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The Sociology of Educational Mismatch*

Abstract: This paper studies the theoretical relationships between core research lines of sociology, such as intergenerational mobility, class structure and cultural capital, with educational mismatches. By educational mismatch we mean two things. Firstly, an individual can be *horizontally mismatched* whereby their field of study is inadequate for the job. Another direction of educational mismatch is the so called *vertical mismatch*, where the worker possesses more/less education than the job requires resulting in over-/under-education. While analyzing the educational mismatches we keep present the conclusions of Rational Action Theory on individuals' rational choices in their educational careers. We arrive to conclusions where the influences between educational mismatches and social classes are bidirectional and one can establish fairly clear theoretical links between class of origins and likelihood of being educationally mismatched.

Keywords: over-education; primary effects; secondary effects; social mobility; social classes; Rational Action Theory; cultural capital; social selectivity.

Introduction

This paper studies the theoretical relationships between core research lines of sociology, such as intergenerational mobility, class structure and cultural capital, and educational mismatches. By educational mismatch we mean two things. Firstly, an individual is *horizontally mismatched* when their field of study is inadequate for the job. Another direction of educational mismatch is the so called *vertical mismatch* where worker possesses more/less education than the job requires resulting in over-/under-education. While analyzing the educational mismatches we keep present the conclusions of Rational Action Theory on individuals' rational choices in their educational careers. We arrive to conclusions where the influences between educational mismatches and social classes are bidirectional and one can establish fairly clear theoretical links between class of origins and likelihood of being educationally mismatched.

There is a large gap between educational research in sociology and educational mismatch research economics. Meanwhile economists concentrated on wage effects of mismatch (Groot et al. 2000; Hartog 2000; McGuinness 2006), sociology showed only slight and very punctual interest in the issue of educational mismatch (Aberg

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2003; Halaby 1994; Verdugo et al. 1989). We aim here at filling this gap by relating over-education to core interests of sociological research such as class structure, intergenerational mobility and educational attainment.

The paper is organized as follows. Firstly we introduce the basic background literature on social mobility and educational attainment and briefly suggest the research questions. In the second section we discuss briefly the rational action theory which gives rise to modern research on educational attainment in sociology. This section drives us to the third one which discusses primary and secondary effects' relationship to over-education. The fourth section relates cultural capital and over-education. In the fifth section we show how economic transition in the Eastern Europe could affect mismatch levels and finally the sixth section briefly discusses the issues of social selectivity which remains at the core of sociological research and concludes the whole discussion.

Social Mobility and Educational Mismatch

Social stratification and social mobility research could be considered the core of sociology. Social mobility is being studied both across generations (intergenerational mobility) as well as within one generation, concentrating on people's relative social/occupational positions along their lives (intra-generational mobility). Usually the concept of social class is being used in such research.

One of the most influential works in the topic of social mobility is the book by Robert Erikson and John Goldthorpe entitled *The Constant Flux* (Erikson et al. 1992). The aim of the book was to describe both the absolute and relative rates of social mobility in industrialized economies. According to the authors there has been little variation across countries and time in social mobility, which remained remarkably stable in the decades of 1960s to middle 1970s. Apart from the fact that the book became a cornerstone of sociological research on intergenerational mobility, one of the major advancements of this research was the rigorous classification of social classes into the so called EGP class scheme. It distinguishes seven classes, with the top two called salariat or service classes, followed by routine non-manual workers, through petty bourgeoisie, farm workers, skilled workers and unskilled workers (Erikson et al., 1992). The EGP class scheme is one of the most commonly used social classifications in contemporary sociology. The introduction of this class scheme allowed for instance standardized comparisons of social mobility across countries (Muller et al. 1993).

