

CELMR Research Digest

Special Issue: Mismatch in the Labour Market



What is CELMR?

CELMR is the Centre for European Labour Market Research and is made up of 12 faculty from the Economics Department at the University of Aberdeen plus associate members from across the world. The Centre prides itself on high quality, policy relevant research examining a whole range of labour market issues based primarily around four themes:

- Education, Skills and Labour Mobility
- Inequality in the Labour Market
- Health and Work
- Wage Determination

More information about CELMR can be found on our website:
<http://www.abdn.ac.uk/business/research/celmr/index.php>

CELMR News Quick Hits

Below find other selected papers on mismatch by CELMR members in addition to the three summarised in the following pages:

- **Harminder Battu** & Z. Zakariya, 'Overskilling and Overeducation in Malaysia', Discussion Paper in Economics, 15-20, Univ of Aberdeen Business School, 2015.
- **Harminder Battu** & P.J. Sloane, 'Over-education and Ethnic Minorities in Britain', *Manchester School*, 72(4), 2004: 535-59.
- **Keith A. Bender** & K. Roche, 'Educational Mismatch and the Earnings Distribution: Where Does the Mismatch Bite?', Discussion Paper in Economics, 17-4, Univ of Aberdeen Business School, 2017.
- **Keith A. Bender** & K. Roche, 'Educational Mismatch and Self-employment', *Economics of Education Review*, 34, 2013: 85-95.
- **Keith A. Bender** & J.S. Heywood, 'Educational Mismatch and the Careers of Scientists', *Education Economics*, 19(3), 2011: 253-74.
- **Keith A. Bender** & J.S. Heywood, 'Educational Mismatch Among PhDs', in *Science and Engineering Careers in the US*, ed by R. Freeman & D. Goroff, Univ of Chicago Press, 2009: 229-55.

Editors' Corner

Welcome to the seventh CELMR Research Digest! In this edition, we report on papers by CELMR members on the theme of education and skills mismatch in the labour market. We hope that you find it of interest and continue to welcome any feedback that you might have about this publication or the summaries contained here.

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'The Effects of Macroeconomic Conditions at Graduation on Overeducation'

F. Summerfield and Ioannis Theodossiou

Economic Inquiry
Vol. 55, No. 3, July 2017, pp. 1370-87.



Prof Ioannis Theodossiou

Unfavourable economic conditions at graduation decrease the likelihood of a good job-worker match over a worker's subsequent career. The central conclusion of this study is that the role of macroeconomic conditions at the time of graduation, or first labour market entry, affects the job mismatch of workers throughout their careers.

In the study, mismatch is quantified in terms of overeducation by both industry and occupation. The German Socio-Economic Panel and region-level unemployment rates from 1994-2012 are used. These measures are derived by comparing the educational attainment of workers to the median education within their occupation. Using a statistical estimation to control for the potentially endogenous timing of graduation, the paper shows that increases in regional level unemployment rates at graduation affect the future probability of overeducation and, hence, mismatch.

The results suggest that the costs of recessions can extend into the future career of initially mismatched workers. Whereas there is a focus among policy-makers on unemployment statistics, unfavourable labour market conditions are also costly for those who do find work. Because of the robust finding in the literature that overeducated workers suffer wage penalties, the results in this paper imply that labour market entry during a recession can lead to wage penalties over substantial part of the individual's career.

A single percentage point increase in regional unemployment causes an increase in the probability of overeducation of 1.6-1.7 percentage points for university graduates. Effects for

technical tertiary education and apprenticeship graduates are smaller. Labour market entry conditions affect workers for up to 9 years after graduation. The duration of scarring effects suggested by these overeducation estimates is consistent with the duration of scarring effects on wages in the literature. This suggests that overeducation may help to explain why workers graduating in a recession earn lower wages for several years after they enter the labour market.

Therefore time does not cure all evils. Although workers may be able to climb the ladder, switching to better jobs as the labour market improves, many workers cannot overcome the initial scarring effect. Furthermore, the findings suggest that overeducation, as measured by an excess level of schooling, rather than mismatch across fields of study, is more likely to come about because of economic downturns. It is also more likely to have significant and lasting effects.

The findings of this study highlight the hidden effects of austerity policies on the individuals' future labour market performance.

(For further information please contact Professor Theodossiou: theod@abdn.ac.uk)

A single percentage point increase in regional unemployment causes an increase in the probability of overeducation of 1.6-1.7 percentage points for university graduates...which can last for up to 9 years after graduation.



