

POSTGRADUATE EDUCATION IN THE UK: AN ECONOMIST'S VIEW

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1. Benefits
2. Costs
3. Policy

1. Benefits

Education augments human capital, making workers more productive, and hence, in a competitive labour market, raises earnings.

So it can be regarded as an investment, and can be evaluated using the same methods as are used to assess investments in physical capital – net present values, internal rates of return...

1. Benefits

The rate of return to an educational investment may be evaluated by comparing, at present values, the earnings premium to the cost of the investment.

The percentage earnings premium is typically estimated on microdata using a regression of logged wages against, *inter alia*, binary variables indicating the level of educational attainment.

1. Benefits

Results from McIntosh (Oxford Bulletin, 2006) using Labour Force Survey data.

All male full-time employees

| Qualification | 1996 | 1998 | 2000 | 2002 |
|---------------|-------|-------|-------|-------|
| Higher degree | 0.113 | 0.083 | 0.131 | 0.129 |
| First degree | 0.234 | 0.253 | 0.249 | 0.258 |
| Other HE | 0.090 | 0.068 | 0.090 | 0.060 |

All coefficients are significant at better than 1%, except other HE in 1996 and 2002 which are significant at better than 5%. Controls include numerous other qualification dummies, region dummies, ethnicity dummies, and a quadratic expression in respondent's age. Estimates are based on a sample of around 30000 in each year from 1998, less in 1996.

1. Benefits

Results from McIntosh (2006) using Labour Force Survey data.

All female full-time employees

| Qualification | 1996 | 1998 | 2000 | 2002 |
|---------------|-------|-------|-------|-------|
| Higher degree | 0.140 | 0.132 | 0.155 | 0.168 |
| First degree | 0.254 | 0.244 | 0.229 | 0.241 |
| Other HE | 0.117 | 0.125 | 0.073 | 0.079 |

All coefficients are significant at better than 1%. Controls include numerous other qualification dummies, region dummies, ethnicity dummies, and a quadratic expression in respondent's age. Estimates are based on a sample of around 18000 in each year from 1998, less in 1996.

1. Benefits

A higher degree adds 8-17% to subsequent earnings.

If this premium is indefinite, and if the only cost of the education is foregone earnings, this 8-17% can be viewed as an estimate of the rate of return.

This is high in comparison with prevailing interest rates, so UK graduates are arguably *underinvesting* in postgraduate education.

But there are caveats.

1. Benefits

Signalling and screening

Education may not be a productivity augments – it may merely be a signal that allows employers to identify high productivity individuals. Estimates of the rate of return may therefore suffer from ability bias.

Randomisation

A related point – people undertaking higher degrees may not be a random sample of the relevant population.

If, for example, MBA students are the graduates most likely to gain from an MBA (owing to unobserved heterogeneity), the rate of return overestimates the effect that an MBA would have on a randomly chosen graduate.

1. Benefits

Randomised experiments could fix these issues (Card, 2001), but these are rare.

Harmon and Walker (1995) establish that raising the minimum school leaving age in the UK in 1948 and 1973 raised the wage subsequently paid to workers with minimum education – this must be a human capital effect.

Other experiments include use of:

- quarter of birth (Angrist and Krueger, 1991)
- distance of home from nearest higher education institution (Kane and Rouse, 1993)
- data on twins (eg Ashenfelter and Krueger, 1994)
- panel data, holding ability of individuals constant (eg Angrist and Newey, 1991)
- data on the Vietnam draft lottery (Angrist and Krueger, 1992)

Studies typically find that overall bias in rate of return estimates is small – ability bias is cancelled out by measurement error bias.

But there is no literature specific to the issue of postgraduate education.

1. Benefits

The human capital v signalling/screening issue is complicated by the problem of observational equivalence.

Tests based on:

- (i) self-employed v other workers
- (ii) older v younger workers
- (iii) impact of others' education on own earnings

all provide evidence in favour of the human capital interpretation (Johnes, 1995).
Again these are not specific to the case of postgraduates.

2. Costs

Foregone earnings are not the only cost of education – tuition costs (whether borne by or on behalf of the student) are a further cost.

Analysis of costs in higher education is complicated by

(i) the multiproduct nature of universities, with synergies between teaching (different subjects, levels, modes of study), research, and third mission activities

(ii) differences in institutions' goals

(iii) differences in the extent to which institutions operate efficiently.

2. Costs

These issues can be accommodated by statistically estimating costs:

- as being determined by a nonlinear combination of universities' outputs, highlighting the role of interactions
- using panel data and allowing parameters to vary across institutions, so that each institution (or type of institution) has costs that are determined differently
- using 'stochastic frontier' methods, so that costs are evaluated as an envelope that maps outputs onto the costs that would be incurred by a technically efficient institution.

2. Costs

Johnes and Johnes (2009) estimate such a model for higher education institutions in England, 2001-03.

Average incremental costs associated with postgraduate teaching is about £10500 per student per year. With high rate of return, postgraduate education remains a good investment.

Economies of scale associated with delivery of postgraduate tuition remain underexploited, so costs could come down if provision were more concentrated.

Fixed costs are highest in the top 5 institutions, but lowest in the civics; research costs most in the top 5, least in colleges of HE (but this likely disguises differences in the nature of research).

3. Policy

There is not a large body of high quality research on the economics of postgraduate level study in the UK (allowing disaggregation by PGT, PGR, or by subject). But on the basis of what we do know...

In comparison with many other countries, duration of ISCED 5 degree in UK is short, and a high proportion of graduates 'drop out' after first degree.

| Country | 3-4 years | 5 years and above |
|-----------|-----------|-------------------|
| UK | 47 | 53 |
| Germany | 40 | 60 |
| Italy | 61 | 39 |
| Portugal | 33 | 67 |
| Spain | 45 | 55 |
| USA | 55 | 45 |
| Australia | 95 | 5 |

Numbers of UK domiciled postgraduate students remain low. Some 46% of full time postgraduates (115000) in UK higher education institutions are UK domiciled.

Policy should be considered in the context of student loan repayments – eg loan