

The United Kingdom Education System in Comparative Context

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1.1 Introduction

This Chapter describes the key features of the United Kingdom's education system² and places the system in an international comparative context. We identify areas of strength and weakness in the system, relative to other countries, and raise a host of key questions and issues that are addressed in more detail in later Chapters. Here we highlight where the relative strengths and weaknesses of the UK education system might put us at a particular advantage or disadvantage economically. Of course to do this we have to select certain aspects of the UK education system to analyze, and we also have to identify a group of countries against which we make comparisons. Although the comparator countries are largely determined by data availability, one is always open to the accusation that there is subjectivity in the selection of both the educational indicators we use and the choice of comparator countries. For example, we do not include some important Asian economies in our analysis (Ashton et al. (1999)). We merely note this as the main methodological difficulty inherent in international comparisons of this nature and point you to the sizeable literature on this issue ().

The structure of the Chapter is as follows. It begins by discussing the main features of UK education system, including recent major reforms and resource allocation issues. It then goes on to analyze how the outputs from the UK education system compare with the outputs from the education systems of other countries. In particular, there is a discussion of the relative effectiveness of the outputs from the system in comparison with other countries, in terms of cost effectiveness and impact on the labour market. Lastly, some conclusions, with a mind to what follows in the remainder of the book, are offered.

1.2 Main Features of the UK Education System

Throughout the post-war period, there have been many attempts to reform the UK education system and make it more productive. The list of reforms that have been attempted over the last 50 years is quite extensive, and recently the UK (and in particular England and Wales) has been on the leading edge of the worldwide crusade for better standards in education.

The UK spends relatively little on education as compared to other OECD countries (4.9% of GDP in 2002 as compared to an OECD mean of 5.7%). However, the reform experience of the UK education system is of broader interest to policymakers and researchers from other countries. For example, as in many other countries there has been a push to expand post compulsory participation in education, especially in terms of increasing participation in higher education. However, perhaps the most striking

¹ We are grateful for the extensive comments and guidance provided by Professor Richard Layard.

² Where possible we discuss the United Kingdom. Readers should be aware that the education system in Scotland is quite distinct from the rest of the UK and much of the discussion applies mostly to England and Wales.

recent reform (in England and Wales in particular) is that parents have increasingly been given much more choice in terms of the schooling of their children, and schools have been forced to be more accountable. Both these trends are discussed, before moving on to consider other facets of the UK education system, such as the role of the private sector, the provision of vocational education and adult learning.

1.2.1 Widening Access

Many 20th Century reforms to the UK education system have been designed to widen access to what has historically been thought of as an extremely elitist system. School fees for elementary students were abolished in 1918, although the vast majority of students continued to leave school at 14 (the compulsory school leaving age at that time). Post-war, in response to the need for a more educated work force, the school leaving age was raised, in 1947 to age 15 and eventually in 1973 to the age of 16. Despite these developments, the UK system remained fundamentally elitist, with only around 12% of students staying on past the compulsory school leaving age in 1960.

During the 1960s and 1970s, UK secondary schools underwent a period of radical change, in a further attempt to widen access. Prior to this period, students of differing abilities were sent to different types of school, receiving very different types of education. 'Clever' students (i.e. the relatively small proportion who passed the age 11 entry exam) were sent to state sponsored academically orientated schools called grammar schools. These students were also considerably more likely to go on to higher education (HE). Most other students attended Secondary Modern schools undertaking a range of vocationally orientated subjects, eventually leaving the educational system at the age of 15 (or 16 after 1973). During the 1960s however, there was a growing movement in favour of mixed ability or 'comprehensive' schooling. This in turn sparked off an ideological battle that was to rage for the next 20 years or more, between those who favoured the old selective grammar school system and those who wanted comprehensive schooling. Today in the UK most secondary school pupils are taught in mixed ability schools. However, many of today's mixed ability schools 'stream' their pupils, that is they allocate them to classes according to their ability.

In the 1980s another quite distinctive feature of the English, Welsh and Northern Irish education systems was also subject to major reform, namely the system of national public examinations (Scotland has a somewhat different system). Since the 1950s, secondary school students who were academically inclined (grammar students) took Ordinary Level (age 16) and Advanced Level (age 18) examinations.³ O and A levels were an essential requirement to enter higher education. Less academic pupils could take the Certificate of Secondary Education (CSE) at 16 before they left school. In 1988 the O level and CSE exams were combined in the GCSE (General Certificate of Secondary Education), still taken at age 16. This was not just a change of name. It marked a turning point in the measured achievement of 16 year olds in the UK. The fact that all students at 16 now take the same examination in each subject means that they no longer have to decide whether to go for the lower level CSE option or the more difficult O level examination. This may encourage those who are academically on the borderline between CSE and O level to aim for a higher level of attainment.

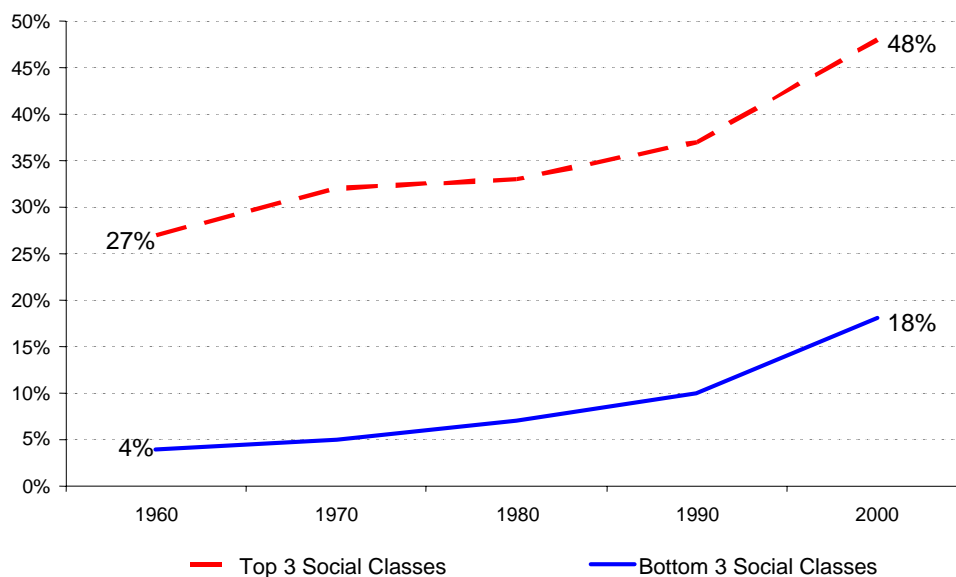
³ These are national public examinations marked by independent assessors.

