

THE DAVID HUME INSTITUTE



Further Education, the Scottish Labour Market and the Wider Economy

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Further Education, the Scottish Labour Market and the Wider Economy

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Foreword

At the Institute we were delighted when John Henderson, who heads up Scotland's Colleges, approached us to carry out some research on the role of the college sector within the Scottish labour market and wider economy. I am also grateful to some Trustees for support throughout the project.

Lesley Sutton, our Research Manager, and I planned our proposition for John Henderson. We determined that the work should be in three major parts – Lesley tackling the task of describing and analysing the sector per se; followed by an input from the Fraser of Allander Institute at Strathclyde University on the returns to the wider economy from FE; and then more of a 'think piece' by Ewart Keep from the University of Cardiff, who is also a long term adviser on skills to the Scottish Funding Council. This format found favour and Ewart and Kim Swales at the FAI agreed to work with us. We are most grateful to them. The completed papers are now attached, along with my covering note which attempts to pull out some of the key findings from the different papers.

We are most grateful to staff at Scotland's Colleges and the Scottish Funding Council for their assistance with the provision of data and other information. But of course they bear no responsibility for the end product.

This set of papers will be given wide dissemination and we hope that the analysis and discussion they contain, along with further consideration of their implications, can make a positive and constructive contribution to the continuing policy debate. Continuing development of Scotland's labour force in terms of skills and potential productivity is critical to continuing and growing competitiveness and hence wider economic success. FE colleges clearly have a major role to play in this context. In addition the work of the college sector can assist efforts to reduce disparities of achievement and welfare between households in Scotland. We hope that these papers, and the debate that they generate, will in some small way help the sector to further develop its contribution in terms of both economic growth and the reduction of disparities.

In conclusion allow me to stress, as I must always do, that the David Hume Institute as a charity and as an organisation determined to retain its reputation for independence and objectivity has no views with regard to the policy implications of these papers. We seek to inform and stimulate the policy debate and once more thank Scotland's Colleges for giving us the opportunity to contribute in this important area. It is perhaps of particular importance to stress this point for this set of papers, as they are emerging while a debate continues regarding finance for further education in the years ahead. We take no stance on that debate but hope in some small way to enable participants to be better informed.

Jeremy Peat
Director
David Hume Institute

October 2012

Further Education, the Scottish Labour Market and the Wider Economy – Overview

Jeremy Peat

Introduction

The purpose of this brief paper is to bring together some of the material contained in the three substantive sections that follow, and to draw out a number of conclusions and themes that we believe merit attention. As emphasised in the Foreword, the David Hume Institute has no views of its own, and hence as Director what follows are my thoughts and any implicit or explicit views are my own rather than the Institute's.

The Backcloth

It is generally, perhaps universally, accepted that human capital is a key component of Scotland's assets. To many our human capital is one of our great strengths. If we are to succeed in the challenging economic world that now exists, and doubtless will continue to exist post recession, then we need to make the most of this asset. The strength of Scotland's human capital reflects the strengths of our education and training institutions and also the policies of successive governments – plus also the willingness of employers to provide appropriate training and skills development in situ or externally and of individuals to take up training that is on offer. Colleges, i.e. the Further Education sector, are an integral part of the Scottish story, of such success in terms of human capital that we can claim. They play a major role alongside schools, universities and other vocational trainers.

Indeed colleges can be seen as playing a crucial role at various stages of the process of enhancing our human capital, working alongside other players in the provision of routes from school to work or to further training or to university; and also in further skill development in mid-career, often in conjunction with employers. They are also major players in the process of trying to move young people (in particular) from unemployment to work; the key player in the drive to offer 'opportunities for all'.

It is clear from Lesley Sutton's paper that employers value the work of colleges, and that local relationships can be a critical feature of the success of colleges in fulfilling the needs of employers – to the benefit of those seeking jobs. If the benefits to employers and those receiving training are to be sustainable, rather than short term, then it is important that these links be maintained, indeed enhanced, even while the structure of the college sector may be changing. It is also of interest to note that training in an FE institution, especially when employer engagement/contact is involved, may increase the number of folk contemplating moving into self-employment, which should also be of benefit to the Scottish economy.

One other key feature of the college sector is that it can and does cater to a diverse student base in a flexible manner. Nearly 99% of students are from Scotland, with the gender balance 46% male and 54% female – as compared to 51%/49% in secondary schools. FE caters for a higher proportion of (Scottish) ethnic minority and disabled students than is the case with HE. There is also a much wider spread of ages – from the relatively young to 60+ - indicative of the range of functions fulfilled within FE institutions. Similarly FE permits a wide range of learning models – with only 23.5% full-time and others part-time or on a day release basis or at weekends or in the evenings. Finally, so far as diversity is concerned, 25% of total FE students came from those areas within Scotland where the most deprived 20% of the population live. The equivalent for HE is 14%.

Finance and Benefits

As with so many other economies, Scotland is at present facing real constraints on the public finances. With the overall budget declining significantly in real terms, the pressures have been felt in many sectors, not least Further Education. All the indications are that funding for FE, at least for teaching, has been declining in recent years, most certainly in real terms. This decline has been in part offset by efficiency improvements across the sector, but has also inevitably led to increasing pressure on both quality and numbers. Further, our reading of the data is that funding per head per year for FE is somewhat lower than for secondary education and markedly lower than for HE. Also, whereas HE institutions obtain significant funds from research sources and overseas, etc. activities, FE institutions are dependent to a large extent on public funding. The decision in the recent draft Budget to allocate some extra funds to FE is welcome, but according to Scotland's Colleges the funds for college teaching received from Government will still be substantially lower in 2013/14 than in 2012/13. The challenge faced by the sector, at a time when there is both a commitment to provide opportunities for those young people not in education, employment or training and a need to continuously 'up-skill' Scotland's workforce, is self-evident.

Against this financial backcloth, the college sector is undergoing its most significant change since incorporation; a governance review is in a pre legislative stage; a regionalisation agenda is creating merged and federated institutions and outcomes are now the driver for funding, with regionally negotiated outcome agreements between colleges and the Scottish Funding Council.

The evidence from the paper prepared by our friends at the Fraser of Allander Institute is that gaining a qualification from a college results in benefits for the wider economy as well as for the individual. In economic jargon there are positive externalities, spill-over benefits for the rest of the economy. We will not attempt to summarise the FAI methodology, but this is explained carefully in their chapter, where there is also a full explanation of the data used. However, we calculate on the basis of their work that, taken over an eight year period, the enhancement to their skills that colleges impart to their students increases Scottish GDP by approximately 1%, or £1.2 billion. This is more than the value of the output of the mechanical engineering or transport equipment sectors and almost on a par with the food processing industry.

The Gaps that Remain; and the Role of Incentives

It would appear that we do best at providing people with the skills that they need to perform more highly skilled jobs, the kind that need degrees or HNDs or modern apprentice qualifications. We are less successful at preparing for work people to undertake the plentiful and important jobs that demand somewhat lower levels of skills and more limited qualifications. We are also less good at making the most of those at lower skill levels, both in terms of their productivity in a job initially and in their development over time. People in lower skilled and lower paid jobs both receive less training in advance of deployment and limited training and development in situ. The scope for upwards progression appears less marked than in some other comparator economies. This, along with the apparent fact that many 'mid-tier' posts have tended to be filled by graduates, even though these jobs do not necessarily require graduate-level skills, may constrain the opportunities for those starting at lower levels of responsibility and pay developing and advancing to the levels their potential should permit.

To some extent these issues can be tackled on the supply side of skills, by colleges, etc., preferably in collaboration with employers. There is always scope to increase ‘employability’ and to encourage skill development and utilisation. There is clearly a case for regularly re-visiting course and curriculum design and the role of qualifications in moving from one level of employment to another.

Continuing improvement in these areas can increase the incentives to study and develop abilities and qualifications, in the expectation that this will lead to career progression, better pay and greater job satisfaction.

But there may well be greater scope for productive action – related to enhanced incentivisation - on the demand side of the learning and labour market. Are there ways in which policy can influence, directly or via employers, the incentives to develop their skills that are faced by those at the lower end of the market? This issue is one addressed in the final section of this report, prepared by Ewart Keep. We found his reflections on the role of incentives exceptionally thought-provoking and certainly highly challenging.

Keep distinguishes between internal and external incentives. The former are ‘generated inside the education and training system, and create and sustain positive attitudes towards the act of learning itself and towards progression within each student or trainee’. The latter are ‘created in external wider society and within the labour market, and the rewards they give rise to are external to the learning process itself.’ These will include wages, status, career progression, family praise and the pleasure in wider spheres of life that can flow from ‘applying new skills, knowledge and expertise’. Such incentives may not be readily influenced by public policies.

Keep also suggests that incentives do not work in the same way for all people. As economists we expect people to consider education choices in FE and HE in terms of the expected pecuniary and non-pecuniary returns on investment. We generally note that different people will have different attitudes to risk; but we should consider whether there are other important ways in which incentives do and do not work. The Keep paper is suggesting, as we read it, that those at lower income levels and with lower skills will tend to have a more inelastic demand for training and education. In non-technical terms, they are less likely than those at higher income levels, other things remaining equal, to elect for more education and training; and their employers are less likely to offer it to them. If this is correct then this lesser impact of incentives will work to limit social mobility via enhanced skills and additional training.

Some Conclusions

Study of these thought provoking papers leads us to some tentative conclusions, or perhaps we should say that these essays identify areas for further consideration in the context of evidence-based policy making: -

The college sector is a critical component of Scotland’s education system, contributing in particular to opportunities for a much more diverse group of people – by age, ethnicity and social status – than HE. This matters both to achieve maximum benefits for Scotland from skill development for all and in efforts to reduce disparities within Scotland’s population. At the same time the college sector does deliver strong economic returns across the economy. The external benefits are of substance and the total impact on Gross Domestic Product is most certainly non-negligible.

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However, the impact of FE and other forms of education and training supply may be constrained by the possibility that ‘normal’ incentive mechanisms, based on expected impact on earnings, status, etc., may not work as well at lower income levels as is the case at higher incomes. This may reduce the demand for skill development below the level that is optimal for individuals and for Scotland.

Colleges can work to offset this impact by enhancing internal incentives; by making sure that actual and potential trainees fully understand the benefits which can flow from further training and by working – with employers and others – to show that the potential benefits are real and of substance.

The college sector and others may wish to reflect, with employers, how the latter might make better use of the skills of those in and joining their workforce? How might they open up opportunities to progress for those with potential, and hence encourage them to develop their skills and potential via training, externally and on-the-job?

Government should be working not just to maximise the benefits to the economy from the scarce resources available across the education sector, but to facilitate the workings of incentive mechanisms (oiling the wheels of the labour market) in close co-operation with colleges, other institutions and employers.

In this context the local links of employers are important, as are relations with employer and employee organisations and bodies such as Scottish Enterprise and Skills Development Scotland.

Scottish FE – The Sector in Context

Lesley Sutton

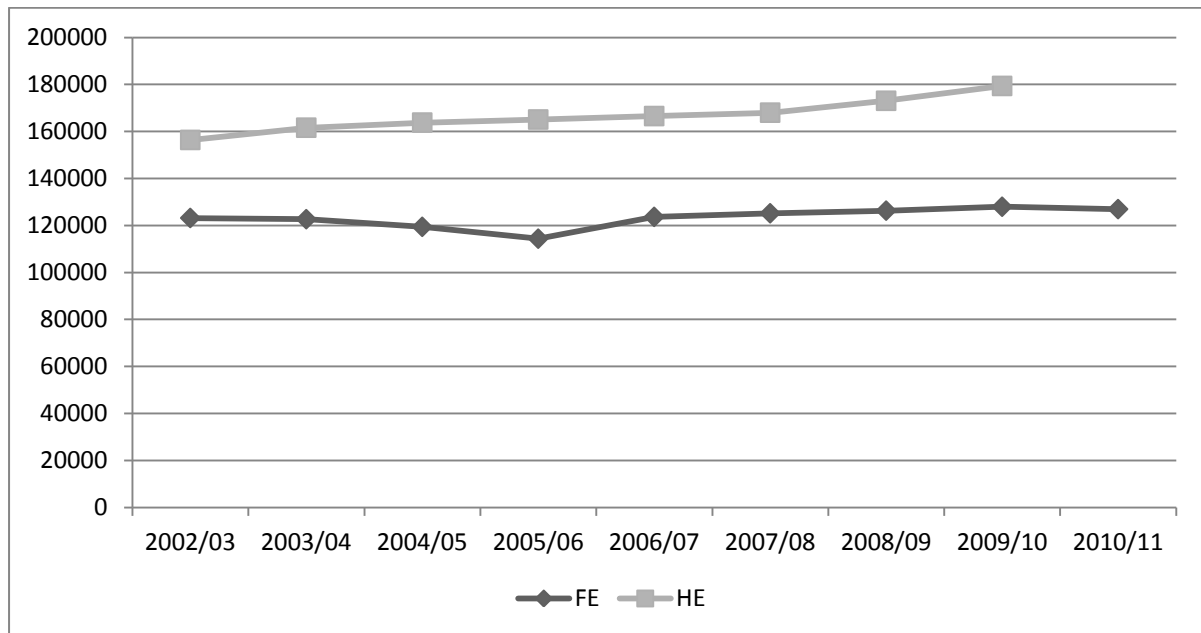
Student Numbers

In 2010/11, according to the Scottish Funding Council (SFC) Infact database, there were a total of 314,585 students studying at Scottish FE colleges - a FTE total of 126,939¹. This compares with a full-time equivalent (FTE) number of HE students of 179,349 in 2009/10, the latest year for which HE data is available².

