

# Human Capital, Growth and Inequality

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## Introduction

The Portmeirion conference programme posed the following questions:

“Which skills are most important – basic, soft or technical? How can an education or training system best foster them?”

There are many reasons that a nation wants a well-educated and trained population. This paper takes a deliberately narrow, instrumental perspective and examines the contribution of education and training to productivity and growth and to tackling problems of economic inequality. It would be presumptuous of me to claim great specific knowledge of the details of the Welsh economy and so I consider these issues through a wide lens in the hope that this will stimulate debate about the relevance of my arguments to the situation in Wales.

A whole series of sub-questions underlie the organisers’ questions. What do we know about the relationship between education and skills on the one hand, and productivity and economic growth on the other? What do we know about the relationship between education and training systems and inequality? What do our answers to these two questions tell us about three broad issues? The first is about the appropriate level at which education and training should take

place – level is partly about the stage of life at which someone is educated and partly about the level of attainment to be aimed for. In a cost constrained world there are competing claims, and there is always debate as to how much public resource should be put into primary, secondary and tertiary activity. Within the tertiary sector, how far should we be aiming for degree level qualifications or for qualifications at a lower level? Again within the tertiary sector, what is the appropriate location of education and training – the formal education system or the workplace or a mixture of the two? The second issue is what should be taught. For example, what should be the relative weights of academic and vocational subjects in secondary schools? Or in vocational courses, what should be the weight of field specific education as against the development of more general cognitive skills? Where does the nurturing of soft skills fit into all of this? The third issue is who should pay – the individual being educated or trained, the employer or the state?

First I discuss the relationship between human capital, productivity and economic growth and consider the attitudes of policy makers to this relationship. Then I turn to issues of economic inequality and end by making suggestions for the direction of policy.

## Human Capital and Economic Growth

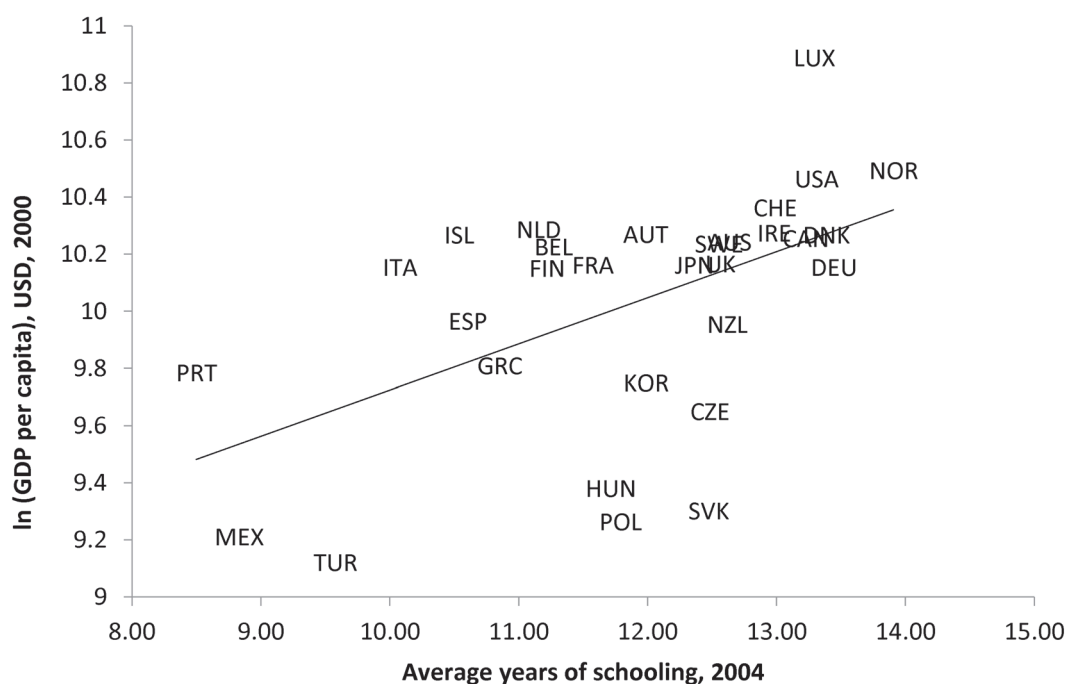
Governments across the OECD have placed huge emphasis on the central contribution education and training make to economic growth. In February 2015 the Welsh Secretary, Stephen Crabb, said:

“There are those who caution against always crudely linking education to economic or workplace goals. And they are right of course. Education and learning are intrinsically valuable on their own terms. But here in Wales, I don’t believe we have had enough focus on the vital role of education when it comes to our economic performance.”

