

Northern Ireland Skills Barometer: 2023-33

Overview report



Key definitions

Demand side

Key term	Definition
Expansion demand	The additional jobs created due to growth in a sector.
Replacement demand	The number of positions which become available as a result of staff leaving employment (typically due to retirement, family reasons, ill health or to move to another job).
Net replacement demand	The difference between all leavers from employment – to retirement, inactivity, unemployment, other jobs and out migration - and joiners to employment – from unemployment, inactivity (excluding education leavers) and other jobs.
Net requirement from education and migration	The number of vacancies that cannot be filled from within the existing labour market and therefore must be met from those leaving education and/or from migration. The annual average net requirement does not include the positions to be filled by labour market participants from other sectors, from unemployment or from economic inactivity.

Supply side

Key term	Definition
Gross Supply	The number of qualifiers produced across all Northern Ireland education institutions.
Net supply	Qualifiers are only included as part of the net supply if they leave an education institution to actively participate in the labour market (i.e. either employed or unemployed). For Higher Education Institution leavers net supply includes: all students educated in Northern Ireland institutions, plus Northern Ireland domiciled students returning from education at Great Britain Higher Education Institutions, minus students educated in Northern Ireland who then leave, minus students who proceed to further study.

Acronyms

Acronym	Full title
RQF	Regulated Qualification Framework
NQF	National Qualification Framework
NI	Northern Ireland
UK	United Kingdom
GB	Great Britain
EU	European Union
OECD	Organisation for Economic Co-operation & Development
RoI	Republic of Ireland
DfE	Department for the Economy
UUEPC	Ulster University Economic Policy Centre
LFS	Labour Force Survey
FE	Further Education
HE	Higher Education
SSA	Sector Subject Area
CAH	Common Aggregation Hierarchy
JACS	Joint Academic Coding System
HESA	Higher Education Statistics Agency
HEI	Higher Education Institution
MaSN	Maximum Student Numbers
NINo	National Insurance Number
PLC	Public Limited Company
GCSE	General Certificate of Secondary Education
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
HMRC	HM Revenue & Customs
PAYE	Pay As You Earn
STEM	Science, Technology, Engineering & Mathematics
CAGR	Compound Annual Growth Rate
GFC	Global Financial Crisis
SME	Small and Medium-sized Enterprises
M&L	Management and Leadership
MES	Management Expectation Survey
NISRA	Northern Ireland Statistics and Research Agency
RHS	Right Hand Side
LHS	Left Hand Side
STEAM	Science, Technology, Engineering, Arts and Mathematics

Regulated Qualification Framework (RQF) Skills Classification

RQF level	Qualification equivalent
Level 8	PhD (or equivalent)
Level 7	Masters (or equivalent)
Level 6	Undergraduate degree (or equivalent)
Level 4-5	Foundation degree/HND/HNC (or equivalent)
Level 3	1+ A-level A-E and/or AS level (or equivalent)
Level 2	1 GCSE A*-C (or equivalent)
Level 1	1 GCSE D-G (or equivalent)
Entry Level	Below RQF level 1

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Skills Barometer

high growth scenario

79k

jobs over the decade

22k

jobs above the baseline

Sector forecast (2023-2033)

- Health to create 12.3K jobs
- Professional services to create 10.3K jobs
- Information & communication to create 9.9K jobs

Occupation forecast (2023-2033)

- Caring personal service occupations to grow by 10.4K
- Science & technology professionals to increase by 10.42K
- Business, media and public service professionals to increase by 9.2K

Demand for Education Leavers & Migrants (2023-2033)

34.4K

vacancies p.a over the decade

43%

vacancies require at least degree level qualification

22%

vacancies require RQF level 2 or below qualification

RQF level 6 subjects

Subjects allied to medicine (17% of total)

Business & management (14% of total)

Social sciences (11% of total)

RQF level 7-8 subjects

Business & management (16% of total)

Subjects allied to medicine (15% of total)

Education & teaching (13% of total)

Supply from the education system (2023-2033)

