $Field_j$ is the field of study (with j=Hard sciences, Medicine, Technical, Hard social sciences and Law, Soft social sciences and Humanities), Skill is a proxy for graduates' merit and non-cognitive skills and $\boldsymbol{X}$ and $\boldsymbol{Y}$ are vectors of individual and job related characteristics assumed to affect respectively the probability of being overeducated and of working.

In particular, in equations (1) and (2) we control for gender, the age (2 classes), the Provinces, the size of city, type of secondary school (Liceo or technical), the years of schools lost (failed), the past training course, own particular skills and competencies (languages and software), the type of contract, the sector, the type and size of firms, the recruitment channels and marital status. In equation (2) all occupational variables are not included since they would perfectly identify people employed, while we introduce the number of components of the family and the channels used to find a job as instruments. Consistently with the hypotheses stated above, we test whether β_1 is lower for people graduated in scientific disciplines (the groups of Hard sciences, Medicine and Technical disciplines) with respect to people graduated in social sciences and humanities (Hard and soft social sciences, Law and Humanities). Secondly, we test whether, consistently with the Occupational Mobility Theory, the differences in β_1 across fields of study are smaller when the dependent variable is overskill rather than overeducation. Third, we investigate whether graduates' quality reduces overeducation more for graduates in humanities and social sciences than for graduates in scientific disciplines (δ being higher for humanities, hard and soft social sciences and law with respect to Hard sciences, Medicine and Technical disciplines). Finally, to shed indirect light on whether overeducation can be explained by different preferences across graduates in different study fields, as suggested by the AT, we look at differences in atypical jobs and in job satisfaction across fields of study. In particular, we test whether,

although in some fields of study workers may find themselves in jobs which require less education than they possess, they are nevertheless satisfied with their job.

4. Data and descriptive analysis

The paper considers the last data set Isfol Plus[17] (Participation Labour Unemployment Survey), a sample survey on the Italian labour market supply. The choice of this data-set is connected to its capacity to reconstruct and analyse not only the individual characteristics and the working conditions of the occupied, used in most studies on overeducation (qualification possessed, type of employment, income, family background), but also the path and performance of studies. In fact, for each school attended, you know the final mark obtained any failures, the type of secondary school attended and the frequency of a public or private school. Similarly, in the case of degree you know the type of studies and the different degree (Old or New System, Bologna Process), the mark obtained and whether students graduate on time or with one or more years of delay. Moreover, the recent release of the new wave for the 2014 provides new information by measuring the phenomenon of overeducation and overskill[18]. In particular, the survey includes two different questions to investigate overeducation: 1) "Is your level of education necessary for your current job?", with a dichotomous classification, positive or negative answer; 2) "what level of education you believe is more suitable for your job?", with education level classification answer, that allows also a measure of under education. While the measure overskill refers to the question: 3) "How much your ability corresponds with that required by your current job?", with a scale: my ability is much higher, a little more higher, more or less the same, a little less,

[17] PLUS (Participation Labour Unemployment Survey) is a sample survey on the Italian labour market supply (see Mandrone E. and Radicchia D., 2012). The Survey samples, on average, 50,000 individuals, contacted through a dynamic CATI system without proxy interviews. Since the second wave of the survey (2006), it is characterized by an extensive number of panel observations (about 65%). The survey sample design is stratified over the Italian population aged 18-75. Strata are defined by regions, type of city (metropolitan/not metropolitan), age (5 classes), sex, and employment status (employed, unemployed, student, job retired, other inactive/housewife). The distribution of the sample is obtained through a multi-domain allocation procedure, developed specifically for the project PLUS (see Giammatteo, M., 2009). The extraction of the sample provides a process for quota. The reference population is derived from the annual averages of the Istat Labour Force Survey (see Corsetti G., Mandrone E., 2012). The last edition of this survey has realized in the first half of 2014. The Isfol Plus data are available online by accessing the open data section http://www.isfol.it/open-data-delle-ricerche/isfol-microdati.