The number of FE students declined sharply over the period 2000 to 11 – by 16.1%. Comparing FE student numbers with those of HE over the period 2000/01 to 2009/10, it can be seen that the number of FE students fell by 4.7% compared to a 25.5% increase in HE students over the same period. However, focussing purely on overall student numbers does not provide a fully accurate picture of **activity** at FECs as there has been an increase in the number of full-time students over the period. SUMs (student units of measurement) equate to 40 hours of student learning time and these are used to drive funding to the colleges. These are only available from the period 2005/6 to 2010/11 and have generally increased annually over this time, albeit declining by just under 1% in 2010/11.

It would be useful to compare this activity level with HE but there are no equivalent data for the HE sector. The best proxy is FTE student numbers. Figure 1 shows the number of FTE FE and HE students over the period 2002/03 to 2010/11 (the HE data goes out to 2010). Over the period 2002-03 to 2009-10, FE FTE student numbers rose by 3.9% compared with a 14.7% increase for HE. It has not been possible to compare FE student numbers with those from other parts of the UK due to the differences in the way the data are compiled.

Figure 1: FE and HE FTE student numbers 2002 to 2010/11



Source: Infact database and Scottish Government

¹ This number refers to the total number of students studying at FECs regardless of their mode of attendance. It also includes students studying HE courses at FE institutions. The data will be quoted on this basis unless otherwise stated.

² This is the number of students studying at HEIs. It excludes the number of HE students studying at FE colleges.

Student Profile

The **gender** split of FE students is 46% male to 54% female, compared with a secondary school split of 51% male to 49% female. In HE this predominance of females is even more marked with 43% male and 57% female students.

The **ethnic** profile of FE students is broadly similar to that of Scottish schools (see Table 1), whilst HE institutions show a higher proportion of ethnic students. This is due to HEIs having a greater proportion of overseas students. Whilst the country of domicile for just under 99% of FE students is noted as Scotland, the comparable figure for HE students is 70.4%, increasing to 83% for those whose country of domicile is the UK. Thus, 17% of HEI students are from overseas. The ethnic profile of the universities is different to that of the schools and colleges, reflecting the high proportion of overseas students, with the greatest proportion of ethnic students at HEIs coming from China and India (20% of all overseas students studying at Scottish universities are from China and India) as compared with FECs and schools where the largest share of ethnic students originate from Pakistan.

Whilst 12% of FE students are noted as having a **disability**, the equivalent figure for HE is 7.3%. The school data does not correlate well with that for FE and HE.

Table 1: Ethnicity of students at Scottish FECs 2010/11 and HEIs 2009/10 (%)

Ethnicity	Schools	FE	HE
White	87.6	86.5	82.1
Non-White	4.9	5.1	10.2
Other white (Polish, Irish etc)	5.2		
Not disclosed/unknown	2.3	8.4	7.6

Source: Infact database and Scottish Government

The **age profile** of FE and HE students is shown in Table 2. The FE groupings have been amalgamated to allow comparison with the HE sector. From this it can be seen that the college sector has a wider spread of age groups in attendance and has a significantly higher proportion of aged 60+ students than the HE sector. The HE sector is fairly concentrated in the 19-24 age band. Table 2 also highlights that 17.5% of students in the college sector are of school age. **We show later in this report that the data suggests that schools receive higher per capita public funding than that received by FECs. The FECs do not receive the higher level of funding for their under 16 students.**

Recent reports have suggested that there is an increasing share of 16-24 year olds who are unemployed. In July 2012 the youth unemployment rate in Scotland and the UK was 20.8%. Given that many of these young people will have few, if any, qualifications it is clear that there is a role to be played by FECs to provide vocational courses to help these young people into employment. Indeed this role has been emphasised in the Budget papers for 2013/14. Additionally, at the opposite end of the age scale, the Scottish Government has a commitment to Lifelong Learning. The greater flexibility in mode of attendance (covered in the next point), slightly higher prevalence of aged 60+ students and wider range of vocational courses suggests that FECs are best placed to facilitate many aspects of Lifelong Learning.

Table 2: Age distribution of FE and HE students (%)

Age Group	FE	HE
Under 16	17.5	
16-18	20.5	15.1
19-24	17.6	43.8
25-60	39.8	39.3
60+	4.5	1.8

Source: Infact database and Scottish Government

When looking at **mode of attendance** it is clear that FE has considerable flexibility with courses running on a full-time, part-time, day release, weekend and evening basis. Only 23.5% of FE students study on a full-time basis (2010/11) compared with 73.4% of HE students. Over the period 2005/06 to 2009/10 the category ‘flexible learning’ within FE increased by 302% (mainly due to a re-categorisation of a number of differing part-time modes of learning), whilst the number of students studying full-time rose by 21.6%.

Looking at poverty, the HE and FE data are not entirely comparable but this is an important and topical issue so it is worth considering the data as it is presented for the institutions. This shows that, as for ethnicity, the poverty profile of FE students is generally similar to that of schools – 25% of **total** FE students were from areas where the 20% most deprived of the population reside compared to 21% for school attendees. 14% of FEC students were from the areas where the 20% most affluent households live compared with 19% for schools (all 2010-11). The HE data is provided in terms of ‘**percentage of entrants from deprived areas**’. This shows only 15% of entrants falling into this category in 2009-10 (7.6% for the ‘Ancient’ universities).

The key conclusion to the above analysis is that Further Education Colleges contain a broader mix of students in terms of age, they have a higher proportion of disabled, and students from poorer backgrounds than at HE and a more flexible learning route for their students suggesting that FECs play an important role in promoting social inclusion.

Education Funding

Public spending per head on education varies across the education sub-sectors as shown in Table 3. The data shown for HE and FE is from the Scottish Funding Council ‘Facts and Figures’ document 2012³ which provides data on FE and HE income and funding. We have calculated the funding per head using the **funding** data from this document and FTE student numbers (EU students have been included as they are eligible for funded places). The school data is from the ‘Detailed Analysis of General Fund Revenue Expenditure’ produced by the Scottish Government. The data are from different sources and, therefore, are **indicative** of the public spend per head for each sub-sector. For example, the school data is derived from revenue spending by the government and may, thus, be an under-estimate as capital spending on schools is excluded, whilst it is included in FE and HE funding.

³ Facts and Figures, 2012, Scottish Funding Council.

Table 3: Spending per Head and Total Spend on Education Sub-Sectors 2009/10

Sub-Sector	'Spend' per Head (£)	Total 'Spend' £m
Pre-primary	3,438	316
Primary	4,901	1,790
Secondary	6,562	1,975
FE funding from SFC	5,281	749
HE funding from SFC	12,381	2,783

Source: Facts and Figures 2012, Scottish Funding Council and the Scottish Government

From Table 3 it is clear that spending per head escalates over the spectrum from pre-primary to HE. Interestingly, more is spent on secondary education per head than the equivalent spend in FE, whilst HE funding per head is over 50% more than that of FE. If the data are fully comparable, then a key question here is whether or not the returns to education reflect the equivalent spend per head.

Funding for FECs fell by 22.5% in real terms over the period 2009/10 to 2011/12. The decline in HE funding over the same period was 19.9%.

FE and HE Income

Government funding constitutes a large part of colleges' and universities' income but both sets of institutions also earn income from other sources. Income to the FE colleges in 2009/10 was shown as £749m (£5,281per head) whilst for HE total income in 2009/10 was £2,783m (£12,381 per head). The real terms (i.e. adjusted for inflation) rise in income for the colleges was 2.3% over the three year period from 2007 to 2010, whilst for HEIs this was 8%. This larger increase for HEIs appears to have been driven by a large increase in 'tuition fees/education contracts'. (FECs experienced a marginal real terms decline in this category of income over the same period). However, given that the funding data is more up-to-date, income growth is likely to decline going forward from the years noted here which are the latest available.

The breakdown of total income by its component categories is shown in Table 4 (opposite). The equivalent figures are also shown for HE.

Table 4: Breakdown of FE and HE income 2009/10 (% of total)

	Further Education	Higher Education
SFC grant	73.2 (548m)	39.0 (1084m)
Tuition fees/education contracts	15.2 (114m)	22.6 (628m)
Research grants and contracts	0.3 (2m)	21.2 (590)
Other income	11.1 (83m)	16.3 (455m)
Endowment and investment income	0.3 (2m)	0.9 (26m)

Source: Facts and Figures 2012, Scottish Funding Council

From Table 4 it is clear that FE is considerably more reliant on the SFC grant than HE. This grant constitutes 73.2% of FEC income compared with only 39% of total HE income. These figures are sector averages and some individual colleges are less reliant on the SFC grant. Additionally, the HE sector earns 21.2% of its total income from research compared with only 0.3% for FE. This is unsurprising given the differing nature of the two types of institutions. This large research element to HE income suggests that the public funding figure for the HEIs may be underestimated as much of this research income will be funded through research councils which themselves are funded from public money. The impact of this is shown by the discrepancy in the funding per head and income per head data for HE.

Table 5 shows HESA (Higher Education Statistics Agency) data on spend per head on HE across the countries of the UK (the data for FE in other parts of the UK do not correspond sufficiently with that for Scotland to allow a meaningful comparison). The data shows that spend per head on HE is lowest in Wales, whilst in Scotland it is some £3,000 + higher than both Wales and Northern Ireland. The fact that Scottish HEIs tend to offer four year honours degree courses means that an honours degree in Scotland could cost £51,697 compared to £32,654 in England, although the relatively large number of medical schools in Scotland could be inflating the Scottish spend per head. Note, however, that the spend per head corresponds with the income version of ‘spend’ per head for Scotland highlighted above.

Table 5: Public Spending per Head on Higher Education for UK Countries 2010/11

Country	Spend per Head (£)
Scotland	12,924.2
England	10,884.7
Northern Ireland	9,742.7
Wales	9,485.6

Source: HESA website 2012

Table 6 shows OECD (Organisation for Economic Co-operation and Development) comparisons of spending per head as a percentage of GDP on education for a selection of OECD countries as well as an OECD average. The data appears to be available only for ‘tertiary’ education which comprises both further and higher education. Despite its limitations it can be seen from Table 6 that both the US and Germany spend 1% of GDP on tertiary education compared with 0.6% in the UK, which is just above the OECD average. Unfortunately, the data for China is not comparable with that of the other countries and is therefore not included.

It appears that the Scottish Government is investing significantly in HE, possibly to bring it closer into line with other advanced economies. However, given the constraints on public spending overall and its commitment to ‘free’ education, other areas of public sector funding e.g. the college sector may not receive the same level of investment.