29.0k leave education system and enter the labour market p.a

32%

qualified to RQF level 2 and below entering the labour market

28%

qualified to RQF level 3-5 entering the labour market

41%

qualified to RQF level 6+ entering the labour market

RQF level 6 subjects (net supply)

Subjects allied to medicine (18% of total)

Business & management (15% of total)

Social sciences (12% of total)

RQF level 7-8 subjects (net supply)

Business & management (17% of total)

Subjects allied to medicine (17% of total)

Education & teaching (16% of total)

(Im)balance

Undersupply



- RQF level 7-8 qualifiers -0.8K p.a.
- RQF level 6 qualifiers -2.3K p.a.
- RQF level 4-5 qualifiers -1.8K p.a.
- RQF level 3 qualifiers -2.2K p.a.

Oversupply



- RQF level 2 & below +1.5K p.a.

Undersupply

RQF level 6 subjects

Subjects allied to medicine	-360
Computing	-340
Business & management	-290

RQF level 7-8 subjects

Engineering & technology	-120
Computing	-110
Business & management	-110

Introduction

The Northern Ireland (NI) Skills Barometer was commissioned by the Department for the Economy (DfE) to provide a better understanding of the future skills needs across the NI economy. This iteration marks the fifth NI Skills Barometer publication from Ulster University Economic Policy Centre (UUEPC) since 2015. During the period when this research was undertaken the historical data edge for most key indicators was 2023. This update report covers NI's future skills needs over the 2023-33 period.

What has changed? Since the last Skills Barometer publication in 2021 there have been several changes to the UUEPC skills forecasting model. Much of this has been necessitated by data availability and methodological changes to the underlying datasets. The main changes include:

- Qualifications data is now reported using the Regulated Qualification Framework (RQF), as opposed to the National Qualification Framework (NQF) used in earlier Skills Barometer publications.
- Higher Education (HE) subject data is now reported using the Common Aggregation Hierarchy (CAH), compared to the Joint Academic Coding System (JACS) in earlier iterations of the NI Skills Barometer.
- Tertiary education leaver survey changing from the Higher Education Destination of Leavers Survey to the Graduate Outcomes Survey.
- Subject demand calculations are now underpinned by data from the Higher Education Statistics Authority (HESA), rather than the Labour Force Survey (LFS).
- New underlying economic forecasts [reflecting latest global, industry and United Kingdom (UK) outlooks etc], specifically new sectoral and occupational employment forecasts which are central to the analysis of future skill needs.

With so many changes to the underlying data, the forecasts are now based upon a new skills forecasting model using different qualification levels and subject classifications. Therefore, **results in this iteration of the NI Skills Barometer are not directly comparable to previous editions.**

