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Earnings returns to the British education expansion

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ABSTRACT

We study the effects of the large expansion in British educational attainment that took place for cohorts born between 1970 and 1975. Using the Quarterly Labour Force Survey, we find that the expansion caused men to increase education by about a year on average and gain about 8% higher wages; women obtained a slightly greater increase in education and a similar increase in wages. Clearly, there was a sizeable gain from being born late enough to take advantage of the greater educational opportunities offered by the expansion. Treating the expansion as an exogenous increase in educational attainment, we obtain instrumental variables estimates of returns to schooling of about 6% for both men and women.

1. Introduction

Between 1989 and 1994, there was a large increase in higher educational participation in the UK. The scale of the increase is quite impressive and it occurred subsequent to a long period of stagnation. From 1970 to 1989, the proportion of individuals who went to college was about 15% for men and 13% for women and these numbers were fairly constant from year to year. However, by the mid-1990s, these percentages had become about 30% and 35% respectively (Walker & Zhu, 2008). Between 1988 and 1996, participation in higher education in the UK increased by 93%; the equivalent figure for the US was 15% (OECD, 2007). By any standards, this is a sharp increase in educational attainment over a short period of time.

When we look by birth cohort, the large expansion in educational attainment occurred for cohorts born between 1970 and 1975. Our focus in this study is twofold: first, we explore how educational attainment changed throughout the educational distribution for these cohorts. Interestingly, there were large increases in educational attainment even for persons who did not attain A-levels or acquire a college degree. Second, we examine how the wages of affected cohorts were impacted by the changes in educational opportunities.

For post-1975 cohorts, there was once again a fairly stagnant period with little increase in educational attainment. This has changed for more recent cohorts as the British government set targets for increased higher education and there has been much discussion about the merits of large increases in 3rd-level participation. By studying the impacts of the previous education expansion, we hope to provide some insight on the likely long-run affects of recent policy.

The results are also likely to be of interest for other reasons. Machin (2007) and Blanden and Machin (2004) show that the expansion of UK higher education since the 1960s predominantly benefited children from high-income families. They speculate that this is a major reason for the reduction in intergenerational mobility in the UK over this period. However, in the absence of direct estimates of the benefits of the education expansion to those who took advantage of it, it is difficult to be certain of this link.

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Other researchers have worried that the large increase in the supply of educated individuals may have led to over-education in the labour market with college graduates doing jobs previously carried out by non-degree holders. Consistent with this idea, a pure signalling model suggests that increasing the supply of highly educated persons in certain cohorts would cause potential employers to revise downwards their estimate of the average ability of graduates in these cohorts. Both these factors imply that there may be a negligible benefit to being in a high-education cohort. On the other hand, standard human capital models suggest that the skills learned in school and university should increase the earnings of these cohorts.[1]

In this paper, we investigate the effect of the education expansion on educational attainment and subsequent earnings of the affected cohorts. In particular, we use data from the Quarterly Labour Force Survey (QLFS) to study the outcomes of persons born between 1958 and 1982. Treating the expansion as an exogenous increase in educational attainment, we also report instrumental variable estimates of the implied return to education for both men and women.

The structure of this paper is as follows: in the next section, we review some relevant literature. In Section 3, we describe the Education Expansion (henceforth, EE). Section 4 describes the data and provides some descriptive statistics and Section 5 discusses the empirical strategy. We report the results in Section 6 and discuss the estimates in the context of the literature in Section 7. Section 8 concludes.

2. Literature review

There are several literatures that are relevant to this paper. First, there are a series of papers that have studied whether the return to a college degree (or the quality of job undertaken by college graduates) has fallen as a result of the large increase in the supply of university graduates resulting from the expansion in higher education (Walker & Zhu, 2008 provide a literature review). Most of these papers compare the difference in outcomes of degree and non-degree holders in both pre- and post-expansion cohorts. Our reading of the literature is that evidence for a change in the degree/non-degree difference across cohorts is weak. A fundamental problem with these papers is that the increase in higher education (henceforth, HE) implies that the composition of graduates relative to non-graduates must have changed across cohorts – graduates are a much less elite group now than they were pre-expansion.[2]

Walker and Zhu (2008) improve on this methodology by restricting their sample to persons who have at least two A-level qualifications (see Section 3 for a description of the structure of the UK education system). This implies that they drop persons who would not be admitted to university and compare outcomes of those who chose to attend with those who chose not to. They find that this difference is not lower for the later-born cohorts who were able to take advantage of the education expansion. Their approach is problematic if the composition of persons who hold 2+ A-levels changed during the expansion. Later in the paper, we show that, during the education expansion, there was a sizeable increase in the proportion of persons who attained 2 or more A-levels. Therefore, it is likely that the underlying characteristics of this group have changed as well.

There are other related literatures that we now briefly discuss. Much research has looked at the impacts of changes in compulsory schooling laws (Devereux & Hart, 2010; Harmon & Walker, 1995; Oreopoulos, 2006) and of school-building programmes (Berlinski & Galiani, 2007; Duflo, 2001). There is also some research on the effect of college openings on outcomes of women (Currie & Moretti, 2003). Some of these papers have used cross-state variation while others have relied solely on cohort-level variation. As we discuss further below, Ichino and Winter-Ebmer (2004) use cohort-level variation in educational attainment in Germany and Austria that resulted from World War II to assess the effect of education on later outcomes. Our paper differs from the literature as it is the first attempt we are aware of to use cohort-level variation to study the effect of the UK education expansion on outcomes. It might reasonably be expected that the impact of the education expansion would differ from that of changes in compulsory schooling laws, school-building programmes, and from educational variation resulting from war. Also, as mentioned above, it is of particular policy relevance given the general trend of governments encouraging large increases in educational attainment.

3. Institutional background

3.1. The UK education system

In the UK, the academic year runs from 1st September to 31st August. Children generally start school at age 5. In England and Wales, the school-leaving age was raised from 15 to 16 on 1st September 1973, so the cohorts we study here have to stay in school until they turn 16 years old. Progression at school beyond the minimum leaving age of 16 is based on a series of nationally assessed examinations. Until 1986, students at 16 had to take either the lower-level Certificates of Secondary Education (CSE) exams or the more academically demanding Ordinary Level (O-Level) exams (the top grade (grade 1) achieved on a CSE was considered equivalent to O-Level grade C). While most CSE students tended to leave school at the minimum age, students who took O-Levels were much more likely to stay further in school. In 1986, CSEs and O-Levels were replaced by General Certificates of Secondary Education (GCSEs) with the first of the new exams taking place in 1988. Those staying on in school can then take Advanced Level (A-level) exams that are normally examined in three subjects at the end of secondary school at about age 18. A-levels are still the primary route into higher education and A-level grades are the main criteria for university entry. A minimum of two

[1] Chevalier, Harmon, Walker and Zhu (2004) show that the UK evidence suggests that human capital models are more relevant than signalling ones.

[2] Sabadash (2010) links longer term changes in the UK skill premium to supply and demand factors.