Certainly GCSEs have proved more accessible than O levels and considerably more students now leave school with at least some qualifications. Furthermore the drop out rate is much reduced. In the late 1980s just 35% of 16-18 year olds in England and Wales were in full time education. By the late 1990s this had increased to 55%.

In the 1990s, the campaign to widen access turned its attention to higher education. Prior to 1992, there were two types of higher education institutions, polytechnics and universities. Polytechnics tended to focus on more vocationally oriented higher education. Universities were more academically focused. In 1992 these institutions were merged and all called universities. This, along with the rising staying on rate and increased achievement at 16-18, led to a marked expansion of the HE participation rate.⁴ In the late 1980s around 20% of the age cohort participated in HE in the UK. This has risen to more than one third in the early 2000s. This expansion is all the more remarkable given the steady erosion of state subsidy of students in higher education (e.g. the abolition of student grants) and, as is discussed further in Chapter 4, the introduction of tuition fees in 1998.

What is perhaps more unique to the UK however is the extent to which an individual's ability to enter university is strongly related to parental education and income (this is analyzed in depth in Chapter 5). It is difficult to make international comparisons because data on the relationship between family background and educational achievement *across different* countries is remarkably sparse. We know that currently in the UK 48% of young people from professional, managerial and skilled non-manual backgrounds enter university, whilst only 18% from a skilled manual or unskilled background do so. This gap in participation between rich and poor has been present for a long time, as shown in Figure 1.1.

Figure 1.1: Higher Education Participation Rate in the UK by Social Class

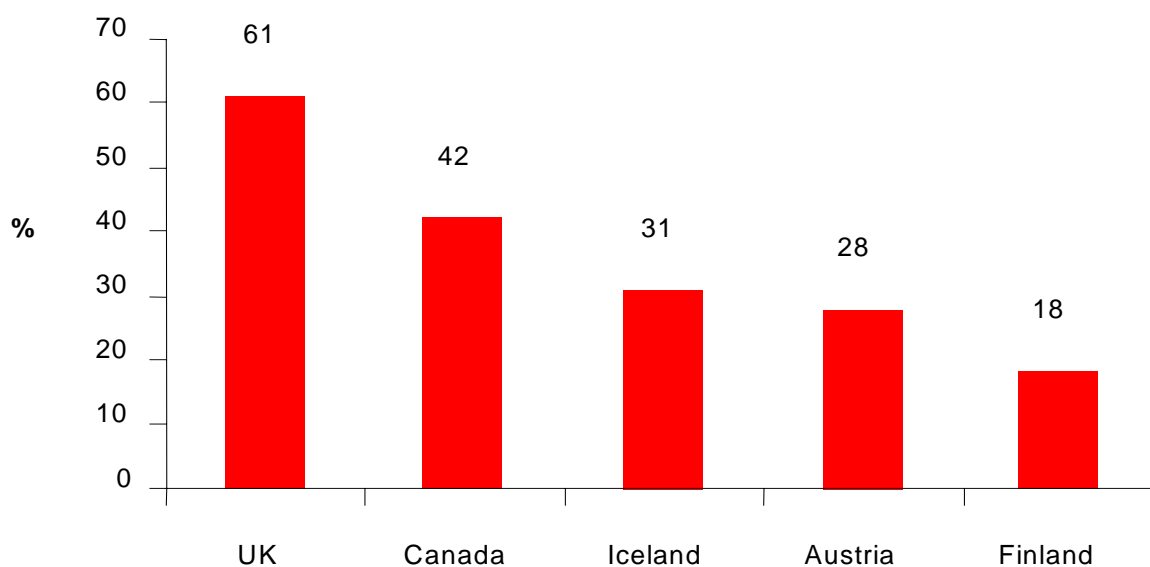


⁴ The Higher Education Participation rate is calculated by the Department for Education and Skills and is designed to give a reasonably constant definition of higher education over time, specifically it is the number of students entering higher education as a proportion of the relevant cohort.

Notes: Top 3 Social Classes Professional, managerial, intermediate occupations, skilled non manual; Bottom 3 Social Classes IIM, IV, V – unskilled non-manual, skilled manual, unskilled manual; Source: DfES Age Participation Index

The limited international data that is available suggests the UK to be somewhat more unequal than other countries in terms of access to HE. For example, the International Adult Literacy Survey (IALS) suggests that, across all the countries surveyed in IALS⁵, having a father with a degree means individuals are 42% more likely to have a degree. In Britain this probability increases to 47%. By contrast, in Sweden it is 35%. Similarly, as Figure 1.2 shows, a larger proportion of the variation in children’s educational outcomes is attributable to their socio-economic background in the UK as compared to some other European countries, although the sample of countries that we can make this comparison for is somewhat limited.

Figure 1.2: Variation in Student Performance Between Schools Attributable to Family Background



Source: Programme for International Student Assessment 2000

1.2.2 Market Reforms

Although much was achieved in the 1960s and 1970s in terms of widening access, in the 1980s there emerged widespread concerns about standards. Successive Conservative governments in the 1980s and 1990s increased the pace of reform and introduced so called “market mechanisms” into the UK education system, in an attempt to force schools to raise standards.

The reforms were directly aimed at increasing parental choice and to improve the accountability of state schools. The aim was to design a system that allows parents to

⁵ Switzerland, Sweden, Canada, US, Ireland, Germany, Netherlands, Poland, Sweden, New Zealand, Northern Ireland and Belgium.

choose their child's school and to have representation on school governing bodies. School funding became more closely linked to student enrolment numbers, giving schools the incentive to attract and admit more students. Some schools were allowed to take control of their own budgets and be financed directly from central government (as opposed to being under local government control). Alongside greater parental choice, policy-makers also endeavoured to improve the information available to parents and the public about the effectiveness of schools, by way of publicly available test score information. There are however, limits to the operation of so-called quasi-markets in the UK education system. Schools are generally not allowed to go 'bankrupt', i.e. exit from the market, and many parents still lack full information on the quality of schools. This weakens the incentive for schools to improve.