Dr Alexandros Zangelidis

'Qualifications Mismatch in the Public Sector: Determinants and Impacts on Earnings and Turnover'

Keith A. Bender and Alexandros Zangelidis

Working paper, University of Aberdeen.

The public and private sector labour forces are very different. In particular, the public sector labour force tends to be concentrated in professional and nonmanual occupations and have higher levels of educational qualifications. Indeed, according to the 2016 UK Labour Force Survey, around 48% of the public sector has a university degree, compared to approximately 26% for the private sector.

While these kinds of differences are well known, what has received little academic research attention is the level of mismatch in the public sector and how it compares to the private sector. Given the higher levels of education, one might expect that the level of overeducation and overqualification is likely to be higher in the public sector. However, given that public sector occupations tend to be more professional, this could mitigate the level of overqualification.

This paper is the first paper to compare the levels of qualifications mismatch between the public and private sectors. We use data on nearly 800,000 workers from 2000 to 2016 from the UK Labour Force Survey (LFS) to examine the most common educational qualification in each (3-digit disaggregated) occupation and examine whether a worker's qualification is above, equal to or below this typical qualification to generate a measure of overqualification, matched qualification, and underqualification, respectively, for each worker.

Regression results show that the level of overqualification is slightly higher in the public sector, ceteris paribus, but there are similar penalties for mismatch in the two sectors and a similar increased likelihood in job turnover.

Interestingly simple descriptive statistics show that the public sector does a better job matching, with lower average levels of both over- and underqualification. However, once we control for a number of personal and job characteristics, we find a slightly different story. While overall the public sector matches better, it does much better minimising underqualification. *Ceteris paribus*, however, the level of overqualification is higher in the public sector. Disaggregating by subsector, we

find that this happens most often among Universities and in the Health sector.

In addition to examining rates of mismatch, we look at the effects of mismatch. Although the rates of

overqualification are higher in the public sector, the mismatch earnings penalties are very similar, around 2% lower for overqualification and about 9% lower for underqualification. Turnover is also higher among the overqualified, though there is little difference in the effect across sectors.



Since there are only modest differences between the sectors, it would be easy to ignore this issue. However as the other papers summarised in this Digest show, any level of mismatch generates inefficiencies in labour market outcomes and the public sector labour market will be no exception to this.

(For further information about this paper, please contact Dr Zangelidis: a.zangelidis@abdn.ac.uk.)

'Educational Mismatch and Retirement'

Keith A. Bender and J. Heywood

Education Economics
Vol. 25, No. 4, 2017, pp. 347-65.



Prof Keith Bender

Much of the research on educational mismatch examines mismatch at a point in time in a worker's career. Only recently, as data have become available, have researchers been examining mismatch over a career. As highlighted in the Summerfield/Theodossiou paper above, mismatch at critical times in a career such as impacting at the beginning of a career can have long reaching impacts on career prospects and labour market outcomes.

This paper examines explicitly the later career impact of mismatch by looking at whether those who are mismatched late in the career retire earlier. This is of particular importance for the type of workers we investigate – those with a PhD in science, technology, engineering and maths (STEM) subjects. These subjects are characterised by large investments in education, meaning that society benefits the longer these workers are economically active. However, if they are mismatched in their skills and jobs and experiencing lower job satisfaction and lower pay, mismatched workers may leave the labour force earlier than matched workers.

To investigate this, we employ data from the US National Science Foundation which follows some 30,000 PhD holders in STEM subjects over 15 years. Critically, survey respondents are asked

whether their job and their education are well matched or not. Overall, about 1/3 of respondents answer no to this question, with nearly 10 percent saying that their job and education are 'not at all related', a group we called the 'severely mismatched'.

Regardless of the use of a variety of sophisticated statistical technique, we find a strong correlation between mismatch and earlier retirement. The pattern holds if we look at men or women, across employment sectors (academia, business and government) and broad academic field. The marginal impact is substantial – for those who are severely mismatched, between 1/4 and 1/3 of the probability of their retirement can be explained by mismatch. The severely mismatched also retire around a year earlier than matched workers, all things equal.

The results suggest that educational mismatch late in a career can have strong labour force effects. While some mismatch at the beginning of a career can be explained by career progression, late career mismatch impacts retirement behaviour. For groups of workers such as the very highly educated, this generates a potential cost in lost returns to the large expenditure in human capital accumulation of these workers.

Using US data on PhD holders, we find a strong correlation between mismatch and earlier retirement. The pattern holds if we look at men or women, across employment sectors (academia, business and government) and broad academic field.

(For further information, please contact Prof Bender: kabender@abdn.ac.uk).

