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CLS Briefings

Following lives from birth and through the adult years

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The Centre for Longitudinal Studies (CLS) is an ESRC Resource Centre based at the Institute of Education, University of London. CLS is responsible for three of Britain's birth cohort studies:

- **1958 National Child Development Study (NCDS)**
- **1970 British Cohort Study (BCS70)**
- **Millennium Cohort Study (MCS)**

The studies involve multiple surveys of large numbers of individuals from birth and throughout their lives. Over the years they have collected detailed information on education and employment, family and parenting, physical and mental health, and social attitudes. Because they are longitudinal studies following the same groups of people throughout their lives, they show how histories of health, wealth, education, family and employment are interwoven for individuals, vary between them and affect outcomes and achievements in later life. Through comparing the different generations in the three cohorts, we can chart social change and start to untangle the reasons behind it. Findings from the studies have contributed to debates and enquiries in a wide range of policy areas over the last half-century.

The aim of CLS Briefings is to provide examples of findings from the three cohort studies. Although the findings they include are not exhaustive, they give an idea of the work that has been carried out and the scope of the studies for future research. Data from the 1958, 1970 and Millennium cohorts is available free of charge from the UK Data Archive (www.data-archive.ac.uk), which is administered by the Economic and Social Data Service, University of Essex.

The returns to education

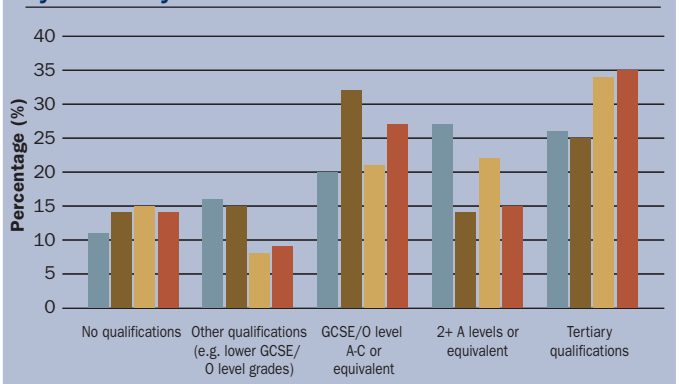
This briefing paper illustrates several ways in which educational data from the 1958 and 1970 birth cohort studies have been used for investigating the returns to education. We have yet to accumulate data on this topic from the Millennium Cohort Study (MCS) but as time passes there will be scope for comparable analysis on the youngest of CLS's cohort studies. For researchers who are interested in undertaking further work in this area, page 4 provides an overview of questions that were asked of cohort members, their families and teachers.

How have levels of qualifications achieved changed over time?

The bar chart summarises the highest qualifications obtained by members of the two cohorts in their 30s (1958 cohort members were surveyed in 1991 at age 33 and 1970 cohort members were surveyed in 2004 at age 34).

The chart clearly shows the increase over time in the proportions of both men and women obtaining the top level of qualifications. The growth in tertiary level qualifications is greatest for women, rising from 25% for the 1958 cohort in 1991 to 35% for the 1970 cohort in 2004. The chart also highlights that by 2004, 1970 cohort women holding the highest level of qualification had overtaken men. At the other end of the spectrum, the proportion with no qualifications appears to have remained stable over time, at around 11% to 15%.

Highest qualification attained by cohort members by their early 30s



Source: Makepeace et al (2003) and de Coulon (2006)

Education… but for what reward?

In recent years, interest in the monetary returns to higher education has been brought into sharp focus by the change in funding arrangements from student grants to loans, and the resulting increase in student debt.

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The 1958 and 1970 birth cohort studies are ideal for evaluating the impact of education on earnings since they include both detailed information on earnings, and comprehensive information on all academic and vocational qualifications obtained at or since leaving school, including the date they were obtained. The studies provide particularly high quality data on educational achievements, since they record information supplied by the school and examining authority on examinations achieved, as well as information provided by the respondents themselves. Finally, the data are extremely rich along other dimensions and include the results of standardised tests administered at early ages, school type and family background variables, all of which are valuable for controlling for prior differences in ability and background.

The monetary returns to academic and professional qualifications

While the impact of investing in more education is generally seen to be sizeable and significant in terms of the individual wage gain, there appears to be considerable variation in the wage returns to different types of qualification.

Blundell, Dearden and Sianesi (2005) investigated the wages of male members of the 1958 cohort when they were aged 33. They estimated that, on average, the wages of men who had completed some form of higher education were 27% higher than those who had lower levels of qualifications. Furthermore, they found that compared with those who left school at age 16 without any qualifications, there was an average wage gain of 18% for O levels, 24% for A levels and 48% for a higher education qualification (e.g. Higher National Certificate/Diploma, professional or nursing qualification, first or higher degree).

Dolton and Vignoles (2002a) used the detailed information contained in the 1958 cohort study to explore the impact of different A level subjects (and grades) on subsequent earnings. At age 33, men with A level mathematics earned between 10% and 14% more than their similarly educated counterparts who did not have this qualification. The wage premium associated with A level maths remained even after controlling for a number of measures of previous ability. This suggests that students with high level mathematical skills, such as those provided by mathematics A level, are in particularly high demand in the labour market.