Table 6: Public Spending on Higher Education for OEDC Countries (% of GDP) 2008

Country	Spend per Head as % of GDP
UK	0.6
US	1.0
Germany	1.0
Japan	0.5
OECD average	0.5

Source: OECD website

Success of Students

The SFC College Performance Indicators show the degree to which FE and HE students successfully complete courses. This is shown in Table 7. From the table it can be seen that the proportion of successful students is slightly higher in Higher Education than in FE, whilst the drop-out rate in FE is slightly above that for HE. **However, given both the higher income level per capita for HE and the fact that 63.1% of FE students have no qualifications on entry, one would expect the disparity in success rates to be significantly higher. A further factor to consider here is the lower level of funding per head awarded for FE students compared to secondary school pupils.**

Table 7: Success of FE and HE Students 2010/11 %

	Further Education	Higher Education
Successful	62	67
Successfully finished course irrespective of result	73	80
Drop-out rate	27	20
Withdrew before funding qualifying date	10	6

Source: College Performance Indicators 2010/11, Scottish Funding Council

FE and Enterprise

Scottish Government data for March 2011 suggest that 13.6% of Scottish business enterprises are sole proprietors. The comparable figure for the UK as a whole is 23.3%. There has long been concern about the lack of entrepreneurial activity in Scotland and this is partly reflected in these statistics. VAT/PAYE statistics confirm this differential. In 2010 there were 36 VAT/PAYE registrations per 10,000 resident adults in Scotland compared with 46 in the UK as a whole. Of the UK regions, only Northern Ireland, Wales and the North East of England showed a lower rate of business formation. When considering start-up business activity, there is often a tendency to think of electronics, computing and alternative energy companies. However, Scottish Government Statistics on Scottish Corporate activity suggests that there are a very wide range of sectors which have a high proportion of businesses with no employees, i.e. single person enterprises. This is shown in Table 8 where, rather than showing sectors with small numbers of companies, we have highlighted those sectors comprising in excess of 4,000 companies.

Table 8: Number of Registered Enterprises in Scotland by Industry and % with 0 employees, March 2011

Industry	Number of Enterprises	% with 0 employees
Crop and animal production, hunting and related service activities	14,750	55.9
Specialised construction activities	12,355	36.0
Architectural and engineering activities	8,570	57.9
Activities of head offices; management consultancy activities	6,430	66.6
Wholesale trade excluding motor vehicles and motorcycles	5,855	35.4
Computer programming, consultancy and related activities	5,260	64.8
Real estate activities	4,515	45.8
Construction of buildings	4,455	38.6
Wholesale and retail trade. Motor vehicle and motorcycle repair	4,335	30.4

Source: Scottish Government, Scottish Corporate Sector Statistics, March 2011

Table 8 shows that there are many avenues open to people with skills to become self-employed or start their own business. Many of the sectors shown here utilise skills which are taught at FE colleges e.g. computing, construction, business management and engineering. A recent survey undertaken by Carnegie UK ‘Enterprising Minds’ highlighted that FECs have an important role to play in encouraging students to consider starting a business or becoming self-employed. The survey was carried out throughout the UK and the following of the key findings are relevant here:

- Students in Wales and Northern Ireland were rated as more ‘pro-enterprise’ than their Scottish and English counterparts and were more confident that enterprise had been incorporated into their educational experience.

- Where students were involved in an enterprise activity or event in college, a substantial majority found it useful and those respondents who had undertaken this sort of activity as part of their course were more likely to consider setting up a business or working self-employed.
- When thinking about what colleges could do to improve enterprise education, the largest proportion of students would like more opportunities to interact with successful business people and social entrepreneurs on campus.

This is of particular interest in Scotland given low business formation rates.

FE links with local business

Further education colleges have a significant role to play in their local economies and communities. At their best they will engage with local businesses to ensure that their curriculum reflects local business training needs as well as the needs of the users of the college and the community at large. Examples of this is are college senior management personnel sitting on economic, education and skills bodies in their areas and colleges ensuring that they have successful partnerships with their local businesses allowing them to secure both work placements for their students and suitable employment at the end of their courses. This type of partnership also allows the colleges to keep up-to-date with changing industry regulations. The question then is whether or not the colleges are successful in fulfilling this role.

The SFC recently published a report ‘Evaluation of the Developing Employer Engagement Programme and the Knowledge Transfer Grant’ covering the period 2009 to 2011. This surveyed 240 companies over three years to examine the impact of the Developing Employer Engagement Programme (DEEP) and Knowledge Transfer Grant (KTG) initiatives on their businesses. Of those surveyed 32% had 250+ employees in Scotland, 21% had 50-249, 23% had 10-49 and 25% employed 1-9 people. The greatest proportion of employers had well established relationships with colleges. The results of this exercise are noted below:

- Employer perceptions of colleges were mostly positive.
- The programmes under evaluation resulted in a significant impact on the Scottish economy in terms of jobs, increased turnover for businesses and generating gross value added (GVA).
- Employers who work with FECs value the relationship and the services they receive from the colleges.
- The positive effects of the programmes were likely to be sustainable over the longer term and have the potential for further development.

Conclusions

The key conclusions to be drawn from this overview of the further education sector are that further education colleges perform a valuable role in the Scottish economy through their links with business and the community at large. They also have a role to play in promoting enterprise within Scotland. FECs have a broad mix of students in terms of age, ethnicity, disability and academic ability, have a highly flexible mode of attendance and a broad offering of subjects ranging from hairdressing to engineering and also levels of study (it should not be forgotten that the colleges also have a higher education function). More than half of those enrolled have no qualifications and many are from disadvantaged backgrounds.

Thus, at a time when youth unemployment is averaging 20%, the FECs play a considerable role in helping youngsters into work.

It is hard to quantify the impact of this on the public finances. Focussing on this segment of attendees at FECs, however, ignores the fact that, at the opposite end of the age scale, there are a significant proportion of older people undertaking college courses. Thus, the colleges are also promoting Lifelong Learning – an important policy objective of the Scottish Government.

In terms of funding, it appears that the colleges obtain significantly less public funding per head than the universities and also less than secondary schools. Despite this (and the lack of qualifications that many of their students have on entry), the success rate of the colleges is only slightly lower than that of the HEIs. Clearly, this is an aggregate picture of the sector and inevitably some colleges will be more successful than others. However, this overview highlights that the college sector makes a significant contribution to the Scottish economy.

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How much does a single graduation cohort from further education colleges contribute to the supply-side of the host regional economy? A micro-macro simulation for the case of Scotland

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1 Introduction

This note aims to address the question of how much a single year's graduation cohort from Further Education Colleges (FECs) in Scotland contributes to its host regional economy. More specifically, we focus on how FECs stimulate the productive capacity (supply side) of their host regional economy through increasing the skills of the workforce. The production of human capital, embodied in its graduates, is a crucial dimension of the activity of any educational institution. Furthermore, a wealth of evidence suggests that formal education is positively associated with success in the labour market as reflected in wages and employment probabilities (Blundell et al, 2005; Checchi, 2006, Harmon and Walker, 2003; Psacharopoulos and Patrinos 2004, Walker and Zhu 2007). Although there is a significant body of evidence that explores the labour market benefits of education, less emphasis has been placed on understanding how this is transmitted through the wider economy. In our opinion, understanding the economic contribution of the skills developed in FECs is an important step towards understanding the overall economic impact of FECs and education more generally. In particular, as the case for the regional benefits of education institutions has often been stated through somewhat less central features of their mission, such as expenditure impacts and knowledge exchange. Those issues are undoubtedly important, especially at the local level. However, the contribution of education to skills and in turn the impact of skills on the wider economy is a crucial feature of education institutions. Furthermore, it represents a potentially very important contributor to the macroeconomy through its stimulation of the host economy's supply side, such as demonstrated for higher education in Hermannsson et al (2010).

We are mindful that valuing the economic contribution of education is not straightforward as education impacts society and the economy through a variety of channels¹. These impact channels range from the personal and pecuniary to the social and intangible – everything from personal income and economic growth to the very characteristics of the society in which we live. In this analysis we focus on the productivity enhancing qualities of education and how this benefits formal market based production activities as captured in national accounts aggregates such as GDP. That is, we abstract from the various non-monetary benefits of education to its recipient as well as the monetary and non-monetary impacts of education on wider society². These wider impact channels are potentially very important (Hermannsson et al, 2012). However, as yet these are less well understood and the lack of evidence would mean that any wider analysis for FECs in Scotland along these lines would inevitably be speculative, in the absence of significant primary data collection.

The methodology adopted here is based on the “micro to macro” approach illustrated for the impact of higher education graduates in Scotland by Hermannsson et al (2010) and is similar to that of Giesecke and Madden (2006).

¹ For a discussion of the overall economic impacts of higher education in Scotland see Hermannsson and Swales (2010).

² For a discussion of these points we refer to McMahon (2004, 2009) and for estimates of the wider impacts of higher education see: Hermannsson et al (2012).

We identify the supply-side transmission mechanisms that operate at the micro/meso-level, use the available evidence to specify and calibrate the appropriate shocks, and then simulate their system-wide impact through a regional economic model. In practice this involves drawing on evidence on wage premia by level of education.

The change in wage associated with attaining a given educational qualification is taken as indicative of the productivity enhancing effects of education³. Once the labour productivity increase attributable to the 2011 FEC graduation cohort has been determined we use the AMOS Computable General Equilibrium (CGE) model for Scotland to simulate the economy-wide impact of this productivity benefit over the economic life of this student cohort. In the next section we explain how the productivity impact of the 2011 FEC graduation cohort is determined. The third section briefly outlines the AMOS modelling framework. The fourth section presents our simulation results and the fifth section offers brief conclusions.

2 The 2011 FEC graduation cohort and its productivity impact

In order to determine the productivity impact of the 2011 cohort of graduates from Scottish FECs we need to know the number of graduates from each level of qualification and the wage premia associated with each level. The data on the number and breakdown of qualifications were provided by Lesley Sutton of the David Hume Institute and for the graduate wage premia we draw on the work of Walker and Zhu (2007a, b). The classification of qualification is based on the Scottish Vocational Qualifications and National Vocational Qualifications (SVQ/NVQ). Although these standard classifications were developed for vocational qualifications, labour market researchers have established conventions as to equivalent ranking of academic qualifications. These are shown in Table 1.

Table 1 Examples of SVQ/NVQ Levels. Source: Walker & Zhu (2007b)

SVQ/NVQ level	Academic qualification	Vocations qualification
5	PhD, Masters degree	PGCE, Non-masters postgraduate qualifications
4	Undergraduate degree	HNC/HND
3	2+ A-levels/3+Highers	OND, ONC
2	5+ GCSEs at A-C, 'O' Grades, Credit Standard Grade	GSVQ/NVQ intermediate, RSA diploma
1	<5 GCSE, General Standard Grade	BTEC, SCOTVEC first or general cert

³ In effect we assume factors get paid their marginal product. A variety of reasons have been raised for questioning this in the case of the labour market. A prime example is the view that education signals innate ability rather than cultivates it. Hermansson et al (2010) discuss these issues in detail and find the marginal productivity assumption to be a reasonable one on balance.

Table 2 below reveals the number of students completing qualifications from Scottish FECs in 2011, broken down by the classification of those qualifications.

Of those 76,152 students completing some form of qualification from FECs, 32,071 completed a qualification that represents an interval on the NVQ scale, 36,136 completed qualifications that do not raise their formal status on the NVQ scale⁴ and 7,945 completed programmes not leading to a recognised qualification. These non-NVQ qualifications are undoubtedly of value in the labour market in their own right (and furthermore in personal life and for wider society). However, evidence on their incremental impact on labour productivity is not available. Often the role of these qualifications is to grant access to, or prepare students for, more advanced courses. We therefore treat these non-NVQ qualifications as intermediate steps towards final outputs (qualifications on the NVQ scale) and therefore ignore them in order to avoid double counting.

Table 2 Number of students successfully completing a course 2010-11, split by academic/vocational study and aggregated to NVQ level (source: DHI).

Classification	FTE Academic	FTE Vocational	All students FTE
NVQ 5	8	26	34
NVQ4	484	16,829	17,313
NVQ3	1,498	5,768	7,266
NVQ2	2,551	3,854	6,406
NVQ1	167	886	1,053
Other	13,072	23,064	36,136
No qualification		7,945	7,945
	17,780	58,372	76,152

In order to value the economic benefit of achieving each increment on the NVQ scale we draw on micro-econometric evidence on the wage premia by qualification found in Walker and Zhu (2007a,b). Walker & Zhu (2007a,b) pool ten years of data from the Labour Force Surveys in 1996-2005 to construct a large enough sample to estimate wage premia by qualification level at a regional level within Great Britain.

⁴ These are: Highest level of study (unit) Advanced Higher; Highest level of study (unit) Higher; Highest level of study (unit) Intermediate 2; Highest level of study (unit) Intermediate 1; Highest level of study (unit) Access; Other Non-Advanced Certificate or equivalent; Other Non-Advanced Diploma or equivalent; National Units alone (formerly National Certificate modules); Any other recognised qualification.