Tightly linked with the study of social mobility is the issue of (in)equality of opportunity. If there was equality of opportunity then person's ascribed characteristics such as race, sex, or social class should not affect their likelihood of upward social mobility (Breen et al. 2005). One of the core mediating factors in social mobility is the educational attainment. Educational attainment has been addressed in several core sociological studies. Yossi Shavit and Hans-Peter Blossfeld, in a book called *Persistent Inequality*, aggregated the studies of thirteen industrial economies on how social origins' influence educational attainments (Shavit et al. 1993). The major conclusion of

their book was that parental background influence on children's educational attainment kept stable and did not decrease with educational expansion, as predicted by the modernization hypothesis.

Furthermore it is known that parental influences are stronger at early educational transitions and decrease with time as students get more independent in financial and cultural terms. Shavit and Blossfeld used for the first time in a wide comparative framework the logit specification of educational transitions suggested by Robert Mare (1981). The work of Mare changed the sociological view of educational attainment process and became a standard in the analysis. The model assumes that the educational process is comprised of a sequence of educational transitions. The model has been expanded and contested but nevertheless it set the standard in both educational attainment modeling and social stratification research (Breen et al. 2000; Cameron et al. 1998; Lucas 2001).

What is now commonly known as the Mare model of educational decision making as well as the EGP class scheme set the ground for comparative analysis of social mobility nowadays (Breen 2004). These two concepts lead to the research questions we want to discuss here.

Q1: How do social classes with their impacts on educational attainment affect the likelihood of being under-/over-educated? Put differently, is there any relation between the class of origin and the educational mismatch?

Q2: Can social class of origin affect the likelihood of over-education through occupational choice?

The answers to these questions are not straightforward. Firstly the very concept of over-education relies on two other concepts: education and occupation. When the educational attainment is concerned we know from the vast sociological research that social origins play an important role in shaping people's education (Erikson et al. 1996; Shavit et al. 1993). There are two types of effects operating on educational attainment. Firstly, we may speak of the so called "primary effects" which are associated with innate ability of persons and its influence on their educational attainment. The "secondary effects" act through individuals' choices of educational tracks and levels from the pool of options available to them (Boudon 1974; Jackson et al. 2007).

Occupational position on the other hand may be achieved through educational attainment but also through inheritance of parental class position. Individuals from top social classes may achieve high occupational positions, for instance, through parental networks (Granovetter 1973). On the other hand individuals with low social origins may develop low ambition towards social position from their families and consequently seek jobs which will place them in the low social classes in their adult lives.

There are two important macro sociological hypotheses regarding the role of educational attainment and merit in social mobility. The modernization hypothesis predicts that, with economic development, selection criteria in the labor market will become increasingly meritocratic and consequently the social origins of individuals' role will diminish. Contrary to that, the reproduction hypothesis claims that although inequalities in educational attainment may decrease at lower levels due to educational expansion, they will be compensated by increased social origins effects

on the later educational transitions. It is largely unclear how over-education refers to these hypotheses. What remains fairly clear, however, is that, despite more social fluidity observed in recent research (Breen 2004), the social origins of persons play important role in their both educational and occupational attainments, which in turn determine occurrence of over-education. It may be claimed, however, that the direct link between social origins and social destinations of individuals diminished in recent decades (Jackson et al. 2002).

In the following paragraph we initiate our discussion on the link between social class and over-education, discussing briefly the main links that may exist between them. Further we will get into more detail referring to rational action theory in educational decision making, other family effects on educational attainment and over-education and finally the cultural capital. All these discussions will help us define the selection mechanisms presented in the section on social selectivity.

To start with, it should be observed that the effects of educational attainment on occupational position are not the same across social classes. As Breen and Goldthorpe put it:

> Children of less advantaged origins need to show substantially more 'merit'—however understood—than do children from more advantaged origins in order to enter similarly desirable class positions in the course of their adult lives (Breen et al. 2001: 82).

If it is so, then we could expect directly that some individuals from lower social classes despite attaining high levels of education may not achieve adequate occupational position (may not make it to adequately high social class) and consequently end up in over-educated positions. This expectation is reinforced by the observation made by Erikson and Goldthorpe (p. 38) that:

> educational qualifications are of greater importance in "long-range" upward mobility—as, say, from working-class origins into the salariat—than they are in intergenerational mobility within the salariat (Erikson et al 2002: 38).