Men who get a qualification in A level maths are more likely to earn a higher wage than similarly qualified men who do not have maths A level

Data from the 1958 cohort study has also been used to evaluate the impact of the breadth of the age 16-19 curriculum on subsequent wages (measured at age 33). Dolton and Vignoles' (2002b) analysis of male 1958 cohort members suggests that employers do not pay a wage premium to those who pursued a broader A level curriculum. However, this work provided further confirmation of the significant, large and positive effect associated with having mathematics A level, even for those who went on to study at graduate and postgraduate level.

As a result of their research, Dolton and Vignoles (2002a) recommend that more students should be encouraged to study for A level mathematics. The rationale behind this is that the mathematics skills learned at A level, such as logical thinking, problem solving and statistical analyses, match more closely the skills used in the workplace than those associated with other A level subjects.

The monetary returns to vocational qualifications

In their analysis of the 1970 cohort, Dearden, McGranahan and Sianesi (2004) turned their attention to the returns associated with holding a Level 2 National Vocational Qualification (NVQ2) – the most widely held of NVQ qualifications. (NVQ levels range from 1 to 5, where Level 1 involves the lowest level of competency and Level 5 the highest.)

Initially, they chose to focus exclusively on the returns of having an NVQ2 among those with either no other qualifications, or with other qualifications at Level 1 or below. Their rationale for this was that those with low-level/no qualifications are by definition more likely to benefit from obtaining a Level 2 NVQ than those who also hold other qualifications, such as a degree. They found that men with a Level 2 NVQ earn about the same or slightly more than those with no qualifications. Women with NVQ2s appear to earn about the same or slightly less than the comparison group with lower qualifications. This is of course a somewhat surprising result, suggesting minimal or no returns to such qualifications.

Although the sample sizes are too small to draw definitive conclusions, the authors found that the returns of obtaining a Level 2 NVQ qualification appear to be higher for those who were "worse off" in terms of their family background and ability (where ability was measured by the results from three standardised tests administered in childhood).

The team also investigated whether those who had obtained a Level 2 NVQ in 1996 were more likely than otherwise similar individuals to go on to achieve additional qualifications. They found that a Level 2 NVQ appears to be an important "stepping-stone" to higher levels of achievement. If all other things are equal, having an NVQ2 increases the probability of obtaining an academic or vocational qualification at Level 2 or above after 1996 from 8% to 12%. This increase is quite substantial when taken in the context of later life achievement, since only 8% of the 1970 cohort went on to obtain any qualifications at Level 2 or above after the age of 26.

Having a level 2 NVQ increases the likelihood of achieving additional academic or vocational qualifications of an equivalent level or higher

How does education impact on career progression in later life?

Data from the last two surveys of the 1958 cohort have been used by Dolton, Makepeace and Marcenaro-Gutierrez (2005) to evaluate the contribution of early ability, educational achievement and labour market experience to career progression in later life. Their research found that both age 16 educational achievement and NVQ level influence the career progress an individual will make in later life.

An important part of their analysis is the differential assessment of what happens to men and women over the lifecycle. Education, in terms of years of schooling or

changing levels of qualifications attained, appears to matter more for women in explaining wage increases between age 33 and age 42.

The wider benefits of education

Cohort study data have also been used for a range of research projects to evaluate the non-economic benefits that education and adult learning bring to individuals, their families and to society as a whole.

The 1958 and 1970 cohort studies were analysed by Feinstein (2002) to estimate the effects of learning on depression and obesity. For women, going from having no qualifications to gaining a low-level qualification (e.g. GCSE grades D-G, NVQ Level 1, etc) is associated with a reduction in the likelihood of depression of between 6% and 10%, in the 1958 and 1970 cohorts respectively. Men in the 1970 cohort with a degree are estimated to be 6% less likely to experience depression than those who only have an advanced level qualification (e.g. A levels, NVQ Level 3, etc). While the effects of learning on the probability of obesity are less strong, for men the transition from no qualifications to a low-level academic qualification is associated with a 5% reduction in the probability of obesity for the 1958 cohort, and 7% decrease in the 1970 cohort. For women in the 1958 cohort, gaining a low-level qualification is associated with a 5% reduction in the risk of obesity.

Feinstein et al (2003) used the 1958 cohort to explore the wider benefits of adult learning. Their analysis provides striking evidence that taking courses in adulthood (between the age of 33 and 42) is associated with changes in a wide range of "quality of life" and "social capital/cohesion" outcomes. For example, those who had participated in one or two courses were 3% more likely to have given up smoking and 2% more likely to have increased their levels of exercise, compared with those who had taken none. Furthermore, there is clear evidence of the effects of adult learning in increased race tolerance, a reduction in political cynicism, increased take-up in membership of organisations and a greater tendency to vote.

