

Cutting the Apron Strings?

The Clustering of Young Graduates and the Role of the Public Sector

A Cities 2020 research paper

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The UK economy has been making a long-term shift from one based on physical production to one based on the production, use and dissemination of knowledge. One of the key drivers of this process has been the increasing education of the workforce. High skill levels have become vital to the success of city economies.

Young graduates – those aged between 20 and 29 qualified to degree level – are highly important in the knowledge economy. Evidence suggests that young graduates are vital for urban innovation and growth. Moreover, the benefits of high skill levels extend beyond those of the highly skilled: both the wages and chances of employment of the low skilled are increasingly determined by their proximity to the highly skilled.

Yet we know little about the geography of graduate retention in the UK, how this has changed recently and what impact public sector cuts might have. In this paper we answer these research questions and assess the implications for policymakers.

Most young graduates live in London and the South East – but other cities and regions across the UK have experienced a growing share of the UK's young graduates over the past ten years.

There has essentially been a 'spreading out' of young graduates. Between 2001 and 2009 Yorkshire and Humberside increased its share of Great Britain's young graduates by 1.6 percentage points, London's share decreased by 1.5 percentage points.

Yorkshire and Humberside, the North East and the East Midlands also experienced an increase in young graduates as a proportion of their working age populations (clustering) over the last decade. Many cities outside of the South East, such as Leeds, Sheffield and Rotherham, saw large increases in the number of young graduates who live there. This is highly important for the economies of these cities, for their prospects of attracting inward investment and for their long-term economic success.

However, young graduates in the North and the Midlands are disproportionately employed in the public sector. The decade of public sector expansion from 1997 meant that young graduates took jobs in the public sector and were freer to live in parts of the country beyond London and the South East.

A higher proportion of public sector workers are graduates than private sector workers – and between 2000 and 2010 the percentage of young graduates working in the public sector increased faster than that of the workforce as a whole. Over the same time period, there was a decrease in the percentage of young graduates working in banking, finance and insurance (the most popular destination at the beginning of the decade).

This paper demonstrates that there is a link between the location of young graduates and the proportion of young graduates employed in the public sector. Increased public sector demand in the regions appears to have driven the 'spreading out effect' of young graduates. The relationship is stronger

for young graduates employed in the 'non ring fenced' public sector.¹ Job losses will be greatest in this area and Higher Education Careers Services Unit (HECSU) research estimates that this accounts for 37,000 graduate jobs a year.

Public sector cuts will threaten the ability of these cities and regions to retain graduates. The Office for Budget Responsibility has forecast that 330,000 public sector jobs will be shed by 2015. If the public sector stops recruiting new employees, young graduates will increasingly take jobs in the private sector. This will mean a re-concentration of young graduates in London and the South East. Public sector cuts could also result in local underemployment for young graduates (in many places outside of London and the South East latent private sector demand for high level skills is weak) and unemployment.

In the longer term, the likely outcome is that disparities will grow between the successful cities and regions predominantly in the south east of England, and those in the North and Midlands that have been reliant on the public sector for jobs and growth. Previous reports by The Work Foundation such as 'No City Left Behind?'² have indicated that the growth potential of places in the South East far outweighs those in the North. The flight of young graduates due to public sector job losses in the regions would exacerbate this trend. It is essential that this is recognised when cuts are made over the next four years.

Given the Coalition's commitment to 'rebalancing the economy', it is essential that the government responds. With unemployment rates reaching 20 per cent for new graduates and the announcement that schemes such as the Future Jobs Fund are to be scrapped, initiatives need to be put in place for cities previously reliant on the public sector for graduate retention, to retain graduates. Strategies aimed at integrating the highly skilled into local private sector jobs are essential, and there needs to be better collaboration between local education institutions and business.

¹ This paper defines the non ring fenced public sector as the whole Public sector minus the Health sector

² Lee, N., Morris, K., Wright, J., Clayton, N., Brinkley, I. and Jones, A. (2010) *No City Left Behind? The geography of the recovery – and the implications for the Coalition*, The Work Foundation: London

1. Introduction

Graduates are highly important to the economies of cities, yet many cities have relied on the public sector to ensure graduate retention. This paper focuses on the clustering of young graduates – those aged between 20 and 29 and qualified to degree level. It investigates what has driven demand for young graduates and considers the implications of public sector cuts for graduate retention. It shows that the public sector has been a driver of demand for highly skilled young people over the last decade, especially outside London and the South East. This must be taken into account as the Coalition implements its cuts agenda. Public sector cuts will have a disproportionate affect on those places that have a higher dependence on the public sector for jobs and growth and many places may experience a ‘flight’ of young graduates or underemployment and unemployment.

It is highly desirable for a city to increase its share of young highly skilled individuals. Much has been written about the clustering of highly skilled people and its associated benefits. The term ‘talentopolis’ refers to places experiencing the clustering of talented people. Richard Florida³ argues that the benefits of talentopolis include innovation, economic growth and rising individual incomes because ‘creative people are constantly bumping into one another...business ideas are formed’. Individuals with low skill levels are more likely to be in employment if they live in cities with highly skilled populations.⁴ Furthermore, places that have a higher concentration of graduates within their workforce have higher wages and higher productivity.⁵

Graduates have increasingly clustered in particular cities. Figure 1 below shows that English cities with highly skilled populations in 1981 experienced the largest increase in the share of the population with degrees in the subsequent 20 years. However, there is little agreement on what has driven this trend: cities in the United States such as Boston have a concentration of high calibre universities and high graduate retention rates, whereas London has a concentration of knowledge intensive industry and attracts large numbers of graduates. Employment opportunities are considered the primary explanation for the clustering of talent, but ‘cultural amenities’ and a good quality of life offer can also attract highly skilled individuals to a particular city.⁶

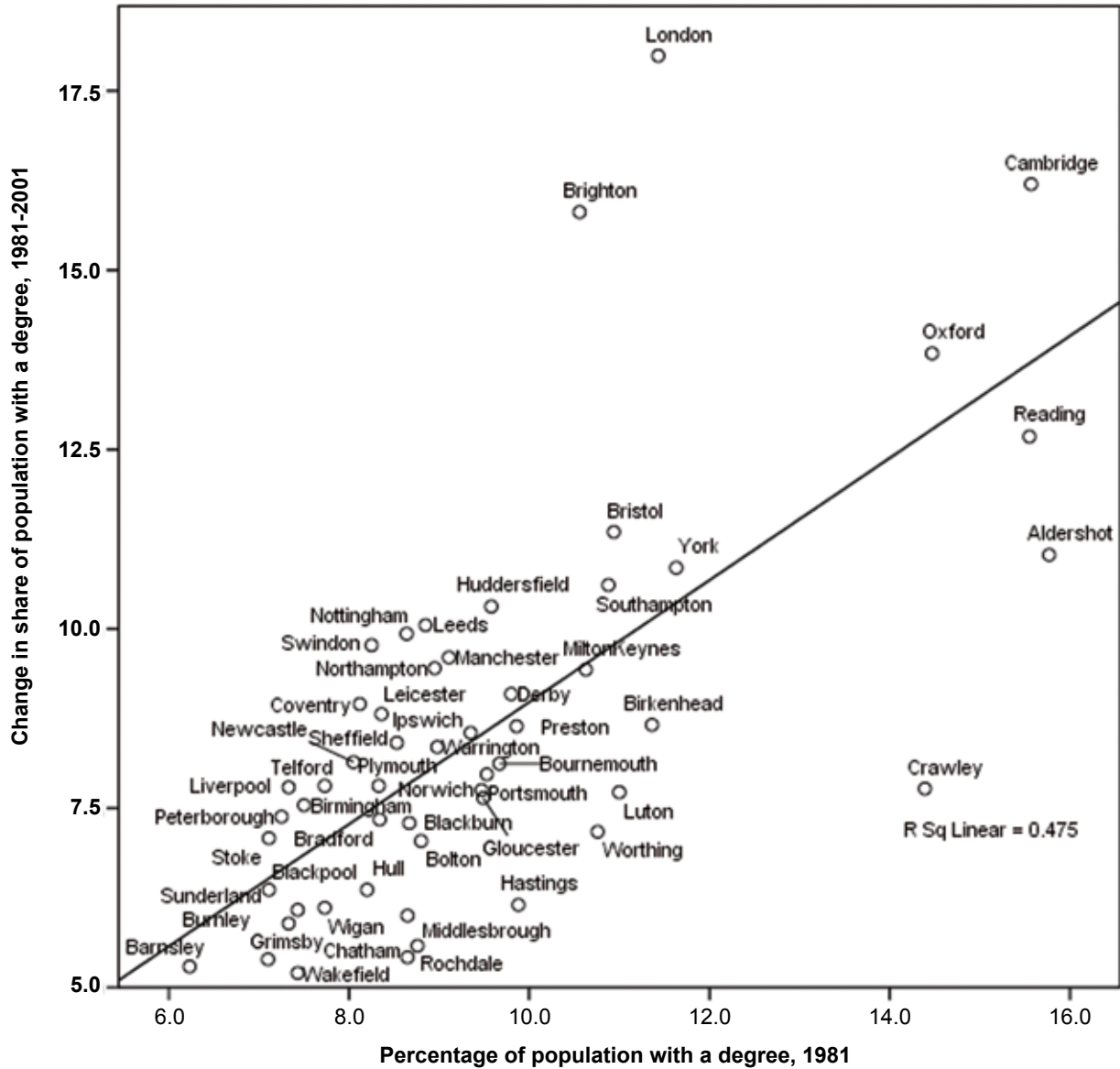
³ Florida, R. (2008) *Who’s Your City? How the creative economy is making where you live the most important decision of your life*, Basic Books, New York

⁴ Lee, N. (2009) *Better Together? The clustering of the highly skilled and the implications for the low-skilled*. Ideopolis Snapshot Analysis, The Work Foundation

⁵ Oxford Economics (2009) *The Influence of Graduate Qualifications on Average Wages and Productivity Across the UK*

⁶ Cowling, M. (2009) *The Geographical Distribution of UK Talent, causes and consequences*, Working Paper WP24 Institute for Employment Studies

Figure 1: Population with degree in 1981 and subsequent increases in share with degrees, 1981-2001⁷



Source: Labour Force Survey

Note: 55 cities are included, the 55 travel to work areas (TTWAs) in the State of the Cities Database.

UK graduates are highly mobile with a strong majority finding work away from their home area. In their work on graduate human capital mobility in the UK, Faggian and McCann⁸ demonstrated that most regions in Great Britain lose more of their locally educated graduates than they retain. The exception is London which has the highest graduate retention rate in the country (it contains the most students, the

⁷ Lee, N. (2009) *Better Together? The clustering of the highly skilled and the implications for the low-skilled*

⁸ Faggian, A. and McCann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

most universities and the most graduate employment opportunities). This has led to growing disparities between the regions (predominantly north and south).