Another situation is certainly possible, namely those who despite their disadvantaged social origins achieve high educational level and make it to adequate occupational position would not be educationally mismatched. Both cases are, certainly, examples of upward social mobility. For the higher social classes (service class) the situation can be reversed. If an individual from an advantaged social class achieves high level of education his/her chances for a good educational match are high as long as they do not lose their high class (high occupation) position.

However if a person with high social origins does not achieve adequate level of education but his/her family networks still allow them to enter high occupation then we may observe under-education. Furthermore if such person with high social origins and lower educational attainment does not make it to a high occupation and gets shifted down to some lower occupation where their educational level is still too low for that occupation then under-education is still possible.

Under-education should therefore be observed more often among higher classes than among the lower ones, while over-education may be more present among individuals with lower class origins and be considered "incomplete upward social mobility."

Rational Action Theory, Fields of Study and Over-Education

The views presented in the previous section may seem challenged by the Breen and Goldthorpe's model of rational educational decision making (Breen 2001; Breen et al. 1997).The model has three important features. Firstly, students in every educational system face points where they have to decide whether to choose a more or less risky educational track.[1] One could think here of fields of study as an example of more or less risky educational choices. Choosing social science could be considered less risky and easier studies than, for example, engineering or medicine, where dropout rates are high and studies are much longer. Students from higher social classes are less risk averse than their peers with lower social backgrounds.

Secondly, students with different social backgrounds (from different social classes) have different thresholds T determining their minimum acceptable level of education. Breen and Goldthorpe defined the thresholds T as the social class of one's parents. Each student seeks to achieve educational level such that it would allow them to attain social class position at least as good as the social class of their parents. Everybody in the B&G model wants to avoid downward social mobility.

Thirdly, students from different social classes have different beliefs about the probabilities of succeeding in each possible educational track. Students of lower social classes have lower self-confidence about success in various social tracks while students with higher social origins exhibit higher internal beliefs about success in the following tracks.

It follows then, that students with lower social origins should be expected to embark on less risky tracks and finish earlier their education achieving lower levels of education than their peers from the higher social origins. This, however, does not challenge the proposed mechanisms presented in the previous section. If students from low social classes are more likely to choose less risky tracks than students from higher social origins then for some students of low social origins we should observe achievement of high levels of education in easier tracks while for their peers from higher classes it is possible that some will fail in their more demanding tracks. The lower social class students with higher levels of education from less risky tracks may still end up over-educated in their "incomplete upward mobility," while dropouts of more demanding tracks with higher social background may still become under-educated in higher occupations due to (for instance) social networks of their parents.

As an illustration of this argument let us discuss briefly an application to fields of study. If teacher training or humanities could be regarded as less risky tracks then we should observe students from lower social classes choose them more often. If, on the other hand, engineering or medicine are the more risky tracks then they should be more popular among individuals with high social class backgrounds. We would observe that social classes self-select individuals into fields. Following the previous reasoning, we should observe more over-education on those less risky fields, which would be stud-

[1] Recall that viewing educational attainment as a sequence of choices is the major feature of the model of educational decision making, introduced by Robert Mare (Mare 1981). This model gave rise to other rational action models of educational attainment.

ied mostly by lower social class individuals, and less over-education on the more risky fields, mostly studied by high social classes. It has been demonstrated that fields of study affect significantly the likelihood of becoming over-educated (Ortiz et al. 2008).

A similar thesis, called effectively maintained inequality, has been advanced by Lucas (Lucas 2001). According to Lucas, due to educational expansion, where more individuals participate in higher levels of education, the inter-class competition for social positions will move onto these higher levels of education. One could consider then that higher social classes will seek distinctive factors within higher levels of education in order to mark their privileged position and distinguish themselves from the increasing pool of students from lower social backgrounds. It is then clear that fields of study may act as transmitters of social class inequalities in educational attainment.