(<https://www.gov.uk/government/speeches/welsh-secretary-demands-stronger-and-more-ambitious-education-in-wales>)

He was quite correct to advise caution. Figure 1 depicts the relationship between GDP per capita and one measure of educational attainment across a number of countries. Whilst there is clearly a generally positive relationship, the chart indicates that countries with similar levels of educational attainment can exhibit very different productivity performance. A similar picture would emerge had I considered growth of GDP per capita and had I used alternative measures of educational attainment.

Figure 1: GDP per capita and average years of schooling



Source: OECD, PISA; Figure from Grugulis, Holmes and Mayhew (forthcoming)

The reason for this is obvious. For an increase in someone's skill to increase output and growth, that extra skill has to be utilised in the labour market. Blaug et al. gave an extreme example of the potential problems of under-utilisation as long ago as 1969 in their book, *The Causes of Graduate Unemployment in India*. Blaug and his colleagues described a country that was producing very large numbers of graduates but where the jobs available fell far short, in quantity and quality, of using the capabilities these graduates possessed. A few years later, in 1976, Richard Freeman wrote about the "over-educated American" with respect to the labour market consequences of mass higher education in the United States. Until recently, however, policy makers have been slow or reluctant to face up to such challenges. Yet under-utilisation is clearly with us today. The problem has been measuring it.

The OECD 2013 Skills Survey tells us that 14 out of 22 countries had close to 20 per cent of their workers "over-qualified for their current job", and another six had at least one in four. The OECD has coined the term vertical mismatch to capture the possibility that workers are under- or over-qualified to obtain their job. The rather dubious definition of over qualification that is deployed is as follows. A worker is deemed to be over-qualified if his/her highest qualification is higher than the mode or mean qualification for all members of that occupation. Figure 2 suggests that between 10 and 20 per cent of UK workers were over-qualified on that definition – more than in some countries, less than in others. However it will be seen from the chart that rather

more workers were classified as under qualified, but there is a severe weakness in the definitional concept. Consider the following example. Imagine that in 1970 there were 100 hundred baristas in London. Ninety nine of them were young people with modest qualifications from secondary school and one of them was a University of London graduate who, for whatever reason, had "fallen on hard times". On the OECD's definition one per cent of people in this occupation would be deemed to be over-qualified. Wind on to today. There are still 100 baristas in London but they are all graduates; so zero per cent of the occupation would be over qualified. In other words this particular measure, if used to examine changes over time, does not cope well with any occupational filtering down – in the case of this example, graduates entering occupations that were once predominantly non-graduate. In the use of approaches like this there is also an inherent danger of confusing two concepts – needing your qualification to get a job as opposed to needing what you learnt whilst acquiring your qualification to do the job. Implicit assumptions are also made about the relationship between qualifications and skills. A commonly used alternative approach is the so-called "subjective" one where individuals are asked whether or not they needed their qualifications/skills to get/do the job.

The OECD Skills Survey provides information on such self-reported skill mismatch with measures derived from the European Working Conditions Survey. The over-skilled are "the share of the employed who replied affirmatively to