[18] While overeducation has received considerable attention in empirical labour economics, there is no consensus on how to measure it.

much less. Furthermore, in the Plus survey 2014 there are a series of questions that try to approximate personal characteristics of respondents[19], here called non-cognitive skills, while cognitive there is no direct information on cognitive skills. Therefore, differently from previous studies we refer to cognitive skills as proxies by the education outcome. In particular, we select students with the maximum final grade (110/110 and 110 lode) and that graduated on time[20].

To analyse the role of cognitive and non-cognitive skills on overeducation and verify if their importance varies in the fields of study we select graduates employed with less than 40 years, more of 4100 individuals in our sample, in order to compare a more homogeneous labour market.

Table 1 shows the difference in two measure of overeducation[21] and overskill across fields of studies, also distinguishing between graduates with cognitive skills ("excellent student") and non-cognitive skills. It is interesting to underline that the risk of being overskilled is significantly lower than the phenomenon of overeducation, respectively 14.8% against 23.4% and the measure of overskill varies less across fields of study than overeducation, also when considering cognitive abilities and non-cognitive skills, as a consequence of the skill heterogeneity across graduates. In addition, the incidence of overeducation is lower for people graduated in scientific disciplines (Hard sciences, Medicine and Technical disciplines) than for people graduated in Social sciences (Hard and Soft) and Humanities, while the incidence of overskill rises only for soft social sciences, largely with non-cognitive skills. Another interesting result is the strong reduction effect in the risk of overeducation and overskill of an excellent academic curriculum (cognitive skills) among fields of study, in particular for graduates in Humanities and in Hard social sciences and Law.

[19] The Plus survey asks to give a rating from 7 (completely agree) to 1 (completely disagree) to the following statements: 1) I am a person ready to assume the risks (risk aversion) 2) I find alone the solution to unexpected (problem solving); 3) I am thorough and tenacious in what i do (conscientious);4) I am tolerant and accommodating; 5) I am creative and curious (openness to experiences); 6) I am calm and manage well the stress (agreeableness); 7) I am sociable and communicative (extroversion). We calculate our not cognitive indicator by summing all the rating and by defining a dummy variable equal to 1 if the indicator is higher than the 75° percentile.

[20] Since this is not the standard definition of cognitive skills, we often label the variable "excellent student".

[21] The first measures the sheepskin effect as the role played by the educational qualification in the labour market, while the latter measures the educational mismatch, suggesting the degree to which those holding a given educational qualification perform a job that is in line with or above their level of competences.

Table 1 Incidence of overeducation and over skill, among the different fields of study, with cognitive skills and non-cognitive skills

	Graduate employed		*Total graduate employed*			*With non-cognitive skills*			*With cognitive skills*		
	%	Sample N°	Overeducation (1)	Overeducation (2)	Over skill	Overeducation (1)	Overeducation (2)	Over skill	Overeducation (1)	Overeducation (2)	Over skill
1 Hard Sciences (Chemistry, Physics, Geology, Biology, Pharmacy, IT, Mathematics)	14.2	555	15.2	17.8	15.3	16.8	17.0	18.6	11.0	14.2	12.8
2 Medicine (Medicine and Veterinary)	11.8	541	8.5	8.9	12.9	6.3	6.3	12.0	6.2	6.3	9.8
3 Technical (Engineering and Architecture)	17.2	620	18.1	23.9	14.0	16.9	24.7	16.7	15.7	12.9	25.5
4 Hard Social Science and Law (Economics, Business and Statistics)	24.3	1020	28.9	28.6	14.0	23.9	25.1	14.7	19.3	21.8	14.3
5 Soft Social Sciences (Sociologies, Political Sciences, Communication Sciences, Psychology)	12.5	517	38.2	44.7	19.6	31.7	42.5	27.0	27.8	38.3	12.2
7 Humanities (Philosophy, Literature, Languages, Education)	20.0	920	26.6	30.6	14.3	24.6	30.6	15.8	14.1	20.1	14.7
Total	**100.0**	**4173**	**23.4**	**26.3**	**14.8**	**20.3**	**24.6**	**16.9**	**14.5**	**17.6**	**14.5**

(1) Overeducation 1 is measured by the answer "no" to the question: "Is your level of education necessary for your current job?".