Some reforms have gone in the other direction, increasing centralization and reducing school autonomy and their ability to respond to consumer demand. For example, in the late 1980s a standardized national curriculum was introduced for pupils aged between 7 and 16. The purpose of the national curriculum was to raise standards by ensuring that all students study to a minimum level up to the age of 16. Later, in 1998, literacy and numeracy hours were added to the primary school curriculum, with the content of these daily lessons tightly prescribed by central government. Students' understanding of the curriculum is also now centrally tested via the use of national tests taken at ages 7, 11, 14 and 16 (or Key Stage 1, 2, 3 and 4). The average test scores of each school are made publicly available in newspapers and on the web, creating so called "league tables" of school performance. Whilst the national curriculum may have reduced the autonomy of schools, it has also generated more information for parents on the quality of each school, and may have thus enhanced the operation of the quasi-market. Even at the primary school stage, parents are encouraged to act as consumers. They have been given greater choice of where their son or daughter can attend school and more information about the quality of different schools. The government has also attempted to increase school performance and accountability via the regulatory inspection regime and the setting of key targets of educational attainment.

The analysis later in this Chapter suggests that, relative to other countries, the performance of the UK education system has been improving in recent years. Yet there is little hard evidence linking this improvement to any or all of the numerous reforms introduced during the last two decades. Moreover, the quasi-market in education may have reinforced inequality within the education system (see Hoxby (2003) for the US evidence). Lower socio-economic groups that already accessed lower quality schooling, appear to do so now to a greater extent now despite increased consumer choice. For instance, there is empirical evidence that good schools cause house prices to rise. As school performance and house prices are related, lower socio-economic group students will tend to attend lower quality schools (Gibbons and Machin, 2003). High socio-economic groups also appear to have better information on and understanding of school performance, for example via league tables (West and Pennell, 1999). If wealthier parents act on this information, choosing for their children to attend the best schools, then there is a clear tension between strategies to raise standards and policies to reduce inequality. Socio-economic background also relates to school quality and pupil performance in other ways. For example, attending a school with few children from low socio-economic groups is highly beneficial (Feinstein, 2003). If parental choice leads to greater socio-economic segregation

across schools, such peer group effects will further reinforce socio-economic disadvantage.

1.2.3 The Private Sector

At the same time that growing demand for education and increased emphasis on improved quality and academic achievement was altering the shape of the state sector, changes were also occurring in the private education system. Although the proportion of pupils in private education has remained remarkably constant since the 1970s (7 percent in 2001) private expenditure on education saw a five-fold increase over the same period (Glennister, 2001) CHECK. In real terms fees have been increasing at 3.5 percent per year since the turn of the century (Green, 2003).

The huge growth of resources into the private sector contrasts strongly with the fiscal limitations faced by the state education system. There is no denying the huge gap in both inputs into, and outputs from, the two sectors. For example, in England in 2000 the pupil teacher ratio in private schools was 9.9:1 compared to 23:1 in state primary schools and 17:1 in state secondary schools (Green, 2003). Equally whilst 60% of pupils schooled through the private system in the 1980s and 1990s attained degrees, only 16% of state schools pupils did so (Green, 2003). It seems likely that such large differences in resourcing levels between the two sectors would have contributed to these substantial differences in outcomes. Of course such a vibrant and successful private education sector also draws vocal and committed parents out of the state education system, with potential consequences for standards in the state sector.

1.2.4 Vocational Education

A key problem facing the UK education system is a neglect of the long tail of academic underachievers. These are generally students who leave school at age 16 with few or no educational qualifications. Part of this neglect is related to the problems inherent in the provision of vocational training in the UK.

The system of vocational training and qualifications in the UK is complex and has changed substantially over time. Certainly there is no unified system of vocational education, as is found in some other countries such as Germany. There are hundreds of different vocational qualifications currently available, many of which appear to have very low economic value. Different providers offer very different qualifications, with quite different requirements in terms of achievement. This has left students, parents and employers somewhat confused about the content and economic value of different vocational qualifications (see Chapter 8 of this book for a fuller discussion).

Despite this full-time vocational education is chosen by around 25% of all 16 and 17 year olds in the UK. This has risen from just under 15% in the mid 1980s (West and Steedman, 2003). Vocational education therefore represents a sizable part of the UK education system. However, the expansion of full time vocational education has come at the expense of part time, work based education and training. Academic full time study remains the most popular choice at age 16/17 in the UK.

Part of the instability of vocational education in the UK stems from an unsuccessful attempt to achieve so called “parity of esteem” between vocational and academic

education. Reform after reform has been introduced, all in an effort to improve the status of vocational qualifications, as compared to their academic counterparts such as A-levels. Of course the instability that this continual reform generates itself undermines the value of vocational qualifications.

In the UK in the 1960s vocational education typically consisted of one day a week of study at a further education college, in conjunction with an apprenticeship. This system led to qualifications being provided by different awarding bodies depending on the industry. During the 1970s and 1980s the UK apprenticeship system virtually collapsed in the traditional apprenticeship sectors. Various initiatives attempted to replace the traditional apprenticeships (West and Steedman, 2003) with yet more qualifications, increasingly taken full time at further education colleges and with no work based element. These initiatives are too numerous to mention but the most recent reforms of note are the development of National Vocational Qualifications or NVQs and the General National Vocational Qualifications or GNVQs.

Introduced in 1988, NVQs were originally intended as competence based qualifications. They were designed to certify existing occupational knowledge and skills and were targeted at those in work. Many criticisms have been aimed at NVQs, in particular that they are too low level and do not require sufficient vocational knowledge and skill. GNVQs, on the other hand, were introduced in 1992 and were designed to be largely classroom-based taught vocational qualifications. GNVQs covered broader occupational fields (OECD, 1999) and were much less task-specific than NVQs. The aim was to provide an option that would enable students to either enter the world of work directly afterwards or to continue with further study. GNVQs have had some success in terms of enabling vocational students to progress on to HE (around 6% of those enrolling to do a degree have Advanced GNVQ qualifications). However, they are still not popular with employers (OECD, 1999).