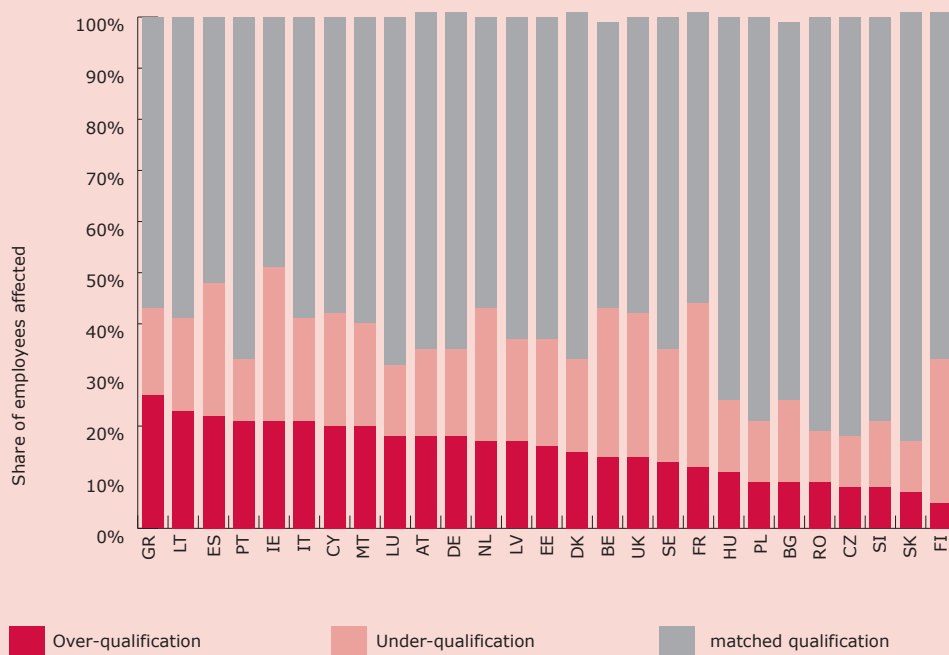
the option 'I have more skills to cope with more demanding duties'". Here the situation for the UK appears to be rather more concerning. According to this measure about 40 per cent of UK workers were over-skilled. This is worse than all but four of the EU 27, these four countries being Slovenia, Cyprus, Greece and Romania. Looking just at graduates, as Figure 3 shows the picture remains disconcerting.

However this approach to measuring skills mismatch is also attended by many difficulties, relying as it does on workers' own perceptions.

By far the most reliable way of attacking these issues is a direct observation of job content. However this is expensive and so unconvincing short cuts have been deployed, the most egregious of which is one often deployed in official documents. This is to take very broad occupational categories and assign some occupations to the high skill group (usually managers, professionals and associate professionals), others to the middle skill group and yet others to the low skill group. But to assume that an increase over time in (say) the high skill group means much at all is dangerous – the content of some of the relevant occupations may have changed substantially. For example, Brown, Lauder and Ashton (2011) argue that many managerial jobs have been massively deprived of discretion and analytical content by ICT developments, a phenomenon they describe as "digital Taylorism".