(2) Overeducation 2 is referred to the question: "what level of education you believe is more suitable for your job?" and defining overeducated individuals with a higher level of education than that indicated in the answer

Source Isfol Plus 2014

Table 2 shows the incidence of being employed in an atypical contract and the job satisfaction across fields of studies, to investigate the "bad job hypothesis" suggested by Ballarino and Bratti (2009). It can be observed that the incidence of atypical contracts is very high (30%) and for Soft Social Sciences, Humanities, but also for Hard Sciences it is over 7 points above the average. This is, probably, due to the

reforms[22] that have been introduced in the labour market regulation, that have promoted a greater flexibility in the Italian labour market, by increasing the diffusion of temporary work, also extended to university graduates.

Looking at job satisfaction across fields of studies, graduates in Soft Social Sciences have the lower percentage (67% with and average across fields of study of 75%). Finally, the presence of overeducation and overskill reduce the incidence of job satisfaction, while there does not appear to be a relationship between job satisfaction and the incidence of atypical contracts.

Table 2 Incidence of job satisfaction and atypical contracts, across fields of study and cognitive or non-cognitive skills

	Job satisfaction			**Atypical contract**		
	%	Cognitive skills	Non - cognitive skills	%	Cognitive skills	Non - cognitive skills
1 Hard Sciences (Chemistry, Physics, Geology, Biology, Pharmacy, IT, Mathematics)	76.5	75.3	77.9	37.1	38.5	37.5
2 Medicine (Medicine and Veterinary)	75.7	78.1	73.7	31.6	41.2	27.9
3 Technical (Engineering and Architecture)	76.9	75.0	81.0	26.6	29.9	24.8
4 Hard Social Science & Law (Economics, Business, Statistics and Law)	77.0	85.5	78.8	21.5	22.4	23.0
5 Soft Social Sciences (Sociology, Political Sciences, Communication Sciences, Psychology)	67.4	71.4	64.1	37.6	45.5	34.6
7 Humanities (Philosophy, Literature, Languages, Education)	74.2	73.2	74.8	37.1	40.6	36.5
Total	**75.0**	**76.4**	**75.8**	**30.9**	**36.7**	**30.1**
Overeducation (1)	68.0	61.6	67.4	31.0	37.9	28.8
Overeducation (2)	67.4	64.1	64.4	31.5	32.7	27.9
Over skill	65.3	71.8	66.5	27.8	37.6	26.0

Source Isfol Plus 2014

22 The major reforms were the 'Pacchetto Treu' (Law n. 196, 24 June 1997) the 'Riforma Biagi' (Law n. 30, 14 February 2003) and the last one 'Job Act' (Law n.183/2014)

Cognitive and non-cognitive skills on average slightly increase job satisfaction, but their impact is particularly strong for graduates in Hard Social Sciences, Law and Technical fields. Finally, it is rather surprising that graduates with high cognitive skills are more likely to be employed in atypical jobs, confirming a wide diffusion of these contractual types and the lack of any selection mechanisms. However, it is also important to recall that the descriptive statistics do not allow disentangling the role of fields of study and cognitive and non-cognitive skills while taking simultaneously into account of individual and job characteristics. This will be the purpose of the econometric analysis described below.

5. Econometric results

Table 3 reports the results of the impact of fields of study on overeducation and overskill.

As expected graduates in scientific disciplines (Hard Sciences, Medicine and Technical disciplines) experience significantly lower probabilities of ending up overeducated with respect to graduates in Hard Social Sciences and Law (the base category), while graduates in Humanities and Soft Social Sciences experience significantly higher probabilities. This confirms our first hypothesis: first overeducation is generally lower among graduates in scientific disciplines (these fields are more selective and graduates' skills are less heterogeneous) than graduates in Social Sciences and Humanities; secondly, within Social Sciences, graduates in occupationally focused fields of studies are less likely to experience overeducation with respect to graduates in transversal fields of study[23]. Moreover, the results show that overeducation is higher for women, foreigners, graduates with bachelor degrees (when compared with graduates with Master degrees) while it is lower for younger graduates, graduates commuting, having higher skills (English and Software), having attended a training course and having an excellent academic curriculum but also having parents with professional jobs. Among occupational characteristics, having entered the job via the informal channel or

[23] In the results reported in the table overeducation is measured by the answer "no" to the question: "Is your level of education necessary for your current job?". Results are robust to measuring education referring to the question: "what level of education you believe is more suitable for your job?" and defining overeducated individuals with a higher level of education than that indicated in the answer. Results are available on request.

public recruitment agencies increases the risk of overeducation, which is also higher in private firms and for people working part time; surprisingly overeducation increases with job tenure. Finally, there are differences across sectors with overeducation being more likely in services (for people and trade) than in production but less likely in services for society.