The majority of graduates in the UK travel large distances for employment, with mobility decreasing later in life. Interestingly, Faggian and McCann also argue that universities have a weak effect on graduate retention (demonstrated through multiple regression analysis). The Coalition of Modern Universities (a grouping of those universities and other institutions of higher education incorporated in 1992) have the strongest local labour market effects' due to their links with the local economy and local businesses; 'other universities tend to produce graduates who move away to other areas for employment, except for those universities which are located in London'.⁹ Regional demand characteristics such as high levels of public sector employment and high wages have a much more significant effect on retention in the UK.

Although supply side issues are an important part of the story, this paper will examine the demand for young graduates, in particular the role that the public sector plays. In Britain, public sector activities account for a large share of employment in knowledge intensive industries;¹⁰ the public sector employs a larger proportion of graduates than the private sector. Previous research by The Work Foundation¹¹ has demonstrated that there is large spatial variation in the demand for high level skills from the private sector, with many places outside of London and the South East characterised by weak latent private sector demand.

Vacancies for graduates in the public sector increased considerably between 2007 and 2009 (based on research of the 'Times Top 100' employers¹²) whereas they have fallen in almost all other industries.¹³ Decreased demand from certain sectors such as banking and finance has also resulted in fewer applications to university courses related to these fields, despite overall university applications increasing over the last five years.¹⁴ With graduate intake falling, the public sector plays a crucial role in providing opportunities for these young people (77,000 new graduates a year depend on the public sector for employment opportunities).¹⁵ It has historically been considered 'safe' employment; especially in turbulent economic times.¹⁶

⁹ Faggian, A. and McCann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

¹⁰ The OECD defines knowledge intensive industries on the basis of their above average employment of graduates as well as above average use of new technologies

¹¹ Wright, J., Brinkley, I. and Clayton, N. (2010) *Employability and Skills in the UK: redefining the debate*, The Work Foundation prepared for the London Chamber of Commerce and Industry Commercial Education Trust

¹² A list of the top employers for graduates in the UK published every year by The Times Newspaper and High Fliers publications

¹³ High Fliers Research Limited (2009) *The Graduate Market in 2009: annual review of graduate vacancies and starting salaries at Britain's leading employers*

¹⁴ Higher Education Careers Service Unit on behalf of Universities UK (2020) *Changes in Student Choices and Graduate Employment*, Higher Education Funding Council for England

¹⁵ HECSU Blog (1 July 2010) *Public funding cuts could leave graduates out of work*. Accessed at: <http://hecsu.blogspot.com/2010/07/public-funding-cuts-could-leave.html>

¹⁶ Higher Education Careers Service Unit on behalf of Universities UK (2020) *Changes in Student Choices and Graduate Employment*, Higher Education Funding Council for England

But the recently announced public sector cuts (health and overseas aid are protected from the cuts) will have a significant effect on graduate employment. The Office for Budget Responsibility has forecast that there will be 330,000 public sector job losses by 2015. Higher Education Careers Service Unit (HECSU) research has demonstrated that the number of non-front line public sector jobs (those which will not be protected from cuts) taken by graduates in a typical year is approximately 30,000; 'it could well be that those with degrees will be more affected than those without...and the nature of the public sector means that they [government spending cuts] will probably affect graduates outside London...and new graduates more than others'.¹⁷

Those individuals that graduated between the beginning of January 2008 and August 2009, and subsequently the first group of young people to experience top up fees and recession, have been coined 'generation crunch'. HECSU have argued that if only one fifth of the 39,000 'non front line' public sector jobs that graduates go into each year are cut, the graduate unemployment rate will double.

This paper answers the following key questions using regional and city level analysis:

1. Where are young graduates clustered?
2. Has this pattern changed?
3. What is the role of the public sector in driving demand for young graduates?
4. What is the geographical dimension to this demand?
5. What are the implications of public sector cuts?

Due to the geographically diverse nature of the supply of young graduates and public sector demand, the implications of public sector cuts will be felt more in some places than in others.

With unemployment rates for new graduates reaching record levels, it is essential that the Coalition recognises the significance of public sector employment for this group. The likely outcome of the public sector cuts is that unemployment will continue to rise, problems of underemployment will be exacerbated and disparities between the public sector dependent cities in the North and better performing cities in the South East will grow. In order for the government to continue 'rebalancing the economy', strategies must be put in place that respond to these challenges.

The paper is structured as follows:

- **Section 2** analyses the clustering of young graduates in the UK;
- **Section 3** explores the role of the public sector in driving demand for young graduates;
- **Section 4** identifies the determinants of graduate location;
- **Section 5** considers the implications of public sector cuts and the policy challenges that may arise as a result.

¹⁷ Channel 4 News, (6 July 2010) *Message to UK graduates: don't despair*

2. The clustering of young graduates in the UK

The benefits of high skill clusters have been widely documented. Commentators such as Richard Florida and Ed Glaeser, basing their argument on US cities, have argued that a high concentration of skilled individuals leads to innovation, higher productivity, economic growth and city growth.^{18 19} There is also evidence of lower skilled individuals benefiting from high skill clusters. All individuals resident in a city with a higher concentration of highly skilled people will experience higher wages and are more likely to be in employment.²⁰

However, less has been written about where young, highly skilled individuals are concentrating. Young, highly skilled individuals will drive innovation and economic growth in the coming years. It is therefore important to understand the distribution of young graduates in the UK and how this pattern may have changed in recent years.

Graduates in the UK are highly mobile;²¹ later in life individuals become less mobile, with factors such as the quality of local housing and schools and family ties playing a more significant role.²² Many university towns lose their new graduates to the major cities of the UK. In their work on graduate human capital mobility, Faggian and Mccann have shown that 'over 70 per cent of British students move away from their home area in order to enter university...[and] 80 per cent of British graduates move away from their [place of residence] in order to enter employment'.²³ For example, graduates of Russell Group universities migrate over 90km (on average) to the location of their first full time job.²⁴

Faggian and McCann also argue that regardless of university characteristics, graduate retention rates are strongly influenced by relative demand such as the size of a city or its wage levels. Places with higher levels of public sector employment also have higher graduate retention rates. London is an exceptional case in that it contains the most students and universities; it has the highest retention rates in Great Britain.

Traditionally, young graduates have flowed from towns and cities in the North and Midlands to London and the South East to find work and they are highly paid to do so. London has the highest levels of demand for high level skills in the country with a diverse range of opportunities for talented individuals. London plays a pivotal role in the career paths of young graduates (this migration process is referred to

¹⁸ Florida, R. (2008) *Who's Your City? How the creative economy is making where you live the most important decision of your life*, Basic Books, New York

¹⁹ Glaeser, E. (2005) *Smart Growth: Education, Skilled Workers and the Future of Cold Weather Cities* in Rapaport Institute Policy Briefs, April 2005

²⁰ Kaplanis, I. (2010) 'Wage effects from changes in local human capital in Britain', SERC Discussion Paper 39, and Kaplanis, I. (2010) 'Local human capital and its impact on local employment chances in Britain', SERC Discussion Paper 40

²¹ 'Migration for job reasons is more likely in the early stages of working life, because movement between jobs is an important way of gathering experience and developing skills in the early stages of a career' (Dixon, S. (2003) *Migration within Britain for job reasons*, Office for National Statistics)

²² Webber, C. and Larkin, K. (2009) *Growing By Degrees? High skilled workers in Liverpool* (Centre for Cities)

²³ Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

²⁴ Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

as the 'escalator model'). This of course has led to the clustering of young graduates in the South East and growing disparities between regions in the UK.

However, there has been an apparent 'spreading out' of young graduates in the UK in recent years. This section will demonstrate how this spatial pattern has been changing.

As retention rates in the UK are strongly influenced by factors related to relative demand, the share of degree qualified workers in the local working age population is considered a good measure of an areas' 'stock of skilled workers'.²⁵ This paper will use young graduates as a proportion of the working age population as an indicator of clustering.

Towards an increasingly knowledge intensive economy

Before understanding the geography of high level skills and the clustering of young graduates in the UK, it is important to understand what has driven demand for high level skills at a macro level; contemporary structural change in the economy and the movement towards a 'knowledge economy'.

The term 'knowledge economy' captures the transformations in industrial structure and ways of working borne out of three recent supply-side trends;

1. Higher **investment in 'knowledge based' assets** such as R&D, design, software and human organisational capital compared to investment in physical assets;
2. The **expansion of higher education** (national indicators show that 36 per cent of the employed workforce had a degree or equivalent in 2010); and
3. The rapid **development of general purpose technologies** such as the personal computer and the internet have had transformational impacts on the flow of global capital, the processing and communication of information and the development of organisational systems and processes.²⁶

At the same time the transition has been matched by demand side drivers in the form of;

1. Increasingly **sophisticated consumer and business demand**; and
2. **Collective consumption** (there has been increasing demand for publicly funded services in all OECD economies, particularly health and education).

Evidence for the movement towards a knowledge economy in the UK can be derived from the increase in the supply of graduates and expansion of knowledge intensive industries. Between 1979 and 2010 employment in knowledge-intensive industries increased by around 90 per cent compared with 13 per cent across all industries. Nearly half of all UK employment was in the knowledge-intensive