Notwithstanding such measurement difficulties it seems pretty clear that

Figure 2: Average incidence of vertical mismatch, EU-27 countries, 2001-2011



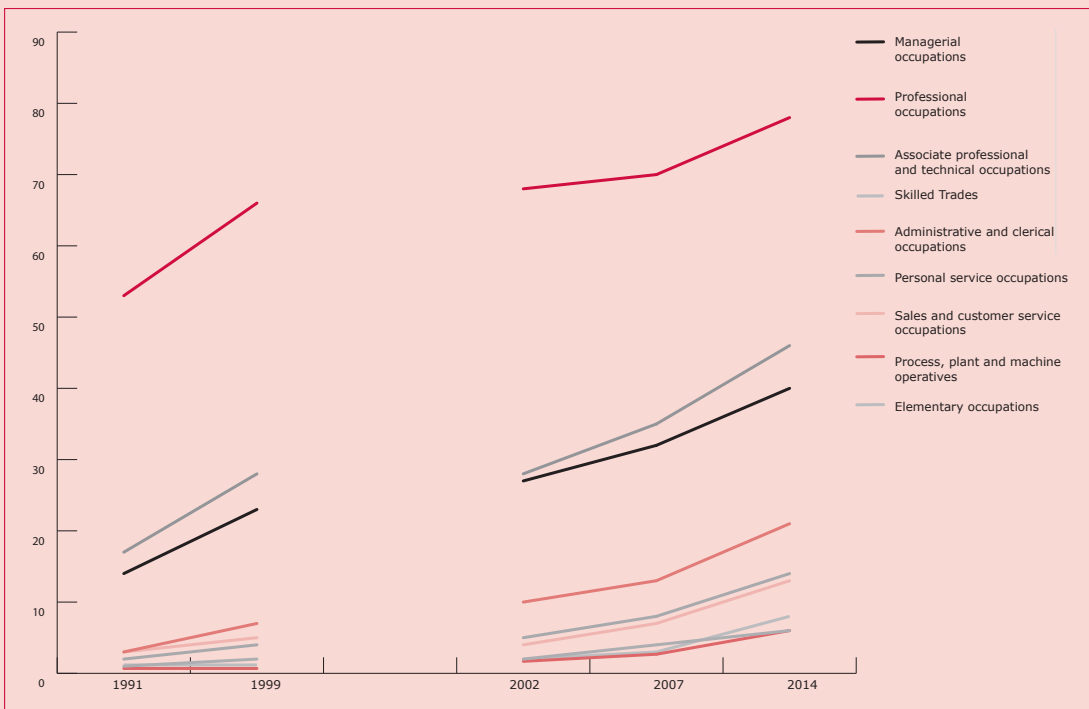
Notes: A matched worker is one who has the modal qualification in their occupational group (two-digit ISCO category). Over- and under-qualification is defined related to this modal level of education. Data on employees aged 25-64 only. Source: European Commission (2012)

**Figure 3: European graduate under-utilisation, 2005 and 2010**



Source: European Working Conditions Survey, own calculations; taken from Holmes and Mayhew (2015)

**Figure 4: Graduate share of major occupational groups**



Note: Occupational groups by SOC90 major groups in 1991 and 1999, SOC2000 major groups thereafter (hence this continuity).  
 Source: Labour Force Survey; taken from Holmes and Mayhew (2015).

there are many jobs in Wales with very low skill content. One in four jobs are low waged. Forty per cent of Welsh jobs, or about 0.5 million of them, do not require Level 2 qualifications, whilst only about 0.2 million people do not possess at least Level 2. This strongly suggests that people's capabilities are being under-utilised in this segment of the workforce. Moving up the educational hierarchy to university graduates, it is easy to demonstrate occupational filtering down for this group. This is illustrated for the UK as a whole in Figure 4.

In other words many of today's graduates are entering occupations, which at least by their title, are just the same as the ones entered by their non-graduate mothers and fathers. At first blush this would suggest significant under-utilisation of skill. However, following on our earlier discussion, the critical question is whether the job content of these occupations has changed. Have employers in fact increased the skill content? Holmes and Mayhew (2015) have done work investigating this and their results have produced a mixed picture. For some occupations this has in fact happened but for many it has not. A reasonable interpretation of their results would suggest that there is very significant under-utilisation of graduates in the UK as a whole, and we have no reason to think that Wales is an exception. Not only does this suggest that human capital is not making the contribution it might to productivity and economic growth, it raises questions about where a government should be concentrating its expenditure in the educational system as a whole.

### Distributional issues

The 2012 PISA results for 15 year olds show the UK average at round about the OECD average, with Wales doing rather less well than the UK as a whole. Moreover the OECD pointed out that a relatively large number of children tested in the UK and Wales lacked functional literacy and numeracy, noting that low attainment on these tests is distinctly related to social class. Worryingly, in the same year, 44% of UK pupils had not got GCSE passes in Maths and English. This very strongly suggests that great attention needs to be paid to early years education for children from the lower socioeconomic groups – not just when they have reached 15 but when problems begin to become evident shortly after they start their schooling. This involves investment in diagnosis as well as in remedial action. There is some suggestion that there may be a broader problem when we are considering these basic skills. The latest PIAAC results (the fieldwork was done in 2012 for England and Northern Ireland but there is no reason to think that Wales differs much) show that, almost uniquely across the developed world, average literacy and numeracy scores were lower for the 16-24 age group than they were for older people (the 55-65 age group). In its report giving the results of PIAAC the

OECD also highlighted social inequalities in literacy and numeracy. Only 33.8 per cent of students on free school meals obtained 5 A\*s to C in GCSE (including English and Maths). The figure for all other pupils was 62.2 per cent. The percentage of Welsh 16-24 year olds who have completed secondary education is lower than the OECD average. That this is the picture despite massive investment in our schools suggests a profound problem that needs urgent and radical attention.