Based on the above argument, we could expect students from lower social classes to enroll more often in fields such as humanities, teacher training or some social sciences (which could be considered less risky tracks) and get over-educated more often than students from higher social classes who chose engineering or medicine. In contrast, if students from low social classes would choose more often to terminate their education on lower levels than students from higher social origins (as predicted by B&G model) then over-education should be less often observed among them despite their less risky field of study. It is then clear that the argument from the previous section (where individuals with lower social class background are more likely to get over-educated if they achieve high levels of education than individuals from higher social classes with similar levels of education) may hold for the Breen and Goldthorpe model as well.

At this stage the issue of social selectivity according to class of origins becomes very important. If students from lower social classes are more likely to enroll in certain fields, while students from higher social origins choose other fields, then there is a large social selectivity of individuals in different educational tracks which should be accounted for in empirical analyses. It has been showed empirically that different fields signify different likelihoods of employment (Reimer et al. 2008). If we add to that the varying likelihood of becoming over-educated by fields of study, then we see the importance of the social selectivity problem in over-education. Last but not least, Werfhorst et al. (2001) demonstrated that the choice of fields of study is related to the parental background supporting our hypotheses.

According to the above discussion the choice of fields of study is a class driven issue. If so, then strong selectivity of students with lower social class background will exist in less risky fields. Consequently, students from more affluent family backgrounds (higher social classes) will be more likely to self-select into more demanding and more risky fields like engineering or medicine.

Primary Effects, Merit and Over-Education

Above we have discussed the link between social class and over-education transmitted through the educational choices made by students. What if the link between social

class and over-education could be established even without resorting to educational choices?

As we mentioned before, class differences may be channeled through primary and secondary effects. The secondary effects are mediated through educational choices of individuals but the primary effects refer to their background characteristics, such as family culture and norms or ability. If higher social classes have offspring which on average is more able than their peers from the lower social classes then these differences are likely to be transmitted onto occupational attainment.

Primary effects are not solely associated with ability. Primary effects are also embedded in the family cultural resources and norms. One can easily anticipate a theoretical situation, where students from low social classes with high ability perform worse than their less able peers from higher social backgrounds. These differences can be associated with lower levels of cultural resources and lower levels of ambition in lower class families. In order to proxy primary effects Erikson and Jonsson (1996) used students' grade point averages (GPA) as they are meant to reflect the impact of family of origin background on students' performance. Their approach relies on a simple situation, whereby families which do not put a high value on education and skills will not reinforce in their offspring the necessity to achieve highest marks at school. A fair mark in such families will be regarded as an excellent achievement, despite that the child (or adolescent) could easily be able to achieve much higher marks. This in time will lead to decreased effort and lower achievement. On the other hand a fair mark will be regarded as underperformance in high status families and will lead to an increased pressure on better achievements (sometimes even against the abilities of the child). Consequently, students from higher social classes will increase their study efforts due to social pressure from family to achieve better marks, even as we assumed, they might be less able. These effects directly translate on skills attainment and in the future may affect job matching. In such situation the relatively disadvantaged position of students from low status families is chiefly due to low cultural resources, lack of information and low ambition of family of origin suppressing the effort in their offspring.[2]

Certainly there are interaction effects of primary effects with educational choices and as shown by Jackson et al. (2007) leading to even more reinforced effects on students' educational attainments. If, however, primary effects were to mean something more than just ability but perhaps also soft skills, such as communicativeness, creativity, assertiveness then individuals from lower social classes might be scoring comparably lower on these attributes than their peers from higher social classes.

Consequently if such persons with lower social background and less developed soft skills would achieve higher levels of education it may be not enough for them to obtain high occupational positions where higher levels of soft skills are required. In such circumstances over-education would be a product of the lack of adequate soft skills.

