

PREPARING FOR AUTOMATION AND AGEING

**A SUCCESSFUL 21ST CENTURY
SKILLS SYSTEM FOR NORTHERN
IRELAND AND SCOTLAND**

**Ruth Callander,
Russell Gunson,
Chris Murray, and
Ian Williamson**

September 2018

ABOUT IPPR SCOTLAND

IPPR Scotland is IPPR's dedicated think tank for Scotland. We are cross-party, progressive, and neutral on the question of Scotland's independence. IPPR Scotland is dedicated to supporting and improving public policy in Scotland, working tirelessly to achieve a progressive Scotland.

IPPR, the Institute for Public Policy Research, is the UK's leading progressive think tank. We are an independent charitable organisation with our main offices in London. IPPR North, IPPR's dedicated think tank for the North of England, operates out of offices in Manchester and Newcastle, and IPPR Scotland is based in Edinburgh.

IPPR's purpose is to conduct and promote research into, and the education of the public in, the economic, social and political sciences, science and technology, the voluntary sector and social enterprise, public services, and industry and commerce.

IPPR Scotland
Hayweight House
23 Lauriston St
Edinburgh, EH3 9DQ
T: +44 (0)131 281 0886
E: info@ippr.org
www.ippr.org/scotland
Registered charity no: 800065 (England and Wales),
SC046557 (Scotland)

This paper was first published in September 2018. © FETL 2018

The contents and opinions expressed in this paper are those of the authors' only.

ABOUT FETL

The Further Education Trust for Leadership (FETL) is a unique charity and independent think tank whose purpose is to enable the development of the leadership of thinking in further education and skills. Their vision is of a further education and skills sector that is valued and respected for innovating constantly to meet the needs of learners, communities and employers, preparing for the long term as well as delivering in the short term, sharing fresh ideas generously and informing practice with knowledge.

For more information, visit <http://fetl.org.uk/>

The progressive policy think tank

CONTENTS

Summary.....	3
1. Introduction	6
2. Automation and the ageing population: The big challenges facing the skills system	8
Northern Ireland and Scotland need to ready the skills system for the challenge of automation.....	9
Anticipate and adapt – what does this mean for the skills system in Northern Ireland and Scotland?	10
Northern Ireland and Scotland will age significantly over the coming decades, meaning maximising and realising the potential of the population is even more important.....	12
What does ageing mean for the skills systems?.....	13
What is success for a 21st century skills system?.....	16
3. What does a 21st century skills system need to do for young people?.....	17
What has the skills system been doing for young people?	17
The skills systems in Northern Ireland and Scotland are not working for all young people	19
What would a successful 21st century skills system for young people look like?.....	24
4. A 21st century skills system needs to focus on lifelong learning to be ready for automation and ageing	25
Current international trends in mid-career learning	26
Current trends in mid-career skills provision in Northern Ireland and Scotland.....	27
Lack of mid-career provision and the impact on mid-career workers.....	30
Mid-career and lifelong provision in the age of automation.....	32
What would a successful 21st century skills system for mid-career learners look like?	36
5. The relationship between the skills system and employers.....	37
Employer engagement with the skills system	37
What are the barriers to employers providing training?	39
A successful skills system needs to see proactive employers investing and utilising workers' skills	41
A successful skills system would see employers increase long-term investment and engagement with the skills system	43
What would a successful 21st century skills system for employers look like?	45
6. A system-wide approach to delivering education, training and learning.....	46
System-wide impacts of automation and ageing.....	46
Principles of success for a 21st century skills system.....	49
How are the skills systems in Northern Ireland and Scotland measuring up to these principles?.....	50
What would a successful 21st century skills system look like?.....	51
7. Conclusions and next steps	53
References	55
Annex.....	59

ABOUT THE AUTHORS

Ruth Callander is a research intern at IPPR Scotland.

Russell Gunson is director at IPPR Scotland.

Chris Murray is a research fellow at IPPR Scotland.

Ian Williamson is a senior research fellow at IPPR Scotland.

ACKNOWLEDGEMENTS

The authors would like to thank the members of our steering group, for their very helpful advice and comments: Mark Huddleston, Geoff Hall, Stuart McKenna, Liz Connolly, Alan Thornburrow, Gareth Heatherington, Olivia Potter-Hughes, James Morgan, and Neil Gibson. At IPPR, we would like to thank Joe Dromey and Carys Roberts for their help and advice. Finally we would like to thank the Further Education Trust for Leadership, for their advice and support throughout the project and whose generous support made this research possible. All errors are the authors' own

SUPPORTED BY



Download

This document is available to download as a free PDF and in other formats at:
<http://www.ippr.org/research/publications/preparing-for-automation-and-ageing>

Citation

If you are using this document in your own writing, our preferred citation is: Callander R, Gunson R, Murray C and Williamson I (2018) *Preparing for automation and ageing: A successful 21st century skills system for Northern Ireland and Scotland*, IPPR. <http://www.ippr.org/research/publications/preparing-for-automation-and-ageing>

Permission to share

The copyright to this document is owned by the Further Education Trust for Leadership. This work is licensed under the Creative Commons Attribution NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License. To view a copy of the license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/>



SUMMARY

A truly successful skills system could bring vast benefits to Northern Ireland and Scotland. Both are on the cusp of significant changes, as the impact of automation and technological change combines with an ageing population. This could carry significant dividends, driving productivity and boosting economic growth, and bringing new opportunities for individuals and employers. But there are also big risks. As jobs are reshaped by new technology, people who do not have the right skills risk being unable to obtain secure, well-paying work or even being pushed out of the labour market altogether. Technological and demographic change could narrow social inequalities, if we prepare and respond correctly. The skills system must be at the heart of readying our societies to seize these new opportunities successfully and mitigate the risks.

Automation will transform many occupations, and the skills required to fill them, across the economy. We have outlined that approximately 49 per cent of jobs in Northern Ireland and 46 per cent in Scotland have a high potential for automation. This will unlikely see reductions in jobs but it will see huge change - our analysis shows that only 5 per cent of existing roles are fully-automatable but over 60 per cent of existing roles have a significant proportion of tasks that could be automated. This will require a significant shift – if not a revolution – in lifelong learning provision. 79.79 per cent of the workforce of 2030 in Northern Ireland, and 79.69 per cent in Scotland, have already left compulsory education. Looking to 2040, 57.7 per cent of the workforce in Northern Ireland and 57.28 per cent in Scotland have already left compulsory education.

Furthermore, the proportion of working age adults in the population will decrease, meaning both Northern Ireland and Scotland will need to get the most out of a proportionally smaller number of workers. To keep pace with an increasing pensioner-age population, Northern Ireland would need an additional 210,000 working age people, over and above projections, and Scotland an additional 410,000 working age people by 2030. It is crucial that we make lifelong learning a reality for all, to help workers and employers navigate automation and demographic change.

In recent years, the skills system in both Northern Ireland and Scotland has been rightly focused on avoiding the spectre of large-scale youth unemployment. But in an age of rapid demographic and technological change, a successful skills system will need to be far more ambitious. It must focus on equipping young people with the skills to obtain not just any job, but a secure job with prospects, and ensuring everyone leaves the skills system with qualifications and the foundations for future learning.

Genuine lifelong learning will be central to our future success. A successful skills system that meets the challenges and opportunities of automation and ageing will need a sustained focus on mid-career workers and in particular, with a unifying principle of boosting career progression rates. Worryingly, investment in the skills of those who have already begun their career has been decreasing, with all parts of the skills system – both public and private – pulling back from boosting the skills of existing workers. Equally, too often, employers only invest in workers who already have high skill levels. Given that automation will significantly reconfigure the jobs we do, this must change.

Of course, a successful skills system will need employers at the heart of it. Employer engagement in skills is currently too low, and there are too many obstacles to employers who want to invest in their employees' skills, and too many employers do not invest in – or underutilise – their workers' skills. Given the changing nature of employment patterns, with increasing self-employment and insecure work, and the potential impacts of age distribution in the shape of the future workforce, this has to change. The skills system needs to develop a new partnership with employers in Northern Ireland and Scotland to bring employers and learners into the heart of a much more responsive and flexible skills system. Equally, if increasing gig and self-employment is a trend to stay, the skills system will need to be able to work for employees that do not have an employer in the traditional sense.

To achieve all this will require a more coherent, more strategic skills system. We will need to ensure precious resource is not wasted in duplication, poor matching of supply and demand, and non-responsive curricula in response to the changing needs of the economy. The mismatch between supply and demand has already been well laid out by research including the Northern Ireland Skills Barometer (see UUPEC 2017). We will also need to see a skills system with fair access at its heart, including in investment patterns, maximising and realising the potential of learners from across all groups.

The prize for getting this right is substantial. Northern Ireland and Scotland face unprecedented opportunities to boost their economies while narrowing existing inequalities. A skills system that empowers workers of all ages, sectors and socio-economic backgrounds could help to tackle low productivity, reduce poverty, increase pay and progression and help people get secure, well-paying, and higher-quality jobs.

This report, the second of three IPPR reports looking at the skills system in Scotland and Northern Ireland, sets out what a successful skills system would look like. We have focused on measures of success rather than recommendations for change. We will build on this report, and our previous work in this area, to develop our third and final report of this series, which will set out what we believe needs to change, and what needs to stay the same, to deliver a truly 21st century skills system.

MEASURES OF SUCCESS FOR A 21ST CENTURY SKILLS SYSTEM

For young people, a successful skills system would:

- retain greater numbers of young people within the skills system for longer, whether in college, university, apprenticeship or other in-work training
- increase the number of young people reaching genuinely positive destinations
- increase participation rates from those who leave the skills system for insecure work or jobs with lower prospects
- reduce and minimise the proportion of young people who exit the skills system with no, or low, qualifications.

For mid-career learners, a successful skills system would:

- increase participation rates in the skills system from employees of all ages and at stages of their career, with flexible learning options from the most intense to the most part-time
- contribute to increased career progression rates, particularly prioritising moving those in low paid work into higher paying jobs
- develop new proactive skills programmes aimed at providing 'progression ladders' up to new careers for people at risk of being displaced out of the labour market, ensuring their skill levels are protected through disruption

- track and recognise prior learning across all component parts of the skills system and throughout careers, offering proactive career-long advice and guidance.

For employers, a successful skills system would:

- secure higher levels of employers investing in skills, with higher levels of total investment, in order to boost productivity – improving individual employer performance and the economy as a whole
- increase levels of skills utilisation for employers across all sizes, with greater levels of public funding contingent on employer action
- deliver greater employer investment in low-skilled workers, workers in the SME sector, and self-employed and gig-economy workers.

As a whole, a successful skills system would:

- engage the whole of the population in meaningful learning, education and training throughout their careers to maximise and realise their potential
- reduce needless duplication between different component parts of the system
- deliver the widespread adoption and embedding of new technologies in the delivery of learning
- implement new responsive and modular curricula shared across parts of the skills system
- increase the take-up of digital skills learning across the skills system and across age groups
- deliver greater levels of conditionality on investment of public funds against tests of clear impact (such as skills utilisation, increased pay and progression and improved productivity)
- create ‘smart’ information, advice and guidance for learners, that tracks learning across time, and tailors proactive interventions to individuals
- increase participation rates from self-employed and gig economy workers and those in insecure employment
- see greater progress in delivering more equal access and outcomes for learners in the skills system from all backgrounds and groups.

1. INTRODUCTION

Northern Ireland and Scotland are facing significant change. Two key disruptions will shape the foreseeable future and much of the rest of this century: firstly, automation and technological change (including artificial intelligence, robotics and analytics); and secondly the ageing population. These changes carry great opportunities, but also great risks. Responding successfully will require maximising the potential of the whole of our working-age population. The skills system in both Northern Ireland and Scotland will be central to seizing these opportunities and mitigating the risks.

The benefits of getting it right could be vast. Automation and technological change could bring big economic dividends for both Northern Ireland and Scotland.¹ Boosting the skills of the population in the right way could give individuals the opportunity to progress in their careers, secure higher pay and new jobs – even as new technologies disrupt the labour market and reshape the world of work. This applies, crucially, not just to younger workers newly entering the labour market over the coming years, but also to those who have already begun their careers. Equally, employers who invest in the skills of their workers to prepare for the future, and who engage with the skills system to design provision to meet their needs, will be well placed to survive and thrive in an age of change, boosting productivity, workers’ pay and growth.

This research sets out what a successful skills system would look like in Northern Ireland and Scotland if we were to seize these opportunities and mitigate the risks. We compare Northern Ireland and Scotland and outline the implications for the skills systems given differing economic and wider contexts. The skills system includes the full range of post-16 education, learning and training, including schools, colleges, apprenticeships, in-work training and university.

We look at the objectives and structures of the skills system as a whole, to outline how it can meet the requirements of the 21st century, and set out key outcomes the system needs to produce in order to maximise the potential of individuals and employers and, thus, the economy as a whole.

In chapter 2, we set out the centrality of the skills system in confronting the twin issues of automation and demographic change, laying out how both carry significant risks and opportunities and exploring the role of the skills system. Chapter 3 looks at how a successful skills system would help young people, by ensuring that *all* young people are able to unlock the training and learning they need, and are able to secure jobs that give them meaningful career progression rather than low-paid jobs with few prospects. In chapter 4, we look at lifelong learning and mid-career workers, and explore how technological change will require significant upskilling of those already in the workforce. Chapter 5 looks at the role of employers, who are inextricably bound to the skills system: their success depends on the skills system’s effectiveness – and vice versa – and this will only increase in the future. In chapter 6, we set out the necessity of overall

¹ We use the terms ‘automation’ and ‘technological change’ to include technological advances including artificial intelligence, robotics and analytics. Taken together, these have often been referred to as the fourth industrial revolution.

coherence in the skills system and in chapter 7 we conclude by setting out the broader prize at stake in getting this right.

This is the second of three reports published as part of IPPR Scotland's research project looking at the skills system in Northern Ireland and Scotland. In our previous report, *The skills system in Northern Ireland: Challenges and opportunities*, we set out the challenges and opportunities facing the skills system in Northern Ireland (which in turn built on previous work undertaken on the Scottish system). This report draws on the conclusions of that work, to set out what a successful skills system would look like, and in turn will feed into the third and final stage of our project where we will explore how to make a successful system a reality.

RESEARCH METHODS

The fieldwork for this project took place between May and July 2018. The research involved a literature review and desk-based research looking at skills systems around the world and measures of success. We held a series of 10 semi-structured interviews with stakeholders in the skills system, government, politics, employers' organisations, academia and think tanks. In June 2018, we also held a round table for stakeholders who interact with the skills system in Scotland, in order to explore key perspectives on what they thought success would look like, building on previous interviews, round tables and research events held in Northern Ireland.

The project was informed by the helpful and insightful comments of our steering group which was drawn from leading representatives from Northern Ireland and Scotland.

2. **AUTOMATION AND THE AGEING POPULATION: THE BIG CHALLENGES FACING THE SKILLS SYSTEM**

Over the course of the rest of this century, Northern Ireland and Scotland face the twin challenges of automation and an ageing population. This combination will bring unprecedented economic and social change.

Automation and technological change is likely to reshape the economy, changing the world of work, and changing what learners and employers need from the skills system. Over the coming decades, the economy will undergo significant disruption, likely to be beyond the scale of the deindustrialisation of the 1970s and 1980s and reaching nearly all parts of the economy, all sectors and all skill levels. The need to ready learners and employers for the future they face, and adapt quickly as the pace of change increases, will be a crucial task for the skills system. Furthermore, these changes will be taking place around the globe at the same time. Those countries that best anticipate and adapt to this disruption will prosper, while those that fail to do so will be left behind.

How Northern Ireland and Scotland are able to take advantage of the opportunities of automation and meet the challenges it poses, in a way that boosts the economy and narrows existing inequalities (while minimising new ones), will not be down to the skills system alone. Nonetheless, the skills system will have a crucial role to play in helping us navigate our way through automation.

At the same time, demographic change will see Northern Ireland's and Scotland's population age over the coming decades, with a decreasing working age population, in relative terms, and significant increases in the older population. This will also bring opportunities and substantial challenges. We are unlikely to be able to afford an economy that sees a quarter or a fifth of the population excluded and inactive, and potentially large proportions neither maximised nor realised. Likewise, we will need to see a clear focus on increasing productivity across the whole of the economy – from large to small, frontier companies to everyday employers, and from high-end manufacturing to low paid sectors – so that we can protect and enhance living standards even as the working age population decreases in relative size.

In order to overcome these 21st century challenges, the skills system must have clear objectives, be open in its monitoring and evaluation and be coherent in how it operates as a whole. Its component parts (including the college, apprenticeship, in-work training, school and university systems) will need to collaborate and work together and the skills system will also need help from employers, learners and government to achieve these aims.

This chapter outlines the twin challenges of automation and ageing facing Northern Ireland and Scotland and some of the outcomes a skills system will need to achieve to be successful in the 21st century.

NORTHERN IRELAND AND SCOTLAND NEED TO READY THE SKILLS SYSTEM FOR THE CHALLENGE OF AUTOMATION

For centuries, we have harnessed the power of machines to transform how we live and work. Technological change, first through mechanisation, then mass production – and over the last few decades through digital technologies – has brought significant disruption to how and what we learn, why we learn, and how we apply learning in our lives. The next wave of technological change will see artificial intelligence and advances in analytics and robotics bring technology that is able to ‘think’ and ‘learn’ independently, taking on tasks and roles which have hitherto been the preserve of humans. In many ways this next wave of automation has already begun, and as it progresses, it will likely have an impact across many sectors and across the full range of skill levels, with machines performing better and at lower cost than humans can alone. This has led many to argue that it will bring significantly greater disruption over the next few decades – both positive and negative – than previous waves of technological change have done in the past (Lawrence et al 2017).