The key problem associated with NVQs and indeed GNVQs is their lack of value in the labour market (Dearden *et al.*, 2002). This is discussed in more detail in chapter X. Recognition of this problem has also led to yet more attempts to reform the vocational education system. For example, the introduction (in 1995) of the Modern Apprenticeship scheme was designed to provide a high quality vocational option for more able students. Modern Apprenticeships are modelled on the German dual system of apprenticeship, and are aimed at young people (age 16-19). The apprenticeship prepares the worker for a NVQ level 3 qualification and generally lasts around 3 years. The UK apprenticeship rate is now greater than that of France, Finland and the US, although still well below the levels in Germany and Denmark. More recently, new vocationally oriented GCSE qualifications have been introduced, with the aim of providing a more work relevant curriculum for the 14-16-age range. Vocational AS and A-levels have also been introduced for the 16-18-age range. This rapid change has certainly not simplified the system of vocational education in the UK.

1.2.5 Work Related Training

The continued education and training of workers is an important part of sustaining the highly skilled workforce needed by today's economy. Evidence suggests that, compared to other countries, the workforce in the UK receives relatively high levels of training. For example, the training participation rate among the adult population in

the UK was 40%, compared to 35% in the US and 30% in Germany.⁶ Adults in the UK also receive more hours of training than adults in most other countries⁷, around 45 hours on average (OECD, 2001). In the UK, as in other countries, younger workers are more likely to receive training than older workers, service sector workers receive more training than those employed in manufacturing, and employees in large firms receive more training than those in smaller firms.

There are also gender differences. Males in the UK are more likely to receive training than females, although this is also true of a number of other countries such as Germany and Switzerland.⁸ Gender differences in training receipt are reduced as the education level of individuals increases, so that of those workers in the UK with degree level qualifications both the participation rate and the hours of training received is higher for females than for males. The latter finding highlights the most alarming aspect of adult learning in the UK: training tends to reinforce skill differences produced by the education system, rather than reduce them. Thus, in the UK, as in other countries, those with the least formal education receive the least training in later life.

1.3. How Well is the System Doing?

One way of assessing the success of the UK educational system is to examine educational outputs. While outputs such as qualifications gained are often thought to be the most important measure of educational achievement, it is very difficult to measure and compare qualifications across countries (Barro and Lee, 1993, 2001; Steedman, 1996). In particular data on educational attainment is very problematic, since different countries use different definitions of what constitutes a particular level of education. For example, Steedman (1996) suggests that there is significant under reporting of qualifications in a number of OECD countries, largely due to the exclusion of many vocational qualifications from the statistics. The other major difficulty is that one has to assume that a certain level of educational attainment is similar in quality across countries (e.g. attaining an upper secondary education is assumed to mean that the person has reached the same level of attainment across different countries). Yet clearly the standards reached vary both across and within countries. Although the UK education system relies on externally validated measures of achievement, such as O levels and A levels, many systems, such as the US, do not. Thus we cannot be sure that a high school graduate has reached a certain level of attainment, even comparing students across the US, let alone across countries.

Despite these difficulties, it is desirable to place the UK's level of educational achievement in some kind of international perspective. A partial solution to the problem is the use of the International Standard Classification of Education. The ISCED classification is not without its own difficulties (Steedman, 1996) but at least it provides some kind of consistent comparison system. Broadly ISCED levels 0, 1 and 2 refer to lower secondary education or below ("drop out"), ISCED level 3 to 4

⁶ Rates for the UK are for the period 1995/96, for Germany 1997 and for the US 1999.

⁷ With the exception of Denmark, where the mean number of hours of training is 91, New Zealand (68 hours) and Norway (66 hours).

⁸ The participation rate of males and females in a number of countries is more even. For example, Norway and Ireland have relatively equal participation rates. In Denmark, Finland and Australia the female participation rate is actually higher than the male rate.

corresponds to upper secondary (high school graduation) and ISCED 5, 6 and 7 signify degree or above.

However, the cut off point between ISCED levels 2 and 3 is particularly problematic for the UK. According to ISCED definitions, level 3 should include qualifications that give access to university level study or that require completion of a 2 year course of education/training following completion of compulsory education. Yet the UK government has included people with 5 good (grades A-C) GCSEs in the ISCED 3 category, despite the fact that these qualifications do not (at least at the point of obtaining them) lead to higher education and do not require 2 years of post compulsory study. Including good GCSEs in ISCED level 3 makes the UK's attainment at this level look substantially better than many of its competitors.

Steedman (1996) has tried to overcome this problem and we therefore start with her assessment of the UK's educational attainment level. Table 1.1 shows the percent in particular qualification groups in the UK relative to a selected group of countries. It shows the UK to perform well at degree level education, but very poorly at intermediate and lower levels.

Table 1.1: Qualifications Held in the Workforce, 1996 (Percentages)

| | At least Degree | At least “A level” | At least “good GCSE” |
|-----------|--------------------|-----------------------|-------------------------|
| Germany | 22 | 74 | 83 |
| France | 23 | 45 | 73 |
| UK | 24 | 36 | 55 |
| US | 22 | 29 | 50 |

Notes: Source - The Skills Audit (1996), published by the DfEE and the Cabinet Office. Economically active population aged 16-65 (for women in the UK 16-59). US results are for 1994.