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[2] Boudon (1974) tends to concentrate on cultural traits from family background when considering primary effects. This is why we show how cultural effects of the family of origin may alter GPA of students and consequently their skills accumulation, which in turn will determine their education-job match in the labor market.

Early intervention programs directed at low social class families might diminish the skills differentials between children from different social classes (Heckman et al. 2003). With proper stimuli children from low social background may get a chance to develop comparably high skills levels to their peers from higher social classes.

If over-education would be a product of lack of adequate soft skills by individuals from lower social classes then an important question arises: Are employers applying meritocratic selection rule to their employees hiring them for over-educated positions? If we define merit as discussed in Breen and Goldthorpe (2001) as ability plus effort then lack of soft skills could be regarded as lack of ability. Consequently over-educated jobs would not violate the meritocracy principle since over-educated employees lack adequate social skills—lack some abilities desired by the employer.

Breen and Goldthorpe discussing various definitions of merit arrive at the conclusion that:

> (T)he argument rests on the supposition that there exists one, relatively well-defined, conception of merit—i.e. one that can be captured by measures of (primarily cognitive) ability and associated motivation or of the educational attainment that these make possible—and that it is then this conception of merit that employers in general recognize and of necessity implement. Such supposition would, however, seem highly questionable. In so far as a free-market economy is in operation, there is no way in which any particular conception of merit can actually be imposed upon employers. (…) Ascribed attributes, including ones that are linked to class origins, may be regarded by employers as having economic value and as therefore constituting merit from their point of view—which, in a free-market economy, is the only point of view that counts (Breen and Goldthorpe 2001: 83–84).

We cannot therefore say neither that selecting candidates by their excess of human capital for the jobs in question or by their soft skills is not meritocratic, because merit is being defined ad hoc by employers who are free to value whichever attributes of their workers they find productive.[3] In short, over-education having its roots either in primary or in secondary class effects or both could be hypothesized to be deeply rooted in the class of origins of individuals. Moreover, whichever its genesis it does not necessarily contradict the meritocratic selection of employees by firms, despite that it reflects the class positions across generations.

Cultural Capital and Over-Education

The effects of social class may be reinforced yet more by cultural capital (P. M. D. Graaf 1986). According to cultural mobility theory advanced by Paul DiMaggio cultural resources enhance the educational attainment even after individual cognitive ability is controlled for (DiMaggio, 1982; DiMaggio et al., 1985). Despite their methodological drawbacks the works of DiMaggio have attracted a considerable interest in the

[3] Employers are certianly bounded with the legal limits in the decisions which characteristics of workers to value. Most prominent example of such "bounding" legislation are the non-discrimination laws against sex, race or disability discrimination in the labor markets.

context of social mobility.[4] The cultural mobility theory claims that children from low social classes benefit from their parents' cultural capital while it has no additional advantage for children from higher social classes. According to DiMaggio, boys from low social classes benefit from their fathers' cultural capital which fosters their educational attainment. The cultural mobility thesis which translates high cultural capital of parents on children's educational attainment may lead in consequence to increased likelihood of becoming over-educated. If cultural capital of parents helps achieve higher education to children from low social classes it may occur (as discussed in previous sections) that they do not make it to adequate occupation despite their higher education and may end up over-educated.

According to Bourdieu's cultural reproduction theory (De Graaf et al. 2000, p. 93): "(D)ominant status groups and social classes use their power to maintain and create structural conditions to protect their interests. Accordingly, schools are fashioned to guarantee the success of students from these privileged groups. Students who hold dominant linguistic styles, aesthetic preferences, and styles of interaction (habitus) are positively sanctioned by their teachers."

These elements of cultural capital create a situation which allows higher social classes to distinguish themselves from other classes and preserve their supreme status (Aschaffenburg et al., 1997; Dumais, 2002; N. D. D. Graaf et al., 2000). In this context even if the individual from high social class does not achieve high level of education, his/her cultural capital may help them distinguish themselves from other social classes individuals and still achieve high occupational position. In such circumstances under-education may occur.