Moving to the other end of the educational spectrum, higher education, Wales has shared in the massive expansion of higher education seen in the UK in recent decades. The good news is that many more working class children go to university than they once did. However this has been a "scale" change rather than a "distributional" change. The percentage of the stock of university students from working class families is not much different today from what it was 40 years ago. That relatively constant percentage is simply a percentage of a larger total. The Social Mobility and Child Poverty Commission (2015, p.87) showed that, whilst 42 per cent of the population were in managerial and professional jobs, there were 32 per cent more students in HE from this background than there were people in such jobs. Conversely there were 20 per cent fewer HE students from an intermediate job background than there were people in intermediate jobs. A similar figure applied to those from a routine job background. Moreover, children from working class families tend not to go to the top universities. For example, construct a league table of the 120 or so English higher education institutions, where top of the table is that institution with highest percentage of working class students. HEFCE figures for 2013-14 show that by the time one has got half way down that table we will have encountered only 6 of the pre-1992 universities. A similar league table for Wales shows Swansea next to bottom and Cardiff bottom. Access matters for labour market prospects. The blue chip jobs tend to go to students from the elite universities. Other students are more likely to be the "victims" of the occupational filtering down we have described earlier.

### The implications for policy

Returning to the three questions I posed at the beginning of this paper, what are the policy implications for a small country like Wales? The first requirement is for policy makers to clearly separate their thinking about the present and the future. At present there are many low quality jobs on offer in Wales. The harsh reality is that someone has to do these jobs. A priority for any government should be to create as level a playing field as possible so that as many individuals as possible have a chance of avoiding these jobs and of competing for the better jobs. Those who achieve very badly at school up to the age of 16 are the ones most at risk

of losing out in this positional game. Educational under-performance starts to emerge in the very early years and the gap between the under-performers and the rest widens as the school years roll on. Thus it seems extremely important to put significant resource into early years' education to attempt to alleviate problems at source.

As children progress through school the ones most at risk of obtaining poor jobs will still need help. These are not the children who will be going to university or, if they are, they will not be obtaining places at the more prestigious institutions from where employment prospects are relatively rosy. In the teenage years emphasis should be put on adequate academic teaching together with vocational preparation. The Dutch vocational schools may offer a model here. Some of these schools are closely linked with particular employers and others are more free-standing. The former tend to train in skills very specific to the relevant employer; the former tend to offer more general vocational training. Students who graduate from employer-linked schools tend to fare better during the first few years in the labour market (often because their rather narrow training is linked to a specific job offer) but thereafter it is those who have received the more general training who do better in a rapidly changing and insecure labour market. The underlying point is that employers offering low quality jobs are unlikely to offer much substantive training. Alarmingly UK employers are spending less on training than they did 20 years ago leading authors like Ewart Keep (see Keep and Mayhew, 2014) to suggest that they have become "welfare-dependent", only being willing to train when government subsidies are on offer. Perhaps government money put into vocational schools will offer a bigger bang for the buck than money paid directly as subsidies to employers because they are likely to offer more generally marketable skills than an individual employer will. In this way we are likely to be able to offer more young people a better chance in what is positional competition for the better jobs. The inclusion of vocational elements in the Assembly's "individual learning pathways" for 14 to 19 year olds is encouraging but I am suggesting something more radical than this. In a world of scarce resources (be they government or private) government money spent here is likely to do more good than being spent on higher education.