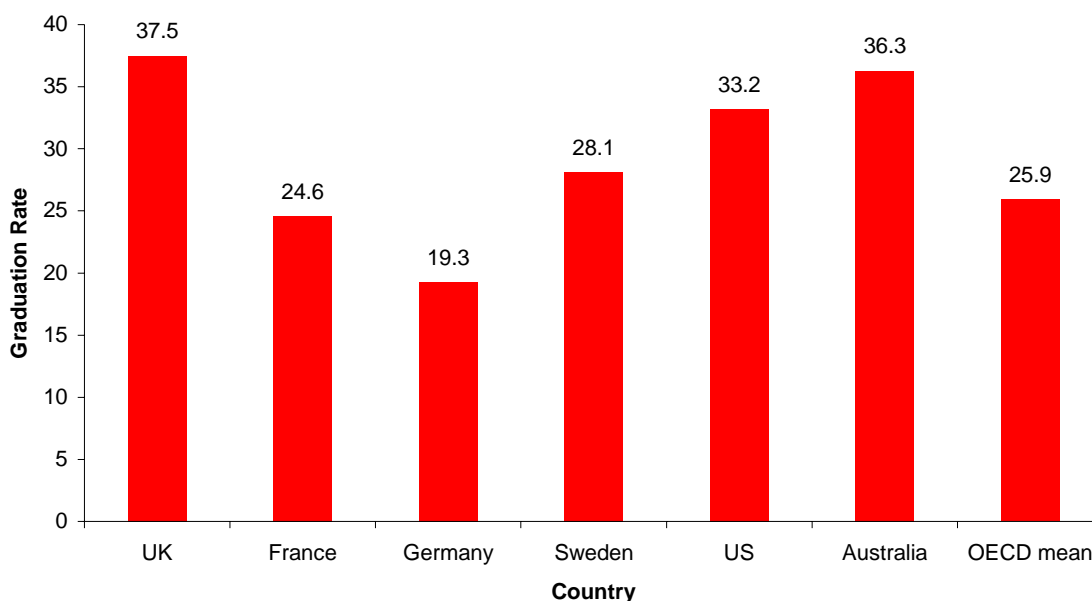
The good UK performance at degree level is also confirmed by OECD data on graduation rates from Type A⁹ tertiary education, as shown in Figure 1.3. Figure 1.3 shows that the UK also has the highest graduation rate from tertiary education amongst the group of countries being considered,¹⁰ and much higher than for the OECD as a whole.¹¹ This is not just a recent development, even though the expansion of HE has been very rapid in the UK over the last two decades. Even if one looks at the proportion of graduates in the population as a whole, as in Table 1.1, opposed to just new graduates, as in Figure 1.3, the UK still does relatively well compared to other OECD countries. The notable exception is the US, which had a much higher graduation rate somewhat earlier.

⁹ This means academic, non-vocational, higher education requiring a minimum of 2 years of full time study.

¹⁰ The only other country with a comparable rate is Australia.

¹¹ As discussed we have some reservations about comparisons using this OECD data. Nonetheless the story that emerges is consistent with the more detailed comparisons by Steedman (1996).

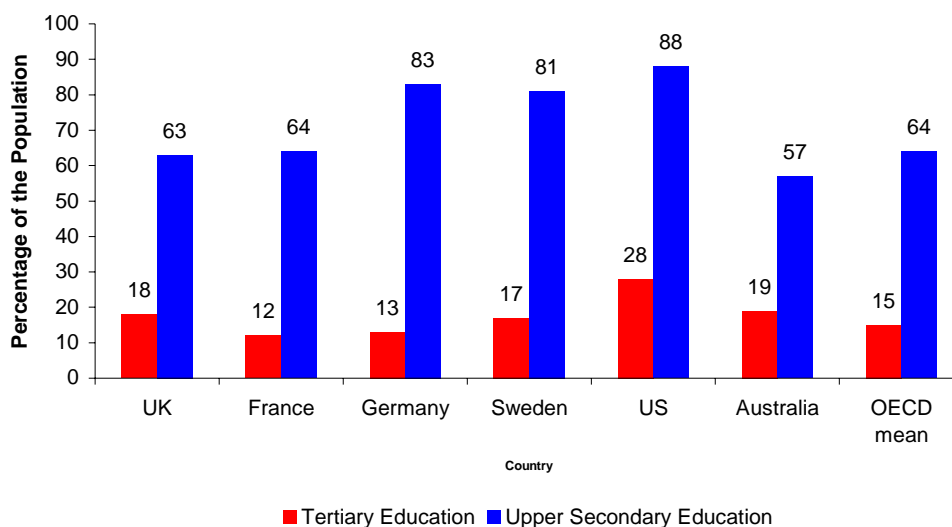
Figure 1.3: Graduation Rate from Type A Tertiary Education



Notes: Type A Tertiary refers to academic, non-vocational, higher education requiring a minimum of 2 years full time study. Source - OECD (2001).

From an economic perspective it may not be sufficient for a relatively small proportion of the population to be well educated. A supply of labour with intermediate skill levels is also important. Table 1.1 clearly indicates that the UK performs poorly in this regard. Even abstracting from the problems of classifying upper and lower secondary education (A levels and GCSEs), Table 1.1 indicates that 45% of the UK population have not even acquired good GCSEs, as compared to only 17% in Germany. Only the US does worse than the UK on this measure. Even standard ISCED levels, which overstate the UK attainment levels- particularly at ISCED 3, suggest the same story. Figure 1.4 shows the proportion of the population obtaining at least an upper secondary education (A-level, or equivalent qualifications), as well as tertiary education (degree plus). At the intermediate level the UK performs less well than the other countries examined, with the exception of Australia, and marginally worse than the OECD as a whole.

Figure 1.4: Upper Secondary (ISCED 3) and Tertiary Schooling (ISCED 5+)



Notes: Type A Tertiary refers to academic, non-vocational, higher education requiring a minimum of 2 years full time study. Source: OECD (2001).

The situation gets worse at the lowest levels of skill and education, as we now show. Formal qualifications only capture some dimensions of skill of course and do not inform us about the achievement levels of those people who do not hold formal qualifications. But one can examine the actual skill level of workers in each country, drawing on various sources. The most recent are the Progress in International Reading Literacy Study (PIRLS), the Programme for International Student Assessment (PISA) and the International Adult Literacy Survey (IALS). Collected in 2001, PIRLS data measure the reading achievements of over 140,000 ten year olds in 35 countries. PISA data, gathered in 2000, measure how well 15 year olds across 32 countries perform on tests related to the curriculum that they study at school. IALS data measure *adult* literacy in twelve countries in 1995.

These data sources suggest different things and highlight some of the difficulties in making these types of international comparisons (in particular the sample of countries available in each data set is very different). Testing adults who have already left the school system (IALS) suggests that the UK does relatively badly, compared to other countries, in both literacy and numeracy. Table 1.2 shows the relatively poor literacy and numeracy performance of adults in the IALS data. This poor performance is present for all age groups.