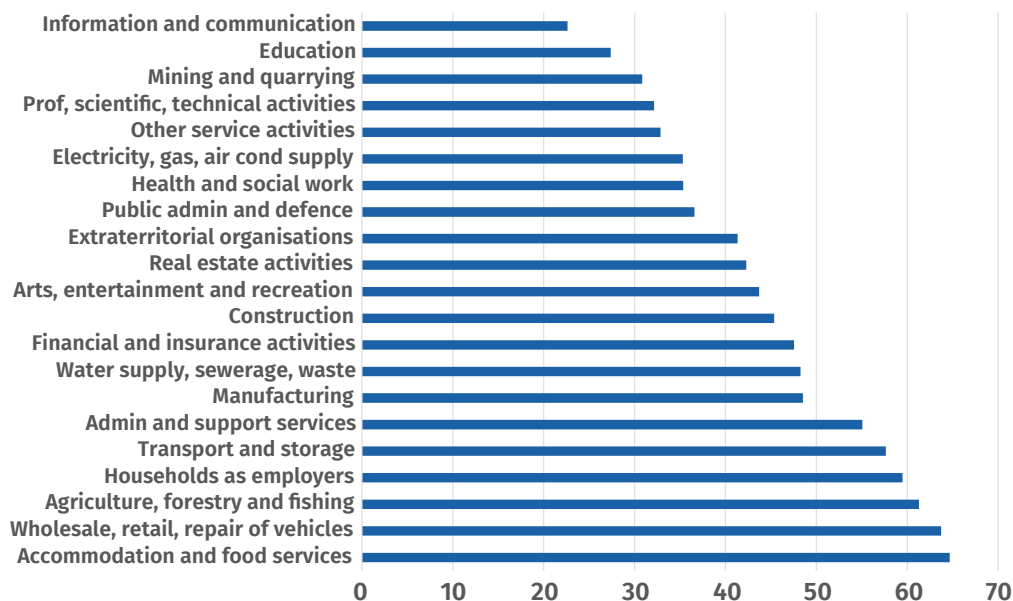
However, despite fears to the contrary, it is unlikely that automation will, over time, reduce the number of jobs in the economy overall. Instead it is more likely to bring change to the tasks that make up roles (ibid). A recent study, looking at roles across the American economy, found that only around 5 per cent of existing jobs could be fully automated. However, 60 per cent of current jobs had the potential for the automation of at least 30 per cent of their tasks (McKinsey Global Institute 2017). Equally, it is clear that automation is already creating new roles and opportunities for new jobs which would not have been possible – and may have been unimaginable – even only a few years ago.

Looking at the potential for automation to change roles across the UK, IPPR has found that the effects of automation will likely be felt unevenly by different sectors of the economy. Figure 2.1 below shows the potential for automation by sector in the UK. Some sectors have much higher potential for automation than others.

FIGURE 2.1

Some sectors are almost three times as susceptible to automation as others

Proportion of jobs with the highest technical potential for automation by industry in the UK (probability >0.7)



Source: Lawrence et al 2017

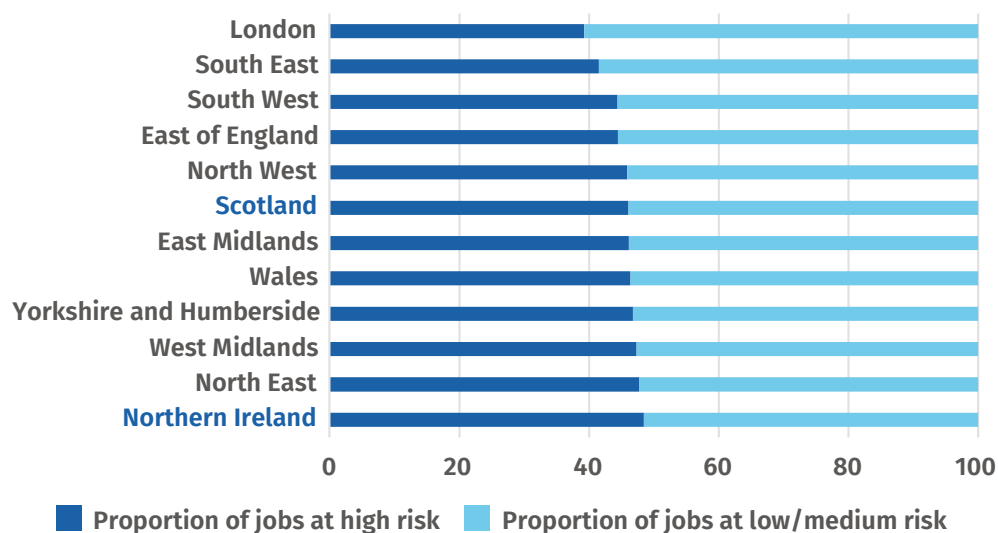
The effects will likely be felt unevenly by wage and skill level too. While automation will reach some high-skill jobs and sectors in a way that has not happened before, it is still likely to be most concentrated and widespread among low paid and low skilled sectors (ibid).

As a result, the impact of automation will likely be felt differently in the different parts of the UK. IPPR has estimated that Northern Ireland and Scotland sit towards the higher end of likely levels of disruption. Indeed, Northern Ireland sees the highest potential for automation across the whole of the UK, with 48 per cent of roles having high potential for automation. Figure 2.2 below shows the potential for automation by nation and region of the UK.

FIGURE 2.2

Jobs in Northern Ireland have higher potential for automation

Proportion of jobs with the highest and lowest technical potential for automation by region (probability >0.7)



Source: Lawrence et al 2017

ANTICIPATE AND ADAPT – WHAT DOES THIS MEAN FOR THE SKILLS SYSTEM IN NORTHERN IRELAND AND SCOTLAND?

With technological change transforming the economy and labour market, the skills system will become ever more important.

Digital skills will increasingly become a requirement for labour market participation. The European Commission estimates that the use of ICT has gone up significantly in the last five years in more than 90 per cent of workplaces in the European Union (EU). Ninety-eight per cent of workplaces across the EU require managers to have digital skills and 80 per cent require basic digital skills for sales workers. The requirement for digital skills is seen across economic sectors, with workplaces requiring basic digital skills for building workers (50 per cent of workplaces), plant machine operators (34 per cent) and employees in elementary occupations (27 per cent). These figures are only set to increase (European Commission 2017). In 20 years, an estimated 90 per cent of jobs will require some element of digital skills (SFA 2016).

The UK is not well prepared for this change; 12.6 million adults in the UK lack basic digital skills, with an estimated 5.8 million people having never used the internet (House of Commons 2016). Thirty-one per cent of employers in Scotland report that their staff lack basic IT skills, and 17 per cent report they are lacking advanced IT skills (ESS 2016a). These figures are 21 per cent and 20 per cent respectively in Northern Ireland (ESS 2016b).

As well as digital skills, we will also need to focus on soft skills and human skills most resistant to automation – and most likely to be in high demand in the future as technological change modifies job roles. For this we will probably need compulsory education to provide the foundations for people to learn throughout their life, to create habits of learning that will ensure young people continue learning and training even as they leave compulsory education. However, automation and technological change will also see a much greater importance placed on lifelong learning, meaning adult education will be a crucial way for countries to anticipate technological change and adapt to it as it occurs. This will be important in several of ways.

First, automation will transform many occupations and the skills needed across the economy. The skills system will need to support people to adapt to these changes by regularly, if not constantly, re-skilling.

Second, automation, as outlined above, will bring differential impacts, with some sectors more significantly impacted than others, and workers within these sectors at risk of being displaced from the labour market. We will therefore need a flexible, responsive and proactive skills system able to support these sectors and workers to respond.

And third, this is likely to be beyond the reach of compulsory education alone. Table 2.1 below shows the proportion of the workforce of 2030 and 2040 that has already left compulsory education in Northern Ireland and Scotland.

TABLE 2.1

The overwhelming majority of the workforce of 2030 and 2040 in Northern Ireland and Scotland have already left compulsory education

The current 18- to 55-year-old population as a proportion of the projected 2030 working-age population and current 18- to 45-year-old population as a proportion of the projected 2040 working-age population (assuming a 68-year-old retirement age)

	Northern Ireland	Scotland
Proportion of 2030 workforce that have already left compulsory education	79.79%	79.69%
Proportion of 2040 workforce that have already left compulsory education	57.70%	57.28%

Source: IPPR Scotland calculation based on NISRA 2017 and NRS 2017

To anticipate the disruption that we are likely to face, we will need the skills system in Northern Ireland and Scotland to focus on older learners as well as young. This may require significant changes to the structure, quantity and content of vocational provision and in-work provision. Equally, the skills system will need to help people adapt to change, through new proactive provision aimed at providing ‘ladders’ up to new careers for people at risk of being displaced out of the labour market, to ensure they protect their skill level through disruption.

We discuss the changes required further in later chapters of this report, but they will likely be more flexible and modular learning options, reform to curricula across the skills system, and changes to how learning is delivered. Equally, we may need a much more proactive approach to provision, reaching out to employees in sectors and employers at risk of disruption before it takes place.

To achieve this, we will need significant change, if not revolution, in lifelong learning provision to ready learners and employees for the future, and to help Northern Ireland and Scotland take advantage of the opportunities of automation and technological change, to anticipate change before it takes place, and to adapt to change once it does.

THE AUTOMATION READINESS INDEX

The Economist Intelligence Unit has developed the 'Automation Readiness Index' (ARI). This compares countries on their preparedness for the age of intelligent automation. In assessing the existence of policy and strategy in the areas of innovation, education (including basic education, post-compulsory education, continuous education, and learning environments such as the use of data and artificial intelligence in education and teacher training reform) and the labour market, the ARI looks at the extent to which policy is in place today that specifically addresses the challenges of artificial intelligence and robotics-based automation.

The ARI rates countries based on three categories of policy area: innovation environment; educational policies; and labour market policies. The UK comes eighth in the index, with a score of 73.1 – just ahead of the US (the ARI does not consider the devolved nations of the UK). South Korea, Germany and Singapore are the top scoring countries.

The key findings of the ARI include the following.

- No country has yet 'taken the bull by horns', in the view of several experts interviewed for the study.
- The challenges and opportunities of intelligent automation require a robust policy response informed by multi-stakeholder engagement but, so far, both are lacking.
- Index leaders earmark considerable funding and other support to artificial intelligence and robotics research.
- Few countries have begun to address the impact of automation through educational policy.
- Lifelong learning will be crucial and is becoming a rich area of experimentation.
- In most countries, vocational training is not up to the challenges posed by intelligent automation.

Source: Economist Intelligence Unit 2018

NORTHERN IRELAND AND SCOTLAND WILL AGE SIGNIFICANTLY OVER THE COMING DECADES, MEANING MAXIMISING AND REALISING THE POTENTIAL OF THE POPULATION IS EVEN MORE IMPORTANT

Over the coming decades, the population of Northern Ireland and Scotland will age. This will bring significant changes at the same time as automation and technological change bring disruption. Taken together, ageing and automation will likely see longer working lives across multiple jobs, employers and sectors in the future.

An ageing population is the product of successful policy over many generations. As living standards and health provision have improved, so too has life expectancy in Northern Ireland and Scotland. Between 2016 and 2041, those members of the population aged 75 and over are projected to increase by 102 per cent in Northern Ireland (NISRA 2017) and 79 per cent in Scotland (NRS 2017). This may bring new opportunities for those who can and want to work longer, and beyond retirement, in paid or unpaid roles. The contribution made by older people through volunteering and care is already large and may become greater.

Nonetheless, an ageing population will also pose significant financial challenges. The working age population is projected to decrease in both Northern Ireland and Scotland relative to the post-retirement age population between now and 2030. This means the higher costs of an ageing population will be borne by a proportionally smaller number of workers. Table 2.2 shows that the number of pensioners per 100 working age adults is expected to increase between 2018 and 2030 from 26 to 30 per 100 in Northern Ireland and from 29 to 32 in Scotland (even after taking into account increases in the pension age). By 2040 we see substantial further increases in the ratio between the working age and over 68-year-old population, with over 34 and 35 pensioners per 100 working age adults in Northern Ireland and Scotland respectively. This will see significant pressures placed on public finances for the foreseeable future, as spending on health and care, and older peoples' entitlements increases.

TABLE 2.2

An increasing older population will put pressure on public finances in Northern Ireland and Scotland

The proportion of post-retirement age population compared to working age population

	Northern Ireland	Scotland
2018 old age dependency ratio – 16-64 vs 65+	26.28%	29.39%
2030 old age dependency ratio – 16-66 vs 67+	29.70%	31.94%
2040 old age dependency ratio – 16-67 vs 68+	34.64%	35.46%

Source: IPPR Scotland calculations using NRS 2017 and NISRA 2017

WHAT DOES AGEING MEAN FOR THE SKILLS SYSTEMS?

The profile of the population in both Northern Ireland and Scotland will age in the foreseeable future, and throughout the coming decades. We will need to find ways to get more out of the existing working age population, while also capitalising on the dividend of increasing numbers of older people. A successful skills system would help us take advantage of these opportunities, and at the same time meet the challenges of an ageing population.

Reducing inactivity rates

The skills system could be crucial in engaging more people from Northern Ireland and Scotland in the economy. Between February and April 2018 there were just over 325,000 (27.7 per cent) working age people in Northern Ireland and just under 745,000 (21.9 per cent) working age people in Scotland who were defined as economically inactive.² In Scotland, significantly more women than men were categorised as economically inactive. Preventing, and making substantial reductions in inactivity could help Northern Ireland and Scotland counteract the challenges posed by an ageing population. As an illustration, if women's inactivity rates were brought down to that of men's in Northern Ireland and Scotland, this would reduce overall inactivity rates to just under 24 per cent and just over 17 per cent respectively. Reducing inactivity rates down to 14 per cent in Northern Ireland and 12 per cent in Scotland by 2030 would compensate for the relative decline in the working age population due to demographic change over the same time (IPPR Scotland calculations using NRS 2017 and NISRA 2017).

There are understandable reasons why a person may be economically inactive – for example, they may have decided to care for family members or are too ill to work. Equally, there could be intractable reasons why someone will be unable to be active in the labour market – it may not be possible for all, or many, of the inactive population to join the labour market. However, high levels of working age economic inactivity can be a drag on living standards, and represent people who have been excluded from the economy.

As part of the qualitative research undertaken for this project, we interviewed a range of stakeholders involved in the skills system. We heard concerns that too many people, particularly those who were seen as having been 'failed' by the skills system and benefits system, were now classed as economically inactive. Taking steps to reduce inactivity, and to prevent inactivity for future generations, should be an important priority for policy makers and an important outcome for the skills system.

Increasing productivity

Likewise, increasing productivity rates could allow Northern Ireland and Scotland to get more out of a proportionally smaller working age population, protecting living standards even as the population ages. Northern Ireland's gross value added per head in 2016 was £19,997, compared to £24,800 in Scotland and £26,339 across the UK as a whole.³ Northern Ireland has one of the poorest productivity rates of any part of the UK (third only to Wales and the North East of England) (ONS 2017a).

Improving productivity would clearly require action beyond the skills system alone. But boosting investment in skills, and improving how employees' skills are used by employers, could have a significant impact on productivity rates across the economy. The skills system should be central to efforts to increase productivity in Northern Ireland and Scotland, protecting and enhancing living standards even as the population ages.

2 The economically inactive are defined as people not in employment who have not been seeking work within the last four weeks and/or are unable to start work within the next two weeks (it does not include students and those in full-time education).

3 Gross value added is the value generated by any unit engaged in the production of goods and services.

IMPROVING FAIR ACCESS

Existing inequalities within the skills system are problematic now but may become even more so in the future, in the context of automation and ageing. A successful skills system would get the most out of the population as a whole, across gender, disability and race, and regardless of economic background. This is clearly a matter of equity and justice, but it is also a matter of demography. Ageing will mean we need to maximise and realise the potential of far greater proportions of the population than we do now if we are to protect living standards over the coming decades.

As an example, access to university in Northern Ireland or Scotland is not equal across socio-economic backgrounds, likely shutting off whole parts of the economy to significant numbers of the population. In recent years there have been attempts to improve fair access, particularly in Scotland. IPPR Scotland undertook analysis of the number of graduates 'lost' to unfair access. In 2013/14, the latest year for graduate numbers in Northern Ireland, there were 17,990 Northern Ireland domiciled graduates gaining university qualifications, with only 12.5 per cent coming from the most deprived 20 per cent (DEL 2015a). In Scotland, for 2016/17, the latest year for graduate numbers, there were 23,475 full-time Scottish domiciled graduates who gained their first degree (13.1 per cent from the most deprived 20 per cent), and 58,925 Scottish domiciled graduates who gained any type of higher education qualification (17.4 per cent from the most deprived 20 per cent)⁴ (SFC 2018c).

Unfair access means some people from deprived backgrounds are losing out on opportunities to upskill. For the years in question, unfair access causes a gap, as 20 per cent of graduates are not from the most deprived 20 per cent of areas. We calculate that the number of graduates in this gap was 1,348 in Northern Ireland and 1,640 across full-time first degree graduates in Scotland (1,615 across all higher education in Scotland). Over the next 10 years this would see tens of thousands of graduates from deprived backgrounds not achieving degrees across Northern Ireland and Scotland due to unfair access.

Clearly, delivering fair access is a matter of equity and justice. Yet doing so may also help to boost productivity and counteract the challenges brought by an ageing population.

Increasing the working age population

While the precise nature of the UK's future relationship with the EU is currently unclear (at the time of writing), pending agreement on the UK's exit from the EU, we are likely to see change in arrangements for freedom of movement of EU nationals to the UK. While migration will undoubtedly play a continued role in the economy, it seems likely that employers will be less able to draw on the international pool of skills than previously, and so must draw from the domestic pool. The importance of the skills system will increase accordingly.

To maintain the current dependency ratio between the working age and older population, we would need to see an additional 210,000 working age people choose to live in Northern Ireland (over and above existing projections) between now and 2030. To do likewise in Scotland, there would need to be an increase in

⁴ The Scottish Government uses the Scottish Index of Multiple Deprivation (SIMD) as its deprivation measure. The Northern Ireland Executive uses its Multiple Deprivation Measure (MDM). While not constructed in the same way, both the SIMD and MDM are baskets of economic and social measures, grouped into deciles and quintiles of equal population size.

the working age population of just under 410,000 people between now and 2030, over and above existing projections⁵ (IPPR Scotland calculations using NRS 2017 and NISRA 2017).

WHAT IS SUCCESS FOR A 21ST CENTURY SKILLS SYSTEM?

Automation and ageing are two of the most significant challenges facing Northern Ireland and Scotland over the course of the 21st century. They will bring considerable change to the economy and society within which the skills system operates for the foreseeable future.

We have outlined the scale of change we will likely face over the coming years. Given the need to anticipate automation and adapt to the changes it brings, and given the imperative, brought by an ageing population, to get the most out of the full range of the population, we will need a skills system focussed squarely on the opportunities and challenges it faces.

Overall, a successful skills system would engage the whole of the population in meaningful learning, education and training throughout their careers to maximise and realise their potential.