Table 3: Overeducation and Overskill by fields of study and control variables

VARIABLES	Heckman probit Over education	Selection equation Employed	Probit Over- skill
Reference category: Hard Social Science & Law (Economics, Business and Statistics, Law)			
Hard Sciences (Chemistry, Physics, Geology, Biology, Pharmacy, IT, Mathematics)	-0.168*	-0.170**	-0.149*
	(0.0944)	(0.0833)	(0.0833)
Medicine (Medicine and Veterinary)	-0.417***	-0.288***	-0.126
	(0.116)	(0.0931)	(0.0908)
Technical (Engineering and Architecture)	-0.224**	0.109	-0.0477
	(0.0926)	(0.0813)	(0.0820)
Soft Social Sciences (Sociology, Political Sciences, Communication Sciences, Psychology)	0.459***	0.0360	0.210**
	(0.0895)	(0.0799)	(0.0822)
Humanities (Philosophy, Literature, Languages, Education)	0.180**	-0.219***	0.115
	(0.0851)	(0.0723)	(0.0756)
Migrant	0.0386		0.0533
	(0.0880)		(0.0761)
Commuting time	-0.00299**		0.000732
	(0.00141)		(0.00108)
Foreigner	0.859***	-0.376	0.499**
	(0.291)	(0.260)	(0.243)
Woman	0.116*	0.105*	-0.0812
	(0.0662)	(0.0579)	(0.0587)
Sons	-0.249	0.493**	-0.0590
	(0.161)	(0.196)	(0.134)
Woman with sons	0.0529	-0.273	0.119
	(0.175)	(0.210)	(0.146)
Age 18-29	-0.132**	-0.234***	-0.161***
	(0.0650)	(0.0564)	(0.0566)
Liceo	-0.107*	-0.126**	-0.0311
Reference category: Master's degree New System	(0.0575)	(0.0535)	(0.0514)

VARIABLES	Heckman probit Over education	Selection equation Employed	Probit Over- skill
Diploma Laurea (Old system)	-0.00211	-0.129	0.133
	(0.130)	(0.127)	(0.110)
Bachelor degree (New system)	0.214***	0.104*	0.0279
	(0.0685)	(0.0598)	(0.0617)
Degree - Old system	-0.0958	0.0879	-0.0611
	(0.0779)	(0.0726)	(0.0670)
Excellent student (110-110 lode and graduated in time)	-0.202***	0.0888	0.0400
	(0.0717)	(0.0657)	(0.0588)
Excellent "non cognitive skills"	-0.0794	-0.123**	0.158***
	(0.0609)	(0.0520)	(0.0535)
Failed in school	0.155	-0.273***	-0.120
	(0.100)	(0.0950)	(0.0940)
Skills (English languages and pc)	-1.383***	0.384	-0.203
	(0.441)	(0.972)	(0.460)
Training course	-0.121**	0.212***	0.0665
	(0.0539)	(0.0489)	(0.0480)
Graduated parents	0.0837	0.0148	0.00576
	(0.0593)	(0.0556)	(0.0528)
Professional job's parents	-0.174*	0.00438	-0.107
	(0.0963)	(0.0842)	(0.0845)
Atypical contract	0.0308		-0.0309
	(0.0603)		(0.0534)
Part-time	0.303***		0.0634
	(0.0698)		(0.0657)
Private firms	0.156*		0.154**
	(0.0888)		(0.0773)
Job Tenure	0.00117**		0.000727
Sector reference: Production	(0.000566)		(0.000520)
Service for production	-0.146		-0.0884
	(0.0934)		(0.0887)
Service for trade	0.296***		0.368***
	(0.0965)		(0.0939)
Service for people	0.212**		0.188*
	(0.107)		(0.105)
Service for society	-0.649***		-0.0380
Reference 1 component			
N. of component= 2		-0.292***	
		(0.105)	
N. of component= 3		-0.500***	