Table 1.2: Numeracy and Literacy Performance by Age From IALS

| | % of adults at IALS Level 2 or above | | | | | |
|----------------------|--------------------------------------|--------------|--------------|--------------|--------------|--------------|
| | Numeracy | | | Literacy | | |
| | Age 16-25 | Age 26-35 | Age 36-45 | Age 16-25 | Age 26-35 | Age 36-45 |
| Belgium (Flanders) | 93 | 91 | 83 | 92 | 88 | 80 |
| Switzerland (German) | 93 | 87 | 81 | 93 | 83 | 76 |
| Netherlands | 92 | 93 | 90 | 92 | 94 | 91 |
| Sweden | 95 | 96 | 93 | 96 | 95 | 93 |
| Germany | 96 | 95 | 94 | 91 | 88 | 86 |
| Ireland | 82 | 80 | 77 | 84 | 84 | 79 |
| Britain | 78 | 80 | 81 | 83 | 82 | 83 |
| USA | 74 | 80 | 82 | 77 | 80 | 81 |

Notes: OECD, *Literacy, Economy and Society*, p. 152 and 154. Based on IALS measurement of “quantitative literacy” and “prose literacy”.

PIRLS data on the other hand indicate that English school children are among the most able readers in the world at the age of 10 (Twist et al., 2003).¹² This finding is consistent with evidence from PISA which suggests the UK achieves the highest scores in both reading and mathematics for the countries listed in Table 1.2, and some 13% higher than average for all PISA countries. Given that the IALS and PISA tests

¹² However, PIRLS data indicate that England also had an extremely wide distribution of reading scores with a long low of low achieving pupils.

were so different perhaps it is not surprising that we get these conflicting results, and certainly this exercise illustrates the inherent difficulties in assessing the skill levels in different countries. IALS measured the skills of a sample of the working age population in 1995, whilst PISA examined the reading and mathematics achievement of 15 year olds in 2000. Thus this conflicting evidence may be down to differences in the tests, differences between the samples (particularly in terms of age) or perhaps a genuine improvement in skill levels between 1995 and 2000, although the latter seems unlikely in such a short time period. What seems much more likely is given that PISA samples UK children at age 15 during the compulsory phase of schooling and at this stage they are performing reasonably well, it appears therefore that the problems within the UK education system are particularly acute from age 15 onwards. Given the high UK drop out rate at age 16, it could simply be that insufficient numbers of students are continuing their education beyond 16 and some fraction of those who do continue do not gain good skills during the post compulsory phase.

We can further use the IALS data to determine whether Britain really does have a long tail of very low achievers, as compared to other countries. To do this we measure the real skill levels of workers with each level of education. Crudely put, we determine what each level of education provides, in terms of skills, in each country. Figures 1.5 and 1.6 show that, compared to the other IALS countries, British workers with the lowest levels of education (below GCSE) are no less skilled in terms of adult literacy and numeracy, and indeed if anything are marginally more skilled. At ISCED level 2 (GCSE) there does seem to be a gap in numerical skills specifically, with British workers having slightly lower skill levels. However, by and large the UK education system seems to be reasonably effective in terms of the skills it gives workers with each level of education.

Figure 1.5 IALS Literacy Achievement by ISCED level

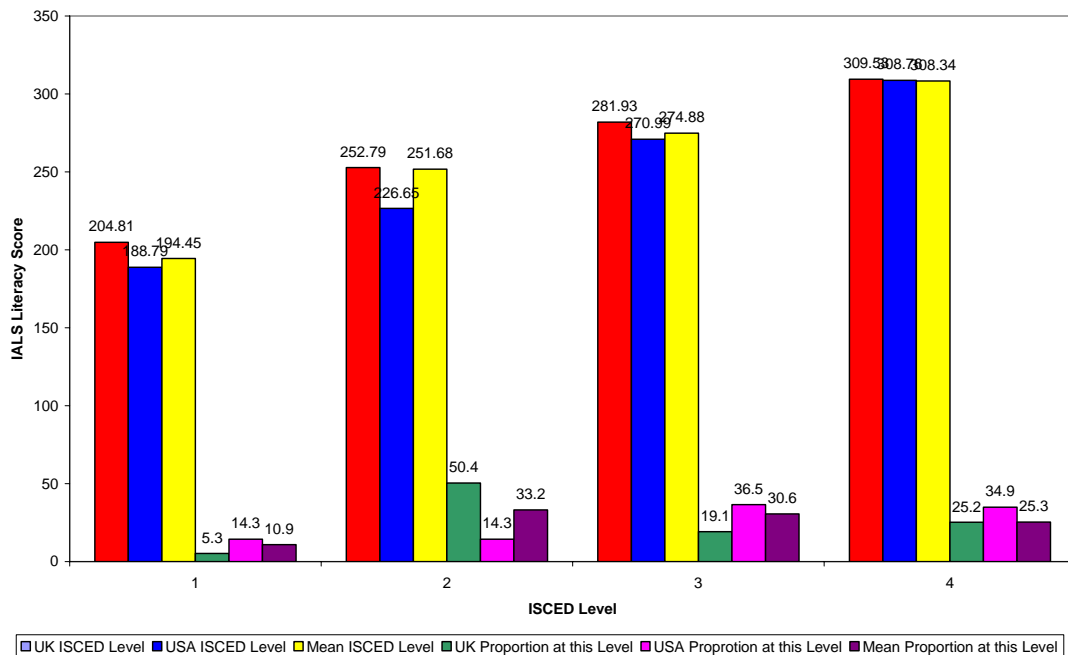
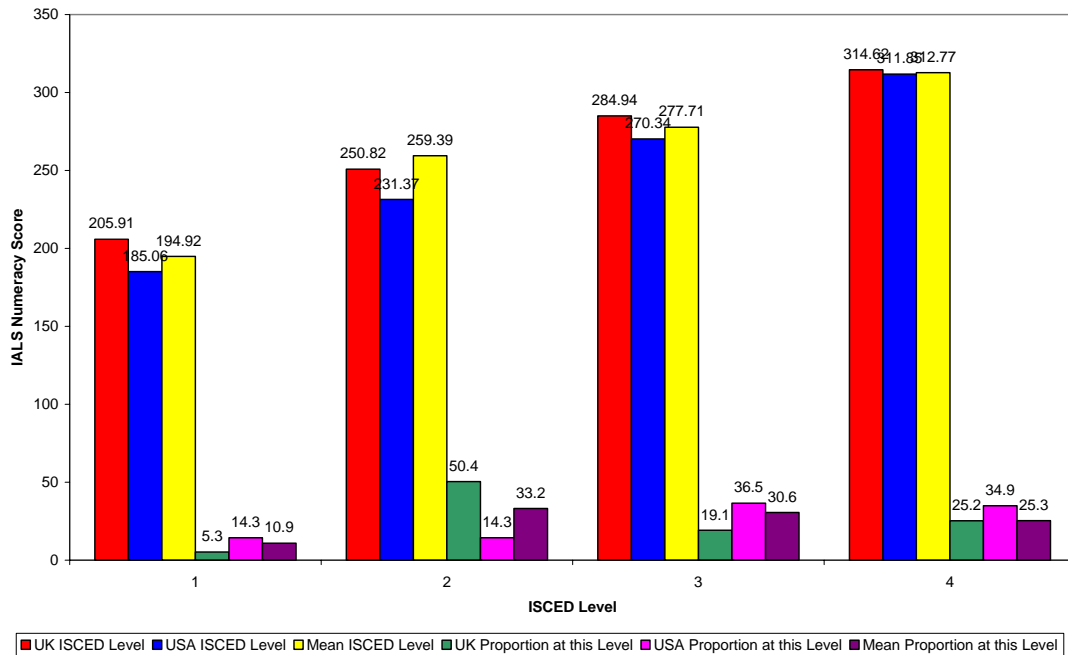