Qualifications in context

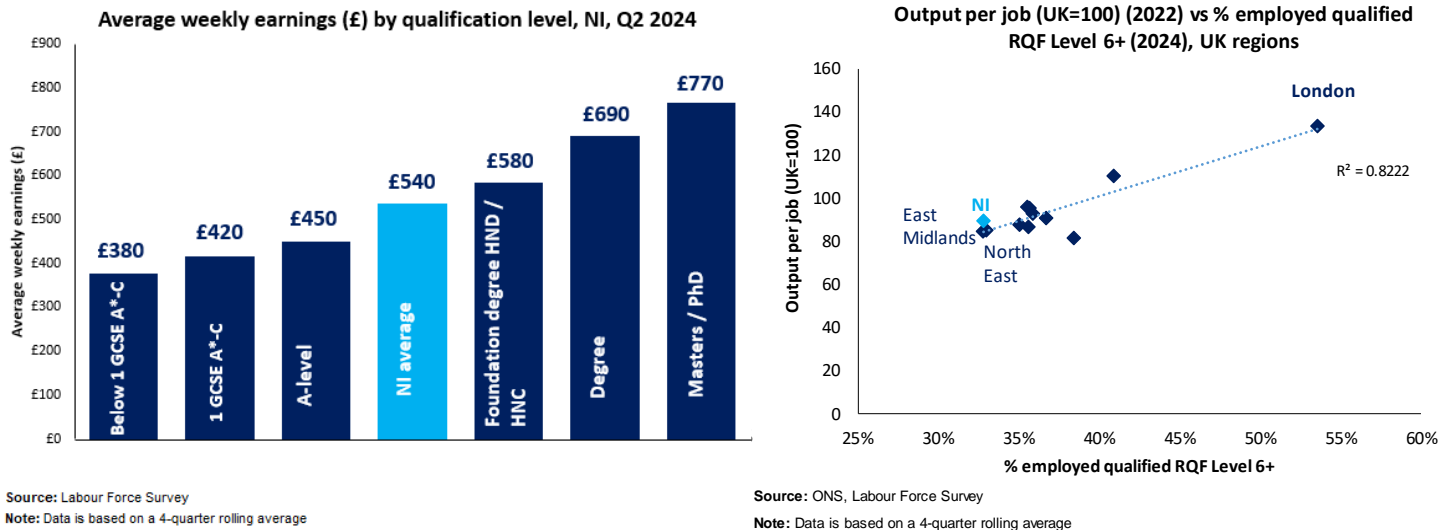
Given that higher qualifications are intrinsic to Government's economic goals¹, it has been a positive development that qualification levels in the NI workforce have been improving steadily over the last decade. The latest data for 2024 indicates one-third of working-age persons in employment having a highest level qualification at least equal to an undergraduate degree. This compares to approximately one-fifth in 2012. This is explained by:

- A continuation of the **long-run structural shift** in the economy towards qualifications hungry sectors (e.g. growth of the professional services and ICT sectors, which have almost quadrupled since 1996).
- A **generational effect** of older less qualified workers leaving the labour force, coupled with inflows of more qualified young people.
- Changes in the **structure of qualifiers** from the NI education system. For example, 30% of school leavers proceeded to HE at the turn of the millennium, compared to 43% in 2022/23.

¹ Northern Ireland Executive (2024) Our Plan: Doing What Matters Most. Draft Programme for Government 2024-27. [Available via: [Draft Programme for Government](#)]

Whilst the increase in the stock of higher-level qualifications in NI has increased significantly over the past 20 years, NI continues to have the lowest graduate intensity amongst those in employment of the 12 UK regions.

Figure 1: Average weekly earnings by qualification level, NI (Q2 2024) and Output per job (UK=100) (2022) vs RQF Level 6+ (% of employed), UK regions (2024)



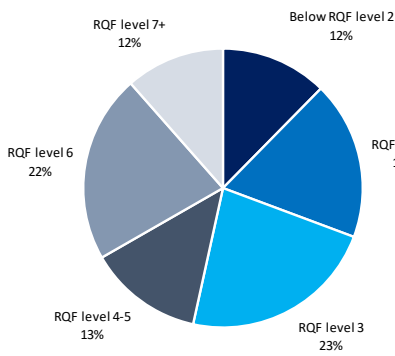
Productivity and wages are positively correlated with a person’s highest level of qualification and better skilled working-age persons are more likely to be employed, less likely to be unemployed or economically inactive. Productivity, wage levels and employment are all part of the NI Executive’s published economic goals². Therefore, qualifications should be an intrinsic part of achieving these goals.

Whilst there have been significant improvements in the qualifications of those in employment, there remain significant qualification gaps between those in and out of work. For example, 34% of working age people in employment are qualified to at least degree level (RQF level 6+), compared to 18% of the unemployed and 10% of the economically inactive. At the other end of the qualifications ladder just 12% of working age people in employment have a highest level of qualification at below RQF level 2 (less than 1 GCSE A*-C), compared to 30% of the unemployed and 35% of the economically inactive.