VARIABLES	Heckman probit Over education	Selection equation Employed	Probit Over- skill
		(0.0969)	
N. of component> 3		-0.592***	
		(0.0971)	
Territorial characteristics	Y	Y	Y
(3)	(0.0909)		
athrho	0.284***		
	(0.521)	(1.177)	-1.146
Constant	-4.653***	7.066***	(0.794)
Observations	5,022	5,022	3,382
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Looking at the selection equation, the probability of being employed (rather than unemployed or inactive) is lower for graduates in Hard Sciences, Medicine and Humanities with respect to graduates in Hard Social Sciences and Law. It is also higher for graduates having attended training courses, for graduates with a bachelor degree and, surprisingly, also for women and for graduates with children. It is lower for younger graduates, for graduates having attended non-professional secondary school (Liceo), for graduates having lost some years during schooling and surprisingly for graduates with high non-cognitive skills (this result may be explained by higher reservation wages).

A second important result emerging from the estimations reported in Table 3, which confirms our expectations, is the smaller difference across fields of study when looking at the phenomenon of overskills. In this case, the only significant differences are observed for graduates in Hard Sciences (being less overskilled than graduates in Hard Social Sciences and Law) and for graduates in Soft Social Sciences being more overskilled. Moreover, the differences are smaller than in the case of overeducation. Another interesting result is the lack of significance of having an excellent academic curriculum and the positive and significant sign for non-cognitive abilities. The first result might signal that a great part of variation in overeducation may depend on the heterogeneity in graduates academic skills (an issue we will come back to later). The second result may be interpreted either as the difficulty to rightly reward non-cognitive skills or as a "biased" self-perception of individual's own skills.

The estimates reported in Table 4 aim at disentangling the role of academic and non-cognitive skills on overeducation across fields of study. As stated in Section 4 we expect these skills to be more important in reducing overeducation in fields of studies where there is a higher heterogeneity in graduates' skills, i.e. Social Sciences and Humanities.

Table 4: The impact of cognitive and non-cognitive skills on overeducation by fields of study,

Interaction Field of study and Merit (Excellent student: 110-110 lode and graduated in time)	Heck probit	*Interaction Field of study and Personality ability ("no cognitive skills"- big five)*	Heck probit	*Interaction Field of study and Merit-Not Merit Category of reference Hard Social Sciences*	Heck probit
VARIABLES	Over education	VARIABLES	Over education	VARIABLES	Over education
				Category of reference: Hard Social	
Hard Sciences (Chemistry, Physics, Geology,	-4.957***	Hard Sciences	-4.770***	*Sciences*	
Mathematic)	(0.749)		(0.361)		
Medicine (Medicine and Veterinary)	-5.240***	Medicine	-5.009***	Interaction Merit-Hard Sciences	0.158
	(0.781)		(0.224)		(0.211)
Technical (Engineering and Architecture)	-4.976***	Technical	-4.821***	Interaction Merit-Medicine	-0.0503
	(0.777)		(0.110)		(0.218)
Hard Social Science & Law (Economics, Business,	-4.720***	Hard Social Science & Law	-4.622***	Interaction Merit-Technical	-0.00241
Statistics, Law)	(0.959)		(0.363)		(0.241)
Soft Social Sciences (Sociology, Political Sciences,	-4.324***	Soft Social Sciences	-5.309***	Interaction Merit-Soft Social Science	0.807***
Communication Sciences, Psychology)	(0.679)		-0.387		(0.218)
Humanities (Philosophy, Literature, Languages,					
Education)	-4.527***	Humanities	-4.491***	Interaction Merit - Humanities	0.241
	(0.703)		(0.395)		(0.201)
Interaction Merit- Hard Sciences	-0.0278	Interaction Personality-Hard Sciences	-0.0735	Interaction Not Merit-Hard Sciences	-0.237**
	(0.172)		(0.237)		(0.105)
Interaction Merit-Medicine	0.0473	Interaction Personality-Medicine	-0.102	Interaction Not Merit-Medicine	-0.520***
	(0.193)		(0.236)		(0.137)
Interaction Merit-Technical	-0.168	Personality-Technical	-0.0790	Interaction Not Merit - Technical	-0.256***
	(0.203)		(0.203)		(0.0982)
		Personality-Hard Social Science &			
Interaction Merit-Hard Social Sciences	-0.422***	Law	0.0472		
	(0.159)		(0.168)		
Interaction Merit-Soft Social Science	-0.0104	Personality-Soft Social Sciences	0.227	Interaction Not Merit-Soft Social Sciences	0.396***
	(0.175)		(0.203)		(0.0970)
Interaction Merit-Humanities	-0.375***	Personality-Humanities	0.271	Interaction Not Merit-Humanities	0.193**