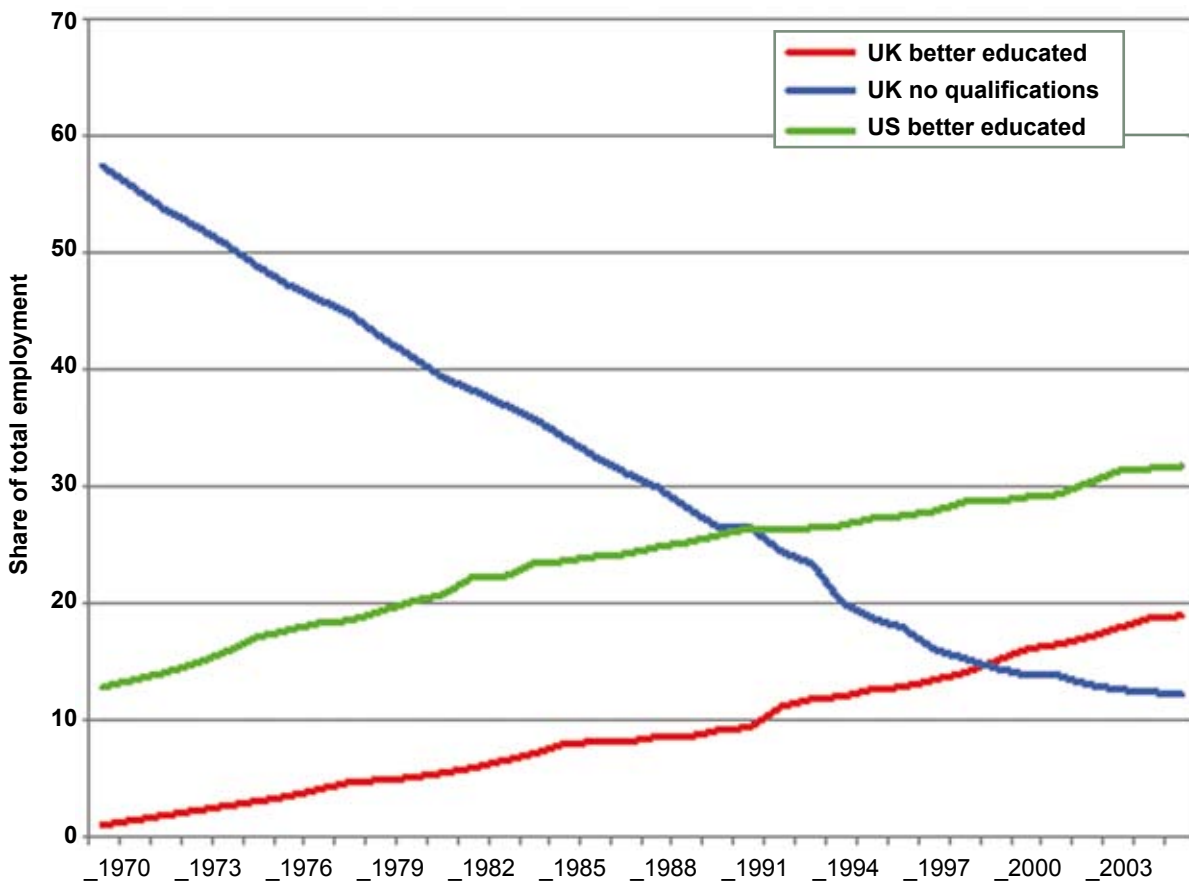
²⁵ Webber, C. and Larkin, K. (2009) *Growing By Degrees? High skilled workers in Liverpool* (Centre for Cities)

²⁶ Brinkley, I. (2008), *The Knowledge Economy: How Knowledge is Reshaping the Economic Life of Nations*, The Work Foundation: London

industries by 2010. In 1970 around one fifth of the UK workforce were knowledge workers, and by 2020 it will be over half. Knowledge intensive services have acted as the main driver of economic growth in the past decade and have generated more jobs and productivity than other sectors.

Figure 2 shows the share of the working age population divided into those without qualifications and those with higher qualifications for the UK (using the EU KLEMS classification), and those with higher qualifications for the US. Over the past 40 years the workforce has transformed from one which was dominated by no formal qualifications and little to no high level qualifications to one where few have no qualifications and higher level qualifications have become more commonplace.

Figure 2: Rise of the educated and qualified workforce, 1970-2005



Source: KLEMS EU database and definitions, Work Foundation estimates

Graduate skills in the knowledge economy

Skills are vital to the knowledge economy. The globalisation of production has led to the UK increasingly specialising in industries which require high skill levels. Technological change has, in many cases, increased the productivity of highly skilled workers and they are increasingly important

for innovation and the production, use and dissemination of knowledge in the knowledge economy. Competitive advantage is increasingly gained from the effective use of knowledge, skills and innovation.

Knowledge intensive work depends on the use of 'tacit' knowledge that resides in people's minds in the form of expertise or experience, rather than being written down in procedures. A degree reflects the ability to use tacit knowledge to assimilate, interpret and use a range of specialist information.

But some commentators have questioned whether we are producing too many graduates. Skills under-utilisation is the largest skills problem affecting the work force. In The Work Foundation's Knowledge Worker Survey, 36 per cent of knowledge workers reported that their jobs under-utilised their skills and experience.²⁷

Despite fears that higher education has expanded too quickly, evidence demonstrates that the shift towards a knowledge intensive economy has increased the demand for highly skilled graduates in line with supply. Graduates remain in strong demand in OECD member countries and a greater proportion are entering 'graduate' jobs in the UK: 'there is very little evidence to argue for an oversupply of higher educated individuals...increasing levels of those with tertiary education in recent years have been absorbed by the labour market.'²⁸

The wage premium associated with graduate employment – the gap between the wage received by someone with a graduate level education and those with non-graduate qualifications – in the UK is also relatively high by international standards and there is little support for the argument that graduates are crowding out other occupations.

The response of the economy to the recession has reinforced the need for a highly skilled workforce. Young people have disproportionately been affected by the recession, and many graduates are struggling in the current labour market. But as with previous recessions, the vast majority of jobs that were lost were in manual, unskilled and elementary occupations (between April–June 2008 and 2009, 84 per cent of all jobs lost were in manual, unskilled and administrative occupations). The recession is accelerating the long term process of structural change towards the knowledge economy. Between March 2008 and March 2010 employment in knowledge-intensive services increased by 250,000 compared to a loss of 580,000 in the rest of the service sector.²⁹

However, questions remain over the balance of skills and the 'economic value' of certain degrees. The most contentious issue is the balance between STEM (science, technology, engineering and maths) and non-STEM subjects. STEM subjects are considered to have a special role within innovation and measures to increase their uptake have been put in place by successive governments. But the UK is

²⁷ Brinkley, I. *et al.* (2009) *Knowledge Workers and Work*, The Work Foundation: London

²⁸ Hansson, B. (2007) *Effects of Tertiary Expansion: Crowding-out effects and labour market matches for the higher educated*, OECD Education Working Papers, No. 10, OECD Publishing

²⁹ Brinkley, I. (2010) *Mapping and Defining the Knowledge Economy: changes in the official industrial classifications*, The Work Foundation: London

falling behind in the uptake of these graduates into STEM occupations at an international level despite there being a financial premium to do so. It seems that either higher education institutions are not producing the quality of graduates demanded by employers or graduates do not perceive STEM careers to be attractive.³⁰

Most importantly, there are limitations to the prioritisation of STEM skills. Creativity, management and organisational skills and leadership are all needed and softer skills such as communication are growing increasingly important in an innovative and knowledge intensive economy. Despite this, the implications of the new university funding arrangements will mean there is a greater incentive to study subjects in the field of maths and science. Graduates of arts and humanities subjects are at a higher risk of becoming unemployed.³¹

The geography of the UK knowledge economy

In the first quarter of 2010 central and inner London demanded the highest proportion of level 4 qualifications in the UK: 66.5 per cent of individuals working in knowledge-based services in Central London had level 4 qualifications, compared to 44 per cent in South Yorkshire and 43 per cent in the West Midlands.³² Private sector knowledge intensive industries are also overwhelmingly located in London and the South East.

In *No City Left Behind?*³³ we argued that the industries likely to grow (advanced manufacturing, low carbon activities, high tech and business services and the cultural and creative industries) are likely to locate in the South East of England in cities such as Reading, Cambridge and London (with the highest skills profiles). These places have the greatest growth potential. Conversely, these industries are less likely to be found in those places with the lowest skills profiles. These places are predominantly in the north of England (such as Doncaster and Hull) and have the lowest growth potential. The implication is that disparities will continue to grow between 'successful' and 'weak' economies.

What is the distribution of young graduates in the UK?

A snapshot analysis of the location of young graduates in the UK appears to show that the supply of highly skilled individuals mirrors the demand.

Almost one quarter of the UK's young graduates are located in London, with a further 12 per cent located in the South East (London and the South East account for 34 per cent of all the UK's young graduates). Northern Ireland (2.7 per cent) and the North East of England (3.7 per cent) account

³⁰ Levy, C. and Hopkins, L. (2010) *Shaping up for Innovation in 2020*, The Work Foundation: London

³¹ Higher Education Careers Service Unit on behalf of Universities UK (2020) *Changes in Student Choices and Graduate Employment*, Higher Education Funding Council for England

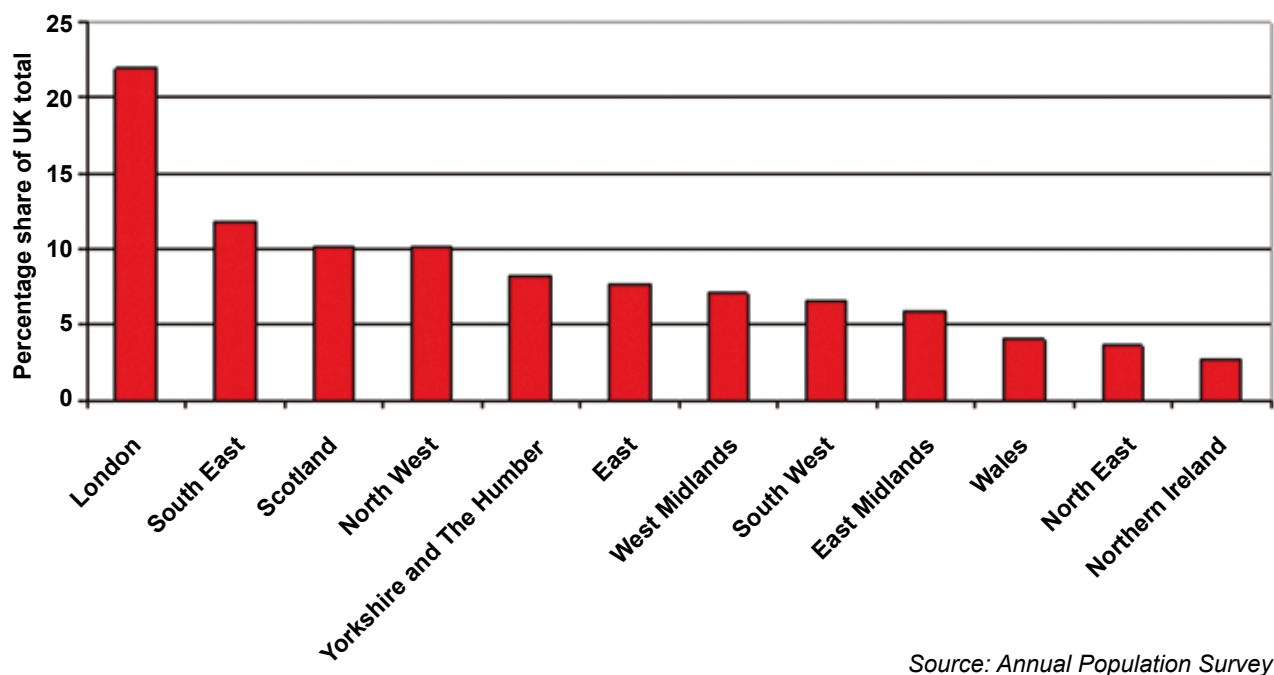
³² Wright, J., Brinkley, I. and Clayton, N. (2010) *Employability and Skills in the UK: redefining the debate*, The Work Foundation prepared for the London Chamber of Commerce and Industry Commercial Education Trust