⁵ Current population projections already include assumptions around net international migration. Between 2016–41, net international migration is projected to total 37,500 in Northern Ireland and 211,600 in Scotland. Increases in population would have to come over and above these projections.

3.

WHAT DOES A 21ST CENTURY SKILLS SYSTEM NEED TO DO FOR YOUNG PEOPLE?

A successful skills system is crucial to young people's future prospects. Ensuring young people have the skills to secure fulfilling careers and lives is a core ambition of governments across the world. A key aim of both the Northern Ireland Executive and Scottish Government has been to give young people the opportunity to enter positive destinations – either education or employment – and the fall in rates of youth unemployment in Scotland and Northern Ireland in recent years suggest this goal is being successfully achieved. However, in the context of future changes facing Northern Ireland and Scotland, a truly successful skills system will need to be more ambitious, concentrating its energies on young people's longer-term careers and lives. The challenge that will face the skills system in the future is to ensure young people secure jobs with prospects, not just *any* job, after leaving the skills system.

This chapter looks at how the skills system currently works for young people and sets out what a successful system would look like. We find that the system has focussed in recent years on the young, with a view to reducing youth unemployment. While this was an appropriate response to the threat of large-scale unemployment, the system still lets too many young people down, particularly from more deprived backgrounds. Too little attention is paid to young people who end up in jobs with no prospects or ones that offer little training opportunities, particularly given that rates of insecure work have been increasing. We conclude by setting out what a successful skills system would need to do to better serve young people in Northern Ireland and Scotland.

WHAT HAS THE SKILLS SYSTEM BEEN DOING FOR YOUNG PEOPLE?

Following the financial crash of 2007/08 and the resultant recession, there were widespread fears of large-scale youth unemployment. High unemployment had marked the UK in the 1970s and 1980s, peaking at over 11 per cent in 1984 – and higher still for young people – and policymakers were rightly keen to avoid the economic and social long-term consequences of a generation blocked from entering the labour market (ONS 2018d). Other EU countries that were badly hit by the recession saw soaring youth unemployment: levels peaked at 56 per cent in Spain and 60 per cent in Greece (Eurostat 2018a). The global economy exhibited a strong link between rising youth unemployment and the economic crisis, and youth unemployment leapt by 7.8 million globally between 2008 and 2009 (ILO 2010). In the UK, youth unemployment hit a post-recession high of 22.5 per cent in 2011 (ONS 2018i).

This focus on avoiding youth unemployment has been evident in both Northern Ireland and Scotland, and particularly explicit in Scotland. The Scottish Government introduced a range of policies to focus on young people who were not in employment, education or training (NEETs) or were in danger of becoming NEET. In 2012 the Scottish Government published the 'Opportunities for all' strategy, which made an explicit commitment to offer a place in learning or training to every 16- to 19-year-old who is currently NEET (Scottish Government 2012). In 2014, Developing Scotland's Young Workforce set a target of reducing 2014 levels of youth unemployment by 40 per cent by 2021 and increasing the number of

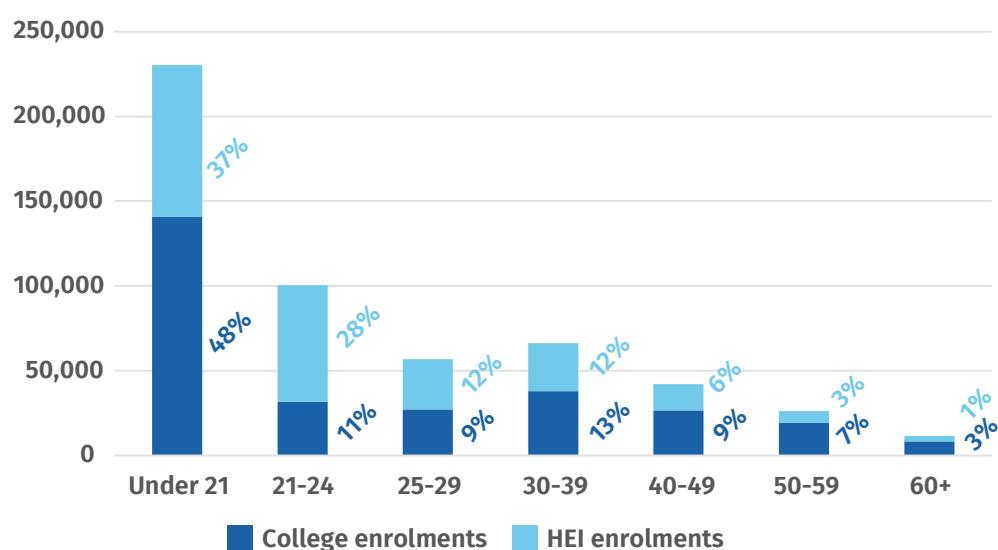
apprenticeships (Scottish Government 2014). The Scottish Government’s current target is for 28,000 modern apprentices to be started in 2018/19 and to see 30,000 new starts per year by 2021 (Scottish Government 2018a). Developing Scotland’s Young Workforce also set up regional bodies to coordinate employer engagement with young people.

Figure 3.1 below shows that the further and higher education systems in Scotland are heavily focussed on young people.

FIGURE 3.1

College and higher education institution enrolments in Scotland are heavily focused on the young

Enrolments by age in Scottish college and higher education institutions, 2016/17 (percentage of age group's share of total college or HEI enrolments)



Source: IPPR Scotland request to SFC 2018

Likewise, the apprenticeship system in Scotland is also focussed on young people. Over 75 per cent of apprentices are taken under the age of 25 in Scotland, and 95 per cent are under 25 in Northern Ireland (SDS 2018a; IPPR Scotland calculation based on data cited in DFE 2018).

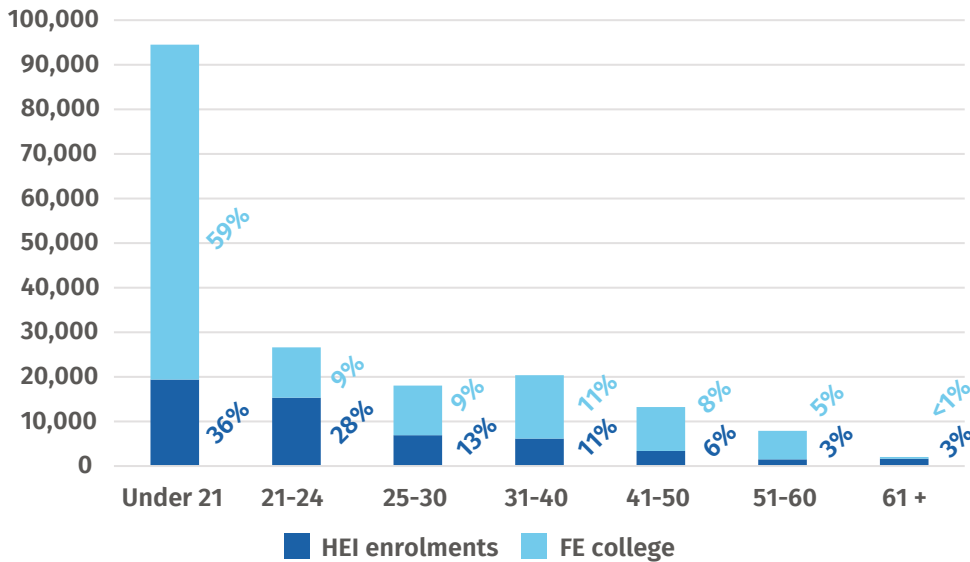
In Northern Ireland, the focus of recent policy development has been less explicitly targeted at youth employment. Over the past few years, the Northern Ireland Executive introduced a series of reforms to the skills system (see Gunson et al 2018). While skills policy as a whole has not had the same explicit focus on tackling youth unemployment as was the case in Scotland, many of the Northern Ireland Executive’s skills policies have been targeted at younger learners, for example: ‘Securing our success’, the apprenticeship strategy; ‘Generating our success’, the youth training programme; and ‘Pathways to success’, which seeks to remove obstacles to the labour market for young people.

Figure 3.2 below shows that Northern Ireland’s further and higher education system is even more focussed on young people, with under-21s making up an even bigger proportion of college enrolments in particular. Fifty-nine per cent of Northern Ireland’s college enrolments are under 21, compared to 48 per cent in Scotland.

FIGURE 3.2

Further and higher education institution enrolments in Northern Ireland are heavily focussed towards younger learners

Enrolments by age in Northern Ireland higher education institutions and colleges, 2016/17 (percentage of age group's share of total HEI or FEI enrolments)



Source: IPPR Scotland request to DFE 2018

In a number of respects, the focus on youth unemployment over the past decade has been successful. At the beginning of 2018, the Scottish Government met its youth unemployment target – of reducing youth unemployment by 40 per cent – four years ahead of schedule (Scottish Government 2017d). Youth unemployment in Scotland was 10.8 per cent between March and May 2018, down from a peak of 22.9 per cent between January and March 2012. In Northern Ireland, youth unemployment has fallen to 7 per cent between March and May 2018. Post-recession, youth unemployment in Northern Ireland hit its peak of 21.2 per cent between April 2013 and March 2014 and stayed at that level until March 2015 (ONS 2018h, 2018b).

Despite these successes, the skills system needs to be more ambitious to meet the challenges of automation and an ageing population. The challenge is not just to ensure young people secure a job immediately on leaving school, college or university. Rather it is to equip young people with the skills they will need to secure jobs with prospects that will enable them to navigate their future world of work.

THE SKILLS SYSTEMS IN NORTHERN IRELAND AND SCOTLAND ARE NOT WORKING FOR ALL YOUNG PEOPLE

While the focus of the skills systems in Northern Ireland and Scotland has been on young people in general, and youth employment in particular, both systems are not working for all young people – with particular groups not achieving the outcomes we would wish to see, and will need to see, given the future context of automation and an ageing population.

Qualifications achieved by young people through the skills systems

Not all young people will leave the skills system with the skills they need for a world of work that will be reshaped by automation and demographic change. There are significant differentials in how successfully the skills systems in both countries give the most deprived young learners the skills they need. In Scotland,

7.2 per cent (almost one in 14) of the most deprived children fail to achieve the basic level of qualification (SCQF Level 4), compared to just over one in 100 of the least deprived children (1.2 per cent). A quarter of Scotland’s most deprived children fail to achieve an SCQF Level 5 or better (see figure 3.3).

FIGURE 3.3

One in 14 of Scotland’s most deprived children do not achieve the basic level of qualification
Proportion of children failing to achieve qualifications at SCQF levels by Scottish Index of Multiple Deprivation, 2015/16

Scottish Index of Multiple Deprivation	Do not achieve at least one SCQF Level 4 or better	Do not achieve at least one SCQF Level 5 or better	Do not achieve at least one SCQF Level 6 or better
0-20% (most deprived)	7.2%	25.6%	57.3%
20-40%	4.6%	18.6%	47.8%
40-60%	3.2%	13.3%	37.8%
60-80%	2.2%	8.6%	28.9%
80-100% (least deprived)	1.2%	5.3%	18.8%

Source: Scottish Government 2017b

There is a clear socio-economic differential, particularly among boys, in providing children in Scotland with basic skills. Twenty-five per cent of boys in the most deprived quintile in Scotland fail to achieve basic standards in literacy at secondary school, compared to just 8 per cent of boys in the least deprived quintile.⁶ Similarly, 22 per cent of boys in the most deprived quintile in Scotland failed to achieve basic standards in numeracy at secondary school, compared to just 5 per cent in the least deprived quintile (Scottish Government 2018b).

The trend is similar for girls. Of those in the most deprived quintile, 17 per cent do not achieve a basic standard in literacy, compared with 4 per cent in the least deprived. For numeracy, 13 percent of girls from the most deprived quintile fail to achieve the basic standard, compared with 3 per cent from the least deprived (ibid).

Similarly, in Northern Ireland, young learners from deprived backgrounds are less likely to leave the skills systems with the basic qualifications they need. Fewer than half (47.5 per cent) of young people entitled to free school meals in Northern Ireland achieved five A*-C grades including English and Maths in 2016/17. This compares to an achievement rate of over three in four (77.4 per cent) of their peers who are not entitled to free school meals (DFEd 2018). Northern Ireland too has difficulties with literacy and numeracy: the OECD has previously drawn attention to poor literacy and numeracy rates in Northern Ireland (OECD 2013).

The lower outcomes for more deprived children has a significant impact on the overall distribution of the skills system. If participation levels for all students were the same as those of the least deprived decile, IPPR Scotland calculates that there would have been an additional 12,718 young people entering higher education in

⁶ The basic standard in Scotland is known as the ‘third level’ and is part of the Scottish education system’s benchmarks, which have been developed to provide national standards expected within each curriculum area at each level. They set out clear lines of progression in literacy and English, and numeracy and mathematics. For a full explanation of benchmarks see: <https://education.gov.scot/improvement/documents/literacyenglishbenchmarks.pdf>

Scotland in 2015/16 (IPPR Scotland calculation based on destination of leavers statistics, Scottish Government 2018c).

Destinations of young people from the skills systems

It is important to look beyond qualification levels to understand some of the outcomes achieved by young people leaving the skills system. The Northern Ireland Executive and Scottish Government publish statistics on the destinations of people who leave the skills system. This is to understand the success of the skills system in providing learners with positive outcomes – either in terms of further learning and training, or employment.

In Scotland, the Scottish Government aims to maximise the number of leavers that enter a ‘positive destination’ following their studies. A positive destination is defined as entering higher education, further education, training, voluntary work, employment or activity agreements.⁷ Northern Ireland publishes similar data on the destinations of their young people leaving schools and colleges, although they do not specifically use the term ‘positive destination’.

For school leavers in both Northern Ireland and Scotland, around two in five go on to university (42.9 per cent in Northern Ireland and 40.3 per cent in Scotland). More school leavers go on to college in Northern Ireland (34.4 per cent) than Scotland (26.6 per cent). Scotland classifies an apprenticeship as ‘employment’ (given apprenticeships in Scotland can only be undertaken in an employment context), while Northern Ireland classifies it as ‘training’. This probably partially accounts for the differential between the two countries going into employment and training: 22 per cent of Scottish school leavers go into employment and 2.6 per cent into training, while 8.9 per cent of Northern Irish school leavers go into employment and 9.7 per cent into training. Unemployment among school leavers appears higher in Scotland: 6.4 per cent of Scotland’s school leavers are unemployed, compared to just 2.5 per cent in Northern Ireland (DFEd 2018; Scottish Government 2017a)

For college leavers in Northern Ireland, approximately half go into employment (47.6 per cent), around a quarter (24.9 per cent) continue to a further education college, 8 per cent go on to a higher education institution, and 5.5 per cent become unemployed (DFE 2017b).

Similarly, for college leavers in Scotland, approximately half (47.9 per cent) of those with a confirmed destination go into employment, 5.7 per cent from further education courses and 34 per cent from higher education courses go on to university,⁸ while 12.4 per cent become either unemployed or otherwise unavailable for work (SFC 2017).

Young people and employment quality

The data on school and college leavers suggests that the skills systems in Northern Ireland and Scotland are having some success in helping some young people move into destinations that will boost their skills. Nonetheless, too many end up unemployed or economically inactive. Furthermore, for those in employment, it

7 The full definition of a ‘positive destination’ in Scotland includes: higher education including all degree courses, HNDs and HNCs ; further education including all full-time further education ; employment including anyone in work and receipt of payment, those on paid training placements such as national apprenticeships, and those in temporary, part-time or zero-hours work; and voluntary work including those undertaking voluntary work with or without financial allowance, who are not ‘unemployed and actively seeking’ work. Activity agreements include, ‘those for whom there is an agreement between a young person and a trusted professional that the young person will take part in a programme of learning and activity which helps them become ready for formal learning or employment’ (Scottish Government 2018b).

8 The Scottish Funding Council collects data only on college leavers who have confirmed destinations, and uses them to calculate the overall percentage of college leaver destinations, while school leaver data includes those who have unconfirmed destinations.

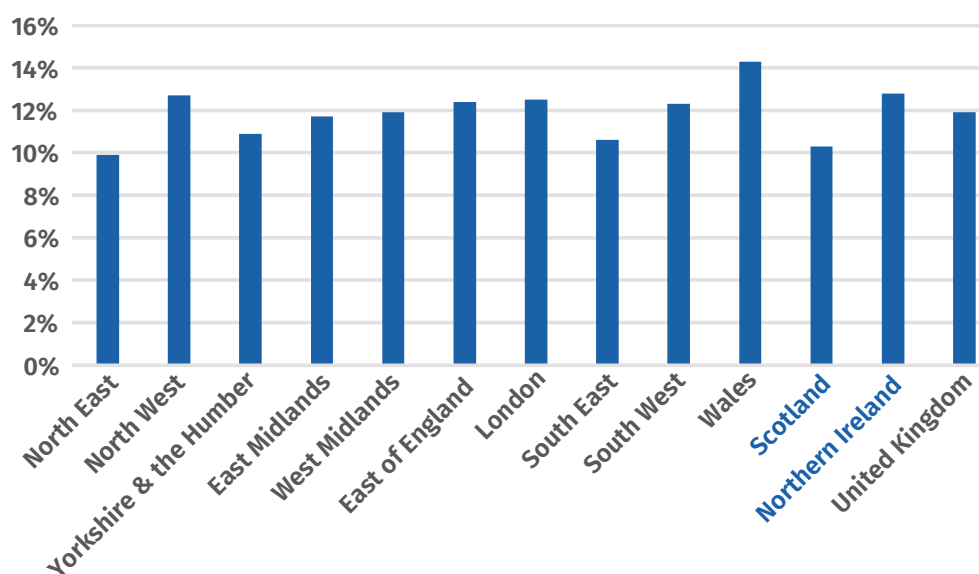
is likely that a significant proportion are in jobs that do not offer either career progression prospects or investment in their skills.

The rate of insecure work across the UK is high. Like youth unemployment, overall unemployment rates are currently low. However, there have been increases in recent years in rates of insecure work, self-employment and zero-hours contracts.

FIGURE 3.4

Rates of insecure working are high across the UK

Proportion of working-age population in insecure work



Source: IPPR Scotland analysis of ONS 2018g

‘Insecure work’ includes temporary workers (those classified as agency workers, casual workers, seasonal workers and other, excluding fixed-term contracts), workers whose primary job is a zero-hours contract, and self-employed workers who are paid less than the national living wage (£7.83). In 2017, 272,000 people in Scotland and 107,009 people in Northern Ireland were in insecure work. The rate of insecure work in Northern Ireland (12.8 per cent) is higher than all nations and regions of the UK apart from Wales (14.3 per cent). This matters in and of itself, but it also matters in terms of understanding the future career prospects for people in insecure employment. For example, OECD analysis suggests that those in insecure work are much less likely to receive skills investment than secure employees (OECD 2014). This could lead to significant damage to the future careers of people in insecure employment.