² Northern Ireland Executive (2024) Our Plan: Doing What Matters Most. Draft Programme for Government 2024-27. [Available via: [Draft Programme for Government](#)]

Figure 2: Qualification profile (RQF) by economic status, NI, Q2 2024

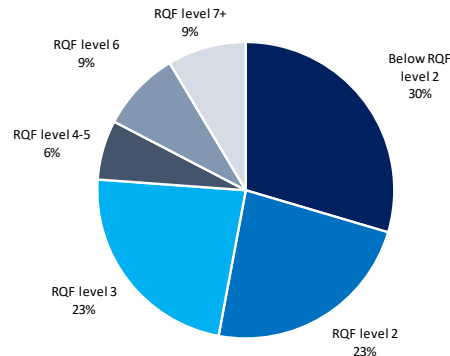
Employed qualification profile (RQF) aged 16-64, NI, Q2 2024



Source: Labour Force Survey

Note: Data is based on a 4-quarter rolling average

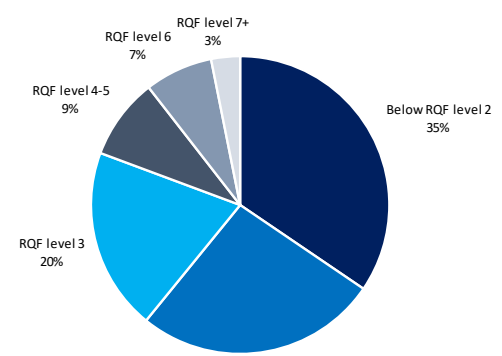
Unemployed qualification profile (RQF) aged 16-64, NI, Q2 2024



Source: Labour Force Survey

Note: Data is based on a 4-quarter rolling average

Economically inactive qualification profile (RQF) aged 16-64, NI, Q2 2024



Source: Labour Force Survey

Note: Data is based on a 4-quarter rolling average

Severe qualification differences between individuals in employment and those who are unemployed or inactive create significant challenges in aligning available talent with workplace needs. This disparity limits the capacity to address skills shortages through the existing labour pool without implementing targeted upskilling and reskilling interventions. Addressing this qualification gap is essential to achieving a more inclusive labour market.

Key points

- The fifth iteration of the Skills Barometer covers the 2023-33 period.
- The results in this edition of the Skills Barometer are not directly comparable to earlier iterations due to changes in the underlying source data, notably changes to the qualifications framework and subject classifications used.
- The importance of investing in skills cannot be underestimated and should remain a central part of economic policy.
- The stock of qualifications has continued to improve over the past decade due to structural shifts in labour demand, a generational effect and changes in the labour supply from the education system.
- There are significant differences in qualifications between those in employment and those out of work. This limits the ability of those out of work to fill skills shortage in the labour market.

Tomorrow's economy: High growth scenario

This section seeks to outline the outputs associated with the UUEPC economic forecasting model. The forecasts are used to identify future skills needs and requirements for NI over the coming decade.

The high growth scenario

UUEPC produces regular economic forecasts for NI under a baseline scenario and a high growth scenario. The baseline scenario outlines the most likely economic outcome for NI. Whereas the high growth scenario is aligned to outcomes associated with NI achieving future policy success (notably narrowing the employment rate gap between NI and the UK).

This report will focus on outcomes associated with a high growth scenario, as **it is prudent to plan for skill needs in an aspirational scenario based on the ambitions of an economy**. That is, the cost of overinvesting in skills outweighs the cost of underinvesting, as persistent skills shortages have the potential to reduce competitiveness and dampen future growth prospects of an economy. Where overinvestment may come at only a marginal individual cost in the form of a higher proportion of over qualified workers

There is not perfect matching between education supply and labour demand at the macro level. Notably there are geographical and mobility barriers, and although qualifiers may possess the requisite qualification for a vacancy, they may lack the employability skills required for the role. Therefore, recognising that the labour market is characterised by imperfect alignment between employers and jobseekers, it is prudent to plan skill development with a degree of flexibility, ensuring that the supply of skills accommodates unforeseen needs and mismatches. Additionally, it is advisable to plan for high growth, to limit the potential for skills shortages.