³³ Lee, N., Morris, K., Wright, J., Clayton, N., Brinkley, I. and Jones, A. (2010) *No City Left Behind? The geography of the recovery – and the implications for the Coalition*, The Work Foundation: London

for the smallest share (Figure 3). This is consistent with the wider literature. On the demand side, businesses in London and the South East tend to be more skills intensive than elsewhere. Firms in these regions employ 50 per cent more graduates than the UK as a whole. The average in other regions is 20 per cent less than in the UK as a whole.³⁴ Not surprisingly, the capital has the highest graduate retention rate in the country (approximately 70 per cent).³⁵ Individuals are remunerated to work and live in London and the South East, and migrate from a ‘wide range of locations’ to do so.³⁶

Young people in London are also more likely to be graduates; 44 per cent of 20-29 year olds in London (and 38 per cent of 20-29 year olds in Scotland) were qualified to degree level in 2009, compared to the UK average of 31 per cent. The West Midlands have the lowest proportion (25 per cent) followed by the East Midlands (26 per cent) and the North East (26 per cent). This is logical considering the fact that London contains the largest number of universities and the largest number of students in the country.³⁷

Figure 3: The distribution of young graduates in the UK, 2009



³⁴ Oxford Economics (2009) *The Influence of Graduate Qualifications on Average Wages and Productivity Across the UK*

³⁵ Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

³⁶ Oxford Economics (2009) *The Influence of Graduate Qualifications on Average Wages and Productivity Across the UK*

³⁷ Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

As expected, in comparison to other regions in the UK, London has more young graduates as a proportion of its working age population (over 9 per cent) in 2009. This level of clustering is the result of many years of graduate migration from the north to the powerhouse of the UK knowledge economy. The North East, East Midlands, West Midlands, East, South West, and Wales have less than half the levels of young graduates found in London (Figure 4).

Box 1: City level data

In order to examine 'the clustering of young graduates' in the UK we have included both regional and city level analysis. At the regional level, we have used the Annual Population Survey to define young graduates as individuals aged between 20 and 29 that have NVQ level 4 or above qualifications. Public sector employment is defined by the 2003 Standard Industrial Classification section codes L-N, and young graduate public sector employment is defined by all working young graduates employed within these sections. At the city level, we have used TTWA data from the Labour Force Survey. Due to sample size issues, we have defined young graduates at this level as individuals aged between 20 and 29 that have a 'degree'. This means figures will be lower for city level statistics than the regional level data, although this is in fact a more refined definition of graduates than NVQ 4.

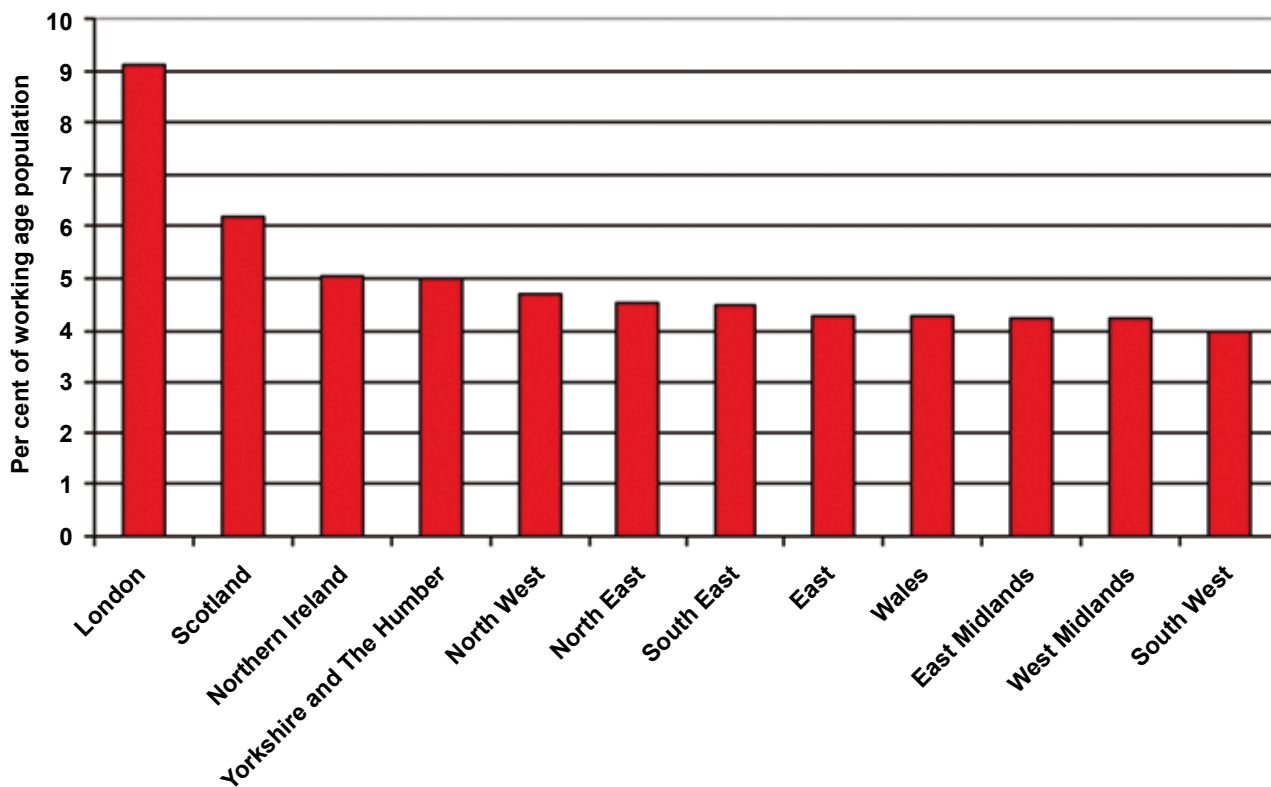
The most up to date and appropriate measure of cities are the TTWAs based on the 2001 Census. Unfortunately, there is no single source of data on the population structure of cities in the UK, and most data is only available at the Local Authority level. To address this problem, we reallocated individual level Labour Force Survey microdata to the TTWA on a random basis according to the overlaps between Local Authorities and the TTWAs and postcode data points. For example, if 20 per cent of a local authority is in TTWAA and 80 per cent in B, 20 per cent of individuals in the local authority are allocated to A and 80 per cent to B. However, it may lead to large biases in small TTWAs, and so we remove those that are not included in the State of the Cities database. This results in a sample of 34,999 observations and gives the most accurate measure of TTWA labour markets possible. However, it may be subject to small sample sizes at the local level – this means it is important to take city level figures as indicative, rather than precise, measures.

At the city level³⁸ Cambridge has the largest percentage share of young graduates within its working age population (8 per cent), followed by London and then Edinburgh. However, Leeds (7 per cent), Sheffield and Rotherham (6 per cent) and Preston (6 per cent) (all northern towns and cities) also feature highly in comparison to other cities in the UK. In general though, the places that had the highest proportion of young graduates within their working age population in 2008 were located in the South East.

Commentators on the distribution of graduates over the longer term have shown that at the city level London has increased its share and the other large cities have lost their share. Between 1995 and

³⁸ Using Annual Population Survey micro data, only those TTWAs included within the State of the Cities Database were included

Figure 4: Young Graduates as a per cent of working age population, 2009



Source: Annual Population Survey

2008 London had the greatest increase in the share of Great Britain’s graduate population (1.8 per cent increase) compared to a 0.1 per cent decrease for the core cities.³⁹

Has the pattern changed?

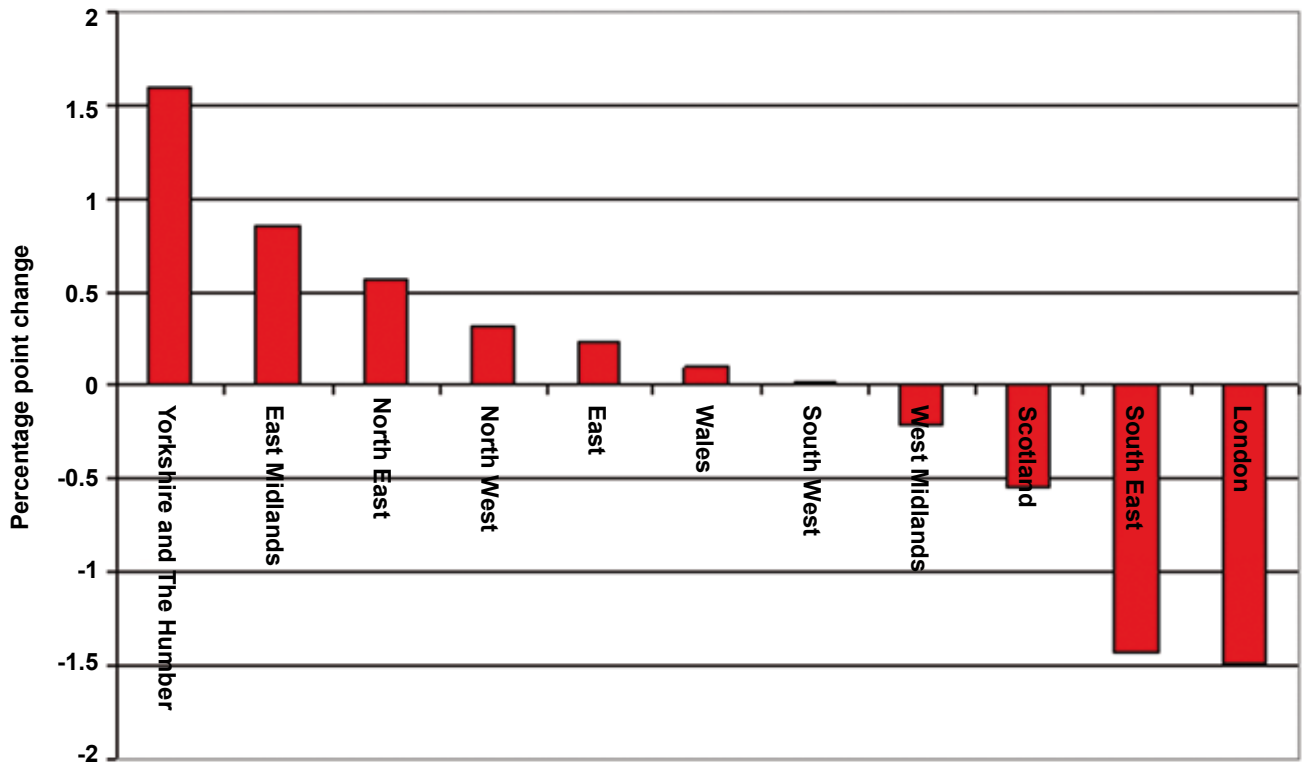
All regions have experienced an overall absolute increase in the supply of young graduates. This is consistent with broader changes within the UK economy and the move towards a knowledge economy; ‘there has been a 44 per cent increase in the amount of people qualified to degree level in the last ten years in the UK.’⁴⁰