The growth of zero-hours contracts is of particular relevance when considering young people’s destinations. While the figures for zero-hours contracts are not broken down by age at the sub-UK level, we know that their prevalence has been increasing across the UK in the years since the recession, and that people on these contracts are more likely to be young: 36 per cent of people across the UK on zero-hours contracts are aged 16 to 24, compared with 11.4 per cent for all people in employment not on a zero-hours contract (ONS 2018f).

At the same time, younger workers are more likely to be underemployed in Scotland than workers of any other age group.⁹ Seventeen per cent of workers aged 16 to 24 were underemployed in Scotland in 2015, compared to around one in 10 workers aged 25 to 34 and only one in 20 workers aged 50 to 64. Furthermore, underemployment rates have been consistently higher among young people than they were pre-recession, hitting a peak of 22 per cent in 2012 (Scottish Government 2017c).

It is difficult to untangle the drivers of zero-hours working and flexible working in the young population. However, the high levels of underemployment among Scotland's young workforce suggests that young people are not going into employment destinations that are making use of their skills, and allowing them opportunities to develop and progress. This could mean that young people who are currently classed as entering 'positive destinations' may not be in destinations that will be positive for their future career progression and living standards.

Furthermore, we know young people leaving the skills system are more likely to be working in sectors with low pay, job insecurity and fewer progression opportunities. Younger workers are overrepresented in low wage sectors such as retail and food services across the UK, and underrepresented in higher paid professions such as professional and technical occupations and education. These sectors have lower pay and fewer opportunities for progression (Social Mobility Commission 2016). OECD analysis suggests that those in non-standard employment may also receive less training and have lower career advancement opportunities than workers on traditional, open-ended contracts (OECD 2014).

This is problematic in the context of automation and demographic change outlined in the previous chapter. It is likely that young people entering the workplace will now need to retrain throughout their careers to anticipate and adapt to the changes brought by automation and technological change. Equally, with an ageing population, and a proportionally reducing working age population, the economies of Northern Ireland and Scotland will need to get the most out of the remaining working age population in terms of productivity, pay and career progression. A skills system that allows high numbers of young people to leave it for insecure work, potentially with few training or progression opportunities, may not be preparing them adequately.

For this research we interviewed a range of key stakeholders in the skills system. They told us that youth unemployment rates and positive destination statistics do not tell the whole story. A consistent theme was that the skills systems should be more focussed on keeping higher proportions of young people in training, even they have entered the workplace, and that young people leaving the skills system need not only the tools to secure a first job, but the skills to equip them for their careers. In essence, fewer young people should leave the skills system at all, receiving training in the workplace even after they have moved into the world of work. Equally, while levels of youth employment are one indicator for success, the skills system needs to be more ambitious than focussing purely on reducing youth unemployment. It should aim beyond defining success as any job or further training, and instead target useful learning – whether that takes place in college, university, apprenticeship or in-work training for at least the early part of a young person's career. Whether in employment or not, young people should stay in the skills system until much later in their careers.

⁹ To be classified as underemployed in the data, a person must satisfy three criteria during the reference period: they are willing to work more hours (meaning they either want to work more hours in their current job (the majority); they want a new job with more hours, or an additional job; they were available to work additional hours, and worked less than a specified number of hours.

WHAT WOULD A SUCCESSFUL 21ST CENTURY SKILLS SYSTEM FOR YOUNG PEOPLE LOOK LIKE?

The challenge for the skills systems in Northern Ireland and Scotland is not just to prevent mass youth unemployment. We need to aim higher and move beyond this as the primary measure of success. Automation will bring significant disruption to the economy, changing the world of work in significant ways. We will need a skills system that anticipates these changes and prepares young people for the future. We will also need a skills system that can work with people throughout their careers to adapt to these changes in ways that progress their careers.

At the same time, an ageing population and a decreasing working-age population in proportion to older people will necessitate getting the most out of the remaining working age population as a whole. Inequalities in qualifications and outcomes are harmful in terms of equity and justice, but they are also harmful economically. We cannot afford these inequalities now, but in the context of an ageing population we will no longer be able to tolerate a skills system that lets down a significant proportion of young people, whether by background or gender. The skills system needs to work for *all* young people.

Measures of success

For young people, a successful skills system would:

- retain greater numbers of young people within the skills system for longer in useful learning, whether in college, university, apprenticeship or other in-work training
- increase the number of young people reaching genuinely positive destinations
- increase participation rates from those who leave the skills system into insecure work or for jobs with lower prospects
- reduce and minimise the proportion of young people who exit the skills system with no, or low, qualifications.

4.

A 21ST CENTURY SKILLS SYSTEM NEEDS TO FOCUS ON LIFELONG LEARNING TO BE READY FOR AUTOMATION AND AGEING

We have seen that in recent years, much of the focus of the publicly-funded skills systems in Northern Ireland and Scotland has been on reducing youth unemployment. This has meant that skills provision has been aimed at young people. At the same time, we have also seen a withdrawal by employers from investing in meaningful in-work training for employees. Reductions in employer investment and engagement in the skills system matters now, and has potential knock-on effects for productivity levels and pay rates (including in particular rates of career progression). However, it is clear that this will matter even more in the future. To successfully compete in the context of automation and ageing both Northern Ireland and Scotland will need to rethink and reform lifelong learning.

Technological change is likely to see significant disruption across the economy and world of work in the coming years, with almost half of all jobs in Northern Ireland and Scotland facing a high possibility of change through automation. At the same time, almost four fifths of the working age population of 2030, and three fifths of the 2040 working age population, have already left compulsory education. The skills system will have a central role to play in equipping mid-career workers to anticipate these changes and retrain and adapt as they take place. The world of work will therefore change significantly over the coming years, and people will face disruption to their jobs and careers. We will need to be ready to work with people throughout their careers to take up new skills, new roles, and potentially new careers, as the shape of the jobs market changes. Clearly, we cannot focus the skills system only on young learners and wait for the impact to work its way through as those young learners enter the workforce and age.

Equally, with an ageing population and longer working lives, we will also need to ensure that we get the most out of the remaining, and decreasing, working population. Boosting productivity and protecting living standards in the face of an ageing population will mean we will need to maximise and realise the potential of greater proportions of working age people throughout their careers. In this context, lifelong learning will be even more crucial.

In this chapter, we set out the importance of lifelong learning, and mid-career learning in particular, in shaping a successful skills system for the future. We outline the current trends in mid-career provision in Northern Ireland and Scotland, set out the longer-term implications if this pattern of provision persists, and lay out the case for a more sustained focus on mid-career learners.

CURRENT INTERNATIONAL TRENDS IN MID-CAREER LEARNING

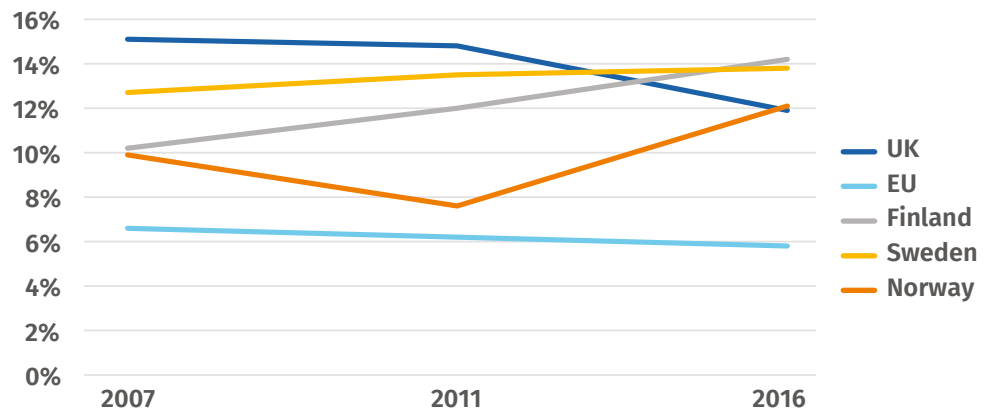
Lifelong learning is increasingly seen by governments across the world as integral to ensuring the working age population are ready for automation and the opportunities brought by technological change.

The UK as a whole is above the EU average in terms of adult participation in formal education and training. However, this has declined from just over 15 per cent in 2007 to just under 12 per cent in 2016 (Eurostat 2018b). In contrast, participation rates have increased in Sweden, Finland and Norway which all now have higher rates than the UK (see figure 4.1).

FIGURE 4.1

Rates of adults participating in formal education and training have declined since 2007

Percentage of adults aged 25–64 participating in formal education and training



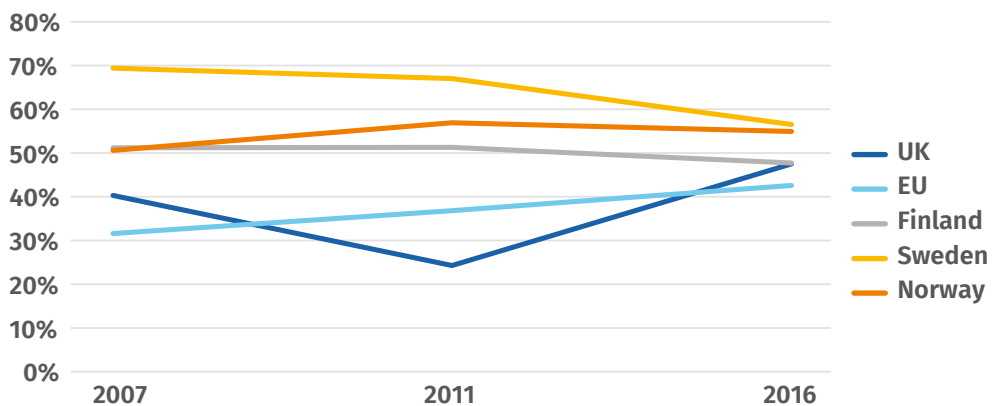
Source: IPPR Scotland analysis of Eurostat 2018b

Adult participation in non-formal education in the UK declined sharply in the UK between 2007 and 2011 but has now recovered to sit at 47.5 per cent (see figure 4.2). Despite this recovery, the UK remains below Sweden, Finland and Norway on this measure also, and only just above the EU average.

FIGURE 4.2

Rates of adults participating in non-formal education and training declined sharply between 2007 and 2011 but recovered in 2016

Percentage of adults aged 25–64 participating in non-formal education and training



Source: IPPR Scotland analysis of Eurostat 2018b

As outlined in chapter 2, the Automation Readiness Index sees lifelong learning as crucial to countries getting ahead of the changes we face through technological change and automation. Countries such as Singapore and South Korea, seen as well-prepared for automation, have rethought and repurposed lifelong learning as a central aspect of preparing their people and economy for the future they face. Despite this, there is no lifelong learning strategy in Northern Ireland. While lifelong learning in Scotland is under-pinned by the 'Skills Scotland' strategy (Scottish Government 2010), this has not been refreshed since 2010. The focus on youth employment has rightly dominated thinking in recent years. However, at least a similar focus on mid-career and lifelong learning will need to be found if Northern Ireland and Scotland are to take the opportunities and meet the challenges brought by automation and technological change.

SINGAPORE'S COMMITTEE ON THE FUTURE ECONOMY

Singapore has been recognised for its ability to couple education and training policies with economic development policies for a number of years (Ashton et al 2002). The success of this coupling is one of the factors that has contributed to Singapore's high GDP per capita, high employment rates, and highly competitive workforce.

In 2016, the Singapore government convened the Committee on the Future Economy and tasked it with developing economic strategies for the next decade. The Committee outlined its vision for Singapore: 'In the future economy, our people should have deep skills and be inspired to learn throughout their lives'. It will aim to achieve this vision through the seven mutually-reinforcing strategies outlined in the report, including 'Acquiring and utilising deep skills', 'Strengthening enterprise capabilities to innovate and scale up' and 'Building strong digital capabilities'. Lifelong learning and improving rates of participation in the skills system was a crucial recommendation of the Committee, placing a renewed focus on lifelong learning as part of preparing Singapore for the economy of the future.

Source: www.data.gov.sg

CURRENT TRENDS IN MID-CAREER SKILLS PROVISION IN NORTHERN IRELAND AND SCOTLAND

While lifelong learning and mid-career skills provision has become more important internationally, we have seen a withdrawal from this provision in Northern Ireland and Scotland.

A focus on young people

As outlined in the previous chapter, we have seen an increasing focus on young people through the skills systems in Northern Ireland and Scotland. This was an understandable response to the financial crash of 2007/08, with the aim of avoiding the scarring effect of youth unemployment on a whole generation of young people. However, the focus on tackling youth unemployment has potentially left a gap in provision for older people, and those in work more generally.

Flexibility in provision

Flexibility in learning is important in catering to the needs of mid-career learners. Older learners are more likely to need to fit learning around employment and/or caring responsibilities, and so they are often less willing or able to take part in full-time education or training.

However, in Scotland at least, we have seen a significant reduction in the range of flexibility offered by the skills system. The number of enrolments in part-time further education courses fell by 48 per cent between 2006/07 and 2016/17, from 398,860 to 195,125 (SFC 2018a). The vast majority of this reduction (65.7 per cent, or 136,348 of the total reduction of 207,494 part-time further education enrolments) is accounted for in the move away from very short programmes of under 10 hours, as well as non-recognised qualifications (ibid). This may be welcome, as recognised qualifications are more likely to be portable for learners, and lead to further career or learning prospects. However, the focus on full-time learning has potentially left a gap in flexible provision for mid-career learners.

In higher education institutions, where full-time provision has always outweighed part-time, part-time enrolments have also decreased in Scotland. While enrolments to full-time courses has increased by 5 percentage points to 241,935 between 2006/07 and 2016/17, enrolments onto part-time courses decreased by 25 percentage points to 58,140 over the same period (ibid).

Whereas part-time provision in colleges in Northern Ireland has remained fairly stable, enrolments to higher education institutions have followed a similar trend to Scotland. Full-time enrolments have increased 12 percentage points to 37,825 between 2007/08 and 2016/17, with part-time enrolments down 9 percentage points to 16,745 (DFE 2018).

Reducing the flexibility of learning provision may risk subsequently reducing opportunities for those in their mid-careers to access the publicly-funded skills system. As a result, individual workers may be unable to increase their earnings capacity and, in turn, employers may be deprived of a highly skilled workforce (Hubble and Bolton 2018).

THE BALANCE BETWEEN VOCATIONAL AND ACADEMIC LEARNING IN SCOTLAND

As the college system in Scotland has prioritised full-time courses for young people, it has simultaneously moved away from its historical vocational focus to become more of an academic top-up route. Indeed, according to the most recent college leaver destination figures, 78.6 per cent of those confirmed further education qualifiers in Scotland continued on to further study, with 16.3 per cent moving directly into work (SFC 2017).

Clearly, increasing numbers of college qualifiers continuing to further study is a positive development. Nonetheless, if further education in Scotland is no longer providing as much of a vocational route, then this poses a challenge as other parts of the skills system need to step in and address this. At the moment the opposite is true. With apprenticeships focussed on young people and employers disengaging from training, this lack of vocational provision is only likely to worsen.

Employers are stepping away from investment and engagement in skills

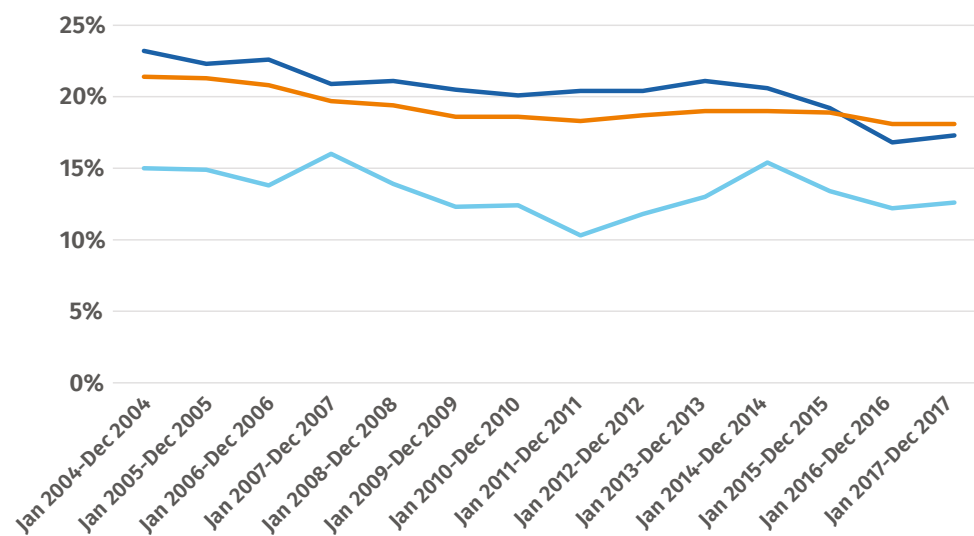
While we have seen the publicly-funded skills system become less accessible to mid-career learners and lifelong learning, we have also seen employers similarly withdraw from funding in-work training.

Employer investment in the skills of their workers is crucial, not just to employers' own interests, but also to the interests of the wider economy. Employer skills investment is important to boosting productivity, pay and profits (where relevant), benefitting both the employer, employees, and the wider economy.

However, in recent years, we have seen a steady and significant fall in investment in training by employers across the UK. Previous IPPR Scotland analysis of the UKCES Employer Skills Survey has shown that employer investment in training has dropped by £1.1 billion in real terms across the UK between 2011 and 2015 (Gunson and Thomas 2017). At the same time, we have seen a fall in the rate of employers offering job related training. As figure 4.3 below shows, the proportion of adults who received job related training in the last quarter has fallen over the last decade across the UK, with a particularly rapid decline in Scotland.