Their broad findings are in line with other work in the field; qualifications increase the likelihood of employment and more qualified workers generally earn higher wages. For both men and women they find the impact of qualifications on wage premia broadly similar in Scotland to that experienced across Great Britain.

Table 3 Hourly wage premium of vocational and academic qualifications in Scotland.
Source: Walker & Zhu (2007b), own calculations.

Vocational wage premium	Male	Male [cumulative]	Female	Female [cumulative]	Average	Average [cumulative]
None	0%	0%	0%	0%	0%	0%
Level 1	9%	9%	11%	11%	10%	10%
Level 2	7%	16%	9%	20%	8%	18%
Level 3	19%	35%	9%	29%	14%	32%
Level 4	17%	52%	23%	52%	20%	52%
Above level 4	30%	82%	29%	81%	30%	82%

Academic wage premium	Male	Male [cumulative]	Female	Female [cumulative]	Average	Average [cumulative]
None	0%	0%	0%	0%	0%	0%
Level 1	17%	17%	18%	18%	18%	18%
Level 2	12%	29%	12%	30%	12%	30%
Level 3	19%	48%	13%	43%	16%	46%
Level 4	31%	79%	34%	77%	33%	78%
Above level 4	12%	91%	13%	90%	13%	91%

As is evident from Table 3 Walker & Zhu (2007a, b) find strong wage premia effects for both vocational and academic qualifications in the Scottish labour market. Overall the academic qualifications yield a higher wage premia but what is also noteworthy is how the structure of the wage premia by levels of qualification differs between vocational and academic qualifications. The marginal effect of low level vocational qualifications is modest vis-à-vis low level academic qualifications, whereas the additional wage premia gained by postgraduate academic study is relatively small. From a human capital perspective these findings may not be surprising if the amount of schooling behind these education levels is examined. For example, in Scotland a Level 4 undergraduate degree typically takes four years to complete, whereas the common duration for masters' degrees is 12 months, so the wage premia earned per effective duration of study (and therefore also the return to education) should be broadly similar between Level 4 and Level 5. Walker & Zhu (2007a, b) report their results separately for each gender. For our analysis we use a simple average of the two, and therefore implicitly adopt the assumption that the gender balance is equal within each increment of the NVQ scale.

Following Hermannsson et al (2010) we use the evidence of the comparative constancy of the graduate wage premium in recent UK history to motivate an important simplifying assumption: that we treat human capital as homogenous. Therefore, the difference between graduates and non-graduates is simply the quantity of human capital that these two groups possess on average. This approach allows us to treat the labour market as unified, and so avoid a number of complexities. Graduates and non-graduates are treated like perfect substitutes; "as if" it simply takes more non-graduates to perform the same task as graduates. In this setup each worker contributes varying amount of "efficiency units" of labour to the production process, depending on his/her skill level.

We set the efficiency units of those with no qualification to 1 and then use the evidence of the wage premium to inflate the efficiency units of each worker in accordance with his or her skill level. For example a worker with a level 1 vocational qualification contributes 1.1 efficiency units, someone with level 2 qualification 1.18 and so on. The efficiency units of each type of worker are presented in table 4 below.

Table 4 Efficiency units of workers with different qualifications.

Qualification	Vocational	Academic
None	1	1
Level 1	1.10	1.18
Level 2	1.18	1.30
Level 3	1.32	1.46
Level 4	1.52	1.78
Above level 4	1.82	1.91

Based on this it is possible to calculate the efficiency units the FEC graduates bring to the labour market. However, in this case we are only interested in the extent to which their efficiency units have increased as a result of the FEC course they have completed. That is we want to focus on the additional skills provided by the particular course and not the skills already possessed by that worker, for example skills gained at school. Under this approach we assume that a student completing a level 3 academic degree adds 0.26 efficiency units to his or her human capital, that is the difference between the efficiency units associated with a level 3 qualification and a level 2 qualification ($1.46 - 1.30 = 0.26$).⁵

We begin by calculating the additional efficiency units brought to the labour market by each of the graduates, as identified in Table 2. These are then aggregated to produce the result that, assuming that none emigrates, the 2011 Scottish FEC graduation cohort contributes 5,311 additional efficiency units to the labour market. This is detailed in Table 5 below.

Table 5 Estimated increase in efficiency units of labour contained in the cohort of 2011 Scottish FEC graduates.

	FTE Academic	FTE Vocational	Total
NVQ 5	1	8	9
NVQ4	157	3,366	3,523
NVQ3	240	808	1,047
NVQ2	306	308	615
NVQ1	29	89	118
Total	733	4,578	5,311

This number is of limited value in isolation. More usefully, if we estimate the efficiency units of labour contained in the entire working age population, then we can calculate the percentage increase in effective labour supply generated by this cohort of FEC students.

⁵ This assumes that the qualification completed is the student's highest qualification. That is to say, we don't take into account the fact that students might be studying for a qualification of a lower grade than they presently hold.

Drawing on the Annual Population Survey (APS), it is possible to obtain the number of those between the age of 16 and 64 (which we take to be the working age) and their NVQ skill level⁶.

Using the wage premia as reported in Walker and Zhu (2007) we calculate the efficiency units of labour contained in each individual and add these up. According to the APS there were 3,378,700 individuals aged 16-64 in Scotland in 2011. This population could supply 4,560,838 efficiency units of labour, which suggest that the average number of efficiency units of labour per working age Scot is 1.35 (4,560,838/3,378,700). Using this figure as a denominator we find that our 2011 graduation cohort has increased the amount of available efficiency units of labour by 0.12% ($5,311 / 4,560,838 = 0.0012$). We then use the AMOS CGE model to simulate how this increase in skills in the labour market impacts the macroeconomy of Scotland.

3 The AMOS CGE model of Scotland

To simulate the system-wide impact of the increased human capital in Scotland we employ AMOS. This is a computable general equilibrium (CGE) modelling framework parameterised on data from Scotland.⁷ Essentially, this is a fully specified, empirical implementation of a regional, inter-temporal, general equilibrium variant of the Layard, Nickell and Jackman (1991, 2005) model. It has three domestic transactor groups, namely the household sector, corporations and government; and four major components of final demand: consumption, investment, government expenditure and exports. The model has 25 industrial sectors.

In this version of the model, consumption and investment decisions reflect inter-temporal optimization with perfect foresight (Lecca et al, 2010, 2011). In the period-by-period simulations each period is taken to be a year. This is the period used in the econometric work used to parameterise the behavioural relationships. Real government expenditure is exogenous. The demand for Scottish Rest of the UK (RUK) and Rest of the World (ROW) exports is determined via conventional export demand functions where the price elasticity of demand is set at 2.0. Imports are obtained through an Armington link (Armington, 1969) and therefore relative-price sensitive with trade substitution elasticities of 2.0 (Gibson, 1990). We do not explicitly model financial flows, our assumption being that Scotland is a price-taker in financial markets.

It is assumed that production takes place in perfectly competitive industries using multi-level production functions. This means that in every time period all commodity markets are in equilibrium, with price equal to the marginal cost of production. Value-added is produced using capital and labour via standard production function formulations so that, in general, factor substitution occurs in response to changes in relative factor-prices.

⁶ This is based on several simplifying assumptions. The APS is accessed via the NOMIS (formerly known as the National Online Manpower Information System) data portal of the Office for National Statistics (ONS) and reveals results that are aggregated to avoid disclosure. For this reason NVQ4 and NVQ5 qualifications are lumped together. Therefore we have to abstract from the role of NVQ5 qualifications in the skills base. Furthermore, the APS does not distinguish between academic and vocational qualifications. Therefore we use average wage premia, thereby assuming that within each skill increment academic and vocational qualifications are in equal measure. Furthermore, those with 'Other qualifications' (6% of population) and those for which information is not available (5% of the population) are treated as those with no qualification. On balance this is likely to understate the skills base and thereby overstate the marginal impact of the 2011 FEC graduation cohort. However, the magnitude of this bias is unlikely to be large, perhaps of the order of magnitude of approximately 3%.

⁷ AMOS is an acronym for *A Macro-micro Model Of Scotland*.

Constant elasticity of substitution (CES) technology is adopted here with elasticities of substitution of 0.3 (Harris, 1989). In each industry intermediate purchases are modelled as the demand for a composite commodity with fixed (Leontief) coefficients. These are substitutable for imported commodities via an Armington link, which is sensitive to relative prices.

The composite input then combines with value-added (capital and labour) in the production of each sector's gross output. Cost minimisation drives the industry cost functions and the factor demand functions.

In the simulations reported in this paper, the labour market is characterised by a regional bargaining function, in which the bargained real wage is inversely related to the unemployment rate. The bargaining function is parameterised using the regional econometric work reported in Layard, Nickell and Jackman (1991, 2005). Population is taken to be fixed implying that the inter-regional migration function is turned off. Detailed discussion of the model and underlying algebraic structure are available in Harrigan et al (1991) for the myopic variant and in Lecca et al (2010, 2011) for the inter-temporal version of AMOS. The model is calibrated to a Social Accounting Matrix (SAM) for 2006.

It is important to recognise that, in the simulations reported in Section 4, the only exogenous change that is introduced into the model is the increased labour productivity due to the increased number of workers with FEC-qualifications in the labour force. The results should therefore be interpreted as deviations from what would have occurred if labour force productivity had remained unchanged. For simplicity, we make the standard assumption in the CGE literature that in the base period the economy is in a long-run steady-state equilibrium. That is to say, if there are no changes in the exogenous variables in the model, the simulated economy would simply reproduce the base values for every period.

4 Simulation results

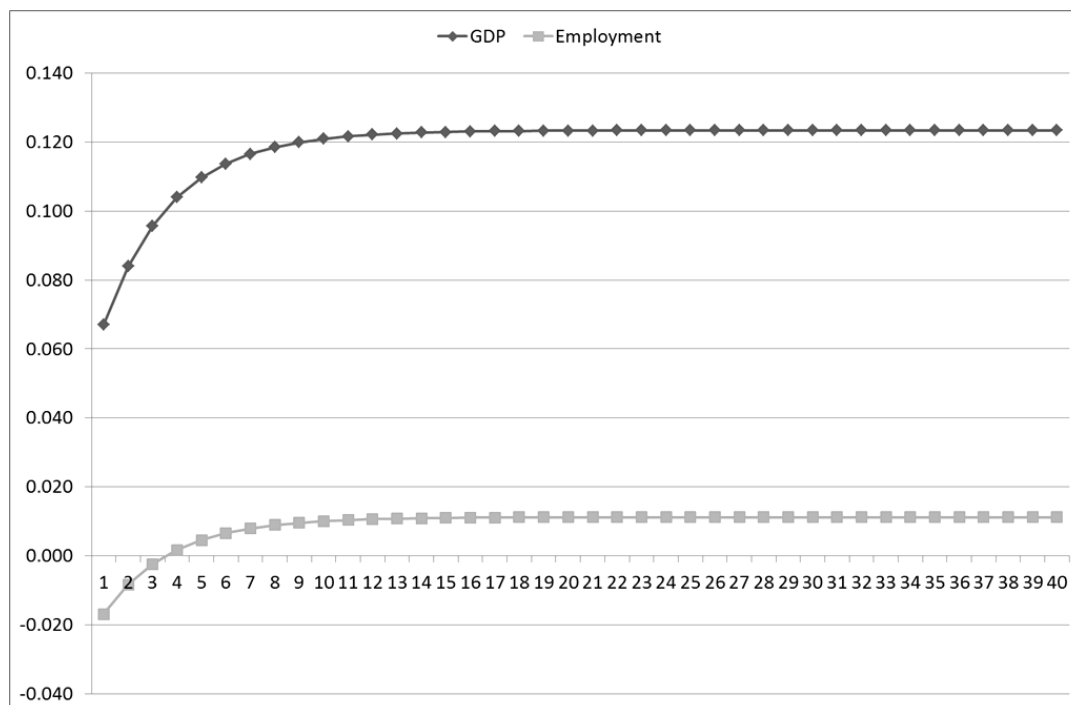
As reported in Section 2 the direct impact of the 2011 cohort of graduates from FECs in Scotland is to increase labour productivity by 0.12%. To simulate the impact of such an economic disturbance we introduce a 0.12% step increase to labour efficiency in all sectors of the economy and maintain this for 40 periods. That is to say, the shock enters at time 0 and then we trace subsequent adjustments in the economy over 40 periods. A summary of short and long run impacts on key economic variables is provided in Table 6 opposite.