Figure 1.6 IALS Numeracy Achievement by ISCED level

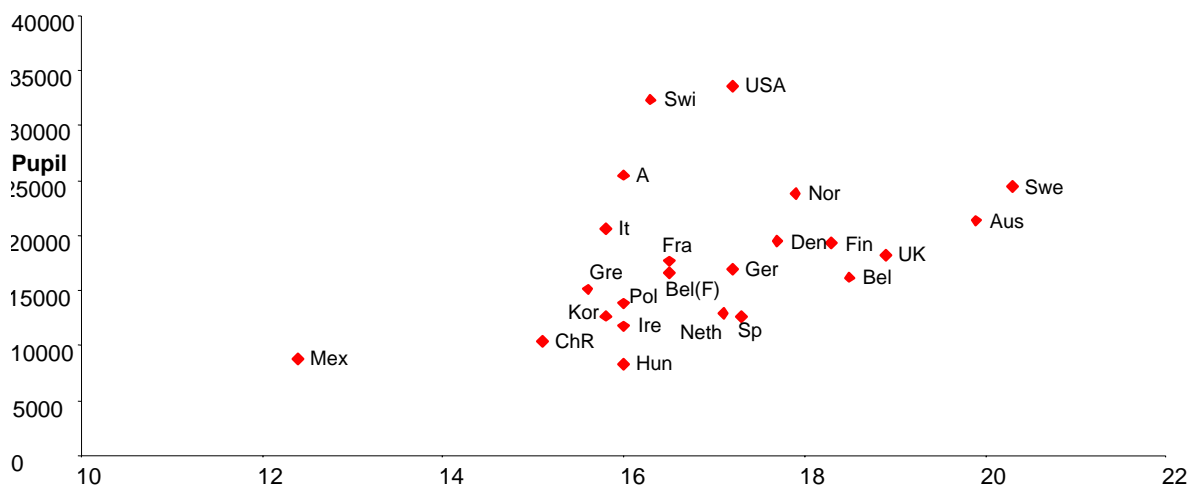


The most acute problem, as the data in Figures 1.5 and 1.6 show, is that the UK produces a lot more workers with the lowest levels of education (although not as low as the USA) and, as we have already established, far fewer at intermediate levels. In particular around half the UK's work force is at ISCED level 2 (poor GCSE – high school dropout), compared to just one-third for all other IALS countries. Thus relative to the comparator countries, which include the major economies of Northern Europe and the US, the UK does appear to have a relatively long tail of low achievers. Furthermore, an additional problem is that there is more variability, in terms of skill, *within* education categories in Britain (and even more so in the USA), as compared to some other Northern European countries. This too applies particularly at the lower end of the education distribution.

One does not want to overstate the problem of the level of skill of the UK's work force. By and large, the UK system performs as well as the OECD average in terms of outputs, but we have highlighted particular concerns about the output from the education system at the lower end of the distribution. Of course to judge the effectiveness of the UK education system one would like to compare outputs with costs of production. However, this is extremely difficult, as not only is it hard to find measures which would accurately allow us to do this, but also empirical evidence examining causal relationships between expenditure per pupil and educational attainment across countries has generally not found that higher spending countries

produce more educated workers (Hanushek and Kimko, 2001). However, as Figure 1.7 shows, by looking at the proportion of GDP spent on education against average years of schooling we can very crudely establish that the UK is a low to moderate spending nation, with an above average output from its education system. By contrast, the USA and Switzerland are both high cost systems with average output, while Sweden achieves a high output with above average spending.

Figure 1.7 Expenditure per pupil (in \$) and educational attainment (expected years of schooling)



1.4. The UK Education System and the Labour Market in International Context

Chapter 8 will consider in detail the extent to which the UK education system meets the needs of the labor market, but the final consideration in the current Chapter is to consider this issue in an international context. The obvious way in which to evaluate the output from the UK education system is to measure the worth of each qualification level in the UK labor market. The price of a given qualification level will reflect its relative supply and demand. Thus a very high price for a particular qualification suggests relatively low supply and relatively high demand for that educational output relative to other countries.

Table 1.3 shows earnings differences by skill and qualification level, from a simple statistical regression analysis of IALS data. The Table shows the earnings premium associated with 'A' levels or equivalent (high school) and degree qualifications across four IALS countries, taking into account age, parental background and hours of work. In all four countries, workers with degree level qualifications earn significantly more than those with qualifications below 'A' level. However, UK and US workers with degrees earn a considerably larger premium from their degree than their counterparts in Sweden and Germany. For example, the premium attached to a degree in the UK is around 60% in the IALS sample, compared to 24% in Germany. Lower down the scale, the picture is somewhat different. There is no wage premium to the equivalent of 'A' levels/ high school graduation in Germany, and just a 15% premium in the UK. In the US by contrast, the premium to this level of qualification is around 60%.