However, a key finding of this paper is that over the last decade there has been a ‘spreading out’ of young graduates away from London and the South East. While London and the South East had the highest concentration of young graduates within their local populations and accounted for the largest share of young graduates in the UK (at a regional level) in 2009, this share has decreased over time. Between 2001 and 2009 London (-1.5 percentage points) and the South East (-1.4 percentage points) experienced a loss in their share of the overall number of young graduates in Great Britain. The places that experienced the largest increase in distribution included some of those places with the lowest

³⁹ Webber, C. and Larkin, K. (2009) *Growing By Degrees? High skilled workers in Liverpool*, Centre for Cities

⁴⁰ UKCES (2009) *Towards Ambition 2020: Skills, Jobs, Growth. Expert advice from the UK Commission for Employment and Skills*

Figure 5: Percentage point change in the distribution of young graduates, 2001 – 2009



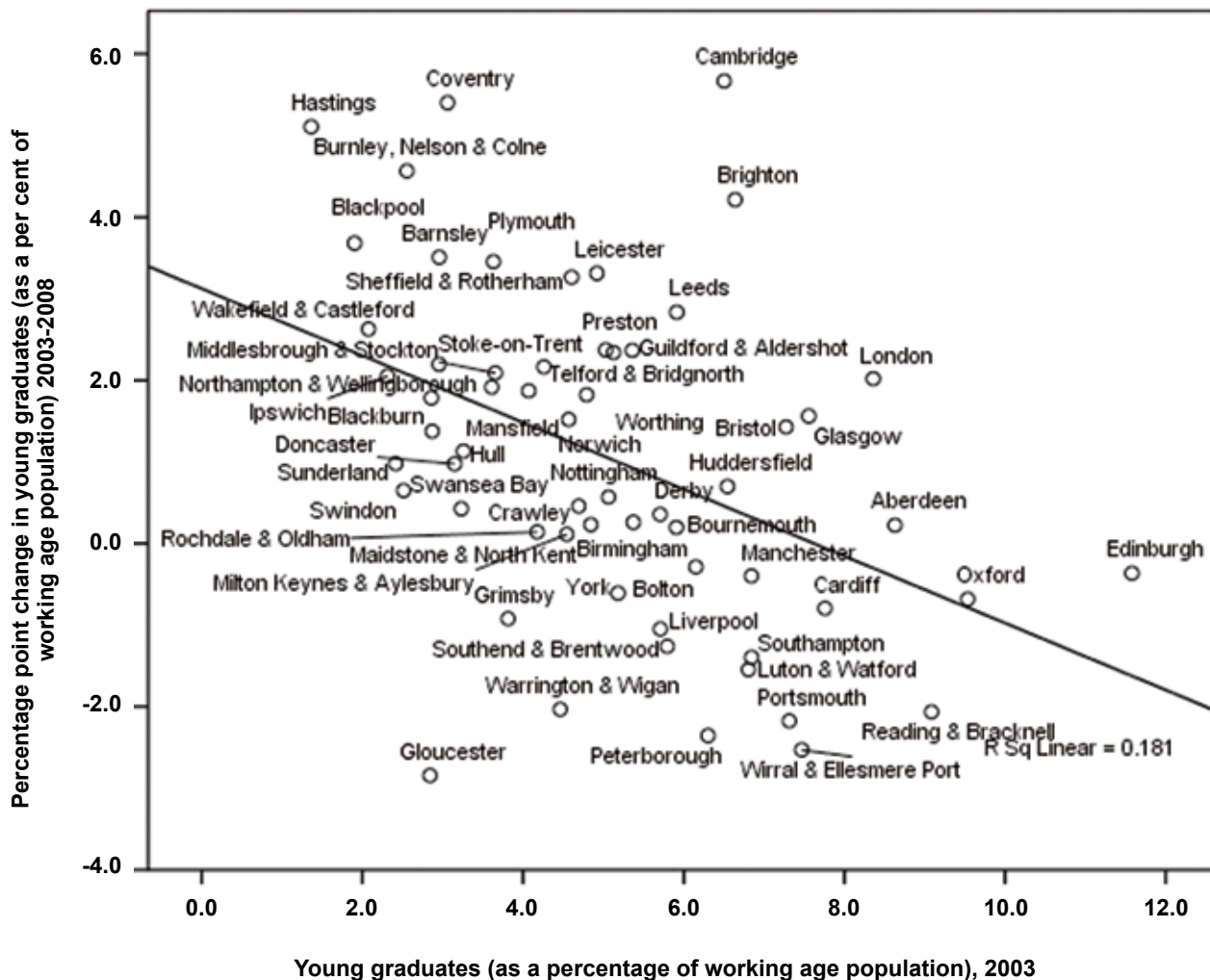
Source: Annual Population Survey (2009); Local Area Labour Force Survey (2001)

proportions of young graduates; Yorkshire and Humberside (1.6 percentage points), the East Midlands (0.9 percentage points) and the North East (0.7 percentage points).

Consistent with the regional analysis, the cities that experienced the largest increase in young graduates between 2003 and 2008 (as a per cent of their working age population) were located outside of the South East. Burnley, Nelson and Colne experienced the greatest percentage point increase in young graduates as a percentage of its local working age population between 2003 and 2008 (4 per cent), followed by Leeds (3 per cent), Coventry (3 per cent) and Sheffield and Rotherham (3 per cent). Again, cities in the north and midlands were amongst the biggest gainers. However, there maybe issues related to sample sizes with the TTWA data.

Figure 6 below demonstrates the ‘spreading out’ of young graduates at a city level between 2003 and 2008. In general those places that had the fewest young graduates as a percentage of their working age populations in 2003 experienced the greatest gains between 2003 and 2008, and those towns and cities with the most young graduates in 2003 experienced the lowest percentage point increase. This pattern

Figure 6: Relationship between young graduates (as a per cent of working age population), 2003 and the percentage point change in young graduates, 2003-2008



Source: Labour Force Survey

Note: 60 cities are included: the 55 TTWAs in the State of the Cities Database in addition to Glasgow, Edinburgh, Aberdeen, Cardiff and Swansea.

of young graduate clustering is not consistent with traditional graduate migration processes. Places in the north and midlands have experienced the greatest clustering effects. The following sections will investigate what has driven this change.

3. Demand for young graduates in the UK: the role of the public sector

Section 2 highlighted the increase in the supply of young graduates across the country, and the concentration of highly skilled young people in certain places (especially London and the South East). Nevertheless, there is now evidence of a ‘spreading out’ effect of young graduates. It was the regions of the north and the midlands that increased their national share of young graduates the most in the last decade, whereas London and the South East experienced a decrease in their relative share. At the city level, the places that gained the most young graduates between 2003 and 2008 (as a per cent of their working age populations’) were the places that had the fewest young graduates in 2003. Towns and cities in the north such as Leeds and Sheffield and Rotherham were the biggest gainers. It is important to note that in the UK recent graduates are highly mobile and it is a city’s relative demand that is the determinant of whether or not there is an inflow.

In terms of regional characteristics, graduate retention is positively associated with the proportion of local employment accounted for by public sector jobs (graduate retention is higher in local authorities with more public sector employment). Faggian and McCann’s study⁴¹ of graduate mobility in the UK showed that the majority of young graduates move away from their place of residence to find work and the effect of the local university on graduate retention is weak. However, after controlling for student, university and other regional characteristics, public sector demand has a strong positive affect on graduate retention.⁴² This suggests that the public sector does indeed appeal to graduates.

Until recently, the public sector has been considered ‘safe’ employment especially in periods of economic downturn and recession. Public sector occupations such as nurses and teachers have often been considered more resilient to the effects of recession and less responsive ‘to the markets for goods and services’. There has also been the assumption that these roles will always be required in society.⁴³ The announcement that £81 billion will be cut from the public sector over the next four years may have changed this assumption.

Demand for high level skills in the public sector is relatively high in all regions in the UK, whereas demand for high level skills is much more varied in the private sector. Certain places in the UK are therefore more reliant on the public sector than others; ‘the difference between public and private demand for level 4 qualifications in the East Midlands, Yorkshire and Humberside and Northern Ireland is 28 per cent compared to 14 per cent in London.’⁴⁴ There is a high dependency on the public sector as a generator of knowledge based employment outside of London and the South East, and this has been a buffer against weak latent private sector demand.

⁴¹ Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

⁴² Faggian, A. and Mccann, P. (2009) *Universities, agglomerations and graduate human capital mobility*, Tijdschrift voor Economische en Sociale Geografie Vol. 100, No. 2, pp. 210–223

⁴³ Higher Education Careers Service Unit on behalf of Universities UK (2020) *Changes in Student Choices and Graduate Employment*, Higher Education Funding Council for England

⁴⁴ Wright, J., Brinkley, I. and Clayton, N. (2010) *Employability and Skills in the UK: redefining the debate*, The Work Foundation prepared for the London Chamber of Commerce and Industry Commercial Education Trust

In 2000, 1 in 6 industries could be classified as highly knowledge intensive sectors (where graduates make up at least 40 per cent of the workforce); they generated approximately 30 per cent of total employment, but 60 per cent of these jobs were in public sector activities.⁴⁵ Whilst all industries have been affected by the recession, fewer jobs have been lost in knowledge-intensive industries and occupations and there has even been some growth in the public knowledge-intensive sectors of education and healthcare.

Public sector employment levels for all regions of the UK were higher in the fourth quarter of 2008 than in the fourth quarter of 1999; and London had the smallest increase in the proportion of their workforce in the public sector.⁴⁶ Between the fourth quarter of 2007 and the fourth quarter of 2008 the East Midlands and Yorkshire and Humberside experienced the largest increase in public sector employment (4.5 per cent and 3.5 per cent respectively compared to the UK average of 0.9 per cent).⁴⁷

Young graduates in the public sector

Over the past two decades the public sector has become the most common destination for first time graduates in the UK. Higher Education Statistics Agency (HESA) data for UK domiciled leavers who obtained first degrees demonstrates that over the past two decades the proportion of graduates entering the public sector has risen, whereas the proportion of graduates entering property development, renting, business and research activities has fallen. Although the increase in health and social work drove this trend, the proportion of graduates entering public administration, defence, and education also increased. More recent work from HECSU supports this finding⁴⁸; 77,000 new graduates a year enter the public sector for employment (40 per cent of those with jobs). But more significantly, 39,000 were entering 'non-frontline jobs'⁴⁹ (almost 20 per cent of those with jobs).⁵⁰ These jobs are most at risk from public sector cuts.