Table 6 Impact of a 0.12% increase in labour productivity (% changes from base).

	Short-run	Long-run
GDP	0.067	0.123
Consumer Price Index	-0.020	-0.038
Unemployment Rate	0.265	-0.176
Total Employment	-0.017	0.011
Nominal Gross Wage	-0.050	-0.018
Real Gross Wage	-0.030	0.020
Replacement cost of capital	-0.020	-0.037
Households Consumption	0.013	0.029
Investment	0.216	0.109
Capital Stock	0.000	0.109
Export RUK	0.054	0.127
Export ROW	0.060	0.128

The first implication of this labour productivity shock is that every inputted unit of labour can now produce 0.12% more output (other things being equal). The corollary of which is that with the existing choice of production techniques, for every unit of output 0.12% less labour inputs are needed. The immediate impact is an increase in GDP and a downward pressure on prices but a reduction in employment. This triggers further adjustments in the economy. Lower prices improve competitiveness vis-à-vis trading partners, which in turn stimulates export growth. Increased labour productivity stimulates the return to capital, which in turn leads to an increase in investments. Exports and investments serve to boost GDP and employment, which has regained base level (and more) by period 4. Positive employment impacts then trigger further stimulus to GDP through increases in household consumption.

Figure 1 The impact on Scottish GDP and employment of an increase in labour efficiency generated by one year's output from Scottish Further Education Colleges (% change from base year values).



The long run path of adjustment for GDP and employment is illustrated in Figure 1.

As we can see impacts converge to long run steady states quite fast, reflecting the forward looking behavioural assumptions of the model. By period 3 GDP has reached 78% of its period 40 value, in period 5 this is at 89% and 98% by period 10.⁸

On balance, it is clear that the increase in skills in the labour market provides a significant macroeconomic stimulus to the Scottish economy. Based on this modelling approach the 2011 cohort of graduates from FECs can be attributed with a 0.123% increase in the long run level of Scottish GDP⁹.

Furthermore, it should be noted that in addition to the positive economic stimulus from increasing the skills of some workers, this can have redistributive implications as well.

⁸ The relatively lower effects on economic activity in the short run are driven by the assumption that we introduce an unannounced efficiency shock into an economy taken to be initially in long-run equilibrium. This is as though the output of the Scottish FECs has been doubled, unexpectedly, for one year. Therefore the economy takes some time to adjust to this unanticipated supply-side shock. The long-run impacts are a better measure of the continuing impact of one year's output from a stable FE system.

⁹ Note that the competitiveness effect is conditional on our assumption that labour efficiency is improving in Scotland relative to the rest of the UK (RUK) and the rest of the World (ROW). If other regions are experiencing similar increases in productivity, the competitiveness advantages would, of course be muted (but would be offsetting what would otherwise be a decline in Scottish competitiveness).

Although distribution is not modelled explicitly in this simulation it is possible to get some feel for what is happening. In the long run the real wage rises by 0.02%; this however, is less than the increase in labour supply (0.12%) Therefore, it is clear that for those workers that are not increasing their skills (offering more efficiency units of labour in the market), their overall wage gets squeezed as a consequence.

However, in practice, the role of FECs is often to provide training for those at the lower end of the skills spectrum and therefore the skills provided by the FECs can be seen as offsetting some of the competitive disadvantage incurred by non-graduate workers as HE participation has increased. It is clear however, that those workers that are not investing in human capital are ever more disadvantaged as skill level of the labour supply increases.¹⁰

5 Conclusions

In the present research we have attempted to identify the supply-side impact of one year's output from the Scottish Further Education Colleges (FECs). The impact has been captured solely through the increase in human capital. This study does not consider any demand-side impacts of the expenditures of FECs and their employees, or wider supply-side effects as suggested by authors such as McMahon (2004, 2009). The modelled impact on GDP and employment is significant and continues over the whole time period that the cohort is in the labour force. The increase in human capital has a positive effect on competitiveness and therefore exports and investment.

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¹⁰ On the other hand, Scotland is competing with other regions and nations around the world so that a relative reduction of skills in the Scottish labour market vis-à-vis competitor countries is likely to negatively impact its terms of trade.

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Further Education- the Role of Incentives

Professor Ewart J Keep

Introduction

Education and training (E&T) policy has a number of over-arching goals. Among them is a desire to ensure that as many as is possible benefit from learning and skills. High levels of participation in post-compulsory E&T, both in terms of initial E&T for job entry and continuing lifelong learning, have been policy goals in Scotland for a long time. In particular, there has been a growing stress on the need to upskill adult workers at the lower end of the labour market as a means of helping ensure that they do not become trapped in low paid, dead end employment. Plainly colleges alongside other E&T providers are expected to play a major role in delivering this desired outcome.

A second aim of policy is to ensure that there is an appropriate and efficient balance between different forms of E&T provision - in terms of this paper, the balance which might exist between colleges, universities and the apprenticeship route (and combinations thereof). In seeking to secure these two objectives, the incentives to learn play a key role in determining how policy plays out, and who chooses to learn and who does not. These individual choices, at aggregate level, determine whether aspirations and targets for participation and achievement are met or not.

As this paper will argue, some of the key tensions and difficulties that Scotland faces around E&T policy stem from the structure and strength of the incentives to learn, particularly for those who are not heading towards higher education and who are liable to find themselves working in the bottom half of the occupational and earnings spectrum, in other words precisely those post-compulsory learners whose needs are liable to be catered for by colleges. For many of these individuals, it will be argued, the incentives on offer do not always support the policy objectives that have been set, and this creates major difficulties for those who provide E&T. Moreover, the evidence explored below suggests that the solution to some of these problems lies, at least in part, outside the control of E&T institutions.

The Incentives to Learn

What makes individuals want to learn? Plainly the answer to this question has a central role to play in ensuring that skills policy functions as intended, and that colleges and other providers can recruit and retain students. In the past, the incentives to learn have been conceived of in a very fragmented way, with, for example, labour economists concentrating on the wage premia that higher levels of qualification attract; and educationalists focusing on the ways in which curriculum, pedagogy and assessment can motivate or de-motivate learners (see Keep, 2009 for a fuller analysis of the various schools of thought on incentives).

This paper deploys an integrated typology of the different incentives to learn, and also a framework for their analysis that has been elaborated by the author elsewhere (Keep 2009). The section that follows tries to summarise the key points of this framework.

Incentive Generation

The various incentives to invest time, energy, and money in learning are generated through two sets of forces:

1. The *Pull* of opportunities, both to learn and to then utilise that learning, either for personal pleasure (intrinsic reward), to benefit others (altruistic reward), or for tangible gain through some form of paid employment; and
2. The *Push* of resources, expectations and social relationships, which enable and sustain learning. These might include systems of student financial support, but also much wider social forces, such as parents who are supportive of learning and provide their offspring with opportunities to learn.

These push and pull factors will singly or in conjunction give rise to incentives of varying strength that will in turn impact upon and motivate different individuals to act in different ways. There are two main types of incentive:

- *Type 1 (internal) incentives* are generated inside the E&T system, and create and sustain positive attitudes towards the act of learning itself and towards progression within each student or trainee. In other words, many Type 1 incentives produce, or are the result of, intrinsic rewards generated through the act of learning.
- *Type 2 (external) incentives* are created in wider society and within the labour market, and the rewards they give rise to are external to the learning process itself.

The strength of the effects being induced will vary within and between Types 1 and 2. Wiseman, Roe and Hawkins (2008) provide a useful overview of how existing research identifies and charts the various elements of Type 1 and 2 incentives.

Type 2 incentives are usually structurally embedded in and mediated through the fabric of society, the labour market and wider economic structures. This, coupled with the interaction between the economic and social dimensions, often makes Type 2 incentives relatively powerful and long-lasting compared to many Type 1 incentives. The following illustrate the different forms that Type 1 and 2 incentives can take:

Examples of Type 1 (internal) Incentives

- Curriculum design and pedagogy fashioned to enhance the intrinsic pleasure and satisfaction derived from the act of learning.
- Assessment systems that are designed to encourage further participation rather than ration access to next level of learning (i.e. formative rather than summative assessment).
- Opportunities for progression in E&T that are relatively 'open' and are not tightly rationed, and where the assumption is that progression is the norm.
- Institutional cultures within, for example colleges, which nurture potential and celebrate achievement.

These kinds of Type 1 incentive are plainly amenable to influence and improvement by institutions that provide learning. Moreover, current educational reforms in Scotland under the *Curriculum for Excellence* banner are designed to produce a curriculum and assessment 'offer' that enhances the incentives for young people to engage in learning.

Examples of Type 2 (external) Incentives

- Wage returns that accrue to particular types and levels of qualification.
- Other benefits associated with securing higher status/higher qualification entry professions and occupations (e.g. intrinsic job interest, opportunities to travel, etc).
- Career progression and promotion opportunities accessible within particular occupational labour markets and within individual organisations.
- Social status attendant on particular qualifications, occupations and career pathways, and the earnings they generate.
- Cultural expectations within society, or particular ethnic or class-based segments thereof, concerning the value of learning and qualifications, including parental pressure upon young people to do well in education.
- Labour market regulation that makes the acquisition of certain levels and types of qualification and learning experience a prerequisite for access to particular jobs/occupations.
- For adult learners there are also a wide-ranging series of non-economic benefits that relate to satisfaction and enjoyment in family life and sporting, cultural, political, and voluntary activities that can be gained through applying new skills, knowledge and expertise. These matter in terms of levels of adult lifelong learning.

As can readily be seen, unlike Type 1 incentives, many Type 2 incentives are the result of wider societal forces and also of the way in which the labour market is structured. As such they are much harder for learning providers, such as colleges, to influence or change.

Policy Assumptions Concerning Incentives

Having seen the different forms that the incentives to learn might take, the issue then becomes what assumptions policy makers have adopted in relation to the pattern and strength of these incentives for learners in Scotland. Put very simply, the main weaknesses have been two-fold. First, a tendency to assume that the incentives are uniformly strong and positive across pretty much the entire labour market and learner population (actual and potential), and second, and relatedly, a failure to understand the implications of the relatively complex and uncertain articulation between learning and wages and employment at the lower end of the labour market. Policy makers (and many educational researchers) have tended to assume that people will generally want to learn, that the incentives these individuals face will normally encourage them to do so, and failure to engage in learning is hence often the result, not of weak incentives, but of barriers that stand in the way of engagement in learning. While the existence of serious barriers to learning are not disputed – for example, lack of time in busy adult lives, lack of childcare, fear of failure, and inability to finance the cost of taking a course (see Spielhofer et al, 2010) – even if all of these were removed, it is not clear, as we shall see, whether investing time and energy in work-related learning will always pay off.

In adopting an assumption about the labour market's ability to create a strong blanket incentive effect, policy has often been driven by a relatively simple reading of human capital theory and a belief that certification is what the labour market values, a belief bolstered by the burgeoning literature on the average wage premia attached to the attainment of particular types and levels of qualification (see Keep, 2009). The result is firm assumption that achievement of a qualification will result in a more or less direct labour market effect in terms of an increased chance of being employed and achieving wage gains.

Vignoles argues the chain of causation predicted by an economic textbook thus:

Economic theory tells us that, in the long run, wages broadly reflect productivity. An individual's productivity in turn reflects some combination of their own attributes and skills (human capital), and their ability to put these skills to maximum effect through the use of machinery and technology (physical capital). As such, gaining new skills is one of the key ways in which individuals can raise their wages and living standards.(2012: 5)

Adopting this as an operating principle, a key organising 'equation' for E&T policy across the UK has been:

E&T participation=achievement=qualification=skill=productivity gain=wages

Although this reads simply and elegantly on the pages of a textbook, the problem is that in the real world, each equals sign requires qualification. The relationships are not as absolute or as direct as simple theory suggests. For instance, participation does not always produce achievement as students can fail or drop out, and the link between skills, productivity and wages is massively more complex and subject to influence by a wider range of forces and structural arrangements than this simple formulation suggests (Keep, Mayhew and Payne, 2006; Grugulis and Stoyanova, 2011). In other words, uncertainty enters the equation, and that uncertainty has significant implications for how different individuals will perceive and respond to a pattern of incentives to learn that is far more complex and patchy than many like to assume.