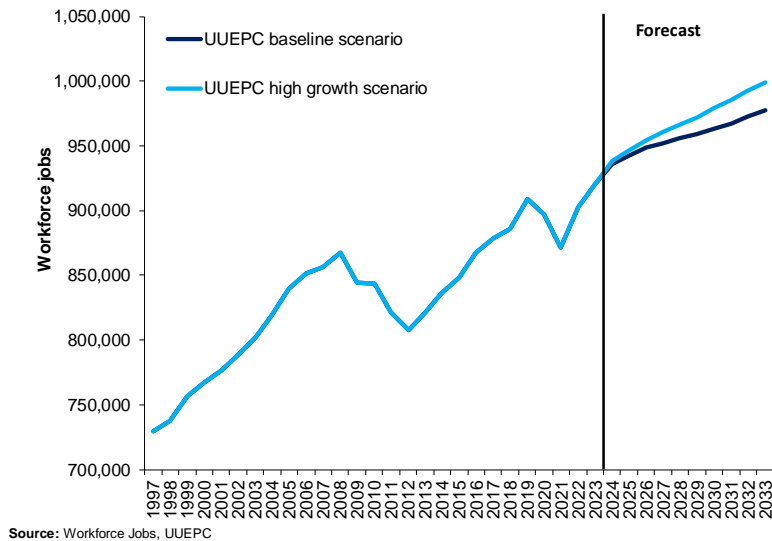
How many jobs³ will be created?

The high growth scenario forecasts an annual average increase of 7.9k jobs per annum over the 2023-33 period. That is an annual average growth rate of 0.8%. Although the forecast is ambitious, it is lower than the growth rate recorded for the period 2013-2023 (1.1% or 9.9k per annum), which included the downturn and recovery associated with the global pandemic.

Due to capacity constraints linked to the labour supply, employment is forecast to grow at a slower rate than recorded in the recent past, even under high-growth conditions. However, this involves the NI 16-64 employment rate increasing from 70% in 2023 to 76% by 2033, which would represent the highest employment rate recorded for the local economy by a significant margin. In the UUEPC high growth scenario workforce jobs are projected to increase to 999k by 2033, which is 22k more jobs over the 2023-33 period compared to UUEPC's baseline scenario.

³ The scenario is 'jobs-based', where data used relates to total workforce jobs (employee jobs, self-employment, Government trainees and HM Forces).

Figure 3: Employment (jobs) by scenario (high growth and baseline), NI, 1997-2033



How will the sectors perform?

Under the high growth scenario an increase in jobs is forecast across almost all sectors. The highest rates of growth are forecast in sectors closely aligned with DfE’s priority sectors⁴: **electricity and gas; ICT; and professional services**. The additional jobs in electricity and gas are linked to the net zero agenda, whilst growth in the ICT and professional services sectors represent a continuation of existing trends. These sectors remain underdeveloped compared to the UK economy, and there is still considerable scope for growth.

However, other significant areas of growth include:

- **Health** to have the largest absolute growth due to the size of the sector and expected additional government spending to address longer-term demand on the National Health Service. Whilst health is projected to create the most jobs in absolute terms (+12k) over the next 10 years, this represents a large sector recording a moderate rate of growth (0.8% p.a.). The absolute increase in jobs forecast is lower than job creation in the sector over the previous decade (+18k).
- **Construction** to add the fourth highest quantum of jobs (after health, prof services and ICT) aligned to increased spending through City Deals commitments and wider infrastructure needs.
- **Restaurants and hotels** to experience above average NI growth as increased income under a high growth scenario is expected to benefit consumption driven sectors.
- **Manufacturing** will continue to grow, but at a lower rate compared to the previous decade, 0.8% p.a. 2023-33 compared to 1.1% p.a. 2013-23.

In contrast, employment growth is forecast to be flat in **Retail** due to longer-term shifts, such as declining footfall across high streets, automation and increased competition with E-commerce platforms.