Table 1.3: Earnings Differences by Skills and Qualifications (IALS Data)

| | Germany | Sweden | UK | USA |
|------------------------------|-----------------------|-------------------|-------------------|--------------------|
| | Qualifications | | | |
| A-Level or Equivalent | .013 (.068) | .212*** (.042) | .145*** (.035) | .603*** (.095) |
| Degree | .237*** (.083) | .360*** (.043) | .590*** (.036) | 1.277*** (.093) |
| | Literacy | | | |
| IALS 3 | -.038 (.073) | .050 (.044) | .016 (.042) | .141* (.073) |
| IALS 4/5 | .023 (.129) | .060 (.053) | .120** (.057) | .172* (.084) |
| | Numeracy | | | |
| IALS 3 | .080 (.071) | .016 (.044) | .229*** (.042) | .262*** (.072) |
| IALS 4/5 | .059 (.117) | .064 (.053) | .391*** (.056) | .438*** (.081) |

Notes: Earnings regressions were run separately for each country. The dependent variable is log annual earnings and each specification controls for both education level and skill level. The samples are people in work aged 16-64 in each country. 10 % significance level, ** 5%, * 1%. Standard Errors are in parentheses. The UK and German earnings data is banded so the regressions for these countries used interval regressions. All regressions control for education, skill level, age, age squared, father's education, part time status and weeks worked in the year.

Various explanations are consistent with these findings. Firstly, the relative demand for graduates in the UK may be relatively high. This is consistent with arguments that there has been particularly rapid skill biased technological change in the UK boosting demand for skill (Machin??). If the relative demand for skill is high in the UK this will boost the price attached to a degree in the labor market. It may also be the case that less educated British workers are so unproductive and low paid that the relative position of graduates is enhanced. Also consistent with these results is the view that degree programs are particularly effective in boosting the productivity of graduates and thus they earn disproportionately more than workers with lower level qualifications. In fact the UK degree programme is relatively short (OECD (2003)) reinforcing the view that the return per year of higher education study is particularly high in the UK. Of course the results relating to 'A' levels would suggest a relatively low demand for these qualifications or a relatively high supply. Given that we know that the UK does not produce as many workers with these intermediate qualifications as other OECD countries, this tentatively suggests that there is a relatively low demand for these qualifications.

In addition to measuring the value of qualifications in each country, the analysis also considers the earnings premium that accrues to better literacy and numeracy skills. Thus Table 1.3 shows earnings gaps associated with higher levels of IALS literacy and numeracy. The Table shows that $\log(\text{earnings})$ are 12% and 39% higher for higher-level literacy and numeracy skills in the UK. Furthermore, there is only a statistically significant earnings difference for these skills in the UK and USA (as denoted by the star subscripts in the Table). This may reflect the fact that there is an under supply of skilled people in these countries so those with higher skills are suitably rewarded. The fact that the results for Germany and Sweden are not statistically significant may indicate these countries have a better supply of skilled workers.

In summary, the data suggest that the reward, in terms of earnings, from having better literacy and numeracy skills is substantially higher in the US, and even in the UK, as compared to the other countries considered. The effect of *numeracy* on earnings is particularly strong in the US and the UK. Yet we have already shown that achievement in basic skills is lower in the US and the UK, as compared to countries like the Netherlands and Germany. In other words, from our very small sample of countries, it appears that those countries with more unequal earnings distributions, lower basic skills levels and greater *variability* in basic skills achievement, the wage premium for skills is higher. Given that the UK is one of the few countries where the majority of people do not learn mathematics beyond the age of 16, the numeracy result in particular may not be surprising. Britain is certainly the exception in allowing students to enter university, having done no mathematics beyond the age of 16. In Northern Europe over 80% of 17-year olds in full time education are studying some formal mathematics, compared with only 25% in England. This does not however explain the poor numeracy performance in the US, where 80% of 17 year-olds are engaged in formal mathematics study, yet, as we have seen, achievement levels are low. It might therefore be the *standard* of mathematics being studied in the US that is the culprit.

A similar explanation may be found for the relatively poor performance of UK adults in terms of basic *literacy* skills, since most students stop the formal study of English

at age 16 in the UK. In other countries, including the US, students tend to continue formal study of their mother tongue up to the age of 18/19, particularly if they intend to go on to university. Nonetheless the curriculum at 16-19 can only provide a partial explanation for the poor basic skills performance of British workers. It is still the case that around 40% of students leave full time education at age 16 in the UK. The explanation for the poor skills of this group obviously lies in the standard of their education up to the age of 16.

1.5. Conclusions

The UK's education system has been subject to much change and reform since the Second World War. It has expanded dramatically and widened access to all parts of the system, from primary school right through to university level. Furthermore, in the drive to raise standards, the UK education system has been on the forefront of the movement to introduce market forces into education. With a twin pronged approach of greater parental choice and better school accountability, the UK has strived to improve the productivity and efficiency of its schools.

What has all this change achieved in terms of performance? We have shown that the UK spends a moderate amount on education, but achieves an above average performance in terms of the expected average years of education. The UK performs particularly well at the upper end of the distribution, with one of the highest graduation rates amongst OECD countries. However, we have identified significant problems at the lower end of the education distribution, and in particular the high proportion of workers leaving with GCSE qualifications or less (high school drop outs) and the variability of basic skills amongst less educated workers.

Even given this relatively good (and cost efficient) performance at the upper end of the education distribution, it may nonetheless be the case that the UK education system is failing to meet the demands of the labour market, as compared to many other countries' education systems. For example, the evidence suggests that there are relatively high returns to certain qualifications in the UK, such as degrees. This may of course indicate high demand for these qualifications or insufficient supply or both. If the UK has too many unskilled or low skilled workers (and by implication relatively too few highly skilled and graduate workers), the excess supply of low skill workers will push down their relative wage. This will automatically push up the return to a degree, which is derived from relative graduate salaries. This is consistent with the story that the UK's performance at the lower end of the educational distribution is much more problematic. This is also consistent with evidence of high returns to basic skills in the UK as compared to other European countries. The high premium for basic skills, and in particular numerical skills, may reflect insufficient supply of such skills – clearly an indictment of the quality, if not the quantity, of output from the education system.

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