This complex relationship is determined by the interaction between:

- an individual's skills, knowledge and competences (and the ability of qualifications to act as a proxy for them);
- the shape of the labour market and the pattern of opportunities therein, including how jobs are designed and progression opportunities structured;
- how and to what extent the labour market is regulated; and
- how skills are deployed within the productive process.

If we want policy to work as intended, and to have a realistic appreciation of what it can and cannot be expected to achieve, we require a clear and relatively sophisticated understanding of the pattern of incentives and how this impacts on demand for learning among different groups of potential learner.

What will be explored below is whether there is the possibility that the interaction of these different factors tends to set up mutually re-enforcing (virtuous and vicious) circles of causation. It will be suggested that there is in effect an incentives gradient, with powerful and relatively certain incentives available for those aiming for jobs at the very top end of the labour market; and at the other end of the jobs hierarchy, extremely weak, patchy, complex and conditional incentives; with various gradations in between. For those institutions that provide E&T to individuals destined for the lower end of the labour market, this can cause significant problems.

Problems

The characteristics of good jobs and less good jobs

It is important to recognise from the outset that an individual's intended and actual point of entry and subsequent trajectory within the labour market will impact on their incentives to engage in learning. Occupations carry with them very different learning requirements and opportunities, and on the whole jobs at the top of the occupational hierarchy both require and entail more learning than those closer to the bottom. Thus the evidence suggests that strong, positive incentives tend to cluster around higher status, higher paid work. Such jobs are usually more intrinsically interesting, with learning embedded in work routines and the variety and challenge of the tasks to be undertaken (Eraut and Hirsh, 2007), they provide opportunities to develop a career with multiple steps for progression and further development, and they have a higher social status. They often also demand that employees undertake continuing professional development (CPD) and training in order to remain employed and to progress within the profession or company (Sargent and Aldridge 2002).

In marked contrast, low paid employment is often highly repetitive, offers less pleasant working conditions, with limited discretion and intrinsic interest, providing few incentives for further E&T and few real opportunities for progression (Lloyd, Mason and Mayhew, 2008; Lawton 2009). Low paid workers often see limited point in training, since it is outside their experience, their employer does not require higher skills and the opportunities to progress are circumscribed (Crowder and Pupynin 1993). Furthermore, the role of prior education and training and qualifications in accessing such employment is often patchy and weak (Spilsbury and Lane 2000; Jackson et al, 2002; Bunt, McAndrews and Kuechel, 2005; Newton et al, 2005; Bates, Gifford and Johnson, 2008).

The features of work organised within an occupational hierarchy of this type mean that managerial and professional workers are likely to be offered considerable opportunities to acquire new skills or enhance existing capacities, whereas young people (Ball, Macrae and Maguire, 1999) and adult workers in lower end occupations are much less likely to receive this kind of investment from their employer (Leitch Review 2005 & 2006). Although this situation has given rise to much official anguish among policymakers in the UK, it should be noted that a broadly similar pattern (though less steeply graded) of access to adult training appears across much of the developed world, including the Scandinavian countries that are otherwise regarded as the poster children of lifelong learning. Moreover, in distributing training opportunities in this way, employers may well be acting entirely rationally, given how work is currently organised and jobs designed. They are giving additional skills to those workers whose job roles demand it, and where the employees have the discretion available to them to deploy new skills to productive advantage. Growing the skills of those at the bottom of the hierarchy may be seen as a waste of time and money if there is no intention to grow the jobs in ways that allow new skills to be used to further organisational performance.

With these general points stated, we can now turn to a more detailed examination of why jobs at the lower end of the occupational spectrum may not generate strong incentives to learn. Several, inter-related factors are at work.

Weak occupational identities and their impact on skill requirements

Compared to their counterparts in mainland Europe, many UK employers tend to conceive of jobs, and the range of tasks and roles that the workers occupying them need to perform, in very narrow ways (Brockmann, Clarke and Winch, 2011).

This problem is particularly acute for non-professional work, and there is some evidence that it even encompasses lower level management positions in sectors such as retailing and cafes (Grugulis, Bozkurt and Clegg, 2010; Lloyd and Payne, forthcoming).

In the UK, European models of ‘occupation’ and ‘occupational identity’ really only pertains within a limited sub-set of employment at the upper end of the labour market (Brockmann, Clarke and Winch, 2011). In other countries, the general rule is that the hairdresser, carpenter or nurse are accorded far more responsibility to plan, carry out, and control his or her own work, and the system of qualifications and training reflect this reality.

Research conducted in UK call centres, hospitals, hotels, food processing and retail on low skill, low wage work suggests that employers and employees regard positions at the lower end of the organisational and occupational hierarchy as slots with job tasks attached to them, and workers are recruited to perform this specific job, which in turn can be reduced to a bundle of fairly closely defined tasks or competences (Lloyd, Mason and Mayhew, 2008). For example, one meat-processing worker described his job as:

My job is doing this: I have to bend down – I have five or six hundred pieces to do, have to bend down six hundred times, pick it up six hundred times, put it in the machine six hundred times. All six hundred times, take it out, pick it up, turn it around, clip it six hundred times. Pick it up; put it in another container six hundred times. (James and Lloyd 2008: 231).

This model of work organisation and job design leads to a narrow conception of vocational skill and the type of vocational E&T necessary to create it. These narrow conceptions are the, in turn, reflected in the way many lower level vocational qualifications (VQs) have been designed. It is to this issue that we now turn.

Problems with vocational qualifications

When the UK nations adopted the idea of competence-based vocational VQs in the mid-1980s, one of the key assumptions underlying the adoption of this model of VQ design was that it would help afford employers a greater say in the design of VQs and allow them to tailor qualifications in ways that allowed them to accurately reflected their real skill needs. The idea was laudable in conception, but ignored the cultural problems of weak or non-existent notions of occupation and the structural features of job design that were (and still are) to be found in many lower end jobs. In a system where the specification of VQs mirrored current employer needs as defined by a set of task-specific competences, the danger was that in some sectors and occupational groups, the result would be thin, narrow and shallow bundles of competences.

This danger was compounded by the tendency for the qualifications to be specified on the basis of the lowest common denominator that employers in an industry could agree upon. Rather than represent the needs of the leading edge employer, a substantial proportion of National Vocational Qualifications/Scottish Vocational Qualifications (S/NVQ) ended up reflecting what the least demanding employer with a seat at the table was willing to countenance.

Moreover, in many instances, the vocational qualification (and the course of learning that is associated with it) is focused only on preparing the individual to undertake that particular job, with little wider learning that might form a basis for future learning or for labour market progression, such as to supervisory levels. The absence of a strong element of general academic learning within vocational qualifications across the UK is a factor that marks our VQs out as being distinct from those found in many other developed countries (Green, 1998; Brockman, Clarke and Winch, 2011). In other nations, the assumption is that VQs, especially those being offered to young entrants to the labour market, must be able to provide a platform of wider learning that helps bolster occupationally specific knowledge, allows the individual to participate as a worker and as a citizen, and helps support lifelong learning. The absence of this in the UK has significant implications for the ability of many of our VQs to support progression, particularly if that progression necessitates a return to academic learning. Thus progression from vocational courses and apprenticeship into higher education (HE) is often problematic (Pring et al, 2009; Seddon, 2005; Fuller and Unwin, 2012).

The other major difficulty with the incentives on offer from studying some forms of VQ, particularly S/NVQs is that the wage gains resultant upon possessing such a qualification at Level 2 are often poor, and sometimes nil or even negative (Dearden *et al.* 2000; Wolf, Jenkins and Vignoles, 2006, Jenkins, Greenwood and Vignoles, 2007). The latest evidence, covering the whole of the UK, confirms the gloomy picture on lower level VQs, especially S/NVQs at Level 2 (London Economics, 2011a).

The low percentage figures that represent some average wage gains from Level 2 VQs are all the weaker as signals that investment in gaining them is worthwhile because of the fact that many such wage calculations rely on comparisons between those with a Level 2 qualification and those with no qualifications at all. Twenty years ago such comparisons made reasonable sense – there were a large number of adult workers with no qualifications at all, covering a range of people in very different jobs (e.g. many older craft workers, like plumbers and fitters, would not hold anything that we now would regard as a formal qualification as the apprenticeship system often did not rely on certification to prove someone was a ‘skilled’ worker). Today the situation is very different. The number of workers with no qualifications is much lower, and for young people at least, leaving education with absolutely no qualifications is simply a proxy for someone with serious problems (learning difficulties, mental illness, disorganised lifestyle, family problems, carer responsibilities, substance abuse, etc....). Therefore the fact that someone with a Level 2 is liable to earn more (and be more likely to be employed) than someone with no qualifications at all comes as no more of a surprise (and is no more useful as a piece of information) than that on average a four legged horse will tend to run somewhat faster than a three legged horse. Interestingly, the wage and employment gain effects between someone with a Level 2 and a Level 1 qualification are quite small (DfES/DWP, 2006), so what matters is having some qualifications rather than none.

There is not space here to go in detail into why returns to many lower level VQs are so poor, but one obvious, though frequently ignored point, is that for skills to secure a premium in the labour market they need to be relatively scarce. As Professor Alison Wolf noted in her review of VQs for young people in England, “other things being equal, high returns to a particular form of qualification mean high demand for, or short supply of, the skills and qualities to which it attests.” (Wolf, 2011: 31). In other words, for skill to imbue individuals with bargaining power within the labour market, what is required is a seller’s rather than a buyer’s market.

This fundamental understanding that it is the relative scarcity of a given skill that imparts its holders with bargaining power has long been known (for example, see Phelps Brown, 1962), but has frequently been ignored or forgotten by policy makers. As will be discussed in more detail below, what evidence we have suggests that in many instances individuals are facing a labour market where there is an over not under-supply of skills, and where therefore they are competing with many other, similarly or better qualified applicants for the job opening. They are thus in position to bargain up wages, and an abundant supply of labour may well mean the employer feels no need to raise wages.

Against this backdrop, the wage boost associated with acquiring qualifications rises with the level of the qualification (Vignoles and Powdthavee 2006). Therefore the financial incentives to obtain higher level qualifications are stronger than for lower level qualifications. Moreover, the wage returns to vocational qualifications are generally lower than those to academic qualifications at every level (as is the case in the vast bulk of developed economies), and there is considerable variation of returns to different types of vocational qualification at the same level. Scottish/National Vocational Qualifications (S/NVQs) usually fare significantly less well than other offerings, such as City and Guilds (Dearden, McIntosh and Sianesi, 2004; Jenkins, Greenwood and Vignoles, 2007; McIntosh and Garrett 2009; London Economics, 2011a). Moreover, the age and gender of the learner also have a significant impact on the scale and certainty of any wage gains. The result is a very complex picture, which makes it hard for potential students to be certain what the returns will be.

Second, the way in which these wage premia are reported by researchers and subsequently deployed by policy makers, tends to focus almost exclusively on figures that provide the average return. Unfortunately, averages can be very misleading. For example, we know that in England whereas the average return to a degree has held up fairly well, the dispersion around this average has increased (Green and Zhu, 2008; London Economics, 2011b), and many sorts of courses (modern languages, humanities, and sociology) show either no or negative returns relative to people with just A levels – though this is very heavily influenced by gender of student, class of degree, and institution. Overall, the dispersion of wages within the group at any given qualification level is often larger than that between the average points for different qualification levels. Averages therefore help disguise the risk that some students may end up with a much worse return than the average and possibly no return at all. Insofar as public policy stresses average returns as a means of cajoling individuals to invest and participate in learning, it may be (wittingly or unwittingly) misleading potential learners.

Overall, the key message is that for those whose abilities, circumstances and options point them towards lower level (especially Level 2 VQs of certain types):

...evidence suggests that returns to accredited training at the lowest levels of qualification tend to be relatively low. This is likely to influence low-skilled individuals' decisions to invest in skills development...policy needs to address the finding that the financial returns to learning/skills/qualifications appear to be lower and less certain among lower-skilled and lower-qualified groups.(Johnson et al, 2009: vi-viii)

Indeed, given the wage returns on some lower level vocational awards it could be argued that current overall levels of participation in E&T are actually higher than a rational response to the labour market incentives would dictate (Keep, 2005).

Weak and limited labour market regulation

Labour law remains a largely un-devolved issue within the UK – power and responsibility reside in Westminster and Whitehall and not with the devolved administrations in Wales, Scotland and Northern Ireland – and the UK government is still keen to trumpet the fact that it aims to possess one of the least regulated and therefore ‘flexible’ labour markets in the developed world (H M Treasury, 2011).