In addition, between 2007 and 2009 (amongst Britain's top employers) graduate vacancies within the public sector increased by 51 per cent (the biggest increase of all sectors) despite a decrease in the majority of sectors (such as investment banking; - 38 per cent).⁵¹ The economic downturn had a profound effect on graduate recruitment in 2008, significantly reducing the number of vacancies at

⁴⁵ Hepworth, M. and Spencer, G. (2003) *A regional perspective on the knowledge economy in Great Britain*, Local Futures Group

⁴⁶ James, N. (2009) *Regional Analysis of Public Sector Employment*, Economic and Labour Market Review, Vol 3, No 9

⁴⁷ James, N. (2009) *Regional Analysis of Public Sector Employment*, Economic and Labour Market Review, Vol 3, No 9

⁴⁸ HECSU. (Winter 09) Graduate market trends: *What do Graduates do?* Destinations of graduates from 2008

⁴⁹ Examples of non 'front line' public sector service jobs included health service managers, laboratory microbiologists, therapists, accountants, records clerks and classroom assistants

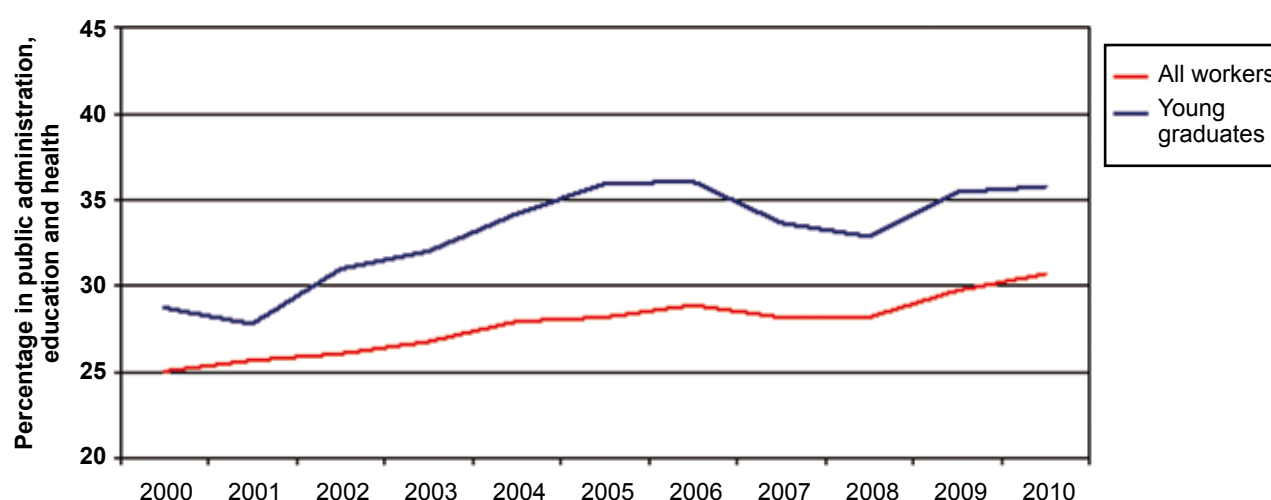
⁵⁰ HECSU Blog (1 July 2010) *Public funding cuts could leave graduates out of work*. Accessed at: <http://hecsu.blogspot.com/2010/07/public-funding-cuts-could-leave.html>

⁵¹ High Fliers Research Limited (2009) *The Graduate Market in 2009: annual review of graduate vacancies and starting salaries at Britain's leading employers*

Britain's most sought-after organisations'.⁵² In 2008 just two sectors (the armed forces and the public sector) increased their intake on the year before. There is also evidence of a change in university applications; with a decrease in applications to courses related to the finance sectors recorded over the last five years.⁵³

Although public sector employment as a proportion of all workers has risen over the past decade in the UK, the rate of change has been higher for young graduates. Between the first quarter of 2000 and the first quarter of 2010, the proportion of young graduates working in the public sector rose by 7 percentage points from 29 per cent to 36 per cent. Between 2000 and 2010 public sector employment as a proportion of all workers rose by 5.6 percentage points from 25 per cent to 31 per cent (Figure 7).

Figure 7: Young graduate employment in the public sector, 2000-2010



Source: Quarterly Labour Force Survey, January-March

Note: 2004 and 2005 uses April-June data.

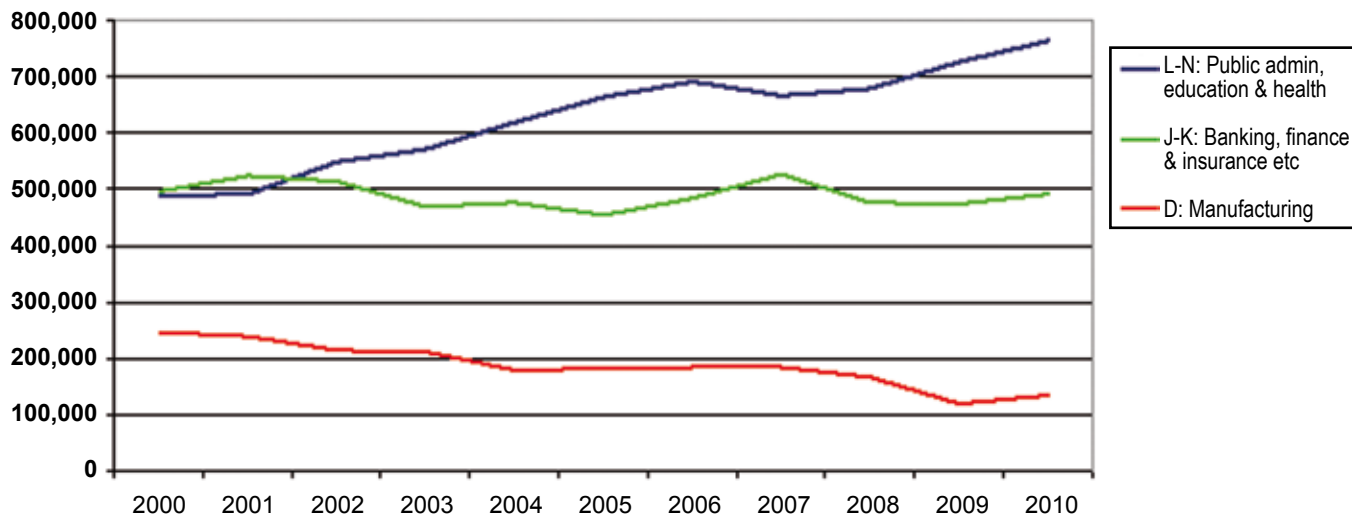
In comparison to other types of young graduate employment over the past decade in the UK, the public sector has become the largest employer. In the first quarter of 2000 and 2001, more young graduates were employed within banking, finance and insurance than any other type of employment. However, whilst the public sector experienced an increased share of young graduate employment, the proportion of young graduates employed in banking, finance and insurance fell by over 6 percentage points to 23 per cent in 2010. Representative of wider structural changes within the economy, employment in manufacturing as a proportion of young graduates, fell by 11.4 percentage points between the first quarter of 2000 and 2010 from 15 per cent to 3 per cent.

⁵² High Fliers Research Limited (2009) *The Graduate Market in 2009: annual review of graduate vacancies and starting salaries at Britain's leading employers*

⁵³ Higher Education Careers Service Unit on behalf of Universities UK (2020) *Changes in Student Choices and Graduate Employment*, Higher Education Funding Council for England

The overall number of young graduates working in the public sector has grown by almost 270,000 in the past ten years (Figure 8). The number of young graduates working in banking, finance and insurance was higher than in the public sector in 2001, but remained at around 500,000 (compared to 760,000 in the public sector in 2010). Young graduate employment in manufacturing fell by 135,000 over the last decade, from 250,000 to 135,000.

Figure 8: The changing nature of young graduate employment (absolute numbers), 2000-2010



Source: Quarterly Labour Force Survey, January-March

Note: 2004 and 2005 uses April-June data.

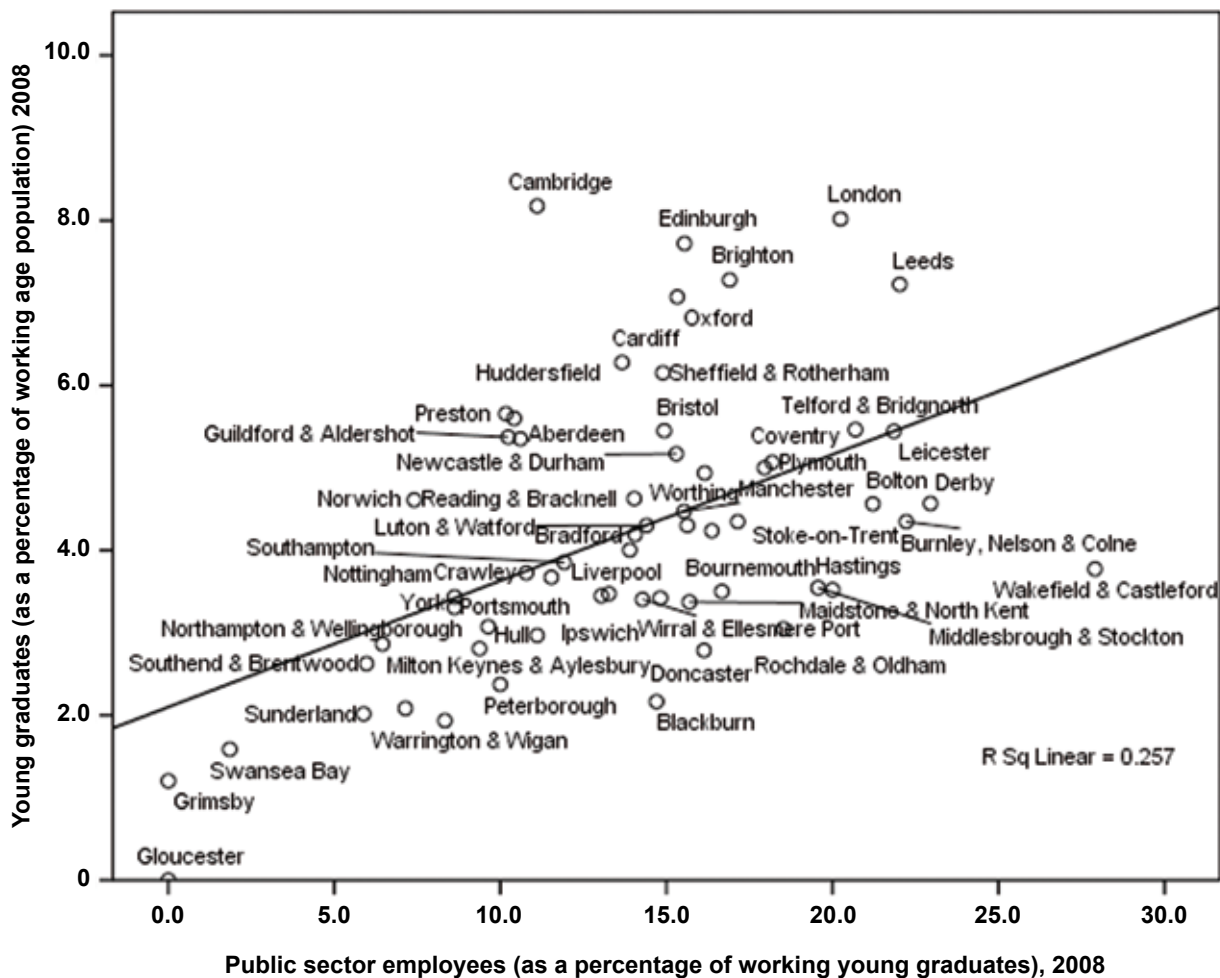
What is the geography of public sector demand for young graduates?

