

CSI 7: Has our level of education increased?

Summary

- Recent decades have witnessed a pronounced rise in educational participation rates. This is true for post-compulsory education among 16 to 18 year-olds and higher education, as well as early education among 0 to 4 year-olds.
- The rise in educational participation has occurred throughout the post-war period, with growth bursts following institutional reforms such as the rise of the minimum school leaving age in 1972.
- Over the post-war period, girls caught up and then overtook boys in participations rates.
- However, it is not evident that these increases in educational participation also imply enhanced skills and knowledge levels. While examination results have shown marked improvements over the years, recent international test score data exhibit a greater degree of stability over the last few years. In the absence of acceptable benchmarks, it remains highly suspect to compare learning outcomes over time.

Introduction

Education has traditionally been thought of as a key ingredient for a prosperous society as well as a core determinant of many outcomes in people's personal lives. It is therefore of great interest to examine whether educational attainment is improving over time. This is all the more important since there have been many reforms to the organization of the English educational system over the twentieth century. (We do not attempt to cover the Scottish system in this briefing note, given its very different history.) To structure our review, we first examine trends with regard to *participation rates* at different stages of education, and subsequently address the more challenging question of whether *skills and knowledge* conveyed through the education system have increased over time.

Has participation in different forms of education increased?

One of the major indicators for assessing changes in educational participation is whether or not people stay on in full-time education once they have reached the minimum school-leaving age. This increased from 14 to 15 in 1947, to 16 in 1972, and to 17 in 2013. Figure 1 presents the long-term trends in the enrolment rates of 16 or 17 year-old boys and girls in the UK.

Measurement issues

Our main sources are administrative data published by the Department for Education, and test scores from representative sample surveys conducted on behalf of the OECD.

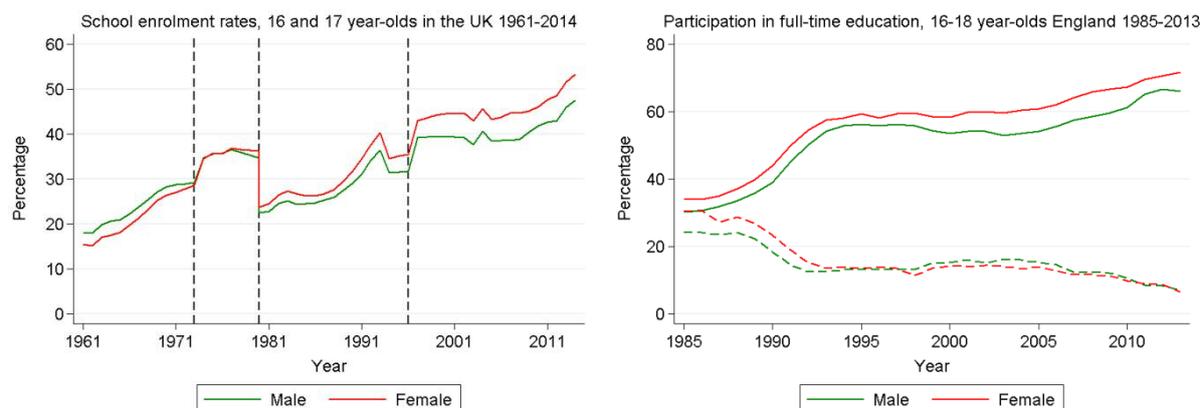
As in other fields, such as crime and unemployment, administrative data can be problematic for measuring change over time because of changes in procedures and measures. In the case of higher education, the re-designation of polytechnics as universities in 1992 led to a large nominal increase in university enrolments. In the case of 16-17 year old participation rates there was a major break in the time series when the measure of age was moved to the beginning of the school year, leading to an apparent downward shift in the numbers of 16-17 year olds in full-time education. The problems are particularly acute in the case of GCSE examination results, where 'equivalent' qualifications such as GNVQs were included from 1998 and a further extension of equivalent qualifications occurred in 2004. There are also issues of grade inflation and 'teaching to the test'.

