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Educational qualifications mismatch in Europe. Is it demand or supply driven?

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ABSTRACT

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Most papers dealing with individual overeducation risks focus on labour supply characteristics and workers' behaviour. On the other hand, only few studies consider labour demand characteristics and technological change. In this paper we analyse the influence of both demand and supply factors on educational mismatch in a set of 10 European countries. Our hypothesis, confirmed by results obtained using ordered probit model with sample selection, is that demand factors generally play a major role in reducing educational mismatch in technologically more advanced countries, whereas supply factors are more important in countries that are lagging behind in the international division of labour. At the same time, important cross-country and gender differences have been identified in how the demand/supply factors operate. All this calls for the fine-tuning of policies intended to tackle the problem of educational mismatch. *Journal of Comparative Economics* xxx (xx) (2013) xxx–xxx. Sapienza University of Rome, Via del Castro Laurenziano, 9 – 00161 Rome, Italy.

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1. Introduction

The maximum utilization of the human capital acquired by workers is a goal also to be pursued by removing the obstacles that hinder a proper match between educational qualifications obtained and job requirements.

One can identify three possible statuses for a person: under-/properly and overeducated. Most studies dealing with educational mismatch concentrate on the issue of overeducation. The main reason is that it can be thought of as a waste of resources, especially in the wake of a rapidly growing supply of graduates. In this paper we do not intend to question the validity of expansionary education policies; rather, the aim is to provide a broader framework for understanding the observed outcomes. The reality is that there are many more people who are under- or overeducated for the type of job performed. Our inquiry is not only about why this happens but also how it can be corrected. In this regard, it is important to determine the channels through which the demand and supply forces operate, and moreover, which of the two may prevail in different contexts.

Our hypothesis is that countries which invest more in innovation and technologies should be able to make better use of the educated labour force. The demand factors were taken into account in order to grasp this effect. They are expected to play

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a more important role in reducing the risk of overeducation in more technologically advanced countries. Conversely, supply factors are expected to constitute the major cause of both under- and overeducation in countries lagging behind in terms of innovation and technologies.

The testing of this hypothesis was implemented in two stages. Firstly, principal component analysis was conducted to cluster countries included in the EU-LFS data set. We then chose to reduce their number to ten, in order to cover different patterns of labour market regulation and degrees of technological intensity.¹ On a country basis, we further investigated the impact of selected demand and supply factors² on the probability of being under-/properly or overeducated. For that purpose, we estimated ordered probit models with sample selection separately for men and women.

The paper is structured as follows. Section 1 provides a literature review and puts forward the hypotheses to be tested. Section 2 presents the criteria used in selecting the countries to analyze. Section 3 describes the data and methodology used for the analysis. Section 4 presents the empirical findings. Section 5 discusses the results obtained. The concluding remarks follow.

2. Literature review and hypotheses to be tested

Interest in the issue of educational mismatch is explained by the manifold negative consequences that it may produce. To mention only a few, *at a micro level* overeducation has been found to exert downward pressure on wages and productivity (see, amongst others, Bauer, 2002; Di Pietro and Cutillo, 2006a, 2006b; Lindley and McIntosh, 2010) as well as on individuals' job satisfaction (McGuinness and Sloane, 2009; Verhaest and Omey, 2008); *at a macro level* it is associated with the waste of resources and the loss of efficiency (Budría and Moro-Egido, 2007).³

The growing number of studies which investigate the main causes of educational mismatch can be broadly divided into two groups dealing with *labour supply* (workers' behaviour) or *labour demand* characteristics (see Table 1).

2.1. Labour supply characteristics

Individual heterogeneity is taken into account by assuming that two persons possessing the same number of years of education or similar credentials may have different skills and/or ability levels. In this framework, some studies use models that allow for variability in workers' skills by controlling for unobserved effects, i.e., skill differences among individuals with similar educational levels (Bauer, 2002; Chevalier, 2003; Frenette, 2004). Other authors have introduced into the analysis explicit (self-assessed) measures of skills related to job performance (McGuinness, 2003; McGuinness and Bennett, 2007).⁴ Green et al. (2002) concentrated on mismatches between required and acquired skills as opposed to years of education or credentials. The same study highlighted the importance of cohort-related effects (also due to grade drift⁵), which can potentially result in significant differences in skills and competencies among individuals with similar levels of education. Moreover, the skills of workers with the same educational level may be very dissimilar depending on the different specific experience and/or the different training to which they have been exposed (McGuinness, 2006). Along this theoretical line of inquiry, Ghignoni (2012) proposed a method of measuring overeducation that starts from the idea of "frontier of competencies" by occupation to link the concept of overeducation with *on-the-job experience*.

A different strand of literature has highlighted the role of *educational quality* as a crucial element in determining overeducation. Chevalier (2003) argued that extending access to tertiary education has increased the heterogeneity of graduates through the access of lower-ability students to universities and an increase in student/teacher ratios. Verhaest and Omey (2004) tested the hypothesis that overeducation would compensate for a "bad" quality of education. Subsequently, Di Pietro and Cutillo (2006a) examined the effect of university quality on the early labour-market outcomes in a cohort of recent Italian graduates. In a similar way, Ordine and Rose (2009, 2011) found a significant impact of educational quality on both overeducation risks and wage inequality among college graduates.

¹ In particular, we considered *Italy, Greece, Portugal, Spain, the Czech Republic, Hungary, France, Germany, the United Kingdom, and Finland*.

² On the demand side we considered such characteristics as youth unemployment rate (in order to measure the difficulties on entry into the labour market of new graduates) or expenditure per worker in the R&D sector (used as a proxy for technological development), all at a regional level. On the supply side, we used e.g. participation in lifelong learning and the field of education, all at the individual level. For more details see Section 3.

³ There are contrary views, however. Büchel et al. (2004) in particular state that 'Rather than an inefficiency, overeducation may even create a social benefit. If without this surplus education workers find it more difficult to find any employment and are more likely to be unemployed, overeducation may lead to savings in unemployment benefits and active labour market policies aimed at the insertion of workers in the labour market.' We admit that some positive externalities may take place, but overall we tend to see overeducation (and more generally educational mismatch) as a suboptimal outcome.

⁴ In this case McGuinness and Bennett (2007) utilized an explicit self-assessed subjective measure of skill based on the individual's average competency across 16 areas (word-processing, spreadsheets, data management, knowledge of ITC packages, Internet use, corporate finance, product/process management, quality assurance, customer awareness, human resource management, corporate statutory requirements, interpersonal skills, leadership skills, organisational skills, team building).

⁵ The expression *grade drift* denotes a drop in educational standards implying that the level of human capital associated with various credentials has fallen over time. Grade drift becomes evident if, *ceteris paribus*, employers are found to raise educational requirements for younger workers. Note that, in this case, a young worker possessing a higher educational level with respect to the one required to perform the job would not necessarily be overeducated. There is evidence that a grade drift happened after the recent "3 + 2" university reform in Italy (see Bratti et al., 2007).

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