In general, however, one should expect rather that parental cultural capital may positively influence educational attainment of students thus increasing their chances for over-education. Cultural capital may be, however, also positively linked with soft skills which would indicate the exactly opposite direction of influence. If cultural capital would somehow positively influence soft skills (such as communicativeness) then individuals with higher cultural background should be more likely to avoid over-education (whatever their social class) than their peers with less cultural resources.

Certainly, as De Graaf et al. (2000) suggest, cultural resources may be associated with higher social and economic positions and therefore be more frequently observed among higher social classes. Then one should expect over-education to be again more likely among individuals with lower social class backgrounds than among individuals from families belonging to salariat.

Finally it's worth mentioning the research of Dumais (2002), which draws special attention to the gender issue in the context of cultural capital. She observes that female students are more likely to benefit from cultural resources than male students and these benefits are more important at college levels than at earlier educational transitions. Considering the arguments presented by Dumais, female students with

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[4] The cultural capital in cited DiMaggio's studies was measured through students' cultural interests and not through parental cultural resources.

high cultural family background should be more likely to become over-educated than their male peers with similar cultural resources.

East Meets West: Mismatch in the Post-Communist World

All the above discussion relied on the assumption that a Western-style market economy is in place. Some authors (predominantly in sociology) raised the issue of labor mismatch in post-communist societies (Mayer et al. 1999; Solga et al. 2001; Solga et al. 1999). As we have discussed before, the importance of labor matching plays a central role in social mobility. As Solga and Konietzka (1999: 28) observe:

> (…) Occupational matching is not only functional matching, it is also an essential instrument for reproducing or changing a given system of social inequality.

Given its importance for social mobility, mismatch surely played a central role in social mobility, also during the transitions to market economy in post-communist countries. However, there are few empirical studies to date on the levels of mismatch in transition economies. Only recently Central and Eastern European countries enter into the mainstream research on mismatch (Buchel 2001; Lamo et al. 2010) and sociology (Wolbers 2003).

After the fall of communism in 1989 Eastern European countries experienced an unprecedented economic crisis with very high levels of inflation and unemployment (Plessz 2009). The crisis which lasted until roughly 1995 led also to an increased exclusion of mostly vulnerable groups (older workers, young workers, and women) from the labor market.

During the "communist" times the centrally-planned economic regime aimed to be perceived as the good economic planner, with high ratios of match between education and occupation (Solga et al. 1999). After the collapse of the system the situation on the labor markets got much less clear in the eastern bloc.

Some sociologists have investigated in general terms the labor conditions in post-communist societies (Domanski 2005; Kogan et al. 2005; Saar et al. 2008). So far, however, nobody has aimed to systematically evaluate the levels of mismatch in the Eastern compared to Western countries.

There are two important features of the labor market associated with the transition from state socialism to market economy. Firstly large pools of labor force previously employed in secure job conditions either became unemployed or suddenly found themselves in very insecure and ambiguous job situations. State socialist economy was over-industrialized which, after 1989, led to high unemployment among previously securely employed skilled industrial workers. On the other hand, the service sector in post-communist countries was heavily underdeveloped (Solga et al. 2001). This created a shortage of skilled service sector workers.

On the other hand a rapid educational expansion led to an inflow of large pools of skilled workers in a relatively short period of time (a decade). These two effects created a situation where on the one hand job competition for best newly created jobs