Scores on OECD's Programme for International Student Assessment (PISA) are based on representative sample surveys, and involve independent standardized tests designed to be comparable over time as well as between countries. They are thus to be preferred in principle to GCSE results as a measure of skills. The difficulty with PISA is that the early surveys in Britain did not satisfy OECD's quality criteria. In addition the stage in the school year when they were administered changed in 2006. We thus have only a short period since 2006 over which we can measure trends in student's skills.

Figure 1: 16, 17 and 18 year-olds are increasingly likely to stay on in full-time education

The vertical dashed lines in the left panel indicate breaks in the data. The dashed lines in the right panel depict employment rates.

Source: Department for Education.



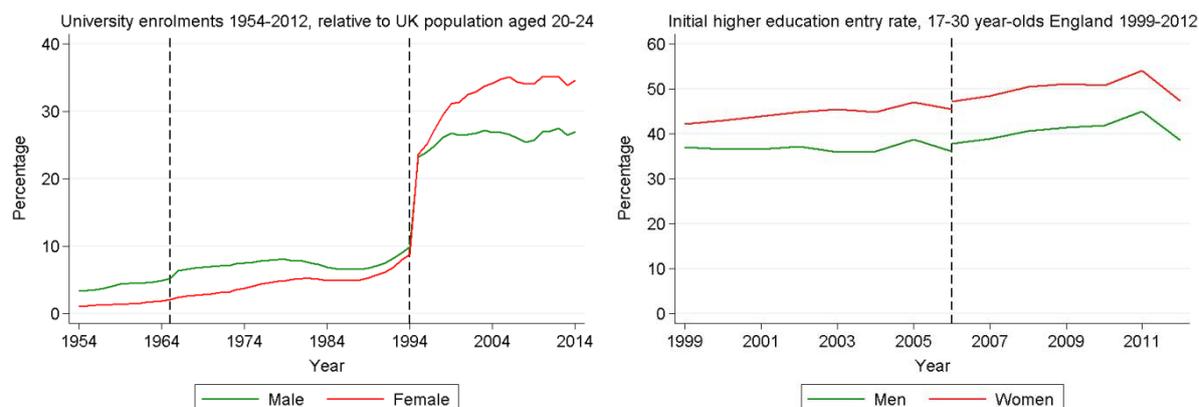
As the left panel of Figure 1 illustrates, an increasing percentage of 16 and 17 year olds have been staying in in full-time education after the end of compulsory schooling. Notable surges ensued from the raising of the minimum school-leaving age to 16 in 1972, and the introduction of GCSE examinations and other changes following the Education Reform Act of 1988. In recent years enrolment rates have been rising again, following a decade of stability in the late-1990s and early-2000s. After initially lagging behind boys, girls have had higher enrolment rates since the late-1970s.

The right panel of Figure 1 shows that the increase in educational participation in the late 1980s and early 1990s has been mirrored by a decrease in the employment rate of 16 to 18 year-olds (see the dashed lines). Additional analyses suggest that the enhanced participation in full-time education for this age group since 2004 has mainly been due to the increased popularity of vocational qualifications.¹

Having completed their secondary schooling, one of the next choices faced by young adults is whether or not to proceed to university. Figure 2 demonstrates that, in this area too, significant shifts have taken place over the past half-century. The left-hand panel plots the number of university enrolments as a percentage of the UK population aged 20 to 24. Starting off from enrolment rates below 5% for both men and women in 1954, participation for both groups grew until the early 1990s, partly fuelled by the rise in educational participation among 16 to 18 year-olds. In 1994 an enormous, but largely nominal jump, occurred following the granting of full university status to many former polytechnics. This change coincided with women moving ahead of men.

Figure 2: Numbers entering higher education have been increasing slowly in recent decades

The vertical dashed lines indicate breaks in the data. Source: Department for Education.