FIGURE 4.3

Rates of employers offering training for their roles has been steadily declining across the UK
Percentage of adults aged 16–64 who received job related training in the last 13 weeks



Source: IPPR Scotland analysis of ONS 2018g

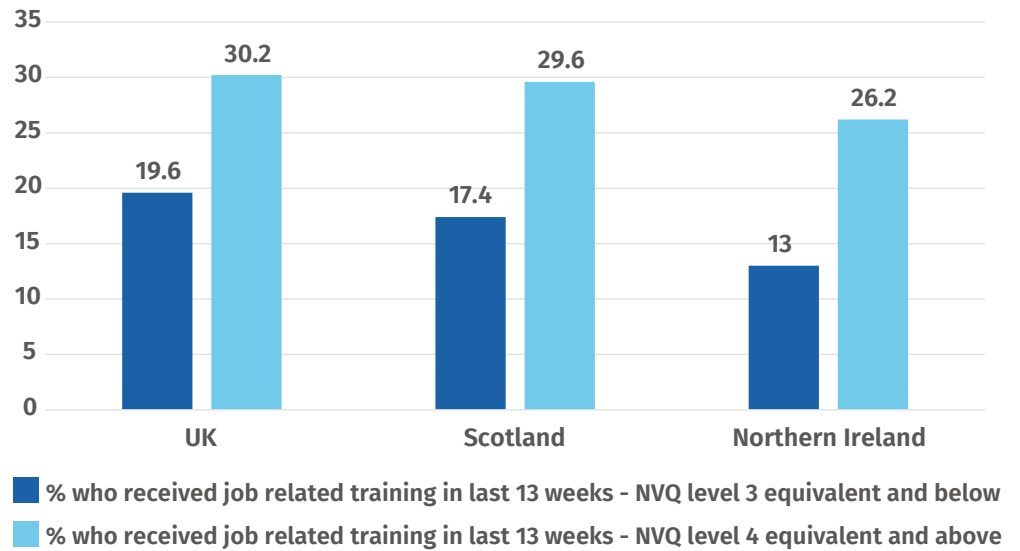
Employers less likely to invest in those with low skills

In addition to the overall decline in employer-provided training, employers are also less likely to invest in training lower skilled workers than those who already have higher level skills. Figure 4.4 below shows that across the UK, 30.2 per cent of adults with higher level qualifications (NVQ Level 4 and above) had received job-related training in the last 13 weeks, compared to 19.6 per cent of adults who lack qualifications of that level, a gap of 10.6 percentage points. The equivalent gaps in between high and low skilled employees were even bigger in Northern Ireland and Scotland, at 12.2 percentage points and 13.2 percentage points respectively.

FIGURE 4.4

Employers are less likely to invest in training low skilled workers in Scotland and Northern Ireland

Percentage of adults aged 16–64 who received job-related training in the last 13 weeks by highest qualification level



Source: IPPR Scotland analysis of ONS 2018g

This echoes analysis in the previous chapter which showed that the publicly-funded skills system was letting down young people from poorer and more deprived backgrounds, with school leavers from the most deprived backgrounds most likely to leave with fewer qualifications. Here we find that this attainment gap is likely being compounded in the workplace, where those with the least qualifications are least likely to receive any job-related training.

LACK OF MID-CAREER PROVISION AND THE IMPACT ON MID-CAREER WORKERS

The patterns of skills investment and provision from employers may be contributing to weaknesses in today's economy. These weaknesses are only set to be exacerbated by automation, technological change and ageing.

High rates of low pay

Compared to other countries in the European Union, the UK has high rates of people on low wages.¹⁰ In 2014, 17.2 per cent of employees were low wage earners in the EU-28, and in the UK, that figure is 21.3 per cent. By contrast, less than 10 per cent of employees were low wage earners in Sweden (2.6 per cent), Belgium (3.8 per cent), Finland (5.3 per cent), Denmark (8.6 per cent), France (8.8 per cent) and Italy (9.4 per cent) (Eurostat 2017).

Clearly, pay rates are not the sole responsibility of the skills system and nor are they solely linked to skill levels and skills utilisation. However, improving skill levels among mid-career workers will play a crucial role in how we address low pay and low levels of career progression.

¹⁰ Low wage earners are defined as employees earning two thirds or less of the national median gross hourly earnings.

INACTIVITY IN NORTHERN IRELAND

While Northern Ireland has similar employment and unemployment rates as the rest of the UK, it has far higher inactivity rates. Between March and May 2018, economic inactivity rates among young people were 49 per cent in Northern Ireland, compared to 36.9 per cent in Scotland (ONS 2018d). This is a longstanding issue: Northern Ireland has historically had higher inactivity rates than the rest of the UK, driven mainly by people who are classified as long-term sick.

As we set out in *The skills system in Northern Ireland: Challenges and opportunities*, the inactivity rate in Northern Ireland is around 7 per cent higher than the UK rate. The age profile of Northern Ireland's economically inactive population is different to the UK average. Compared to the rest of the UK, the percentage of the population that is economically inactive is roughly the same in Northern Ireland as in the rest of the UK until the age of around 40 to 43, when a gap of between 5 and 7 percentage points begins to open up (Gunson et al 2018).

Tackling high levels of economic inactivity is a task that the skills system alone cannot do. But there is a critical role for the skills system to work with employers to confront the issues that can drive inactivity. This should include a focus on employability and maintaining the habit of learning through periods of inactivity. Mid-career learning and training provision could help tackle the increasing rates of inactivity in Northern Ireland, as the data suggests this divergence with the UK average is driven by mid-career workers.

Career progression rates are already low

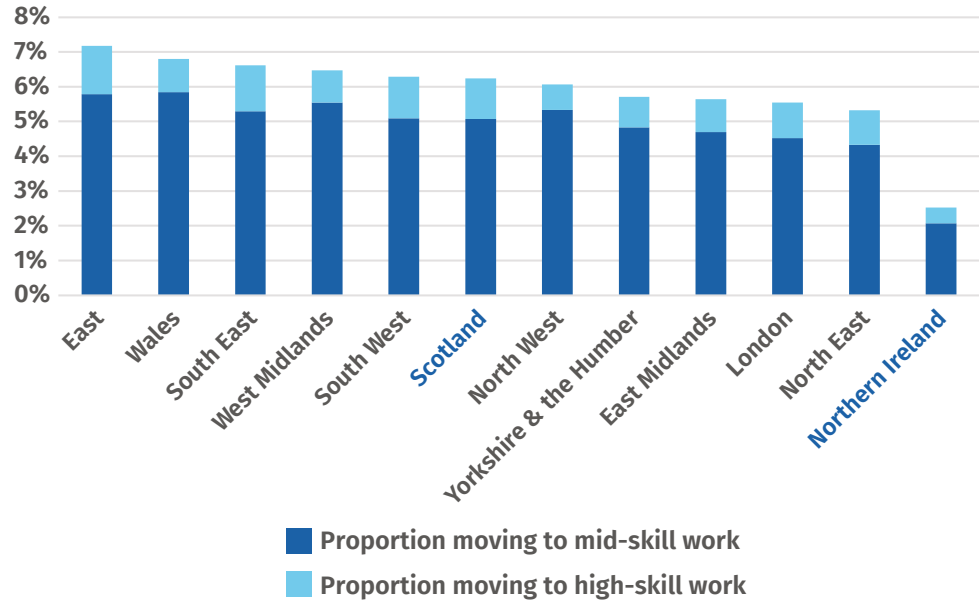
Career progression – moving from low to middle skilled jobs, and from low to high skilled jobs – is crucial to driving pay increases, tackling in-work poverty, and improved living standards. Clearly, while not the sole responsibility of the skills system, learning and training (combined with better use of workers' skills by employers) can help to improve progression rates. At the same time, for the employer, career progression can be a cause and a consequence of productivity growth.

Currently, Northern Ireland performs particularly poorly in terms of career progression, with a rate of just 2.5 per cent (on average, per quarter, between 2013 and 2018) compared to a UK-wide career progression rate of 6 per cent (see Gunson et al 2018). Progression rates between low and high skill is a particular cause for concern, at only 0.5 per cent. Scotland's progression rates have improved in recent years and are significantly higher than in Northern Ireland. The average proportion of low skill workers in Scotland moving into mid or high skill work per quarter between 2013 and 2018 was 6.2 per cent, and 2.5 per cent in Northern Ireland. In the East of England, the highest performing region, it was 7.2 per cent (see figure 4.5).

FIGURE 4.5

Workers in low skilled occupations are less than half as likely to progress to higher skilled roles in Northern Ireland than in the next poorest performing area

Progression rates between quarters by area and by skill level progressed to, 2013–17



Source: IPPR Scotland calculations using ONS Labour Force Survey Two-Quarter Longitudinal Dataset, various quarters (ONS 2018a)

Note: Denominator is all workers in low skilled occupations in the first quarter of each wave (January–June 2013 to July–December 2017). See appendix for methodology.

MID-CAREER AND LIFELONG PROVISION IN THE AGE OF AUTOMATION

Lifelong learning and mid-career training in Northern Ireland and Scotland is failing to address a number of weaknesses in the economy and the skills system. Public funding for skills has increasingly focussed on the young, and in Scotland has focussed on less flexible provision. At the same time, employer investment has declined in lifelong learning. This is clearly a problem for today's economy. But looking ahead to the challenges we face through automation and ageing, this problem will become even greater.

Internationally, those countries best prepared for automation are those that have rethought and reprioritised lifelong learning to prepare for the changes we will face, but also to allow people to adapt to changes as they occur. In Northern Ireland and Scotland, we will need a skills system that stands alongside people throughout their careers – through a combination of publicly-funded and employer-funded provision – rather than one that steps away at a relatively early point in people's careers.

Parity of esteem

There have long been attempts to deliver parity of esteem between academic and vocational training in Northern Ireland and Scotland.

It was clear from stakeholders in the skills sector that parity of esteem has yet to be achieved. One interviewee described it as 'learned behaviour', which is hardwired into the functioning and thinking of the whole educational establishment, generation after generation.

Parity of esteem, if made a reality, would ensure that those who come through non-academic or non-university routes to the workplace are offered training opportunities throughout their careers. A successful skills system would tackle the implicit biases that privileges some routes of learning over others.

Flexibility

As shown above, the skills system – partly due to its focus on young people – has become heavily weighted to full-time enrolments. To meet the demands of the 21st century, we will need to see far more flexibility in the system. Workers will likely require short intense bursts of learning at certain points in their career (for example in between jobs or on short sabbaticals from employment) as well as less intense, part-time learning alongside working. At the moment, this full range of flexibility is not well catered for in either Northern Ireland or Scotland.

Tracking of learning

In the future, the world of work is set to change markedly. Previous models of linear career paths – that of skill acquisition and performance unlocking barriers to entry to the next level, often within the same sector or even the same company – will likely become less common.

As the world of work changes, the skills system will need to adapt to ensure that learning throughout a career is captured, recognised and utilised. This has been widely recognised internationally, and several European countries have brought in labour market reforms to ensure workers' on-the-job training is recognised more widely than just their current employer (see box below).

Reforms to improve learning tracking are already underway in Scotland. In 2018, the Scottish Government launched the 15–24 Learner Journey Review. This set out a series of reforms to the skills system focussed on those aged 15 to 24. The review set out the three ambitions for the skills system: to improve the quality of advice informing young people's decisions; to deliver more work-based learning; and for young people's journeys through the skills system to be shorter and more efficient. A number of key reforms stemmed from the review, including providing every pupil in Scotland with an online account, personalised support in choosing courses and planning a career (Scottish Government 2018d).

INTERNATIONAL EXAMPLES OF IMPROVING MID-CAREER TRAINING

Other countries around the world are increasing their capacity to train and re-skill workers throughout their careers. France and Singapore have recently undertaken reforms of relevance to Northern Ireland and Scotland.

French personal activity accounts

In 2016 the *Compte personnel d'activité* (CPA, or 'personal activity account') was introduced in France, as part of its labour market reforms. It recognises the fact that workers may no longer stay in the same jobs for all of their working lives – periods of working, unemployment and career change may become the norm, and pathways may not be linear.

The account allows a worker to accumulate up to 150 hours of training. The account is automatically credited based on hours specified in a worker's employment contract, and these credits are then redeemed to access training. Crucially, they are not lost when you change jobs (or become unemployed) but are tied to the individual rather than the post they fill in an organisation (Gazzane 2017).

The scheme is orchestrated through a centralised website, accessed via an individual social security number. The website suggests potential objectives for professional development and training in the relevant area of work. Job centres and local organisations are also obliged to give free advice to those looking for training.

Singapore's skills super-agency

The SkillsFuture Singapore Agency Act 2016 created a new super-entity – SkillsFuture Singapore, to guide people at all stages of their career with targeted education and skills programs, and to work closely with industry bodies to ensure alignment. The agency provides career guidance, job search support, work/study placements, and other benefits like the SkillsFuture Study Awards – introduced to encourage Singaporeans to develop and deepen the specialist skills needed by future economic growth sectors or in areas of demand.

To support skills development among mid-career workers, all Singaporeans over 25 are given an opening credit of S\$500 (£279) which can be spent on these approved programs. The government periodically tops up the credit and allows individuals to accumulate credit over time.

Career progression and 'smart' information, advice and guidance

Giving people in the labour market opportunities for career progression is important for two reasons. Firstly, the jobs we do will be reshaped by automation. Having the ability to progress, acquire new skills and do different jobs will allow people to stay in the labour market as jobs are reconfigured, acquiring new skills as necessary and deploying those already learned. Secondly, too many people enter the labour market into jobs or sectors that are marked by low pay or job insecurity. This is spreading, not reducing. Ensuring workers can progress in their careers means these factors do not define their entire working lives, but are confined only to short periods. The skills system, therefore, needs to focus its efforts on giving workers the tools to enable career progression.

Careers advice and services to aid progression will be central to this. Too often, learners make decisions based on the immediate choice in front of them, rather than giving proper consideration to the long-term context of their careers. Workers need support in understanding the benefits of different training, the costs associated with acquiring new skills, and the longer-term trends in their sectors.

The skills system should therefore offer 'ladders' and 'bridges' to people at risk of disruption within the labour market: ladders up to ensure that a career break is not negative in terms of career progression, and bridges for workers from at-risk sectors to new sectors. A crucial part of this will be in developing smart information, advice and guidance (IAG).

'Smart IAG' would fulfil the traditional role of broadcasting opportunities and advice to learners and prospective learners. However, it would also offer opportunities to track the bank of skills across the workforce: tracking learning across private and public provision through new 'online passports'; tailoring IAG specifically to individuals; and offering interventions and brokering opportunities based on the skills and experience learners and employees already have.

Smart IAG would be targeted at employers, as well as individual workers as it is now. The division between what has traditionally been seen as enterprise or economic development and the skills system will need to be removed. Given how important skills investment and utilisation will be to individual employers, but also to the economy as a whole, the distinction between skills policy and enterprise policy

will need to blur. For employers, smart IAG will need to see a partnership between government and the private sector to help individual employers and the economy as a whole anticipate the changes brought by automation and ageing, adapt to those changes, and ensure Northern Ireland and Scotland are best-placed to take the opportunities offered. It would include an early warning function to identify employers and sectors at risk from technological and demographic change.

PARTNERSHIP ACTION FOR CONTINUING EMPLOYMENT

Partnership Action for Continuing Employment (PACE) is an initiative put in place by the Scottish Government to respond to situations of redundancy. Led by Skills Development Scotland (SDS) on behalf of the Scottish Government and in conjunction with other partners, PACE works with employers and workforce representatives to facilitate packages of support – including advice, guidance and work transition training – for individuals affected by redundancy. Support is tailored to meet individual needs as well as local circumstances and often includes a mixture of Jobcentre Plus services, one-to-one counselling, information packs, training, seminars on skills such as CV writing and starting up a business, and access to IT facilities (Scottish Government 2016).

As part of our qualitative research for this project, employer stakeholders talked highly of the support provided by PACE. Although limited to periods of redundancy, the scheme offers an example of effective infrastructure for general training and skills broadening.

Post redundancy, 58 per cent of PACE clients had taken a pay cut, 40 per cent were in a job where their level of responsibility was lower than their previous job, and 34 per cent were in a job where the skill level required was lower than their previous job. Impacts on career progression were particularly acute for those aged over 55, with 44 per cent of people under 45 having improved their working situations post redundancy, compared with only a third (31 per cent) of those aged 45–54 and a quarter (25 per cent) of those aged 55 or above. Similarly, nearly one in three (31 per cent) of those aged 44 or younger had found work requiring a higher skill level, compared with just one in four (23 per cent) of 45 to 54-year-olds and one in six (17 per cent) of those aged 55 or older (ibid).

A focus on mid-career as part of lifelong learning

Given the need to boost career progression rates and to prepare people and the economy for the effects of automation and ageing, we will need to rethink and reprioritise lifelong learning in Northern Ireland and Scotland. A key part of this will be focussing on mid-career learning: employees (rather than those out of work) and those beyond the early part of their career (where apprenticeships have been historically focussed). The skills system currently provides very little mid-career learning in Northern Ireland and Scotland, but this type of provision will be key to preparing the economy for automation and ageing, boosting career progression and boosting productivity.

Late-career learning and passing skills on

As people live longer, many are choosing to work past retirement. The number of workers over 65 has increased in recent years. In Scotland, the employment rate for adults aged 65 and over has increased from 5.2 per cent in 2004 to 8.5 per cent in 2017 (ONS 2018a). In Northern Ireland the employment rate for adults aged 65 and over more than doubled from 4.5 per cent in 2004 to 9.2 per cent in 2018 (ONS 2018a).

This is a trend that looks set to continue – and needs to continue, both for individuals, companies and for the economy as a whole. In the next chapter we will discuss the effects of demographic change within the working age population, and the need to ensure the expertise, skills and experience of older workers is not lost at retirement. More generally, we will need to find new ways, through the skills system, to ensure that the careers of older people slow down rather than shut down at retirement. The skills system could be crucial in finding new ways to engage older workers in order to pass their expertise on to younger people – not just within individual workplaces, but across sectors and across the economy.

WHAT WOULD A SUCCESSFUL 21ST CENTURY SKILLS SYSTEM FOR MID-CAREER LEARNERS LOOK LIKE?

We have seen in this chapter that internationally, lifelong learning has gained a new focus in the context of preparing for automation and technological change. In the UK as a whole, and in Northern Ireland and Scotland, we have seen far less of a policy focus on lifelong learning, which risks exacerbating current economic weaknesses and social inequalities. These weaknesses and inequalities matter now, but they will matter even more greatly in the future.

Those countries that rethink and reform their lifelong learning offer, and in particular mid-career provision, will be those that best take advantage of the opportunities of automation. Those countries that do not face falling behind and realising the risks posed by automation and technological change. We will see significant disruption over the coming years to the economies of Northern Ireland and Scotland, and at a time when four fifths of the working age population of 2030 have already left compulsory education.