rewarded elevated human capital but at the same time screening for best candidates (Kalleberg et al. 1979; Thurow 1974), in the opaque labor markets during the economic transformation, became very difficult. In conditions where labor market is not transparent, and where educational expansion is rapid and sudden, matching becomes extremely difficult leading to downward social mobility through elevated mismatch levels (Diewald et al. 2002). Solga and Konietzka (1999), for instance, observed that social mobility due to correct matching has been an important feature of the state socialist system in Eastern Germany. However, transition involved large opacity of the labor market. In the course of transition many skills have been recognized but screening became very complicated and this caused some downward mobility as compared with possible mobility during the "communist" times. Skills attained in "communist" times have not become immediately obsolete in the market economy, but screening for these skills in the non-transparent labor markets in the Eastern Europe was the major cause of labor market troubles for many workers in. This is what primarily distinguishes Eastern labor mismatch from its Western European counterpart. It is the employers that define merit, as we have shown before. A rapid economic growth which took place during the transition (and as is the case of Poland keeps being present until now) caused creation of many jobs in a short time. On the other hand large pools of unemployed workers outnumbered the supply of jobs. This unique situation, with fair mobility before the transition, and much worse perspectives during it, created the feeling that a correct job match is not that important and what is important is just having a job. This led to high levels of mismatch (both field of study mismatch and over-education). Paradoxically under-education should also be expected in such situations. This is chiefly due to the fact that service sector was largely atrophic during the state-socialism. Education systems could not match the pace its rapid expansion in the early nineties producing enough skilled workers for the growing service sector. This is potentially a space where under-qualified workers may find employment in position exceeding their skills levels due to a shortage of skilled labor.

In the Western countries, under-/over-education appears due to labor market imperfections. Usually it is due to a rapid educational expansion without adequate growth of the demand for skilled labor (Perotti 2007). In the Eastern Europe mismatches occurred, either due to lack of skilled labor (as is the case of service sector), or due to lack of skills transparency in the labor market.

Conclusions

As it has been discussed previously, in the section on rational decision making in educational attainment, the issue of social selectivity is present all across the educational process. It is said in the model of Breen and Goldthorpe that individuals from lower social backgrounds are more risk averse and have lower internal belief of success in higher stages of education. Certainly, as pointed in the previous section, cultural capital may help overcome those obstacles and facilitate the acquisition of education even to the lowest social class students. It could be recalled, however, from the ear-

lier discussion that students from low social classes may be more prone (due to risk aversion and low self-esteem) to choose tracks or fields of study which are less risky, or easier to accomplish than would students from higher social backgrounds. Furthermore, the financial capital of the family may be important in choosing the fields of study because of their unequal real length.[5] Longer studies often mean longer dependence on family help and it may prove important in students' decisions while choosing the tracks. We can therefore see that social class may be decisive as much for the level as for the type of education, that individuals from different backgrounds, choose. This in turn has an important impact on their likelihood of being employed. It has been demonstrated that students from different fields of study have different likelihoods of obtaining jobs (Reimer et al., 2008). We should also observe that fields of study play an important role in determining the likelihood of being over-educated (Ortiz et al. 2008). Over-education is observed only for the employed individuals and so some graduates of fields like humanities may be less likely to be included in our sample. One has to account therefore for the compositional effect of the labor force due to fields of study in order to obtain unbiased estimators of likelihoods of being over-educated (Heckman 1979).

It is true however, that accounting for the fields of study effects on employment may be regarded as a weak instrument. If students get pre-selected into fields as we just stipulated by their class background (surely not deterministically but significantly enough) then by correcting for the selection into employment by field of study, in reality, we are correcting only the results of an earlier pre-selection by social class. Introduction of parental status controls into selection equations should then help reduce the noise caused by class of origin's signal in the fields of study.

If over-education could be considered a product of lack of soft skills required by the employer, then our selection models should also include soft skills as a variable determining employment probability.

More selective mechanisms may be present in the choices of fields of study. If we account the view presented by Arcidiacono (2004) that students who choose more technical fields are on average more quantitatively and also verbally skilled, then fields of study may also be thought to transmit, at least partly, some information on person's ability. If we would further accept the claim that these differences observed by Arcidiacono are simply a portrait of class differences embodied in primary effects of parental backgrounds then fields of study could be thought to resemble class differences in schooling (Arcidiacono, 2004). This in turn, as has been discussed before, has its direct effects on the likelihood of over-education.

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