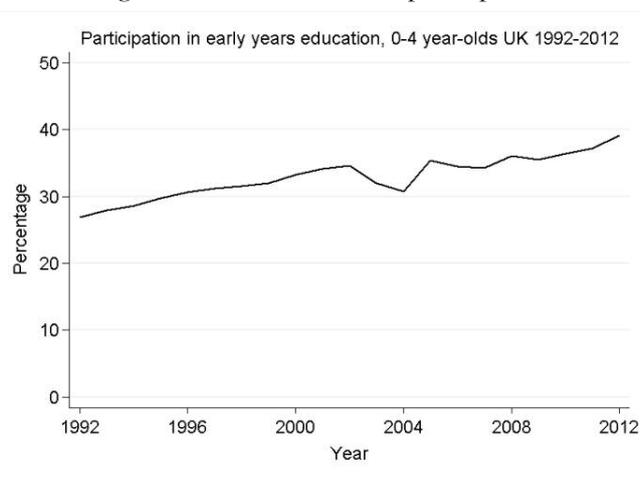


The right panel of Figure 2 sheds more light on the recent trends. This graph presents initial entry rates for the English domiciled population aged 17 to 30, i.e. the percentage of this age group enrolling in

university for the first time. This rate is currently about 10 percentage points higher for women than for men. While the rise in the initial entry rate has been gradual during most of the last 15 years, the last two years demonstrate a break in this trend, with first a spike, immediately followed by a substantial drop. The likely reason for this lies in the increase in tuition fees in 2012. Presumably in anticipation of this fee rise, more 18 year-olds than usual entered university straight away in 2011 instead of taking a gap year in order to benefit from the old fees regime. As a consequence the entry rate among 19 year-olds in 2012 declined considerably, leading to a marked drop in the overall entry rate. Nevertheless, evidence from the 2013 cycle of university applications suggests that the initial entry rate will return to the medium-term pathway it was on before the rise in tuition fees.

In response to a growing body of research arguing that circumstances in people's first years of life are influential for a range of later-life outcomes, participation in early years education has increasingly become a focus among policymakers and academics. Such education precedes primary school, and is provided through nursery schools and related institutions. Figure 3 demonstrates that participation in early education in the UK has been steadily rising for the past 20 years. The total participation rate among 0 to 4 year-olds was roughly 40% in 2012. Among 3 and 4 year-olds this rate is even close to 100%, partly reflecting that all 4 year-olds have been entitled to funded early education since 1998, and all 3 year-olds since 2004.

Figure 3: Participation in early years education is on the rise *Source: OECD*



Do we have more skills and knowledge than in the past?

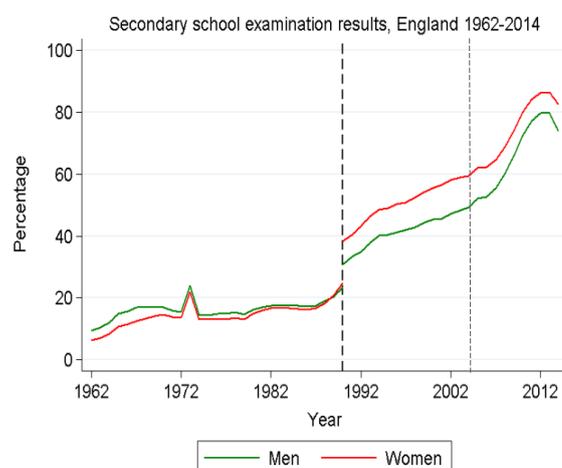
For evaluating whether our level of education has improved, it is not only important to examine how educational participation has changed, but also whether there has been any development in the skills and knowledge transferred through the educational system. One way of approaching this question is by looking at the qualifications that pupils achieve towards the end of secondary school. In this context, Figure 4 shows that pupils' performance in secondary school examinations has improved during most of the past 50 years, and especially after the introduction of the GCSEs in 1988, with a further acceleration from around 2005 onwards.

Figure 4: Performance in secondary school examinations has been steadily improving

The vertical dashed line indicates a break in the data: before 1990 the data refer to one or more A-levels; from 1990 they refer to five or more GCSEs at A-C grades. Source: Department for Education.

At face value these improved examination results look promising. Yet it is crucial to realize that these improvements do not necessarily reflect real progress in students' learning. The assessment criteria may have changed over time, and the higher scores may also result from schools 'teaching to the test', as GCSE results are used for constructing school league tables, giving schools an incentive to present themselves in a favourable light.