Interaction Field of study and Merit (Excellent student: 110-110 lode and graduated in time)	Heck probit	*Interaction Field of study and Personality ability ("no cognitive skills"- big five)*	Heck probit	*Interaction Field of study and Merit-Not Merit Category of reference Hard Social Sciences*	Heck probit
VARIABLES	Over education	VARIABLES	Over education	VARIABLES	Over education
	(0.139)		(0.170)		(0.0901)
Individual characteristics	Y		Y		Y
Occupational characteristics	Y		Y		Y
Background characteristics	Y		Y		Y
Territorial characteristics	Y		Y		Y
athrho	0.286***	athrho	0.274***	athrho	0.286***
	(0.0914)		(0.0895)		(0.0914)
Observations	5,022	Observations	5,022	Observations	5,022

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The results reported in Table 4 partially support this hypothesis: in particular an excellent academic curriculum significantly decreases the risk of overeducation for graduates in Humanities and in Hard Social Sciences and Law, but not for graduates in Soft Social Sciences, while non-cognitive skills do not appear to be important. As a consequence of these results, we can observe (see column 3) that overeducation does not vary across fields of study for the same level of academic skills with the exception of Soft Social Sciences, where we observe a significantly higher probability of being overeducated also for graduates with an excellent academic curriculum.

Overall these results confirm the hypothesis that part of the differences in overeducation across fields of study may be due to differences in graduates' skills (this seems to be the case for Humanities, Hard Social Sciences and Law). However, in the case of Soft Social Sciences overeducation appears to be a serious problem also for graduates with an excellent academic curriculum. Ballarino and Bratti (2009) discuss some hypotheses on the demand and supply side, which could explain variation over time in occupational status across fields of study. On the demand side, they highlight how the sociological theories of the "information society" by giving increasing importance to tertiary industries and occupations in modern economies, maintain that graduates in "soft" disciplines, with good communicative and relational skills, will have a competitive advantage over graduates with a narrower academic curriculum. Moreover, the progressive flexibilization of the labour market providing more opportunities for employers to hire temporary workers, should also give an advantage to graduates acquiring generalist skills (i.e. generic human capital) by decreasing their risk of remaining unemployed. In particular, a worker could acquire a wide portfolio of skills that could be useful in several jobs and to several employers to increase his or her employability. Finally, on the supply side, the progressive diffusion of atypical contracts and low-paid jobs may benefit especially those graduates who are more likely to accept them, as they generally have worse wage expectations and lower reservation wages ("bad job hypothesis"). The results of our study seem to support the "bad job hypothesis" (although only for graduates in Soft Social Sciences and not in Humanities) by showing that graduates in Soft Social Sciences have a probability of being employed similar to graduates in Hard Social Sciences and Law but are more likely to be overeducated and overskilled.

This hypothesis is further investigated in Table 5 reporting the factors affecting the probability of being employed in an atypical job and job satisfaction (taking into account self-selection in employment) also distinguishing between graduates with and without an excellent academic curriculum.

