Occupational mismatch impact on earnings

Monica- Mihaela Maer Matei (matei.monicamihaela@gmail.com)

Keywords: over skilling, occupational mismatch, propensity score, earnings.

1. INTRODUCTION

This study investigates the impact of over-skilling within UK labour market. The research uses micro data available in the Programme for the International Assessment of Adult Competencies (PIAAC) database. This is a household study collecting information about educational background, work experience and skills of adults around the world and represents one of the most useful initiatives for understanding the integration of higher education graduates into the labour market. It provides the necessary data for skill mismatch estimation because it involves the direct assessment of literacy, numeracy and problem solving in technology-rich environments adult’s competencies.

2. METHODS

The analysis is developed for higher education graduates who are in full employment. Data collected by the Survey of Adult Skills (PIAAC) is used to estimate the size of skill mismatch. The data collection for the Survey of Adult Skills (PIAAC) took place from 1 August 2011 to 31 March 2012 in most participating countries. The Survey of adult skills measures the essential competencies for information-processing in three domains: literacy, numeracy and problem solving in technology rich environments ([1], [2]). The measure of job mismatch that was analysed in this paper uses the PIAAC assessment regarding the proficiency for numeracy skill dimension. Skill mismatch is concept based on whether workers have the actual skills needed to carry out successfully the tasks required by their current job. In order to identify the skill mismatch, the procedure indicated in The survey of adult skills: Readers companion was used [2]. Hence, first were identified the workers who self-report being well-matched using the answer to the following questions ” Do you feel that you have the skills to cope with more demanding duties than those you are required to perform in your current job?” ,”Do you feel that you need more training?” After that, for each skill dimension the minimum (5th percentile) and the maximum (95th percentile) proficiency by each 1 digit ISCO code were defined. The competency scores (plausible values), representing the distribution of a respondent’s proficiency in each field, were taken into account in this stage. Finally those cases, for which the proficiency level exceeds the maximum, were classified as over-skilled. In order to take into account the replicate weights and the plausible values, R packages: survey, svyPVpack were installed and used ([3], [4]). The labour market mismatch was measured for UK dataset for the higher education graduates whose occupations are included in Major Group 1 and 2 (Managers and Professionals), according to the International Standard Classification of Occupations.

In order to estimate the impact of over skilling on earnings, an approach based on the principles of Propensity Score Matching (PSM) was used following the study of McGuinness [5]. The over skilled adults represented the treatment group while the well

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1 Bucharest University of Economic Studies, National Scientific Research Institute for Labour and Social Protection
matched workers were included in the control group. The propensity scores were estimated by a logit model. The matching characteristics include: gender, age, area of study, economic sector, type of contract, current job industry and employment tenure (years).

3. RESULTS

Our estimation results, obtained for the UK data, regarding the measures of skills mismatch in numeracy show that 5.43% of higher education graduates within ISCO group 1 and 2 have the skills to cope with more demanding duties than those required by current job. In order to identify the occupational mismatch impact on earnings, we first compared the earnings distribution for the two groups. According to the representation in Figure 1, there are no strong evidences that over-skilled workers are suffering earning losses compared to matched workers.

![Figure 1. Impact of skill mismatch (numeracy) on earnings](image)

This conclusion was also supported by the estimation based on PSM, revealing that the differences in earnings for the matched pairs are not statistically significant.

Table 1. Average treatment effect for the “treated”

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>T-stat</th>
<th>p.val</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.48</td>
<td>1.77</td>
<td>-0.27</td>
<td>0.79</td>
</tr>
</tbody>
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Table 1 presents the summary of the matching procedure. The treatment effect for the treated (over-skilled) is estimated to less than 0.5 decrease of hourly earnings. According to our results, this effect is not statistically significantly different from zero given that we obtained a high p-value (0.79).
Thus when comparing the outcome between treated (over-skilled) and control (well-matched) observations that are very similar to each other according to a propensity score, we found that the average effect of the treatment (over-skilling) is not significant.

4. CONCLUSIONS

The research undertaken in this study investigates the impact of job mismatch on labour market outcomes for higher education graduates. Previous studies proved that over education has a negative impact on higher education earnings. However earnings losses of overeducated adults could be explained by a lack of skills. Analysing mismatching phenomena using PIAAC data enabled a more detailed analysis given it provides a direct measure of skill mismatch. This approach overcomes the drawbacks of the methods based on qualifications which are not always a precise indicator of skills. Our preliminary results obtained for UK dataset, show that occupational mismatch measured by over skilling does not have a significant impact on the higher education graduates earnings.

REFERENCES