Despite the recent expansion, there is a great deal of geographical variation in the proportion of young graduates working in the public sector. Based on HESA 2007/2008 graduate destinations data, 86 per cent of graduates working in the public sector six months after graduating were employed outside of London (compared to 80 per cent of graduates in general). Increases in aggregate public sector demand would have had a stronger influence on graduate retention in places outside of London and the South East (as demand has fallen in sectors such as banking and finance which are commonly located in the capital).

The majority of young graduates employed in parts of the North West, the West Midlands, Yorkshire and Humberside and the North East, work in the public sector (Annex Figure 10). In general, fewer young graduates worked in the public sector in London and the South East (but also in some parts of the North West and Greater Manchester). In central London, the majority of young graduates work in banking, finance and insurance. With such strong (and growing) demand for young graduates from the public sector, there are profound implications for patterns of graduate retention in the UK.

There is a positive relationship between the proportion of young graduates working in the public sector and the proportion of the working age population who are young graduates (Figure 9). In 2008 (based on Labour Force Survey data for cities in the UK) those places with the highest proportion of young graduates employed within the public sector generally had more young graduates as a proportion of their working age populations ('clusters'). This supports the work of Faggian and McCann on graduate human capital mobility in 2009, who demonstrated that high levels of public sector employment within a local area had a strong and positive relationship with graduate retention. In general, the cities and towns of the north and the midlands had the highest levels of young graduate public sector employment. The highest level recorded was 28 per cent in Wakefield and Castleford.

Figure 9: Relationship between public sector employees (as a percentage of working young graduates) and young graduates (as a percentage of working age population), 2008



Source: Labour Force Survey

Note: 60 Cities are included: the 55 TTWAs in the State of the Cities Database in addition to Glasgow, Edinburgh, Aberdeen, Cardiff and Swansea.

The relationship is strengthened if we consider young graduate employment in the 'non ring fenced public sector'.⁵⁴ HECSU graduate destination research estimates that of the 77,000 graduates that depend on the public sector for employment every year, the non ring fenced public sector accounts for 37,000. It is those places with the highest dependence on non ring fenced public sector employment that are the most susceptible to the negative consequences of the public sector cuts, especially when those places are located outside of the South East where levels of latent private sector demand for high level skills are weak. Again, Wakefield and Castleford had the highest levels of young graduate non ring fenced public sector employment in 2008, but levels were also relatively high in Derby and Leeds.

⁵⁴ Assuming that at an aggregate level jobs in health are safe from cuts, 'non ring fenced' public sector employment can be considered public sector employment less healthcare

4. The determinants of graduate location in the UK

The benefits of highly skilled population cities have been outlined above. It is therefore desirable to have a high concentration of young graduates within a local area. Given that young graduates are highly mobile in the UK, it is important to understand what attracts them to locate in a particular place. If the public sector (particularly the non ring fenced public sector) has been the main driver of demand for young graduates (or a buffer to lower demand from the private sector) public sector cuts will have large scale consequences for young graduates' employment opportunities and their location decisions.

The previous section demonstrated that there is a positive association between young graduate 'clusters' and the proportion of young graduates that are public sector employees (which is stronger for non ring fenced public sector employees). It is important to test this in a more rigorous way, to see if there are other factors which might be leading to this 'spreading out' effect. To do this a multiple regression analysis is used. This allows us to see the impact of several different factors on graduate location decisions at the same time. The results are given in detail in Appendix A, while the results are discussed here. The analysis shows that higher levels of public sector demand especially in places outside of London and the South East have driven new patterns of young graduate clustering in the UK.

Findings

Young graduates tend to locate in larger cities. This supports the work of Marigee Bacolod who has shown that cognitive skills are rewarded better in larger agglomerations⁵⁵ and Ed Glaeser who has demonstrated the positive correlation between the two. In the UK 'there is a positive and mutually reinforcing dynamic at the city level with high, historical stocks of talent in the population acting as an attractor to new, incoming graduates, who then add to the existing stock etc.' It is therefore difficult for some cities to catch up.⁵⁶

Other characteristics matter less – but there appears to be some role for 'quality of life' in explaining where young graduates live. When controlling for the proportion of young graduates who are public sector employees or non ring fenced public sector employees, the association with quality of local area becomes significant and positive. There is a considerable evidence base to support the finding that talented people are attracted by quality of place and amenities. Marc Cowling⁵⁷ identified that graduating students location decisions are influenced by 'public transport, availability of affordable housing, restaurants etc'. And commentators such as Richard Florida have argued that cities are becoming more differentiated by culture, public amenities and lifestyle which impacts upon where people wish to live. Graduate location is not purely based on economic demand. Quality of life appears more important than the unemployment rate, although these concepts are clearly linked.

⁵⁵ Bacolod, M., Blum, B. S. and Strange, W. C. (2009) *Skills in the city*, Journal of Urban Economics, 65, 2

⁵⁶ Cowling, M. (2009) *The Geographical Distribution of UK Talent: causes and consequences*, Working Paper WP24, Institute for Employment Studies

⁵⁷ Cowling, M. (2009) *The Geographical Distribution of UK Talent: causes and consequences*, Working Paper WP24, Institute for Employment Studies

Cities where there are public sector jobs for graduates (or non ring fenced public sector employees) tend to have more graduates. As would be expected, places with a larger proportion of young graduates working in the public sector have more young graduates as a proportion of their working age population. This relationship exists after controlling for all city variables, and is stronger and more positive for places with a larger proportion of young graduates who were non ring fenced public sector employees.

When we investigate which cities have increased their shares of young graduates, the key factor is the availability of public sector jobs. The level of public sector employment in 2003 and the proportion of the working age population who were young graduates in 2003 had a significant effect on the 'clustering' of young graduates in the UK between 2003 and 2008. The association was positive for the level of public sector employment (supporting the work of commentators such as Faggian and McCann) but negative and more significant for the proportion of the working age population who were young graduates in 2003. This points to a 'spreading out' of young graduates between 2003 and 2008; those places with the lowest levels of young graduates in 2003 experienced the great increase.

However, the main driver of change appears to be the percentage point increase in young graduates who were public sector employees between 2003 and 2008. This relationship was more positive for young graduates who were non ring fenced public sector employees. Overall, this finding supports the hypothesis that it has been public sector demand that has strengthened graduate retention in the towns and cities of the North and Midlands and has led to the spreading out effect of young graduates.

In summary, while it is important to be cautious about seeing such factors as causal, the regression analysis strongly suggests that those cities which attracted young graduates in the period 2003 – 2008 were those which created public sector jobs for them. This 'spreading out' effect had important implications for graduate location in the UK. The remainder of this paper considers the implications of this finding.

5. Implications of public sector cuts and policy challenges

Young graduates in the UK are overwhelmingly located in London and the South East. Although London has the highest graduate retention rate in the country, young graduates in the UK are considered highly mobile and have traditionally moved from the North and Midlands to find work in the capital. Places that experience the clustering of highly skilled individuals exhibit many accompanying benefits; innovation; higher wages; higher productivity; and economic growth. It is no surprise therefore that London and the South East have the strongest economies, as the location of young graduates will both reflect and reinforce economic success.

This pattern has begun to change. Yorkshire and Humberside, the North East and the North West have increased their overall share of the UK's young graduates over the last ten years.

The London and South East share has decreased. This paper has demonstrated that there is a strong positive association between the percentage of young graduates that are public sector employees and the clustering of young graduates within a local population (the relationship is stronger for non ring fenced public sector employees). For many places, the public sector has been central to graduate retention and young graduate 'clustering'.

In fact, over the past decade the public sector has become the largest employer of young graduates within the whole economy, relative to other sectors such as manufacturing or financial services. This increase in the percentage of young graduates working in the public sector has been greater than that of the workforce as a whole. As young graduates are disproportionately employed in the public sector in the North and the Midlands, public sector cuts will have a disproportionate effect on local graduate retention. In particular, those places with the highest proportions of young graduates working in 'non ring fenced' jobs are likely to be the most affected.

Previous research by The Work Foundation has demonstrated that there is weak latent private sector demand for high level skills in certain places outside of London and the South East. Many parts of the UK economy are characterised by a 'low skills equilibrium' which inhibits the full utilisation of high level skills, innovation and ultimately growth. The public sector has been the dominant employer of highly skilled individuals in places such as Yorkshire and Humberside and other parts of the North of England. Unless private sector demand for high level skills (young graduates in this case) is stimulated across the country, the consequences of public sector cuts will be exaggerated.

The implications of public sector cuts:

The Coalition government is committed to eliminating the structural deficit within the economy by 2015; £81 billion of cuts were announced in the Spending Review in October 2010. Departmental budgets have been cut by an average of 19 per cent, however health and overseas aid have been ring fenced alongside other 'frontline' services. In June the Office for Budget Responsibility forecast that the public sector workforce would be reduced by 490,000 over the next four years. In response to the Spending Review (which included £7 billion additional welfare budget cuts) they have revised that down to 330,000.

77,000 graduates depend on the public sector (there are more graduates working in the public sector than the private sector) for employment every year and 39,000 are employed in 'non-frontline' services. The cuts will therefore have a disproportionate effect on graduates and threaten their future employment opportunities, resulting in the following short term and long term potential outcomes:

- **Unemployment.** The unemployment rate for new graduates has doubled since the onset of recession (rising from 10.6 per cent to 20 per cent for new graduates). This level is a national record. The current programme for public sector cuts lasts until 2015 (four years time), which has in some cases been front loaded (as is the case for local government). HECSU have argued that if only one fifth of the 39,000 'non front line' public sector jobs that graduates go into each year are cut, the graduate unemployment rate will double. Some places will face more challenges than others based on the relative dependency of their workforces upon these types of jobs. For the individuals left out of work, sustained unemployment at an early age leaves 'scarring effects' on their future employment and earnings potential. The private sector needs to create enough new jobs to stop this happening.
- **Underemployment** and exacerbation of skills under-utilisation: many businesses are pursuing business strategies that do not require graduate level skills. Within the UK economy skills under-utilisation concerns between 35 per cent and 45 per cent of the work force; it is a demand side problem. Research by Falstead *et al*⁵⁸ states that the proportion of graduates underemployed has increased by 50 per cent over the last 20 years. Public sector cuts will force greater numbers of highly qualified people to take private sector jobs that may not necessarily fully utilise their skills.
- **Flight of young graduates.** Young graduates in the UK are highly mobile and are likely to move to find employment. Over the longer term job cuts could drive educated young people away from regions that need to retain them and into more successful cities in search of work within the private sector.⁵⁹ In this case London and the South East would increase their share of young graduates at the expense of those places that are already less productive. The South East would have to accommodate this (and the associated strains on the local infrastructure, housing market, labour market, etc).
- **Widening performance gaps.** Regional performance gaps may become exacerbated by outflows of young graduates from public sector-dependent cities and regions. In a recent report by The Work Foundation (No City Left Behind?), the level of skills within the local labour market was seen as a key determinant of the future growth potential of cities in the UK.
- **Innovation.** If the public sector has effectively been crowding out the private sector from a supply of young graduates in some places, public sector cuts could enable innovation and growth within the local private sector.