Alarmingly our politicians still tend to see HE as the gold standard to be aimed for by as many young people as possible. Indeed in a recent radio programme a former UK higher education minister, David Willets (BBC Radio 4, 31 December 2015), suggested that we should be aiming for a 75 per cent participation rate. His argument rested largely on two propositions that are commonly put by defenders of the HE sector. The

first is that the graduate wage premium remains significantly positive and that therefore attendance definitely benefits young people. This is indeed true of the average but there is a wide dispersion around that average. Furthermore there is a more fundamental point. Imagine a hierarchy of jobs. Top of the hierarchy is the best-paying job and as we move down the hierarchy pay gets lower and lower. Graduates occupy the jobs at the top of the pay hierarchy but as more and more of them enter the labour market some of them occupy jobs further and further down the hierarchy. Thus the average pay of graduates falls. But so does the average pay of non-graduates. Therefore the average graduate wage premium can remain unchanged despite the fact that lots of young people have been to university only to enter jobs once occupied, as it were, by their non-graduate mothers and fathers. From a narrow economic point of view it makes sense for them to attend university given the current structure of the education and training system and the incentives presented to young people. However that does not mean that it necessarily makes sense for society, which has to ask whether, for many people, HE is the most cost effective way of preparing them for the labour market. This is often where the HE lobby makes the second argument and it was persuasively expressed by Willetts in his broadcast. Three years at university in and of themselves provide experiences, which enrich and extend students as people, all of which puts them in a position to meet the challenges and opportunities they face thereafter. Getting away from home, meeting new people, encountering different cultures, learning to organise one's time and work are amongst the many facets of this experience that are frequently mentioned. It would be foolish to deny that such experiences are important but what seems to be assumed is that, in these respects, HE is a superior pathway into full adulthood than possible

alternatives. It is not obvious that this is the case.

What this amounts to is a plea for greater attention being paid to alternative pathways from school to work. At a time of constrained public expenditure, cost effectiveness is particularly important. Many of our HE institutions are now offering bachelors courses to train people in vocational skills which were once acquired by other means. Are the skills acquired more expensively than they once were and are the skills developed to a higher level? I suspect that the answer will vary from skill to skill and subject to subject, but it is a question that officialdom should be asking. If areas are found where the historical routes appear to have been more cost effective, then it may be that it is impossible to resurrect that historical route but it still raises important questions for what we should demand of today's HE establishments.

All of this is about the present and the main emphasis should be on maximizing the labour market chances of as many people as possible whilst recognizing that there are too many "lousy" jobs on offer and not enough "lovely" ones. The aim for the future is obviously to create more lovely jobs. This requires a move to higher quality, more skill intensive production. In turn this requires not only some form of industrial strategy but also the integration of skills and education initiatives with that strategy. Without such integration neither aspect of policy is likely to work as well as it could. I am aware of the Welsh Assembly's earmarking of nine priority sectors and of some attempts to link the three regional skill partnerships to this nascent industrial strategy. I leave it to others to judge whether this will achieve sufficient integration. Even if it does, it leaves two particularly tricky questions. The first is whether HE and other tertiary institutions will be sufficiently responsive to the changing needs of the economy

– only, I suspect, in partnership with employers. Potentially encouraging is the development in England of elite (higher level) apprenticeships being offered to school leavers by, for instance, the civil service, some accounting and finance companies and some manufacturing concerns. Currently they are few in number, reflecting the current low demand for skill. However, if the demand for skill rises then such initiatives might well flourish. The second, and broader, tricky question is how to get many more employers involved, not just in endless meetings or task forces or commissions, but in doing and paying for the training of their own employees. If industrial development is successful in encouraging more high quality production with more skill intensive methods, then the demand for skill will rise and competent and rational employers should want to train more than they do now and be more willing to bear the cost. Getting employers to bear a larger proportion of the cost of training will be important in a world where rapid change will necessitate re-training of workers at various stages in their working lives, far beyond the age of leaving formal education; and it would be unrealistic to expect the "formal" system to be able to take the burden. More generally governments need to take a clearer look at when they should subsidise employers. The developments we have described in post-school education have in effect almost certainly taken much of the burden off employers and, to an extent, encouraged them to be over-reliant on government funding. The time has come to re-evaluate when such subsidies are really necessary – essentially only when an employer will be reluctant to train because of fear of poaching.

The main message for any government is to plan for the future but not to believe that it is already here. The needs of the present are very different from what we hope they will be in a decade's time.

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