Determinants of regional differences in rates of overeducation in Europe

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Abstract
This paper examines the factors determining variations in spatial rates of overeducation. A quantile regression model has been implemented on a sample of region-yearly data drawn from the EU Survey on Income and Living Conditions (EU-SILC) and several institutional and macroeconomic features captured from other data-sets. Potential determinants of overeducation rates include factors such as labour market risk, financial aid to university students, excess labour demand and institutional factors. We find significant effects both for labour market structural imbalances and institutional factors. The research supports the findings of micro based studies which have found that overeducation is consistent with an assignment interpretation of the labour market.

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1. Introduction

There has been a substantial increase in the educational attainment of populations throughout the advanced industrial societies in recent decades. This has coincided with dramatic growth in the demand for highly educated workers. However, there is concern that the demand for highly educated labour has not kept pace with supply, giving rise to the problem of overeducation. Workers are considered overeducated if their qualifications exceed those required for the job (Groot and van den Brink, 2000; McGuinness, 2006). This paper adds to the existing literature by providing an assessment of the potential drivers of overeducation across regions and countries. Unlike limited existing studies that use individual level data to explain cross-country variations in overeducation, we adopt a more aggregate approach that allows us to exploit international and within country regional variations to achieve a more refined assessment of spatial variations in overeducation rates. The analysis also uses an alternative to the standard wage equation framework for assessing theoretical explanations of overeducation and the role of labour market institutions.

Over-education can be costly for individuals, organisations and economies. At the individual level, overeducated workers have been found to earn less than similarly educated workers whose jobs match their qualifications, presumably because a proportion of their investment in education is underutilized and unproductive (McGuinness and Sloane, 2011; Mavromaras

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et al., 2009; Bárcena-Martín et al., 2012). Overeducated workers may also experience lower levels of job-satisfaction (Tsang et al., 1991; Battu et al., 1999). Moreover, less-qualified workers may be displaced and ‘bumped down’ in the labour market, or into unemployment, by over-educated workers moving into their occupations, particularly in slack labour markets (Battu and Sloane, 2002). At the level of the organisations, there is some evidence to suggest that overeducation may be associated with lower productivity (Tsang, 1987) and higher labour turnover, leading in turn to lost investments in recruitment and training (Tsang et al., 1991; Alba-Ramirez, 1993). At the macroeconomic level, overeducation can entail wastage of investment in education and national output is potentially lower than it could be if the skills of overeducated works were fully utilized.

1.1. Literature review

There is substantial variation in the incidence of overeducation between countries (Di Pietro, 2002; Bárcena-Martín et al., 2012; Croce and Ghignoni, 2012; Verhaest and Van der Velden, 2013). While there has been a surge in the literature on overeducation (see McGuinness (2006) and Sloane (2003) for reviews), the majority of existing work tends to be specific to individual countries and to focus either on measuring the wage effects or on the determinants of country-level education-job mismatch. To date, research to identify the determinants of international differences in rates of overeducation has been limited. Thus, while we know much about the magnitude of overeducation effects on variables such as earnings, job satisfaction and career mobility (Battu et al. (1999) and Dolton and Vignoles (2000), Peiró et al. (2010)), McGuinness (2003), McGuinness and Sloane (2011), there is much less understanding of the structural factors that drive the overeducation phenomenon itself. With respect to the very limited work that does exist, Groot and van den Brink (2000), in a meta-analysis, found evidence of a relationship between overeducation and the rate of labour force growth. Hartog (2000, p. 134) suggests that “the strong expansion of participation in education has outpaced the increase in the demanded levels of education”. Di Pietro (2002) in a pooled cross-national analysis of aggregate data in 11 countries found that, on the supply side, increases in the educational attainment of the population were associated with higher overeducation, while, on the demand side, increased investment in research and development was associated with lower overeducation. Humbug et al. (2015), in their analysis of graduate overeducation in 17 European countries, found that both field of study and the relationship between supply and demand is important: field-specific education protects against overeducation, and this protective effect is greater in occupations characterized by an excess supply of graduates. Verhaest and Van der Velden (2013), estimating a multi-level model for a sample of European graduates, found evidence of a role for structural imbalances in both the quantity of skilled workers and their composition in terms of field of study. Croce and Ghignoni (2012), in their pooled model for 26 European countries, found that the ratio of wages of graduates to those of less-qualified workers is associated with graduate overeducation and also that recession leads to overeducation, with graduates accepting jobs requiring less education than they possess. Ghignoni and Verashchagina (2014) explore determinants of individual overeducation risk in 10 European countries taking into account both supply — side and demand — side factors. This paper provides further evidence on the issue, with an assessment of the determinants of international variations in overeducation rates using European data and, in addition to structural factors, assesses the potential contribution of labour market uncertainty, labour market institutions, education funding mechanisms and migration as determining factors.

The choice of potential covariates to be included in any model explaining cross-country variations in overeducation is not straightforward as there are a number of competing hypotheses on the exact causes of overeducation. Proponents of matching theories of job search (Jovanovic, 1979) suggest that overeducation is largely a consequence of poor information and, over time, workers will realize their error and achieve improved matched through repeated job search. Similarly, theories of career mobility (Rosen, 1972; Sicherman and Galor, 1990) suggest that some workers will deliberately choose mismatch in order to acquire the necessary skills, through on-the-job training and learning that will enable them to achieve more rapid career progression in the future. Therefore, both matching theory and models of career mobility suggest that overeducation is a temporary phenomenon driven by either incomplete information or strategic behaviour and, as such, the phenomenon should be largely unrelated to observable structural factors within an economy. Thurow's Job Competition Model (Thurow, 1975) emphasizes the importance of the characteristics of jobs and argues that workers are allocated to a fixed distribution of jobs with individuals investing in education in order to preserve their place in the jobs queue. Once an individual reaches the top of the queue she is allocated a job and her wage will be predetermined solely by the characteristics of the job in question. Thus, under the Thurow model, overeducation will arise when the number of graduate workers exceeds the number of graduate jobs, thus emphasizing the importance of including variables that reflect any excess supply of educated labour. Assignment models (Satttinger, 1993) also stress the importance of job distribution; however, the job allocation process is no longer a lottery as utility maximization guides workers to choose certain jobs over others. Thus a central prediction arising from assignment theory is that changes in the distribution of earnings and, by default, overeducation, will be related to both the distribution of jobs and the characteristics of the workforce. Human Capital Theory (HCT) (Becker, 1964; Mincer, 1974) predicts that workers will always earn their marginal product, implying that there will be no under-utilization of human capital in the labour market and that overeducation will not exist in equilibrium. However, McGuinness (2006) points out that overeducation is still consistent with HCT, as a short-run phenomenon, if the stock of educated labour supply rises, as a consequence of higher labour market returns, until such times as firms fully adjust their production processes to

1 However, a recent study by Kedir et al. (2012) argues that there are no productivity impacts associated with overeducation.
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