One result of this policy which has major consequences for the pattern of incentives to invest in skills is that the coverage of licence to practice (LtP) requirements in the UK labour market remains low compared to that in many other developed countries (for example, the USA at state level, Canada, Australia, Germany, and Austria). LtP is where the acquisition of a certain type and level of qualification is a pre-requisite for being able to undertake certain kinds of work. In its strong form, holding particular qualifications is a legal requirement of those who wish to practice the trade or profession in question. In the UK doctors, nurses, dentists, solicitors, accountants, engineers, airline pilots, gas fitters and heavy goods vehicle drivers are examples of areas that are covered by LtP). In some other countries it covers a much wider range of occupations.

As a result of the restricted reach of LtP in the UK, the overall strength of Type 2 incentives to acquiring qualifications in order to enter various occupations is greater in these other countries and may explain why many OECD member states have a higher stock of qualifications at particular levels (usually Level 3) in their workforces than do we (Keep, 2005). This outcome may have little to do with underlying efficacy of their E&T systems or the Type 1 incentives they generate, it simply reflects the impact of stronger Type 2 incentives created via LtP regulation in the labour market. Plainly, LtP regulation provides what might be termed an absolute incentive to learn, in that it creates an unavoidable requirement to follow a particular course of learning and/or acquire a particular qualification (Keep, 2009). Its relative absence across large swathes of the UK labour market helps explain why the hold that qualifications have on the recruitment process in many sectors and occupations at the lower end of the labour market, such as retailing and hospitality, is limited or non-existent (Keep and James, 2010).

Recruitment and selection

For there to be strong incentives to engage in formalised learning, it would be necessary for the labour market to be structured and regulated in such a way that qualifications have a strong hold over recruitment and selection decisions across the entire occupational spectrum. Furthermore, lower level qualifications should either be an essential pre-requisite for gaining employment in a particular sector or job, or to generate significant positive wage premia for those holding them. Unfortunately, in the lower reaches of the UK labour market this is often not the case.

The hold that a large raft of lower level vocational qualifications (VQs) have upon the recruitment and selection process is weak, patchy and limited, often because many of the social and generic ‘skills’ that employers are looking for are uncertified and because the formal skill levels needed in many lower end jobs are so limited (see Spilsbury and Lane 2000; Miller, Acutt and Kelly, 2002; Jackson et al. 2002; Bunt, McAndrews and Kuechel, 2005; Newton et al, 2005; Bates, Gifford and Johnson, 2008; Shury et al, 2008; UKCES, 2012). For an overview of what is known about recruitment and selection in the UK, see Keep and James, 2010).

The widespread use of informal methods of recruitment and selection, such as word of mouth recommendation, further serves to weaken the role and impact of qualifications (Keep and James 2010; UKCES, 2012).

Limited Opportunities for Progression

There is a strong assumption within policy that learners can use upskilling as a passport out of lowly paid employment, and that they can work their way up the labour market through a combination of effort and skill enhancement. The possibilities this offers to individuals to better their lot is assumed to be a major incentive to engage in learning.

There are two key aspects to making this a reality. One is the provision of appropriate learning opportunities, and colleges and universities have played a major role in seeking to make this happen. The second factor is, unfortunately, outside the control of E&T providers. It concerns the type and scale of the opportunities that exist for individuals to secure progression, with their current employer or elsewhere in the wider labour market.

Although we have limited knowledge about progression out of low paid employment in the UK, the available data does not give rise to great optimism. The research suggests that opportunities for progression are often limited in terms of the proportion of the workforce who can hope to move up the job ladder (Grimshaw et al, 2002; Lloyd, Mason and Mayhew, 2008; Lloyd and Mayhew, 2010), and that the scale of the career and wage benefits that such upward mobility gives rise to can be quite small as workers are often able to only move one or two rungs up the occupational ladder (Atkinson and Williams 2003; Green, Poston and Germen, 2004; Hoggart et al, 2006; Lloyd and Payne, 2012).

This reflects the partial attenuation of internal labour markets (ILMs) (Grimshaw et al, 2002), the increasing use of agency workers (Lloyd, Mason and Mayhew, 2008), and the flattening of hierarchies within the individual firm. These problems are being exacerbated by the downward cascade of graduate labour (Brown, Hesketh and Williams, 2003; Boden and Nedeva 2010), which is starting to occupy many of the first line supervisory roles that, in times past, shop floor workers could have aspired to fill by moving upwards (Keep and Mayhew 2004; James and Lloyd 2008).

Moreover, insofar as workers at the lower end of the labour market do contrive to move up the job and pay ladder, the role played within this process by qualifications often appears to be limited (Cheung and McKay, 2010; Lloyd and Mayhew, 2010; Lloyd and Payne, 2012).

We also know that at the lowest reaches of the labour market there are major issues around the instability and casualisation of employment for many workers, which means that they cycle between low-paid work and no work (Metcalf and Dhudwar, 2010), and are rarely able to progress towards better remunerated and more secure employment. UKCES have recently produced two very helpful reports that show that this does not have to be the case, and that employers can provide internal labour markets and progression and learning opportunities for lower paid workers that can help lift them off the bottom rungs of the employment ladder (see Policy Research Institute/International Centre for Guidance Studies, 2012a&b). The problem is finding the means through which public policy can support the spread of such good practice (a point returned to below).

Overview

To summarise, the situation outlined above acts in the following way:

- Within a hierarchical labour market, shallow, narrow or non-existent notions of occupation at the lower end of the jobs spectrum, interact with
- Narrow job design and lack of discretion, leading to
- Limited and often narrow requirements for skill, with little or no general education, leading to
- VQs that in some cases mirror the above and represent little more than bundles of low level task-specific competence, leading to
- A limited wage premium for those holding these qualifications, which coupled with
- Recruitment and selection policies and practices that often afford a limited role to qualifications, coupled with
- A frequent lack of significant progression opportunities
- Results in weak, patchy, and uncertain incentives to engage in learning.

Each of these elements, on their own, would be sufficient to cause problems. Acting in concert, as a mutually reinforcing matrix of forces, they produce powerful reasons why many individuals perceive that the incentives to learn are weak, and hence conclude that it is not worth their while to invest (time, energy and money) in either initial or continuing vocational E&T. Johnson et al in their overview of individuals' willingness to engage in learning, conclude that:

Major surveys have consistently found that career progression and accessing better-paid jobs are key motivators for people (including lower skilled workers) participating in learning and training. Yet there is evidence that undertaking lower level vocational training offers few immediate returns to the individual in terms of higher wages. If this remains the case, there may be little rational incentive for lower skilled workers to participate in such forms of training. Of course, entry-level adult learning may act as a first step towards further skills development activities that carry a higher wage premium, but there is a need to ensure that such progression routes are clearly articulated, and that even the most basic skills provision is clearly linked to improved job performance and/or opportunities for progression. In the more immediate term, it is also essential that the qualifications system offers vocational awards that can deliver a wage premium for successful training completers. (Johnson et al, 2009: 55).

The consequences and how to deal with them

The picture painted above is not an entirely happy one. In England, the chief response to it by policy makers has either been to ignore it, or to insist that educational reforms that seek to boost Type 1 incentives will, on their own, be sufficient to transform attitudes to learning and with them resultant outcomes. Scotland is set on a somewhat different and more sensible course, but problems still abound.

What follows tries to tease out the implications of weak and uncertain Type 2 incentives and to explore what can be done about them (and by whom it should be done).

Complexity, uncertainty and risk

The structures outlined above work in ways that mean the pattern and strength of the incentives acting on learning decisions is potentially complex and uncertain, perhaps dauntingly so (see for example, Jenkins, Greenwood and Vignoles, 2007). For instance, as noted above, the labour market impacts of the acquisition of a particular qualification often vary according to:

- The age of the learner;
- Their gender;
- The level of qualification;
- Subject and occupation (if any) to which it is related;
- Type of qualification/awarding body;
- The status and standing of both the learning provider and the institution or body providing the education or training; and
- Who pays for it – low level VQs paid for by the individual's employer appear to generate higher returns than those funded from other sources.

Moreover, adding to the complexity and uncertainty is the fact that it is participation in learning that imposes costs and requires investment, and participation is no guarantee of actual achievement. A student or trainee can participate in learning but not achieve the desired outcome or qualification (see, for example, Villeneuve-Smith, Marshall and Munoz, 2007: 6). In such cases the investment made may be either totally or partially wasted. English policymakers have suffered from an unhealthy tendency to slide from participation to achievement as though the one more or less guarantees the other (see, for instance, DfES 2007; DCSF/DIUS 2008).

As previously noted, there is an incentives gradient or spectrum, and whereas high level qualifications taken in elite institutions produce relatively high and certain employment and wage effects, whereas by contrast for those students following courses at the lower end of the vocational route face some of the weakest, most complex and patchiest returns. They are also often the students whose personal resources in terms of knowledge of the system, savings or access to other sources of funding and social networks within the labour market that might help ensure they obtain employment are the weakest.

There is a body of research that suggests that those whose financial resources are limited tend, on the whole, to be more risk averse than those with higher levels of resources (see Atkinson et al, 2006). This conclusion is offered some support by recent research by McQuaid et al (2012), which probes the motivators and barriers to learning for low wage/skill employees using a 'stated preference' experiment to test out intentions to learn. It shows that people's attitudes towards training are generally positive and that they have realistic expectations of their current jobs and the training that it provides.

The bad news is that to motivate them to invest significant amounts of time and money in a whole qualification there would need to be the promise of significant and reasonably certain wage gains – in other words precisely the outcome that is either sometimes not on offer, or relatively uncertain.

Over-qualification and mismatch

Why are wage gains associated with (and therefore the incentives to acquire) some lower level VQs so uncertain and weak? There are many reasons, but one that has already been noted is that for skills to impart power and substantial wage gains in the labour market, relative scarcity is a pre-requisite. Unfortunately, what we know about the overall match between job and the skills they require across the UK (demand for skills), and what skills and qualifications the workforce currently holds (the supply of skills), suggests that levels of over-qualification and mismatch have been increasing over time. Felstead et al. (2007), using data from the Skills Survey suggest that across the UK workforce the proportion of workers who felt they held qualifications at levels above those needed to obtain or undertake their current job had increased from 29.3 per cent in 1986 to 39.6 per cent ten years later. Sutherland (2009) produces even more depressing figures using data from the 2004 Workplace Employment Relations Survey (WERS). He suggests that slightly more than half of the workers in the WERS sample felt that their skills (rather than simply qualifications) were either ‘much higher’ (21. per cent) or a ‘bit higher’ (32.6 per cent) than those needed to do their present job. These figures may point to another set of negative incentives that are acting on individuals when they think about up-skilling, though Sutherland reports that workers at the lower end of the wage distribution were slightly less likely to believe themselves over-skilled for their current work.

Besides these large aggregate level problems, the UK Commission on Employment and Skills (UKCES) has noted that at the top end of the UK labour market the supply of highly skilled workers has been outstripping the levels of increasing demand for such labour for some time and that the dangers of mismatch are increasing (UKCES, 2009).

Taken together, these findings are lead indicators of potential imbalances between the number of skilled jobs and skilled people; between the skills available and those in demand – which, in turn, may result in ‘over-skilling’ or ‘under-employment’ of skilled workers.

(UKCES, 2009: 9)

These aggregate level mismatches between supply and demand, are reflected by what we know about the fit between qualification level and job for younger workers:

...the proportion of degree-qualified 24-29 year olds in the UK who are working in jobs that do not require this qualification is 26 per cent....compared to an OECD average of 23 per cent....This also occurs at intermediate level, but the extent is far lower (12 per cent)....despite lower mismatch levels than at graduate level, when we look internationally the UK has the second highest rate of under-employment at intermediate level in the OECD. Of 30 countries, only Spain has a higher level.

(UKCES, 2011: 20)

Plainly in an era when governments across all four UK nations have been seeking to increase levels of participation and achievement in post-compulsory learning (for both initial and continuing training), the fact that at some levels and in some sectors demand for more skills has not kept pace with supply is a major problem. Moreover, it is a problem whose causes appear to be deeply embedded within the structure of our labour market and economy, and reflects fundamental choices about how many UK firms seek to compete, to organise production, and design jobs (Keep, Mayhew and Payne, 2006; Keep and Mayhew, 2010). As Francis Green (2009: 17) notes:

Unfortunately, Britain has long been caught in a low-qualification trap, which means that British employers tend to be less likely than in most other countries to require their recruits to be educated beyond the compulsory school leaving age. Among European countries, only in Spain, Portugal and Turkey is there a greater proportion of jobs requiring no education beyond compulsory school. There is some way to go before British employers place similar demands on the education system as are placed in the major competing regions in Europe.