Taking part in courses in adulthood increases the chance of giving up smoking and taking more exercise

In 2004, Preston and Feinstein used 1958 cohort data to investigate the relationships between participation in adult education and changes in attitudes. They found that people who had taken part in adult learning were less likely to become racist and authoritarian than those who had not. In other words, taking courses was associated with maintaining non-racist attitudes. However, participation in adult learning was not associated with changing the attitudes of cohort members who were already racist and authoritarian.

More recently, Hammond and Feinstein (2006) used data from the 1958 cohort to compare the adult health and well-being of individuals who had/had not flourished at secondary school. Their most remarkable finding concerns the increased risk of smoking at age 33 for those who had not flourished at school. Women who had no O level or equivalent qualifications at age 16, and who were disengaged at school, were 4.7 times more likely to smoke at age 33 than their counterparts with O levels, almost all of whom were engaged at school. And for men the risk of smoking at age 33 was 3.5 times higher for those who had no O level equivalents at age 16 and who were disengaged at school.

This briefing paper gives an outline of some of the research undertaken on this particular topic. While it mainly focuses on the financial returns to education, research on the broader returns has also been summarised, such as the impact of education on health, attitudes and behaviours. For further information on any of the research featured here, full references are listed in *Further reading*.

Further reading

Blundell, R., Dearden, L. and Sianesi, B. (2005) 'Evaluating the effect of education on earnings: models, methods and results from the National Child Development Study', *Journal of the Royal Statistical Society: Series A*, 168(3): 473-512.

Bynner, J. and Egerton, M. (2001) *The wider benefits of higher education,* Bristol: HEFCE.

Dearden, L., McGranahan, L. and Sianesi, B. (2004b) *An in-depth analysis of the returns to national vocational qualifications obtained at level 2*, London: Centre for the Economics of Education.

Dolton, P., Makepeace, G. and Marcenaro-Gutierrez, O. (2005) 'Career progression: getting-on, getting-by and going nowhere', *Education Economics*, 13(2): 237-255.

Dolton, P. J. and Vignoles, A. (2002a) 'The return on post-compulsory school mathematics study', *Economica*, 69: 113-141.

Dolton P. J. and Vignoles, A. (2002b) 'Is a broader curriculum better?', *Economics of Education Review*, 21: 415-429.

Feinstein, L. (2002) *Quantitative estimates of the social benefits of learning, 2: health (depression and obesity)*, London: Centre for Research on the Wider Benefits of Learning.

Feinstein, L., Hammond, C., Woods, L., Preston, J. and Bynner, J. (2003) *The contribution of adult learning to health and social capital*, London: Centre for Research on the Wider Benefits of Learning.

Hammond, C. and Feinstein, L. (2006) *Are those who flourished at school healthier adults? What role for adult education?* London: Centre for Research on the Wider Benefits of Learning.

Makepeace, G., Dolton, P., Woods, L., Joshi, H. and Galindo-Rueda, F. (2003) 'From school to the labour market'. In E. Ferri, J. Bynner and M. Wadsworth (eds) *Changing Britain, changing lives: three generations at the turn of the century*, London: Institute of Education.

Preston, J. and Feinstein, L. (2004) *Adult education and attitude change*, London: Centre for Research on the Wider Benefits of Learning.

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A selection of questions on education and income that were asked of cohort members, their families and teachers

This list, together with variable names, is available at www.cls.ioe.ac.uk/briefingsappendices

1958 National Child Development Study

QUESTION	AGE
Reading test score	7, 11
Arithmetic/mathematics test score	7, 11
What type of school did the cohort member attend?	16
What age did the father leave full-time education?	16
What age did the mother leave full-time education?	16
Has the cohort member achieved A level mathematics?	20
What was the pay per week for the cohort member's first job?	23
What was the pay per week for the cohort member's second job?	23
What is the net pay per week for the cohort member's current job?	23
What was the net pay per week for the cohort member's last job?	23
What is the highest qualification obtained by the cohort member?	23
What is the usual take home pay for the cohort member's current/most recent job?	33
What was the last take home pay for the cohort member's current/most recent job?	33
What are the highest qualifications achieved by the cohort member since March 1981?	33
What qualifications has the cohort member achieved in their life?	33
What are the qualifications achieved by the cohort member before March 1981?	33
What type of vocational qualification has the cohort member obtained since 1981?	42
Are any of the qualifications obtained by the cohort member National Vocational Qualifications?	42
What type of qualification has the cohort member obtained since 1991?	42

1970 British Cohort Study

QUESTION	AGE
Derived variables based on the Edinburgh Reading Test	10
Group mathematics test	10
British Ability Scale	10
What type of school did the cohort member attend?	16
What age did the father leave full-time education?	16
What age did the mother leave full-time education?	16
Did the cohort member obtain O level mathematics or equivalent?	16
How much does the cohort member's job pay?	16
What is the cohort member's net take home pay?	26, 30
What is the cohort member's corrected weekly pay?	26
What is the highest qualification held by the cohort member?	26
What is the highest academic qualification held by the cohort member?	26
What is the highest vocational qualification held by the cohort member?	26
What type of qualifications has the cohort member obtained since April 1986?	30
What type of vocational qualifications has the cohort member obtained since April 1986?	30

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