Moreover, for the recent trends it matters whether or not vocational qualifications are treated as 'GCSE



equivalents' as a large part of the accelerated rise in scores since 2004 seems driven by a higher take-up of vocational courses.

Similarly, although the proportion of students leaving university with a good upper-second class degree has risen, issues of grade inflation and changing benchmarks might play a role here as well. Given such difficulties in interpreting trends in exam results and official qualifications, it is essential to check trends in GCSEs against other data on learning outcomes. Figure 5 displays trends in reading, mathematics, and science test scores derived from OECD's Programme for International Student Assessment (PISA), in which students in their last year of lower-secondary education (typically aged 15) take standardized tests in order to gauge their competencies in different fields of study. These test scores

are regarded as independent and authoritative, overcoming many of the shortcomings of GCSE results as a measure of learning outcomes.

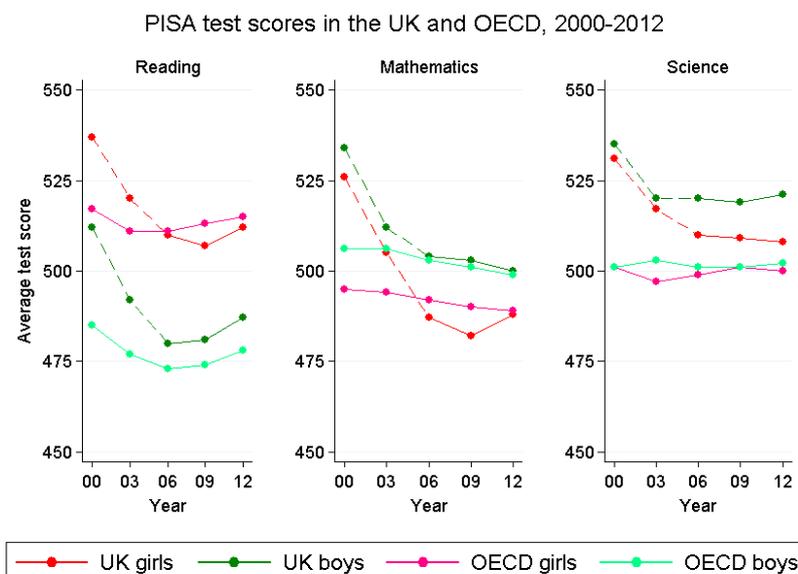


Figure 5: International test score data suggest stability in skills and knowledge levels over time

The 2000 and 2003 surveys for the UK did not meet PISA's quality standards and are displayed using dashed lines. Source: OECD/PISA

When interpreting Figure 5, we should be very careful not to draw strong conclusions from trends for the UK before 2006, as the earlier surveys did not meet PISA's quality standards, and

were undertaken later in the academic year than the more recent surveys. Taking this into account, the safest conclusion is that overall UK test scores have remained fairly constant between 2006 and 2012. Generally speaking, boys seem better at maths and science, while girls score higher on reading. Both gender groups outperform their OECD peers in terms of science.

Comparing Figures 4 and 5, we observe strikingly different trends in recent years. Therefore, it is hard to draw a firm conclusion as to what has happened to pupils' skills and knowledge over this period. The very different trends shown by GCSE exam results and PISA test scores underlines the uncertainty about trends in learning outcomes. At the core of this problem is the absence of everlasting definitions of 'skills' and 'knowledge': what is regarded as useful skills or knowledge changes over time. Each test is to a greater or smaller extent designed in line with the definitions of useful skills and knowledge at a particular point in time, and aims to differentiate the population at that time according to those criteria.

What is the final score?

There is strong evidence that participation in all stages of the educational system has risen dramatically in the UK over the past decades. This signifies that access to educational resources has widened, which by all accounts seems a development to be welcomed. However, to what degree this increased participation is accompanied by enhanced learning outcomes is a question that is intrinsically very difficult to address.

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¹ See Anthony Heath and others, Education under New Labour, 1997-2010, *Oxford Review of Economic Policy* 29: 227-247 (2013).