⁵⁸ Falstead, A., Gallie, D., Green, F. and Zhou, Y. (2007) *Skills at Work, 1986-2006*

⁵⁹ HECSU Blog (1 July 2010) *Public funding cuts could leave graduates out of work*. Accessed at: <http://hecsu.blogspot.com/2010/07/public-funding-cuts-could-leave.html>

Policy challenges

'Today our economy is heavily reliant on just a few industries and regions – particularly London and the South East. An economy with such a narrow foundation for growth is fundamentally unstable and wasteful... [we need] a plan to breathe economic life into the towns and cities outside the M25'.

David Cameron, 28 May 2010

The Coalition government is committed to rebalancing the economy and has placed much emphasis on creating growth across the country and especially in those places that have become 'over dependent' upon the public sector in recent years. The implications of this research compound the urgency and magnitude of this task. Public sector cuts have the potential to have a large scale impact on graduate retention in the UK, making rebalancing the economy yet more challenging.

The latest release from the Office for National Statistics has shown that the unemployment rate for new graduates has risen to record levels (20 per cent), while initiatives to get young people under the age of 25 back into work such as the Future Jobs Fund are to be phased out. The effect of increased university tuition fees and the abolition of the Education Maintenance Allowance on participation in education are yet to be seen. It is clear that there needs to be a firm strategy for integrating young highly skilled individuals into the labour market, as well as helping those places previously reliant on the public sector for graduate retention to retain those people, and so mitigate against the potential scarring effects on people and place.

It is important that the government seeks to stimulate demand in the private sector for high level skills, especially in places dependent on the public sector for jobs and growth. If cities are to retain young graduates it is essential that strategies are implemented that aim to effectively integrate young graduates into the local private sector. Education providers must work with private sector companies. This in turn requires driving up demand for high level skills – in many places outside of London and the South East large gaps exist between public and private sector demand for graduates.

At the same time, policy makers must consider the role that labour market intermediaries play in the local area. They may need to work with these organisations to change their focus to meet the demands of young highly skilled people.

Conversely, the government may wish to work with, rather than against, the implications set out above. This would require facilitating the migration of young graduates from the North and Midlands to London and the South East to find work. Yet this has many difficulties, in terms of new pressures on housing, infrastructure and services in particular local economies. It also has important consequences for those cities who may lose their graduates. More importantly, this appears to counter the rhetorical commitment to 'rebalancing the economy'.

Box 2: Regression Analysis: methodology

Multiple regression analysis offered an opportunity to isolate a series of independent and control variables from two dependent variables (1) young graduates as a percentage of the working age population in 2008 and (2) the percentage point change in young graduates as a proportion of the working age population between 2003 and 2008). The start date 2003 is used because this is when the data became available.

Six separate regressions were run for the first dependent variable (see Annex Table 1) which included four 'city control' variables for regressions 1, 2 and 3 (the proportion of public sector employment in a city in 2008, the total population of the city in 2008, average wages in 2008 and the unemployment rate in 2008) and a fifth control in regressions 1a, 2a and 3a (quality of the local area as measured by a 2008 Department for Communities and Local Government place survey). Regression 1 and 1a can be considered the test of the control variables. Regression 2 and 2a measured the effect of the proportion of young graduates who were public sector employees in 2008 on the dependent variable, and regression 3 and 3a measured the effect of the proportion of young graduates who were 'non ring fenced' public sector employees (whilst controlling for the city variables).

Table 2 on page 32 shows the results of regressions 4, 5 and 6 which were run for the second dependent variable (the percentage point change in young graduates as a proportion of the working age population between 2003 and 2008), which is a measure of change over time (in this case, the 'clustering' of young graduates). Five 'city control' variables were included (the proportion of public sector employment in a city in 2003, the total population of the city in 2003, average wages in 2003, the unemployment rate in 2003 and the proportion of the working age population who were young graduates in 2003). Regression 4 can be considered the test for the control variables. Regression 5 measured the effect of the percentage point change in public sector employees as a proportion of young graduates between 2003 and 2008 on the dependent variable and regression 6 measured the effect of the percentage point change in non ring fenced public sector employees as a proportion of young graduates between 2003 and 2008 on the dependent variable.

Table 1: Determinants of graduate location, 2008

	(1)	(2)	(3)	(1a)	(2a)	(3a)
Public sector employees (as per cent of degree-holding 20-29 year olds), 2008		0.149*** (0.032)			0.168*** (0.032)	
Non ring fenced public sector employees (as per cent of degree-holding 20-29 year olds), 2008			0.256*** (0.045)			0.270*** (0.044)
Employment in public sector (per cent), 2008	0.086 (0.055)	0.077* (0.046)	0.087** (0.043)	0.080 (0.056)	0.060 (0.045)	0.074* (0.042)
Population, 2008 (ln)	0.008** (0.004)	0.007** (0.003)	0.005 (0.003)	0.008* (0.004)	0.006* (0.003)	0.004 (0.003)
Gross weekly wages, 2008 (ln)	0.014 (0.020)	0.027 (0.017)	0.022 (0.015)	0.10 (0.021)	0.017 (0.016)	0.014 (0.016)
Unemployment rate (per cent), 2008	-0.189 (0.167)	-0.220 (0.140)	-0.224* (0.130)	-0.116 (0.198)	-0.028 (0.159)	-0.071 (0.149)
Quality of local area				0.038 (0.054)	0.101** (0.045)	0.080* (0.041)
N	54	54	54	54	54	54
F	2.019	6.726	9.265	1.696	6.945	8.785
R ²	.141	.412	.491	.15	.470	.529

Source: Labour Force Survey

Note: Dependent variable: Young graduates (as a percentage of working age population) 2008.

* Only TTWAs in the State of the Cities Database are included. London is excluded as an outlier. Aberdeen, Cardiff, Edinburgh, Glasgow and Swansea Bay are excluded due to lack of data.

Table 2: Determinants of Graduate 'Clustering', 2003-2008

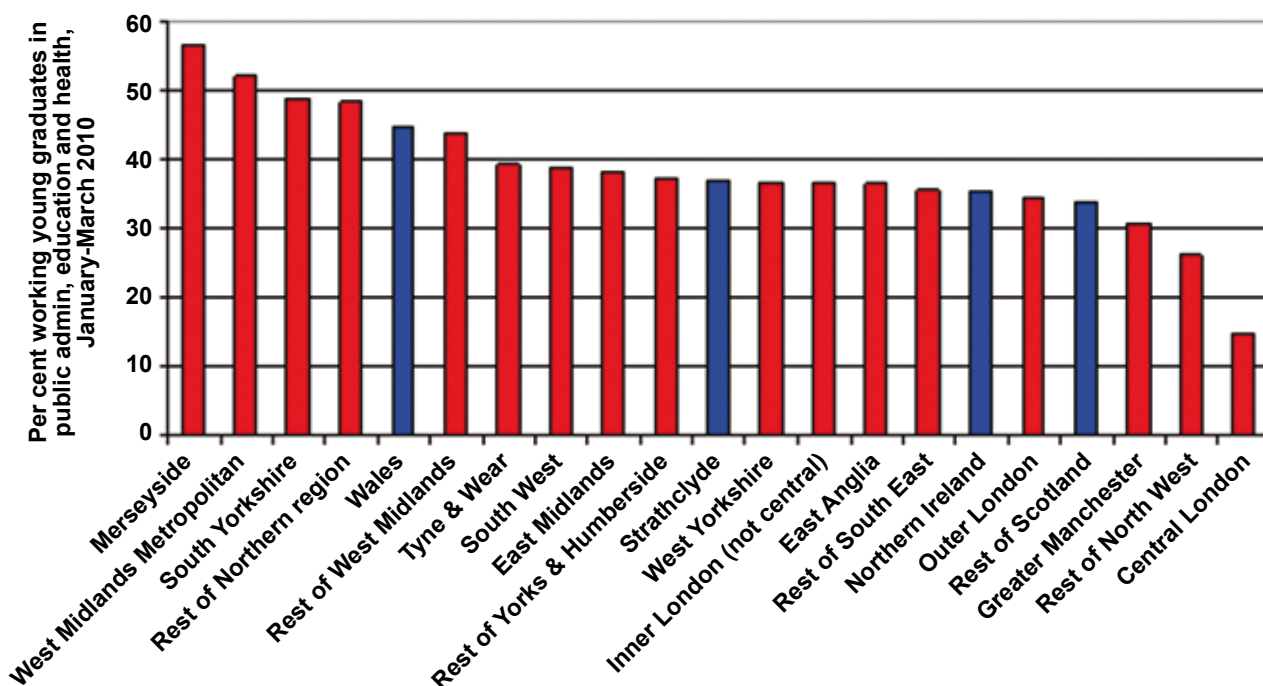
	(4)	(5)	(6)
Percentage point change in public sector employees (as a percentage of working young graduates) 2003-2008		0.112*** (0.022)	
Percentage point change in non ring fenced public sector employees (as percentage of working young graduates) 2003 - 2008			0.196*** (0.030)
Employment in public sector (per cent), 2003	0.077* (0.045)	0.030 (0.037)	0.035 (0.034)
Population, 2003 (ln)	0.005 (0.004)	0.004 (0.003)	0.003 (0.003)
Gross weekly wages, 2003 (ln)	-0.10 (0.021)	-0.009 (0.017)	-0.006 (0.016)
Unemployment rate (per cent), 2003	-0.328 (0.216)	-0.255 (0.173)	-0.327** (0.161)
Young graduates (as a percentage of working age population) 2003	-0.429** (0.146)	-0.192 (0.124)	-0.126 (0.118)
N	59	59	59
F	3.882	10.256	13.122
R ²	.268	.542	.602

Source: Labour Force Survey

Note: Dependent Variable: Percentage point change in young graduates (as a percentage of working age population) 2003-2008.

* Only TTWAs in the State of the Cities Database are included. London is excluded as an outlier.

Figure 10: Public sector employment as a proportion of young graduates, 2010



Source: Quarterly Labour Force Survey, January-March 2010

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