Table 5: The impact of overeducation and overskill on job satisfaction and atypical contract by fields of study

VARIABLES	Heckman probit - Atypical Job	Heckman probit - high job satisfaction	*Interaction Field of study and Merit-Not Merit*	Heckman probit - Atypical Job	Heckman probit - high job satisfaction
Overeducation	0.0464	-0.240***	Overeducation	0.0405	-0.236***
	(0.0622)	(0.0625)		(0.0623)	(0.0626)
Overskills	0.0534	-0.362***	Overskills	0.0597	-0.366***
Category of reference: Hard Social Sciences	(0.0704)	(0.0701)	*Category of reference: Hard Social Sciences*	(0.0706)	(0.0703)
Hard Sciences (Chemistry, Physics, Geology, Biology,	0.0935	-0.0266	Interaction Merit-Hard Sciences	0.123	0.0216
Pharmacy, IT, Mathematics)	(0.0845)	(0.0878)		(0.178)	(0.0991)
Medicine (Medicine and Veterinary)	0.0380	-0.104	Interaction Merit-Medicine	0.196	-0.0657
	(0.0949)	(0.0954)		(0.178)	(0.109)
Technical (Engineering and Architecture)	0.0647	-0.0777	Interaction Merit-Technical	-0.0375	-0.0685
	(0.0851)	(0.0886)		(0.199)	(0.0951)
Soft Social Sciences (Sociology, Political Sciences,	0.241***	-0.127	Interaction Merit-Soft Social Science	0.481**	-0.109
Communication Sciences, Psychology)	(0.0861)	(0.0872)		(0.200)	(0.0955)
Humanities (Philosophy, Literature, Languages,	0.229***	-0.0383	Interaction Merit-Humanities	0.251	-0.0148
Education)	(0.0796)	(0.0803)		(0.166)	(0.0870)
			Interaction Not Merit- Hard Sciences	0.0944	-0.233
				(0.0953)	(0.189)
			Interaction Not Merit- Medicine	-0.0278	-0.270
				(0.110)	(0.187)
			Interaction Not Merit - Technical	0.0888	-0.152
				(0.0919)	(0.217)
			Interaction Not Merit- Soft Social Sciences	0.186**	-0.251
				(0.0948)	(0.205)
			Interaction Not Merit- Humanities	0.233***	-0.184
				(0.0871)	(0.180)
Individual characteristics	Y	Y	*Individual characteristics*	Y	Y
Occupational characteristics	Y	Y	*Occupational characteristics*	Y	Y
Background characteristics	Y	Y	*Background characteristics*	Y	Y

VARIABLES	Heckman probit - Atypical Job	Heckman probit - high job satisfaction	*Interaction Field of study and Merit-Not Merit*	Heckman probit - Atypical Job	Heckman probit - high job satisfaction
Territorial characteristics	Y	Y	*Territorial characteristics*	Y	Y
Constant	-1.212	1.577**	Constant	-1.264	1.577**
	(0.818)	(0.768)		(0.800)	(0.766)
Athrho	0.387***	-0.127		0.380***	-0.132*
	(0.0770)	(0.0780)		(0.0766)	(0.0783)
Observations	5,022	5,015	Observations	5,022	5,015

Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

The table shows that the probability of being employed in an atypical job is higher for graduates in Soft Social Sciences and Humanities with respect to other disciplines, giving further support to the "bad job hypothesis". Moreover, when focussing on graduates with an excellent academic curriculum, the probability of being employed in an atypical job continues to be significantly higher only for graduates in Soft Social Sciences, demonstrating again how the academic curriculum works as a screening device for graduates in Hard Social Sciences and Law and Humanities, but not for graduates in Soft Social Sciences.

Finally, we ask whether overeducation and overskill significantly affect job satisfaction. The table shows that both overeducation and overskill negatively affect job satisfaction and the results are robust to different measures of overeducation and to including overeducation and overskill together in the regression. The table also shows that fields of study do not affect job satisfaction directly (although they have an indirect effect through their different impact on overeducation and overskill). The only exception is Soft Social Sciences in the regression including only overskill, which shows lower levels of job satisfaction with respect to Hard Social Sciences and Law (the base category). Moreover, for the same level of overeducation (overskill), women are less satisfied than men, young workers are generally more satisfied (although the result is not robust to the different specifications), people having attended training courses are more satisfied, while people with an atypical contract are less satisfied with their job[24]. Finally, having an excellent academic curriculum does not directly affect job satisfaction.