Measures of success

For mid-career learners, a successful skills system would:

- increase participation rates in the skills system from employees of all ages and at all stages of their career, with flexible learning options from the most intense to the most part-time
- contribute to increased career progression rates, particularly prioritising moving those in low paid work into higher paying jobs
- develop new proactive skills programmes aimed at providing ‘progression ladders’ up to new careers for people at risk of being displaced out of the labour market, ensuring their skill levels are protected
- track and recognise prior learning across all component parts of the skills system and throughout careers, offering proactive career-long advice and guidance.

5.

THE RELATIONSHIP BETWEEN THE SKILLS SYSTEM AND EMPLOYERS

The twin disruptions of automation and demographic change will bring huge challenges and opportunities for employers. Employer investment with the skills system is already too low and there are significant barriers to employers who want to invest in workers' skills. Furthermore, demographic trends are on course to change the age distribution of the workforce, and patterns of employment are changing.

A successful skills system for the future will need to see higher levels of employer investment and utilisation in workers' skills. Crucially, this is in employers' own interests as much as it will benefit individual workers and the wider economy. To reshape the skills system for the rest of the 21st century we will need employers, learners and government to work closely to deliver training and learning throughout careers – to take advantage of the opportunities of automation and ageing and address the challenges posed.

In this section, we set out the state of the relationship between employers and the skills system in Northern Ireland and Scotland, looking at the low levels of employer engagement in skills and the barriers that currently exist to employers engaging with the system.

EMPLOYER ENGAGEMENT WITH THE SKILLS SYSTEM

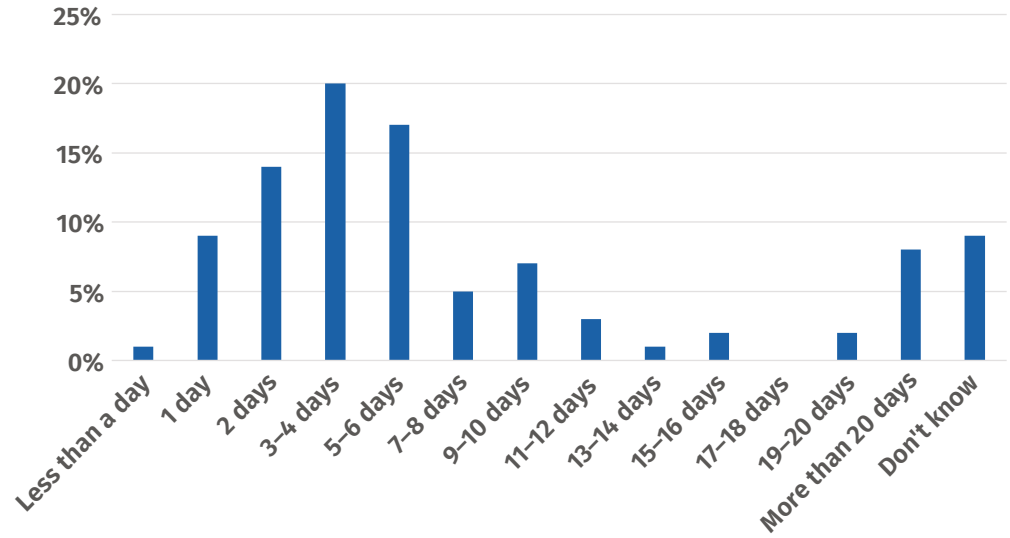
Alongside public investment and individual investment, employers play an important role in the skills systems in Northern Ireland and Scotland. As shown in the previous chapter, employer investment in staff training has been declining in recent years; across a number of indicators, it is simply too low.

How much training are workers receiving from employers?

The average number of training days a worker receives is 6.3 days a year in Northern Ireland and 6.6 days in Scotland, but many workers receive far less, with around one in 10 receiving only one day or less (see figures 5.1 and 5.2). Thirty-eight per cent of employers in Northern Ireland and 29 per cent in Scotland provide no training to their staff at all (ESS 2016a; 2016b).

FIGURE 5.1

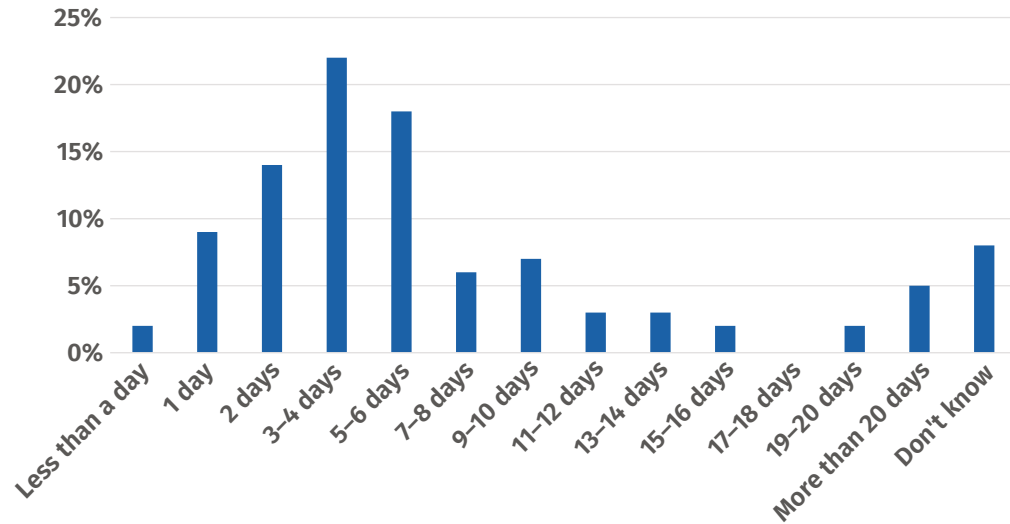
The majority of employees in Scotland only receive a few days' training on average per year
Average number of training days per employee in Scotland



Source: ESS 2016b

FIGURE 5.2

Employees in Northern Ireland receive only a few days' training on average per year
Average number of training days per employee in Northern Ireland



Source: ESS 2016a

Among employers in Scotland who do not provide training for their staff, 67 per cent said this was because all their staff were fully proficient. Having no money available for training was the second most cited reason (6 per cent). The equivalent figures were 64 per cent and 10 per cent in Northern Ireland (ibid).

Smaller employers are less likely to provide training than larger employers in both Scotland and Northern Ireland. For example, 78 per cent of employers with fewer than 100 employees provide training in Northern Ireland, compared to 100 per cent of large employers of over 250 staff (ESS 2016a). The figures for Scotland are 81 per cent and 97 per cent respectively (ESS 2016b).

What types of training are employers offering?

The types of training offered by employers may not be focused on boosting productivity, and certainly not on anticipating and adapting to automation. For 18 per cent of employers in Northern Ireland who said they had provided training for their employees over the past 12 months, induction or health and safety training accounted for *all* of their training. For 39 per cent this type of training accounted for *at least half* of their training (ibid). Equivalent figures for Scotland were 10 per cent and 29 per cent respectively.

In Scotland, of all of the employers who said they provided training to their staff over the past 12 months, 49 per cent said they trained their employees in new technology, and 34 per cent provided management training. In Northern Ireland these figures were marginally higher at 50 per cent and 35 per cent respectively (ESS 2016a and 2016b).

How well are employers using their employees' skills and expertise?

Not only do smaller employers provide less training for their staff, but they appear to make less use of their employees' skills too. Skills underutilisation is a problem for smaller employers. Employers in Northern Ireland with 2-4 employees report skills underutilisation among 15.1 per cent of their workforce (the rate is 17.7 per cent in Scotland). But large employers in Northern Ireland of more than 250 employees underutilise the skills of only 2.6 per cent of their workers (6.5 per cent in Scotland) (ESS 2016a, 2016b). Skills underutilisation is a serious problem, squandering the prior investment in a worker's skills, potentially reducing productivity both for the economy and the individual firm, and stopping the individual from realising their potential. High levels of skills underutilisation suggest employers are not designing jobs effectively, engaging with workers' skills sets to maximise the benefit of the latent skills in their workforce.

WHAT ARE THE BARRIERS TO EMPLOYERS PROVIDING TRAINING?

Looking at employers who do provide training for their employees, those in Scotland are more likely than the UK average to say that they wanted to provide more training, with half of all employers reporting this. In Northern Ireland, almost half of all employers would like to provide more training.

Finance is the biggest obstacle to training in firms across the UK, but particularly so in Northern Ireland, where 60 per cent of firms report this. Scotland is the only part of the UK where the most reported obstacle is sparing the time for employees to be in training, rather than funding it (see table 5.1).

TABLE 5.1

Cost is the main barrier to employers providing more training in Northern Ireland, while in Scotland time is the most significant barrier

Whether training employers would have liked to provide more training, and if so the main barriers (prompted)

	% would have liked to provide more training	Main barriers among those wanting to provide more training				
		Lack of funds/ training expensive	Can't spare time for employees to be training	Hard to find the time to organise training	Lack appropriate training/qualifications in the subjects we need	Difficulty finding provider to deliver where and when we want
UK	46 %	52%	49%	14%	5%	4%
England	46%	51%	49%	14%	5%	4%
N. Ireland	47%	60%	44%	14%	5%	5%
Scotland	50%	53%	54%	12%	4%	6%
Wales	49%	52%	47%	16%	6%	7%

Source: UKCES 2016

In our qualitative research, through interviews and round tables with stakeholders in the skills system – including employers and employer representatives – we heard a range of reasons why employers find it difficult to invest in the skills of their workforce.

Disparate training schemes for employers

We heard from employers and stakeholders that the sheer volume and range of available initiatives, programmes and interventions related to skills left employers unsure about how to best engage with the skills system. For example, we heard that in Northern Ireland, officials had identified over one hundred government interventions aimed at employers around skills organised through the UK Government, Northern Ireland Executive, local authorities and arms-length bodies. This – which one interviewee described as ‘initiative-itis’ – combined with continual changes in the programmes on offer, and sometimes their small scale, made it difficult for employers to identify and navigate the parts of the skills system that could support their training objectives.

Differentiation of skills systems for large employers across the UK

One interviewee from a large business that operates across the UK raised the issue that differentiation between the different skills systems in the devolved nations of the UK presented UK-wide businesses with a barrier. If the vast majority of their workforce engages with the English skills system, the cost of engagement with the differing skills systems of the smaller devolved nations may be prohibitive. The implementation of the Apprenticeship Levy in England could see this barrier increase, as while employers in England will have access to their levy funds

through a digital account to invest in apprenticeship training, the same system will not operate in devolved nations. Rather than the levy being an opportunity to improve engagement with the skills system, there is a risk that some UK-wide employers focus their skills investment on workers based in England or on provision sourced from providers in England.

Barriers to access for small employers

At the other end of the spectrum, small employers said they did not have the resources to engage with the skills system in the proactive way that larger firms could. This included lacking the internal staff to identify and coordinate opportunities, lacking funding for training, and not being able to spare staff. Crucially, it also included the high barriers to entry for smaller businesses in engaging with the skills system, and the apprenticeship system in particular. The risk borne by recruiting and training an apprentice as a smaller employer, often for the first time, is greater than that borne by a larger employer.

Concerns about recouping the investment in employees' skills

We heard that employers feared their employees would move on to new organisations soon after receiving training, thereby losing their investment. This was tied to concerns that insufficient numbers of workers, particularly younger workers, do not start jobs with the skills they need. While employers expressed this concern in our research, the evidence currently suggests that job tenure is not actually shortening. On the other hand, other factors such as low wage growth may be influencing this, and UK job tenure remains among the lowest in the OECD (CIPD 2013).

A SUCCESSFUL SKILLS SYSTEM NEEDS TO SEE PROACTIVE EMPLOYERS INVESTING AND UTILISING IN WORKERS' SKILLS

As we have outlined, employer engagement in workers' skills is too low, even for the current context. It is declining, and it is unevenly distributed among workers. However, the twin disruptions of technological and demographic change will require a very different level of engagement with the skills system from employers. Furthermore, as working patterns change, opportunities for employers' engagement in skills may encounter more – rather than fewer – obstacles.

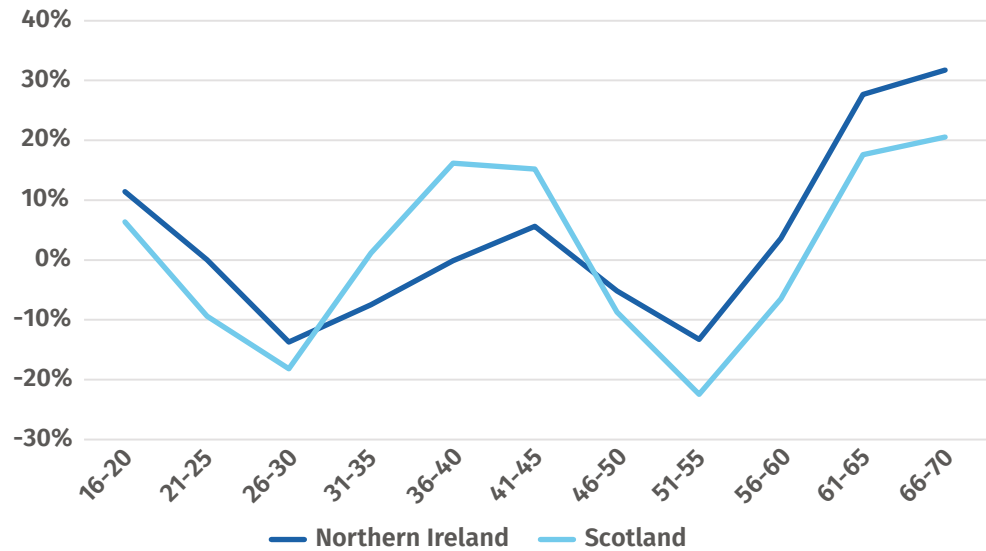
Who will be working? The demographics of the working age population

As outlined in chapter 2, the population is ageing in both Northern Ireland and Scotland, and the dependency ratio (the ratio between the working age population and those above the retirement age) is increasing. However, there are also demographic trends within the working age population that will have implications for employers. Figure 5.3 below shows that over the coming years we will see a hollowing-out of the working age population, with significant decreases in the proportions of workers aged between 20 and 35, and 45 and 60, across both Northern Ireland and Scotland. This will deprive many employers of both 'new blood' and 'older hands'.

FIGURE 5.3

There will be a hollowing-out of the working age population in the coming years

Percentage difference in population of Northern Ireland and Scotland by age group between 2018 and 2030.



Source: IPPR Scotland calculation based on NISRA 2017 and NRS 2017

Demographic change and an ageing workforce will require employers to proactively engage with the skills system to ensure they have a pool of young workers with the skills they need, and to ensure that there are new ways of getting the most out of the oldest workers – that, as they reach and pass retirement age, they can pass on their expertise and skills to younger workers.

Employment patterns are changing: How many employees will have an employer in the future?

Patterns of employment are also changing in Northern Ireland and Scotland, in ways that make employer engagement in skills more challenging. Self-employment has been increasing across the UK – up from around 12 per cent of the labour force in 2001 to around 15.1 per cent in 2016. In Scotland, self-employment has been rising but remains lower than the UK average, going from 9.3 per cent to 10.8 per cent from 2001 to 2016 (ONS 2018e). In Northern Ireland, the self-employment rate rose by 6 per cent, and at 14.7 per cent in January to March 2018 was close to the UK average (NISRA 2018). Furthermore, since 2012 in Northern Ireland, part-time employment has been growing at a faster pace than full-time (8 per cent growth in part-time work compared to 6 per cent in full-time).

Across the UK, a significant proportion of self-employed workers are on low incomes, with median incomes of £240 per week. This is much lower than the median income for employed people, for whom earnings are centred around £400 per week (ONS 2018e). Furthermore, as set out above, insecure work and zero-hours contracts are increasing (see chapter 3).

This increase in insecure work may be a temporary response to the financial crash of 2007/08 or it may be a response to automation and new technologies that allow the gig economy to increase in size (or of course it could be both). If this is a permanent and increasing feature of the labour market in Northern Ireland and Scotland, then the skills system will need to ensure it provides the learning and

training that workers in insecure employment need to progress their career and anticipate and adapt to technological change.

A SUCCESSFUL SKILLS SYSTEM WOULD SEE EMPLOYERS INCREASE LONG-TERM INVESTMENT AND ENGAGEMENT WITH THE SKILLS SYSTEM

To take advantage of the opportunities of automation and meet the challenges of demographics, we need employers to increase long-term investment and engagement with the skills system. Employer investment in skills and the levels of training offered to employees is already too low in both Northern Ireland and Scotland, as shown above.

If Northern Ireland and Scotland are to navigate the opportunities and challenges offered by automation and ageing, we will need to see employers, learners and government working much more closely to deliver a skills system that stands beside people throughout their careers, and stands beside employers to support them through the next few years of change.

Employers should not just be passive recipients of the skills system; they should be part of it, investing in the skills of their workforce. To achieve this, we will need to develop a new partnership between employers, learners and the state. This should be based on the following principles:

Greater investment of public funding for skills should see action from employers in return

To deliver a closer match between supply and demand for skills, greater levels of public funding for skills should be contingent on evidence of demand from employers and pledges in relation to skills utilisation. In return for greater public investment into in-work learning and training, and a rethink and reform of lifelong learning provision, we will need to see action from employers to ensure investment is being directed at provision demanded by employers and learners, and action from employers to utilise the skills acquired by workers on successful completion of learning.

The expectation of greater engagement from employers should come hand-in-hand with more flexible learning options, responsive to employer and learner needs

It is clear that we need greater engagement from employers in the skills system. However, as we have outlined, the skills system places barriers in the way of employers – whether due to their size, the range and diversity of the system, or the lack of flexibility of provision. While demanding greater engagement from employers to enable Northern Ireland and Scotland to navigate the changes brought by automation and ageing, we should also demand greater flexibility from in-work learning provision. This will require a fundamental rethink and reform of lifelong learning in Northern Ireland and Scotland that places learners and employers at the centre of the systems.

Employers need to invest more in skills provision for workers on the basis of enlightened self-interest

While we need to see greater investment in skills provision in Northern Ireland and Scotland, particularly as part of rethinking and reforming lifelong learning provision, we also need to see greater investment from employers too. Given that investing in the skills of an employer's workforce should lead to productivity increases and stronger performance, it is very much in the employers' own interests. Equally, reducing barriers to engaging with the system, and providing more flexible options for employers and learners, should also increase investment in skills provision. In addition, we should see increasing employer investment in skills, and increasing the proportions of employees who undertake useful training, as key aims, while looking at ways financial incentives and disincentives can be put in place to encourage greater investment in skills from employers will also be crucial.