This picture of mismatch and over-qualification has worrying implications for the incentives to learn.

It makes investment riskier and less certain because it enlarges the pool of potential applicants for certain types of job so that the supply of qualified labour outstrips the number of job openings, and for those workers who do not gain employment appropriate to their qualifications, trading down in the jobs market is the likely outcome. Being over-qualified, certainly for graduates, also seems to have a long-term scarring effect on wage levels, and also reduces job satisfaction (Green and Zhu, 2007).

Concerns about this situation have been most keenly felt in Scotland, where the government has noted that there are major problems with the shape and strength of demand for skills, and with how skills are and are not utilised within the productive process. Solutions encompass economic development, business improvement and attempts to encourage better skill utilisation (for example, through the Scottish Funding Council's skill utilisation projects). The first steps have been taken, but it will be a long and hard road to travel, and large scale results will take time to occur.

Raising aspirations

One of the tasks given by policy makers to E&T providers, including colleges and universities, is to raise the career and hence the educational aspirations of those coming to learning from less advantaged backgrounds. The aim is to ensure that people can move out of badly paid work, and that inter-generational social mobility will rise. Given the current structure of incentives, there are several problems with this kind of approach.

First, it assumes that workers are in low paid work at least in part because of their lack of aspiration or ambition (as witnessed by their lack of skills). Unfortunately, leaving aside the fact that many of the low paid are not necessarily all that low skilled or qualified (Lloyd, Mason and Mayhew, 2008; Lloyd and Mayhew, 2010), the culture that policy wishes to change is rooted not necessarily in some form of self-defeatism on the part of the low paid, but rather within the structural features of the labour market, and nature and distribution of the job opportunities that are actually open to them (Gutman and Ackerman, 2008).

Work by Green, Postern and Germen (2006) shows very clearly that in unequal societies and labour markets strong positive incentives – particularly of Type 2, but also of Type 1 – will not be distributed equitably, and that those on the lower rungs of the occupational ladder will tend to face weak or non-existent incentives to learn.

Research on career aspirations and attitudes towards education in deprived communities suggests that far from there being universally low aspirations, “the proportion of young people hoping for work – both ideally and realistically – in the top three SOC (Standard Occupational Classification) categories is far higher than the current workforce can support” (St Clair and Benjamin, 2011: 512). What tends to result is that, in the face of limited opportunities and a potentially realistic calculation about the chances of succeeding in any competition for access to these, aspirations are adjusted downwards, or as Gutman and Ackerman put it:

Aspirations begin to be shaped early in a child’s life, but are modified by experience and the environment. Aspirations tend to decline as children mature, in response to their growing understanding of the world and what is possible, and to constraints imposed by previous choices and achievements. (2008: i)

Moreover, as with the problem mentioned earlier of conflating participation with achievement, it is dangerous to assume a simple, linear relationship between aspiration and educational achievement. Thus Chowdry, Crawford and Goodman (2009) demonstrate that aspirations (on the part of pupil and/or parent) do not always feed through into either participation patterns or achievement.

These problems are sometimes made more acute by the fact that in parts of the UK there is evidence that the geographical pattern of well-paid and low-paid jobs is polarising, and that low paid work is sometimes tending to cluster within particular localities (Green and Owen, 2006). In some communities, a significant proportion of the employment opportunities that are available may be low paid, casualised and insecure, locking families into a low pay/no pay cycle and recurrent poverty (see Metcalf and Dhudwar, 2010; Tomlinson and Walker, 2010; McQuaid, Fuertes and Richard, 2010; McQuaid, Fuertes and Richard, 2010; Shildrick et al, 2010; Ray et al, 2010). For young people and workers who live in such areas and communities, the incentives to learn are lessened (Gutman and Ackerman, 2008; Wiseman, Roe and Hawkins, 2008), unless people are willing to contemplate moving to where opportunities for better work can be found. Given these problems, successful culture change is unlikely to be brought about simply by colleges and other providers being positive about the benefits of learning, it will also necessitate efforts to change the material incentives that individual workers face, and for that to occur labour market reform may be required. The key change is liable to be improved job quality, less casualisation and higher pay.

There is also the question of whether improved skills can get everyone out of the large number of low paid jobs that exist (at present around 22 per cent of the entire workforce, and nearly one in three of all jobs occupied by female workers – Lloyd, Mason and Mayhew, 2008). Policies based on raising aspirations sometimes fall into the trap of assuming that the supply of better-paid jobs will automatically expand if the supply of better-qualified workers rises. The presumption appears to be that either low paid, dead-end work would vanish if all workers were more skilled, or that it would simply become a short-term way-station on the path to better things for those workers who passed through such employment.

Given what we know about levels of over-qualification and of progression out of low paid work, the realism of these beliefs is open to doubt. In other words, with a sufficiently large expenditure of public money, you can train away lowly skilled (or more often lowly qualified) stocks of labour, but you cannot train away the significant number of low-paid, dead end jobs that our labour market offers.

As a result, exhortation by politicians (of all parties in the UK) around the need to transform the educational and career aspirations of lower socio-economic groups is problematic in that even if everyone aspired to be middle class and well-paid, the reality – for the foreseeable future – is that about a quarter of all jobs in the UK labour market will remain low paid and difficult to progress out of (UKCES 2010: 6). As a result, simply trying to change aspiration will be difficult and may not achieve all that much in the longer term, unless it is coupled with wider changes to the structure of opportunity (Goldthorpe and Jackson 2007; Hickman 2009; Harris 2010) and embraces wider regulation and structuring of the labour market and the employment relations that take place within it (see Bosch, Gautie and Mayhew, 2010).

Problems and issues for E&T providers

Colleges and other E&T providers can reasonably be expected to address issues to do with enhancing the strength and certainty of many Type 1 incentives. For example, they can make learning more interesting through a relevant curriculum and through forms of teaching that engage students. *Curriculum for Excellence* appears to offer a sound foundation for seeking to enhance Type 1 incentives in Scotland and it is important that it should succeed. It is also vital that everyone recognises that the full effects of any changes in the incentives to learn that might result from *Curriculum for Excellence* will take quite a while to show through. One of the greatest problems with E&T reform across the UK has been a tendency to expect miraculous transformations over very short time scales. Shifting and strengthening Type 1 incentives is liable to take time as perceptions gradually improve in response to changes made.

When we come to consider Type 2 incentives, which are certainly at least as important as Type 1, and it could be argued are liable to have a stronger lasting effect on student choice and motivation (Keep, 2009), it is extremely hard to see how colleges or anyone else within the E&T system can do all that much to alter the demand side, and change how the labour market currently operates. E&T providers sometimes find themselves trying to sell the benefits of learning in the face of, rather than because of, the incentives that are coming from the labour market. This is particularly so when providers such as colleges are located in areas where the labour market is depressed, where the range of job opportunities is skewed towards less well paying and less secure employment, and where a significant proportion of the students (actual and prospective) are liable to be drawn from deprived communities. In these circumstances ‘making the case that skills pay’ can often be an uphill battle.

One way in which public policy is starting to address this issue, albeit it indirectly, is through the continuing development of apprenticeships as a route that offers opportunities for combining learning and earning. Unlike England, Scotland has been relatively successful at boosting the number of apprenticeship places for young people (as opposed to existing adult workers aged 25 and above, which is where expansion in England has been concentrated), and Scotland has also succeeded in creating a far higher proportion of apprenticeships at Level 3 (i.e. craft and intermediate level) rather than Level 2.

Given plans for further expansion, the structure of E&T provision for young people is undergoing a fundamental shift, with apprenticeship opening up as a substantive and important route that has strong appeal for different groups of young people. This change has major long-term implications for colleges, universities and employers, not least in terms of fashioning new routes from apprenticeship into higher education, such as the pioneering engineering apprenticeship (MA2MA) project being piloted by Forth Valley College. International experience suggests that a strong and credible work-based route for initial vocational learning is likely to improve participation and achievement rates as it offers strong incentives to learn (both Type 1 and Type 2).

Another way in which policy has sought to try and compensate for inadequate or uncertain Type 2 incentives for young people has been an increasing use of various forms of public subsidy to supplement or act in lieu of the Type 2 incentives generated by other actors. Education Maintenance Allowances (EMAs), abolished in England but still operating in Scotland, are an example. Such subsidy-based incentives, generated within the E&T system and funded by government can be labelled Type 1b incentives.

A third avenue for trying to counteract weak positive signals to learners from parts of the labour market is better quality and more readily available information, advice and guidance (IAG) on what openings are available in the local, regional and national labour markets. The creation by Skills Development Scotland of the ‘My World of Work’ website and web-based careers information tools is an impressive example of what can be achieved. However, it by no means offers a magic solution. The prospects on offer have to be presented honestly and realistically, something which does not always happen when the providers of IAG have a vested interest in greater participation in particular types of learning (see Keep, 2009 for some worrying examples of an awarding body presenting [intentionally or unintentionally] misleading information on the wage returns to certain VQs). Indeed, a case could be made that were prospective students fully aware of the current levels of over-qualification and qualification mismatch, the sometimes limited returns liable to accrue to lower level VQs, and range of employment that these qualifications provide conditional access to, levels of participation might in some instances be liable to fall.

Implications for broader policy

Given that E&T providers can reasonably be expected to only tackle one half of the problem of weak incentives (those pertaining to Type 1 incentives), it is incumbent upon policy makers to understand and acknowledge this, and also to shoulder the burden of responsibility for trying to address at least some of the weaknesses with Type 2 incentives. Unless and until this is done, levels of participation and achievement in Scotland are not going to be world class (or anything like it), social mobility will remain limited, and public investment in creating skills will not reap its full benefits in terms of economic growth and productivity gains.

In the UK, there has grown up over the last thirty years or so a policy tradition that the shape of the labour market and the levels of job quality (and the distribution thereof) across the economy is best treated as a given, determined very largely by inexorable economic forces with which government cannot interfere, except at the very margins. In other countries, not last those in Scandinavia, different views prevail, and it is seen as a legitimate and realistic goal for public policy to seek to influence the quality of work across a variety of dimensions (low pay, health and safety, quality of working life, opportunities for employee ‘voice’, etc).

It is often forgotten that at EU-level the current policy mantra is one of ‘more **AND** better jobs’. Given current concerns over unemployment, particularly youth unemployment and the growing ranks of the NEET population, creating more jobs really matters. However, better jobs are not a frivolous or optional ambition. Without them, large swathes of the Scottish working population will be condemned to low pay (and the need for in-work benefits to top their wages up at taxpayers’ expense), to poor working conditions and various forms of stress related illness, to limited or non-existent opportunities for progression, and in many instances to seeing the skills they have laboured to acquire poor used or not used at all. Moreover, the E&T system will, because of the problems discussed above with many forms of Type 2 incentive, struggle to persuade significant numbers of young people and adults to participate and achieve to anything like their true full potential.

The Scottish Government has, via its Skills Strategy, already acknowledged that the nation’s skills problems extend beyond the supply of skill and encompass weak and patchy demand, and also deficient utilisation of skills already created.

Policies on skills utilisation and the suite of skill utilisation projects funded via the Scottish Funding Council and delivered by colleges and universities; demonstrate what could be done to start to help employers improve how they deploy skills within very different workplaces. However, there are arguably broader questions about what ideas (and actions) Scottish public policy may wish to adopt on the nature and quality of work and the employment relationship in the longer term.

At present, legislation on employment relations and the regulation of the labour market, along with other employment issues, is an undeveloped area of policy. However, this only really applies to legislation. There is nothing to stop the Scottish administration from arriving at a view about what needs to be aspired to by way of job quality, progression opportunities and the like, and for them to pursue these goals by all means short of legislative compulsion – not least through economic development and business improvement initiatives. For example, this paper has highlighted problems concerned with the way recruitment and selection activities are being conducted and around the lack of progression opportunities for lower paid workers. UKCES and others have suggested ways in which employer practice in these areas could be improved in order to benefit younger labour market entrants and people trapped in casualised, low paid work. The key issue is how public policy might help to ensure the widespread take-up of these examples of good practice.

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