6. Conclusions

In this paper we have investigated the determinants of overeducation and overskill in the Italian labour market. Italy is characterised by a relatively low percentage of people with tertiary education compared to other European countries but also by a low demand for graduates due to the structure of the economy based on an overwhelming presence of family managed small enterprises. Moreover, the crisis of scientific vocations that characterises most European countries is particularly strong in Italy where the prevalence of humanistic disciplines in secondary school and the diffused perception of the difficulty of scientific degrees leads to a reduced number of students enrolling in scientific "lauree" with respect to humanities and social sciences. In this environment we have tested the hypothesis that overeducation varies by fields of study with humanities and social sciences being characterised by a higher risk of overeducation with respect to scientific studies. Moreover,

[24] Complete results are available on request.

we have also tested the hypothesis that within social sciences, more occupationally focused fields of study are less characterised by overeducation with respect to transversal ones. Both hypotheses have found support in the econometric estimations and have proved robust to different measures of overeducation.

The main novelty of this study is testing for the impact of cognitive and non-cognitive skills on overeducation across fields of study. According to the human capital theory, overeducation is only a temporary phenomenon since in the long run wages equal workers' marginal productivity with a correct reward of their human capital. However, if the level of education does not completely reflect graduates' skills (skills are heterogeneous within the same educational level) overeducation may be the consequence of inadequate skills. In this case, we should observe overeducation but not overskill. Based on the hypothesis that skill heterogeneity is higher among graduates in humanities and social sciences than among graduates in scientific disciplines (where there is more self-selection) the paper has tested whether graduates' cognitive and non-cognitive skills significantly reduce overeducation especially in humanities and social sciences and whether the differences in overskill across disciplines are null or less marked with respect to the differences in overeducation.

The results of the econometric estimations provide partial support for these hypotheses. While in the case of hard social sciences, law and humanities graduates with an excellent academic curriculum do not suffer from overeducation more than their colleagues with the same curriculum graduated in scientific disciplines, the incidence of overeducation for graduates in soft social sciences is significantly higher than that of graduates in other disciplines independently from their academic curriculum. Moreover, having a degree in soft social sciences increases the probability of being occupied in atypical jobs and this is the case also for graduates in time with the maximum grades. These results seem to support the "bad job hypotheses" (Ballarini and Bratti, 2009) according to which graduates with more transversal competences are more likely to accept atypical contracts and low-paid jobs, as they generally have worse wage expectations and lower reservation wages. An interesting result of our study is that while this is the case for both graduates in soft social sciences and in humanities, for this last group the academic curriculum works as a screening device protecting high quality graduates from overeducation.

One possible explanation for this result is that while students enrolling in humanities value breadth of knowledge over narrow specialization and hold an appreciation of learning for its own sake rather than for utilitarian ends, they nevertheless acquire more specific academic competencies with respect to graduates in soft social sciences. It is indeed this last

group of disciplines that aims mostly at forming students with good communicative and relational skills in order to meet the needs of the "information society" and the flexibilization of the labour market. The results of our study suggest that the perception of an increasing demand for this type of competences can be misleading. Graduates in these disciplines independently from their academic curriculum and non-cognitive skills have a higher risk to be employed in atypical jobs and to suffer from overeducation and overskill with negative consequences on their job satisfaction.

Overall, the results of this study suggest that the importance of acquiring flexible skills to meet the requirement of the information society and the growing service economy may be misplaced. A better monitoring of the evolution of the demand and supply of graduates is required in order to provide the correct information to students choosing their field of study. This does not necessarily mean that vocational studies aiming at specific occupations should be preferred to "liberal" studies aiming at pursuing knowledge and intellectual growth. In fact we have found that among students attending liberal studies those graduated in hard sciences have a relatively low risk of overeducation and those graduated in humanities, when having an excellent academic curriculum, are not more likely to be overeducated than their colleagues with more occupationally focused degrees (Medicine, Technical fields, Hard social sciences and Law). Overall, the different results between graduates in humanities and soft social sciences, while difficult to interpret, seem to suggest that studies aiming at preparing students for a too large spectrum of possible occupations entail a higher risk of overeducation independently from possible screening mechanisms.

This paper has not modelled the decision to continue studying nor the choice of the field of study. Further contributions could shed light on these important issues with particular attention to other selection mechanisms such as students' social background and non-cognitive skills. In fact, while we have found these selection mechanisms not to play a particularly relevant role in explaining differences in overeducation across fields of study, they might be important in affecting students' educational choices.

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