Employers need to take joint responsibility for responding to the ageing population

Given the ageing population – both of itself and for its ‘hollowing-out’ of the working age population outlined above – we will need to see employers take on a greater responsibility for developing new talent and enabling older workers to pass on skills and expertise as they approach and pass retirement age. This will include a greater engagement with schools, colleges and universities to develop the pool of talent with the skills needed for work.

Governments need to prioritise career progression and productivity, and ensure the skills system is supporting employers to improve productivity and progression

Improving career progression rates could help increase productivity and pay rates in the economy. The skills system should work with employers to provide them with the support they need to improve career progression, particularly from low-skilled work. This may include incentives to redress the imbalance between rates of training for high and low skilled employees. At the same time, employers, with support from other bodies, should prioritise making job design and company structures flexible for those currently excluded from parts of the labour market (including women and those with caring responsibilities).

CASE STUDY: ASSURED SKILLS IN NORTHERN IRELAND

The Assured Skills programme in Northern Ireland is an example of a programme that balances the needs of employers and learners. Assured Skills was introduced by the Northern Ireland Executive in 2012. The programme was designed to attract foreign direct investment that would ensure skilled jobs for graduates based in Northern Ireland, and boost skills utilisation by employers. Accordingly, it is a joint initiative between the Department for the Economy and Invest Northern Ireland (DFE 2012).

The purpose of the initiative is to provide guarantees to foreign investors that the skills they need for their firm will be available in the Northern Irish workforce. When a company agrees to invest in Northern Ireland, foreign investors specify the skills they need from the local workforce. The Assured Skills programme delivers training to graduates to ensure their skills match the needs of the employer, usually involving an eight to 10-week pre-employment training programme.

Initially, Assured Skills was available only to foreign potential investors in Northern Ireland. It has now grown and is available to existing employers who are considering expansion. The only requirements of the investors in the Assured Skills programme are to co-design the course, take the learners for a placement and give them an interview at the end of the process. They are under no obligation to employ the learner at the end of the process. Any new investor, or existing employer considering expansion, is eligible to apply for the Assured Skills programme. It is also now open to anyone who is unemployed, in education, in work, and with or without a graduate level qualification. The purpose is to give them the skills they need to start work in firms that are opening in Northern Ireland.

Since the initiative began, over 1,000 people have gone through the scheme and into work. The programmes delivered through Assured Skills have an 80 per cent success rate of participants progressing into full-time employment. The funding allocation for Assured Skills projects from the Department for the Economy over the July 2014 to December 2020 period has been estimated at £15 million (DFE 2012).

WHAT WOULD A SUCCESSFUL 21ST CENTURY SKILLS SYSTEM FOR EMPLOYERS LOOK LIKE?

The relationship between employers and the skills system will be critical to meeting the challenges of the years ahead. The jobs employers require their employees to undertake will change as a result of automation, at the same time as the working age population shrinks in relative terms. This means we need to re-frame the relationship between employers and the skills system.

Measures of success

For employers, a successful skills system would deliver the following outcomes:

- Secure higher levels of employers investing in skills, with higher levels of total investment, in order to boost productivity, improving individual employer performance and the economy as a whole
- Increase levels of skills utilisation for employers across all sizes, with greater levels of public funding contingent on employer action
- Deliver greater employer investment in low-skilled workers, workers in the SME sector, and self-employed and gig-economy workers.

6.

A SYSTEM-WIDE APPROACH TO DELIVERING EDUCATION, TRAINING AND LEARNING

As the economies and societies of Northern Ireland and Scotland are reshaped by ageing and technological change, so too will the skills system. The scale of these changes will be hugely significant, and they will require a coherent and system-wide approach in both Northern Ireland and Scotland.

Throughout the previous chapters we have looked at these 21st century disruptions from the perspective of learners and employers, considering how we will need to define success for the skills system in this context. In this chapter we consider some of the cross-cutting factors that will need to be considered across all parts of the skills system.

SYSTEM-WIDE IMPACTS OF AUTOMATION AND AGEING

We have outlined how the new ‘thinking’ technologies will potentially change our economy and society, that the scale of the changes brought will be significant, reaching new sectors and all skill levels. The need to work with technology as it augments human labour will be crucial, as will developing the skills and attributes most resistant to automation – human interaction, communication, and soft skills.

We will need to anticipate and adapt to these technological changes at the same time as the population in Northern Ireland and Scotland ages significantly. To maintain living standards with a proportionally smaller working-age population, we will no longer be able to tolerate significant proportions of the population being excluded from fully participating in the economy. We will also need to improve productivity levels in order to get more from a smaller proportion of workers. Equally, it is likely that public spending will continue to be constrained.

From our desk-based research, literature review, and our qualitative research we can identify a number of cross-cutting and system-wide themes that the skills systems in Northern Ireland and Scotland will need to grasp in order to respond to the future we face.

Demand for skills will change more quickly

The pace of change in the economy seems to be increasing, with new sectors and roles appearing at an unprecedented speed. Central planning and skills forecasting is therefore likely to become more, not less, difficult. We will therefore need to augment attempts to forecast demand and supply with other measures that build responsiveness into the heart of the skills system as a whole.

Central planning of the skills system has consistently been a challenge, as employers and government struggle to envisage the skills that will be required in the years ahead. That challenge has become increasingly difficult in the face of rapid technological change and uncertain contextual factors affecting the demand for skills, such as changes to global trade patterns and political developments such as Brexit.

Building tests of demand into the distribution of public funding to providers, and – more controversially – the distribution of places to learners, particularly in in-work provision, should be considered as a principle across the skills system. Rather than predicting demand, this would embed a responsiveness to demand in the skills system.

However, technological change also provides new resources in charting and understanding the functioning of the skills system. Harnessing big data can give policymakers and institutional leaders more detailed information on skills demand, supply, utilisation and acquisition. This can be used to draw conclusions about the offering required from the skills system, the best method of delivery, and adapting provision to better meet the requirements of learners and employers. It would be a sad irony if the skills sector failed to rise to the challenge of technological change by missing opportunities to use technology to improve how it operates.

Curricula will need to change more quickly and embrace new technologies

Equally, curricula will need to respond much more quickly to changes in the economy and society. Assured Skills in Northern Ireland and CodeClan in Scotland offer examples of skills provision with curricula that can be updated every few weeks rather than every few years (DFE 2012; Code Clan 2018).

We will also need to ensure that the skills system is an early adopter of new technologies in delivering learning. Rather than being used as ways to save money – and risking new inequalities in access to learning – new technologies should be harnessed to improve the learning offer and augment and maximise the impact of face-to-face provision.

Digital skills will need to be embedded across the system and across age groups

A successful skills system in Northern Ireland and Scotland that is fit for the demands of the 21st century will equip people across all parts of the system and all age groups with core digital skills that will help them deal with the technology that will define the workforce. This is central to enabling workers to adapt in a changing work environment, the exact contours of which are currently unknown.

In our interviews and discussions with stakeholders in Northern Ireland and Scotland, the issue of mainstreaming digital skills throughout all parts of the skills system – from early years to secondary education, to access courses and apprenticeships – was raised consistently as a first-order issue affecting the whole skills system.

We will need to create ‘smart’ information, advice and guidance for learners

In chapter 4 we outlined the need for the skills system to offer ladders and bridges to people at risk of disruption within the labour market: ladders up to ensure that a career break is not negative in terms of career progression, and bridges for workers from at-risk sectors to new sectors. This will be driven by developing ‘smart’ information, advice and guidance (IAG).

Gig economy and self-employment – proofing the skills system for insecure work

We have outlined the increasing trend for self-employment, the gig economy and more generally insecure work. We know that those in insecure work are much less likely to receive skills investment than secure employees (OECD 2014). However, equally, many workers in insecure work do not formally have an employer. Employer engagement and involvement will be important for the future as we have stated above. But if insecure work is likely to become an increasing feature of the labour market, due to new platforms and technologies, we need to ensure that the skills systems in Northern Ireland and Scotland are able to provide the training and learning that those in insecure work need.

Fair access across the skills system

As we have discussed, the ageing population will bring a new imperative to maximise and realise the potential of the whole population. This will be important for reasons of equity and justice, but also in ensuring we get the most out of the population as a whole. Currently, participation in the skills system, the investment you receive as a learner, and the barriers you face in the labour market, are governed by your socio-economic background, gender, age, race and disability. This is something we can ill-afford to tolerate now. But given the need to boost productivity, participation rates, economic activity and pay and progression to protect living standards, delivering fairer access across the skills system – so that your potential rather than your background determines your learning route – will become even more crucial in the future.

Reducing duplication and increasing efficiency

Given the likely constraint on public funding, every single pound of public investment in the future – if it does not already – will need to be tested against how it can improve our ability to anticipate and respond to automation, technological change and ageing. No longer will we be able to justify continuing with patterns of investment in education simply because that is what we have historically done.

Furthermore, we will need to ensure that the whole skills system, and links between its component parts, are as efficient as possible. Needless duplication of learning must be eradicated so that learners and employers can avoid wasted time repeating levels of learning, public and private investment is not wasted, and the economy as a whole can gain the benefits of skills investment. This will require providers to work closely and collaborate, making sure learners' needs are the driver of learning routes, rather than administrative barriers.

ESTONIA'S LIFELONG LEARNING STRATEGY

The Estonian government, recognising that Estonia needed to move towards a knowledge and innovation-based society, produced a lifelong learning strategy for 2014–20. The strategy views lifelong learning in the round, from kindergarten to postgraduate and all in-work and informal learning (Estonian Government 2014).

Several international tests have shown that education in Estonia is of a good quality and Estonia scores well in the Economist Intelligence Unit's Automation Readiness Index (EIU 2018).

The Lifelong Learning Strategy is highly goal-oriented, with overall goals broken down at various levels to reach concrete, technical actions for institutions. The general goal of the strategy is to 'provide all people in Estonia with learning opportunities ... to maximize opportunities for dignified self-actualisation within society, in their work as well as in their family life'.

The strategy has five strategic goals:

1. Change in the approach to learning.
2. Competent and motivated teachers and school leadership.
3. Concordance of lifelong learning opportunities with the needs of the labour market.
4. A digital focus in lifelong learning.
5. Equal opportunities and increased participation in lifelong learning.

It sets out overall objectives and concrete actions for each of the strategic goals of the system, and is overseen by a steering committee which can

make adjustments to the strategy every two years. The strategy sets out the key responsibilities it expects of the actors in the skills system, including learners, parents, teachers, heads of educational institutions, local government, employers and the state.

The strategy also contains an evaluation framework, with concrete measures against which the success of the skills system is measured. There are a wide range of indicators that cover inputs and outcomes across the whole of the Estonian skills system. Indicators include adult participation in lifelong learning, digital skills for people aged 16 to 74, teacher salaries, competition for teacher places, increasing the proportion of students who successfully pass career counselling (which is available to all young people and adults), and optimisation of the use of the estate used to provide learning.

PRINCIPLES OF SUCCESS FOR A 21ST CENTURY SKILLS SYSTEM

These system-wide impacts of automation and ageing will require a skills system-wide response, based around five key principles:

1. Clear (skills system-wide) outcomes

To respond successfully to the twin disruptions of automation and ageing, the skills system in Northern Ireland and Scotland will need clear, shared objectives and system-wide outcomes. These should be focussed on helping people and employers, and the economy as a whole, to anticipate and adapt to the changes they face in a way that boosts economic performance and narrows social inequalities.

2. Coherence

Each component part of the skills system will need to clearly understand its role in delivering these system-wide outcomes. This will require discipline to avoid unhelpful overlap and allow each part of the skills system to play to its strengths. Equally, funding arrangements across the skills system will need to be brought more closely together to ensure that unintended consequences are minimised.

3. Collaboration (not competition)

At the same time, each of the component parts of the skills system – schools, colleges, universities, providers and employers – will need to be encouraged to collaborate rather than compete against each other. With greater coherence, collaboration should be easier, and with the blurring of administrative barriers within the skills system, we can place learners' and employers' needs at the heart of the skills system. Collaboration is required to improve careers advice and guidance and make it more learner-led.

4. Responsive curricula

As outlined above, the skills system must be based on a responsive and constantly evolving set of curricula – ideally a modular curriculum shared by different component parts of the system, with the ability to recognise learning (down to module level) and track learning across the system and throughout a learner's career.

5. Conditionality

We need the skills system to be proactive in incentivising business behaviour that supports, rather than undermines, the skills system. This will likely mean greater levels of conditionality of public funding: greater investment of public funding should come with greater conditions around learner outcomes, and skills utilisation by employers. This could mean that how funding is distributed across the skills system, and how places and provision are accessed by learners and employers, will be determined by the system's ability to deliver against clear outcomes.

HOW ARE THE SKILLS SYSTEMS IN NORTHERN IRELAND AND SCOTLAND MEASURING UP TO THESE PRINCIPLES?

Our qualitative research in Northern Ireland highlighted a number of potential weaknesses within the skills system.

The issue of unhelpful competition was raised a number of times, particularly between further education institutions and schools. A lack of coherence about how different component parts of the skills system are funded was also a clear theme, and it often had unintended negative consequences. For example, we heard that some schools were perceived to be keen to ensure pupils enrolled for sixth form, in order to secure per pupil funding and to maximise their pupil numbers in advance of any programme of mergers or closures. Schools were seen to have a far more secure funding arrangement, and higher level of funding, than colleges undertaking equivalent levels of teaching. This was seen to be encouraging schools to provide courses to attract pupils who might otherwise go to one of Northern Ireland's colleges. Stakeholders raised three issues: whether schools are well placed to offer the vocational qualifications traditionally offered by colleges; whether it was fair for higher, more secure funding settlements to be given to schools over colleges when teaching the same qualification to students of the same age; and whether a system that allows this potential duplication was coherent and spending money efficiently.

Another clear theme was that the lack of government bodies to administer and support the skills system as a whole was leading to a lack of coherence across the system. This is due in part to the current (at the time of writing) suspension of the power-sharing agreement in Northern Ireland. The collapse of power sharing in the devolved government, given the devolution of skills and education in Northern Ireland, has led to a policy drift and deadlock in terms of potential reforms. Equally, though, this was thought to be due to a lack of government agencies in relation to skills in Northern Ireland, which created a barrier to bringing a coherent approach to, and policy focus on, skills in Northern Ireland.

In Scotland, the skills system has seen, and continues to see, a number of significant reforms. The Scottish Government has prioritised delivering fair access to further and higher education and, more generally, equality and diversity across the skills system as a whole (including tackling gender segregation). The introduction of outcome agreements for colleges and universities, while not universally popular, has brought a renewed focus on what the public investment into further and higher education is delivering in terms of outcomes – and they potentially open the door to a more rigorous outcomes approach across the system and a reduction in duplication (particularly between colleges and universities).

Over the last year there have been two key reforms in relation to the skills system. Firstly, in 2017, the Scottish Government introduced a new Enterprise and Skills Strategic Board to bring together Scotland's two skills agencies (the Scottish Funding Council and Skills Development Scotland) with Scotland's three enterprise agencies (Scottish Enterprise, Highlands and Islands Enterprise, and the soon-to-be-created enterprise agency for the south of Scotland).¹¹ The role of the board is to bring alignment across skills and enterprise policy and activities. This could offer significant opportunities to develop a skills system-wide approach to helping Scotland anticipate and adapt to automation and ageing.

Secondly, in 2018, the Scottish Government launched the 15–24 Learner Journey Review (Scottish Government 2018d). The review set out a series of reforms to the skills system, focussed on 15 to 24-year-olds, and three ambitions: to improve the quality of advice informing young people's decisions; to provide more work-based

11 For more information see <https://beta.gov.scot/groups/enterprise-and-skills-strategic-board>

learning; and for young people's journeys through the skill system to be shorter and more efficient.

Among the reforms set out in the review were:

- Every pupil in Scotland will have access to an online account with personalised support in choosing courses and planning a career.
- More joined-up advice and guidance on post-school options across the education sector.
- Young people to receive a better balance of work-based and academic skills informed by employer engagement, building on the success of the Developing the Young Workforce programme.
- Improved collaboration between schools, colleges and universities to enable greater flexibility for young people to move from S5 to year 1 of a degree, from S6 to year 2, and from college into years 2 and 3 of university.

The 15–24 Learner Journey Review offers opportunities to build a skills system that meets some of the principles outlined above, at least for young learners, and was welcomed by a number of our interviewees.

However, it is clear that a far greater emphasis on lifelong learning – and in particular mid-career learning – is needed across both Northern Ireland and Scotland. And neither system has got to grips with the potential for new working patterns and trends, including (and most notably) how the skills system can best interact with workers in insecure work – or indeed workers without employers in the traditional sense. Lastly, neither system has considered how to embed the digital skills we will need in the future across its curricula.

WHAT WOULD A SUCCESSFUL 21ST CENTURY SKILLS SYSTEM LOOK LIKE?

To meet the opportunities and challenges brought by automation and ageing in Northern Ireland and Scotland, a system-wide approach to the skills system will be required. While there are foundations to build in both Northern Ireland and Scotland, and in particular following recent reforms in Scotland, neither country has taken the necessary steps to prepare for automation and ageing, and rethink and reshape the skills system to help the economy and society anticipate and adapt to the changes we will see.

We believe a successful 21st century skills system in Northern Ireland and Scotland will need to achieve the following system-wide and cross-cutting objectives and outcomes.

Measures of success

As a whole, a successful skills system should:

- engage the whole of the population in meaningful learning, education and training throughout their careers to maximise and realise their potential
- reduce needless duplication between different component parts of the system
- deliver the widespread adoption and embedding of new technologies in the delivery of learning
- implement new responsive and modular curricula shared across parts of the skills system
- increase the take-up of digital skills learning across the skills system and across age groups
- deliver greater levels of contingency on investment of public funds against tests of clear impact (such as skills utilisation, increased pay and progression, and improved productivity)

- create 'smart' information, advice and guidance for learners that tracks learning across time, and tailors proactive interventions to individuals
- increase participation rates from self-employed and gig workers, and insecure employment
- see greater progress in delivering more equal access and outcomes for learners in the skills system from all backgrounds and groups.

7.

CONCLUSIONS AND NEXT STEPS

Throughout this report we have considered the opportunities and challenges posed by the twin disruptions of automation and demographic change, and the outcomes the skills system in Northern Ireland and Scotland will need to deliver to be ready for the 21st century. Technological and demographic change both pose significant challenges, but the prize for successfully anticipating and adapting to these changes could be immense.

That is because, while potentially disruptive, automation and technological change could also be the catalyst for the improvements we need to see in the economy. Northern Ireland and Scotland have key strengths but, without question, have pre-existing economic weaknesses. Productivity levels are lower than the UK average and economic inactivity is higher (particularly in Northern Ireland). The potential of too many is wasted through long-standing socio-economic inequalities and low rates of career progression, and too few are equipped to progress out of low pay and into secure jobs with decent wages and career prospects.

A skills system that is well designed for the 21st century could shape the impacts of technological and demographic change. Done well, it could not only seize the opportunities created (and mitigate the risks) but address these longstanding structural weaknesses in our economy.

In both Northern Ireland and Scotland, the population is ageing and the working age population becoming smaller, in relative terms. At the same time, the jobs we do will be reshaped as automation becomes a reality. This will need reform to ensure we see more of the population included in the economy, to protect living standards even as the working age population falls proportionally.

In this report, we have set out what a successful skills system would look like in order to meet this task.

Firstly, a successful skills system would help people secure good jobs with good prospects. We have seen declining rates of youth unemployment and good levels of young people leaving the skills system for 'positive destinations'. However, too many young people are being let down by the skills system in Northern Ireland and Scotland. Too many achieve low levels of qualifications and poor outcomes on leaving the skills systems, including insecure jobs with minimal training and learning. In the face of demographic and technological change we will need to ensure we increase the proportions of young people who stay in meaningful training and learning for longer. Equally, a successful skills system would cater to those who have already begun their careers, helping them to secure better jobs as technology reshapes the jobs we do and disrupts the labour market.

Secondly, a successful skills system would narrow existing inequalities and prevent emerging ones. As it currently stands, the skills system is still far away from delivering fair access. We will need to maximise and realise the potential of far greater proportions of the working age population as we seek to respond to an increasing older population. This will require a focus on parts of the skills system which hitherto have received far less policy attention and investment, such

as mid-career in-work learning – given the overwhelming majority of the 2040 workforce have already left compulsory education.

Thirdly, a successful skills system would deliver a new partnership between employers, learners and the state. It should incentivise greater employer investment and utilisation of workers' skills. It would ensure that the whole population is ready to work in an economy where core digital skills are on a par with literacy and numeracy.

Delivering against these priorities will need a skills system that is more coherent, flexible and adaptive to the rapid changes of society and the economy, and based on the principle of collaboration not competition.

Managing automation and demographic change is clearly beyond the scope of the skills system alone. But there must be a central role for the skills system in readying Northern Ireland and Scotland for this future, anticipating and adapting to change, and contributing to inclusive economic growth. And given current patterns of provision, it is likely to be lifelong learning that will need particular attention in both Northern Ireland and Scotland. Those countries that take lifelong learning seriously will best ready their economies and their people for the changes they face and will be most able to realise the huge opportunities on offer.

This report has considered the skills systems in Northern Ireland and Scotland, comparing the challenges and opportunities they share, and those that are specific to each. Our next and final report in this series will build on this work, together with our previous work on skills in Northern Ireland and Scotland, to consider the reforms and changes we believe we need to see in Northern Ireland and Scotland, to realise this future.

Only by developing a 21st century skills system in Northern Ireland and Scotland, ready for the future we face, can we take the opportunities offered by automation and ageing. By building on the strong foundations that are evident in both skills systems, we believe both Northern Ireland and Scotland can anticipate and adapt to automation and ageing in a way that boosts economic performance and narrows social inequalities.

REFERENCES

- Ashton D, Green F, Sung J and James D (2002) 'The evolution of education and training strategies in Singapore, Taiwan and South Korea: A developmental model of skills formation', *Journal of Education and Work*, 15(1): 5–30. <https://www.doi.org/10.1080/13639080120106695>
- Chartered Institute of Personnel and Development [CIPD] (2013) 'Megatrends: Has job turnover slowed down?'. https://www.cipd.co.uk/Images/megatrends_2013-job-turnover-slowed-down_tcm18-11402.pdf
- Code Clan (2018) 'Code Clan: Scotland's award-winning digital skills academy'. <https://codeclan.com/about>
- Department for the Economy [DFE] (2012) 'Assured Skills Programme'. <https://www.economy-ni.gov.uk/articles/assured-skills-programme>
- Department for the Economy [DFE] (2017a) 'Further Education Activity in Northern Ireland: 2013/14 to 2016/17'. https://www.economy-ni.gov.uk/sites/default/files/publications/economy/FE-Activity-Statistical-Bulletin-1314-to-1617_0.pdf
- Department for the Economy [DFE] (2017b) 'Survey of Further Education College Leavers Report Academic Year 2015/16'. <https://www.economy-ni.gov.uk/sites/default/files/publications/economy/fe-college-leavers-survey-college-leavers-2015-16-report.pdf>
- Department for the Economy [DFE] (2018) 'Enrolments at UK Higher Education Institutions: Northern Ireland Analysis 2016/17', data tables. <https://www.economy-ni.gov.uk/publications/enrolments-uk-higher-education-institutions-northern-ireland-analysis-201617>
- Department for Education [DFEd] (2018) 'Qualifications and Destinations of Northern Ireland School Leavers 2016/17'. <http://dera.ioe.ac.uk/31804/1/qualifications-and-destinations-of-northern-ireland-school-leavers-20161...pdf>
- Department for Employment and Learning [DEL] (2015a) *Access to Success: Second annual statement on widening participation in higher education*. <https://www.economy-ni.gov.uk/sites/default/files/publications/del/WP%20Annual%20Statement%20FINAL%202013-14.PDF>
- Department for Employment and Learning [DEL] (2015b) 'Revised: Further Education Activity in Northern Ireland: 2009/10 to 2013/14' <https://www.economy-ni.gov.uk/sites/default/files/publications/del/annex-a-fe-activity-statistical-bulletin-0910-to-1314-december-2014-revised-as-at-24th-april-2015.pdf>
- Economist Intelligence Unit [EIU] (2018) *Automation Readiness Index*, The Economist Group. <http://www.automationreadiness.eiu.com/static/download/PDF.pdf>
- Employer Skills Survey [ESS] (2016a) UKCES Employer Skills Survey 2015: Northern Ireland Toolkit. <https://www.gov.uk/government/publications/ukces-employer-skills-survey-2015-northern-ireland-toolkit>
- Employer Skills Survey [ESS] (2016b) UKCES Employer Skills Survey 2015: Scotland Toolkit. <https://www.gov.uk/government/publications/ukces-employer-skills-survey-2015-scotland-toolkit>
- Estonian Government (2014) *Estonian Lifelong Learning Strategy*. https://www.hm.ee/sites/default/files/estonian_lifelong_strategy.pdf
- European Commission (2017) *ICT for work: digital skills in the workplace*. <https://ec.europa.eu/digital-single-market/en/news/ict-work-digital-skills-workplace>
- Eurostat (2017) 'Earnings Statistics' http://ec.europa.eu/eurostat/statistics-explained/index.php/Earnings_statistics
- Eurostat (2018a), 'Youth unemployment rate', European Commission, <http://ec.europa.eu/eurostat/web/macroeconomic-imbalances-procedure/youth-unemployment-rate>
- Eurostat (2018b) 'Participations rate in education and training by age' <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

- Gazzane (2017) 'Le compte personnel d'activité: Comment ça marche', Le Figaro. <http://www.lefigaro.fr/conjoncture/2017/01/12/20002-20170112ARTFIG00118-le-compte-personnel-d-activite-comment-ca-marche.php>
- Gunson R, Hatfield I and McGeoghegan M (2016) *Jobs and skills in Scotland*, https://www.ippr.org/files/publications/pdf/scotland-skills_June2016.pdf
- Gunson R and Thomas R (2017) *Equipping Scotland for the future*, IPPR. <https://www.ippr.org/publications/equipping-scotland-for-the-future>
- Gunson, Murray and Williamson (2018), *Challenges and Opportunities: The skills system in Northern Ireland*, IPPR. <https://www.ippr.org/research/publications/the-skills-system-in-northern-ireland>
- House of Commons (2016) 'Report of the Science and Technology Committee: Digital Skills Crisis'. <https://publications.parliament.uk/pa/cm201617/cmselect/cmsstech/270/270.pdf>
- Hubble S and Bolton P (2018) 'Part-time undergraduate students in England; Briefing Paper', House of Commons Library. <http://researchbriefings.files.parliament.uk/documents/CBP-7966/CBP-7966.pdf>
- International Labour Organisation [ILO] (2010) 'Global Trends for Youth Unemployment'. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_143349.pdf
- Lawrence M, Roberts C and King L (2017) *Managing automation Employment, inequality and ethics in the digital age*, IPPR. <https://www.ippr.org/files/2018-01/cej-managing-automation-december2017.pdf>
- McKinsey Global Institute (2017) *Harnessing automation for a future that works*. <http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automationfor-a-future-that-works>
- National Records of Scotland [NRS] (2017) *Projected Population of Scotland (2016-based)*. <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/population-projections-scotland/2016-based/list-of-tables>
- Northern Ireland Statistics and Research Agency [NISRA] (2017) *2016-based Population Projections for Northern Ireland*. <https://www.nisra.gov.uk/publications/2016-based-population-projections-northern-ireland>
- Northern Ireland Statistics and Research Agency [NISRA] (2018) 'Northern Ireland Labour Market Report June 2018'. <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/N1g4wC-labour-market-report-june-2018.PDF>
- Organisation for Economic Cooperation and Development [OECD] (2013), *Survey of Adult Skills: First Results - England and Northern Ireland*, Paris. <http://www.oecd.org/skills/piaac/Country%20note%20-%20United%20Kingdom.pdf>
- Organisation for Economic Cooperation and Development [OECD] (2014) 'Non-regular employment, job security and the labour market divide'. http://dx.doi.org/10.1787/empl_outlook-2014-7-en
- Office of National Statistics [ONS] (2017a) *Regional gross value added (balanced), UK: 1998 to 2016*. <https://www.ons.gov.uk/economy/grossvalueaddedgva/bulletins/regionalgrossvalueaddedbalanceduk/1998to2016>
- Office for National Statistics [ONS] (2017b) 'Quarterly Labour Force Survey, various quarters', spreadsheet. <https://discover.ukdataservice.ac.uk/catalogue/?sn=8326&type=Data%20catalogue>
- Office for National Statistics [ONS] (2017c) 'Annual Survey of Hours and Earnings: Occupation (4 digit SOC) – Table 14', spreadsheet. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashtable14>
- Office for National Statistics [ONS] (2018a) 'Labour Force Survey Two-quarter Longitudinal Dataset, July – December'. <https://discover.ukdataservice.ac.uk/Catalogue/?sn=8327&type=Data%20catalogue>
- Office for National Statistics [ONS] (2018b), *Regional unemployment by age*. <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/datasets/regionalunemploymentbyagex02>

- Office for National Statistics [ONS] (2018c) UK Labour Market July 2018. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/july2018>
- Office for National Statistics [ONS] (2018d), Regional inactivity by age. <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/datasets/regionalinactivitybyagex03/current>
- Office for National Statistics [ONS] (2018e) 'Trends in Self-employment'. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2018-02-07>
- Office for National Statistics [ONS] (2018f), 'Contracts that do not guarantee a minimum number of hours'. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/articles/contractsthatdonotguaranteeaminimumnumberofhours/april2018>
- Office of National Statistics [ONS] (2018g) 'NOMIS: Annual Population Survey/Labour Force Survey', accessed 23 July 2018. <https://www.nomisweb.co.uk/query/construct/submit.asp?menuopt=201&subcomp=>
- Office for National Statistics [ONS] (2018h). Regional employment by age, <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/regionalemploymentbyagex01>
- Office for National Statistics [ONS] (2018i) 'LFS: Unemployment Rate 16-24'. <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/mgwy/lms>
- Scottish Funding Council [SFC] (2017) 'College Leaver Destinations 2015-16'. http://www.sfc.ac.uk/web/FILES/statisticalpublications_sfcst072017/SFCST072017_College_Leaver_Destinations_2015-16.pdf
- Scottish Funding Council [SFC] (2018a) 'College Statistics 2016-17'. http://www.sfc.ac.uk/web/FILES/statisticalpublications_sfcst012018/SFCST012018_College_Statistics_2016-17.pdf
- Scottish Funding Council [SFC] (2018b) 'Higher Education Students and Qualifiers 2016-17'. http://www.sfc.ac.uk/web/FILES/statisticalpublications_sfcst042018/SFCST042018_HE_Students_and_Qualifiers_2016-17.pdf
- Scottish Funding Council [SFC] (2018c) *Scottish Funding Council Report on Widening Access 2016-17* http://www.sfc.ac.uk/web/FILES/statisticalpublications_sfcst062018/SFCST062018_Report_on_Widening_Access_2016-17.pdf
- Scottish Government (2010) 'Skills for Scotland: Accelerating and Increasing Sustainable Economic Growth'. <http://www.gov.scot/Publications/2010/10/04125111/0>
- Scottish Government (2012) 'Opportunities for all: supporting young people to participate in learning, training or work'. <http://www.gov.scot/Publications/2012/11/7618>
- Scottish Government (2014) 'Education working for all: developing Scotland's Young Workforce'. <https://beta.gov.scot/publications/education-working-commission-developing-scotlands-young-workforce-final-report/>
- Scottish Government (2016) 'PACE: Client Experience Survey 2016'. <https://beta.gov.scot/publications/partnership-action-for-continuing-employment-pace-client-experience-survey/>
- Scottish Government (2017a) Initial destinations of senior phase school leavers. <http://www.gov.scot/Resource/0051/00514925.pdf>
- Scottish Government (2017b), 'Summary Statistics for Attainment, Leaver Destinations and Healthy Living' <http://www.gov.scot/Publications/2017/06/9699/downloads>
- Scottish Government (2017c), The life chances of young people in Scotland: an evidence review for the First Minister's Independent Advisor on Poverty and Inequality. <http://www.gov.scot/Resource/0052/00522057.pdf>
- Scottish Government (2017d), 'Youth Unemployment target met four years ahead of schedule'. <https://news.gov.scot/news/youth-employment-target-met-four-years-ahead-of-schedule>
- Scottish Government (2018a), 'Modern Apprenticeships Target Surpassed'. <https://news.gov.scot/news/modern-apprenticeship-target-surpassed>

- Scottish Government (2018b), Equality Impact Assessment Results – The Scottish Attainment Challenge. <https://beta.gov.scot/publications/equality-impact-assessment-eqia-results-scottish-attainment-challenge/documents/00535257.pdf?inline=true>
- Scottish Government (2018c), Initial Destination of Senior Phase School Leavers. <https://www.gov.scot/Publications/2018/02/1842>
- Scottish Government (2018d) Learner Journey Review. <http://www.gov.scot/Publications/2018/05/4774>
- Skills Funding Agency [SFA] (2016) Review of Publicly Funded Digital Skills Qualifications. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/499031/Review_of_Publicly_Funded_Digital_Skills_Qualifications_2016_FINAL.pdf
- Skills Development Scotland [SDS] (2018a) ‘Employability Fund Statistics’. <https://www.skillsdevelopmentscotland.co.uk/media/44713/employability-fund-statistics-quarter-4-2017-18-1.pdf>
- Skills Development Scotland [SDS] (2018b) ‘Modern Apprenticeship Statistics’. <https://www.skillsdevelopmentscotland.co.uk/media/44711/modern-apprenticeship-statistics-quarter-4-2017-18-1.pdf>
- Social Mobility Commission (2016) State of the Nation 2016: Social Mobility in Great Britain, UK Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/569412/Social_Mobility_2016_Summary_final.pdf
- Thompson S, Colebrook C and Hatfield I (2016) Jobs and Skills in London: Building a more responsive skills system in the capital, IPPR. <https://www.ippr.org/publications/jobsand-skills-in-london>
- UK Commission for Employment and Skills [UKCES] (2016) ‘Employer Skills Survey 2015: UK Results (amended May 2018)’. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/704104/Employer_Skills_Survey_2015_UK_Results-Amended-2018.pdf
- Ulster University Economic Policy Centre [UUPEC] (2017), Skills Barometer: Summary Report, https://www.ulster.ac.uk/_data/assets/pdf_file/0020/181406/NI-Skills-Barometer-2017-Summary-Report.pdf

ANNEX

PROGRESSION ANALYSIS

Throughout our progression analysis, we make use of the following definitions of low, middle and high-skilled occupations.

- Low-skilled jobs: jobs for which the UK median gross hourly pay is less than the Living Wage Foundation's living wage, as measured by the 2017 Annual Survey of Hours and Earnings, and which do not require a first degree or equivalent higher education qualification.
- Middle-skilled jobs: jobs for which the UK median gross hourly pay is higher than the Living Wage Foundation's living wage, but which do not require a first degree or equivalent higher education qualification.
- High-skilled jobs: jobs for which the UK median gross hourly pay is greater than the Living Wage Foundation's living wage, and which require a first degree or higher qualification.

In order to ascertain whether a particular occupation requires a first degree, we use the Labour Force Survey (Q1 2017–Q4 2017) to measure what proportion of workers currently in that occupation across the UK possess a qualification of at least first degree level (ONS 2017b). If at least 30 per cent of those currently employed hold a degree, we record that occupation as high skilled. We carry out this analysis at the level of three-digit standard occupational classification (SOC) (ONS 2017c), which provides sufficient granularity while ensuring we have pay data for all occupations.

In analysing flows from low-skill work, we compare labour market status and occupation in the first and second quarters of the two-quarter Labour Force Survey, using data from January–March 2013 to October–December 2017.

We restrict our analysis to individuals aged 18 and over. Our analysis follows a similar methodology to Thompson et al (2016) and Gunson et al (2016).

Institute for Public Policy Research

GET IN TOUCH

For more information about IPPR Scotland,
please go to www.ippr.org/scotland

You can also call us on +44 (0)131 281 0886,
e-mail info@ippr.org or tweet us [@ipprscotland](https://twitter.com/ipprscotland)

Institute for Public Policy Research

Registered Charity no. 800065 (England & Wales),
SC046557 (Scotland), Company no, 2292601 (England & Wales)

The progressive policy think tank