⁴ Full detail on the Department for the Economy’s priority sectors and associated action plans are available via the following link:

[DfE - Sectoral Action Plans](#)

Table 1: Employment by sector (1-digit, SIC) (jobs based) and scenario (high growth and baseline), NI

Sector	Total jobs 2023 baseline	Job growth (absolute terms) 2023-2033		Job growth (p.a.)	
		Baseline scenario	High growth scenario	High growth scenario (2023-2033)	Actual (2013-2023)
Agriculture	27,620	+170	+320	0.1%	-3.2%
Mining	1,970	-10	+0	0.0%	1.0%
Manufacturing	94,870	+5,040	+7,720	0.8%	1.1%
Electricity & gas	2,150	+800	+1,790	6.2%	3.0%
Water supply & waste	8,070	+1,150	+1,350	1.6%	3.8%
Construction	53,140	+7,390	+9,130	1.6%	0.6%
Wholesale & retail	139,690	-2,550	-90	0.0%	0.2%
Transport & storage	32,500	+4,230	+5,960	1.7%	1.3%
Restaurants and hotels	57,810	+6,000	+7,150	1.2%	2.3%
Information & communication	27,530	+8,550	+9,930	3.1%	3.5%
Finance & insurance	20,460	+1,660	+2,260	1.1%	0.3%
Real estate	12,150	+110	+640	0.5%	2.6%
Professional scientific & technical	53,450	+8,310	+10,330	1.8%	5.5%
Administrative & support services	58,880	+3,210	+3,420	0.6%	2.0%
Public admin & defence	55,130	+440	+2,070	0.4%	-0.5%
Education	85,570	+440	+950	0.1%	1.7%
Health & social work	143,870	+11,250	+12,310	0.8%	1.0%
Arts & entertainment	21,300	+670	+1,630	0.7%	1.4%
Other service activities	23,720	+870	+2,440	1.0%	2.0%
Total	920,000	+57,740	+79,310	0.8%	1.1%

Source: Workforce Jobs, UUEPC

Note: Figures may not sum to total due to rounding

Using more granular sector definitions, the top growth sectors are expected to be in industries related to the **net zero agenda, digital and cybersecurity; pharma; financial services including fintech; and wider professional services (legal, research and development, accountancy, management consulting, architecture etc.)**.

Table 2: Top 15 employment growth sectors (2-digit, SIC) (jobs based) by scenario, NI

Top 15 growth sectors (2-digit) (based on CAGR)	Total jobs 2023 baseline	Job growth (absolute terms) 2023-2033		Job growth (p.a.)	
		Baseline scenario	High growth scenario	High growth scenario (2023-2033)	Actual (2013-2023)
Electricity, gas, steam and air conditioning supply	2,150	+800	+1,790	6.2%	3.0%
Computer programming, consultancy and related activities	16,820	+8,580	+9,550	4.6%	4.4%
Manufacture of basic pharmaceutical products and pharmaceutical preparations	3,120	+1,230	+1,490	4.0%	3.0%
Activities auxiliary to financial services and insurance activities	6,590	+2,490	+2,730	3.5%	2.2%
Other professional, scientific and technical activities	5,050	+1,790	+2,010	3.4%	5.9%
Warehousing and support activities for transportation	6,970	+2,230	+2,660	3.3%	3.6%
Repair and installation of machinery and equipment	1,770	+590	+610	3.0%	1.2%
Motion picture, video and television programme production, sound recording and music publishing activities	2,300	+550	+660	2.5%	2.5%
Manufacture of other transport equipment	6,840	+1,520	+1,900	2.5%	-0.9%
Manufacture of basic metals	1,360	+350	+370	2.4%	5.8%
Manufacture of chemicals and chemical products	2,490	+500	+630	2.3%	3.1%
Legal and accounting activities	21,040	+4,100	+4,920	2.1%	5.4%
Construction of buildings	14,440	+2,840	+3,330	2.1%	0.5%
Civil engineering	10,110	+1,840	+2,190	2.0%	1.4%
Activities of head offices; management consultancy activities	10,140	+1,790	+2,180	2.0%	9.6%

Source: Workforce Jobs, UUEPC

Note: Figures may not sum to total due to rounding. Table excludes 2-digit sectors with less than 1,000 people employed.

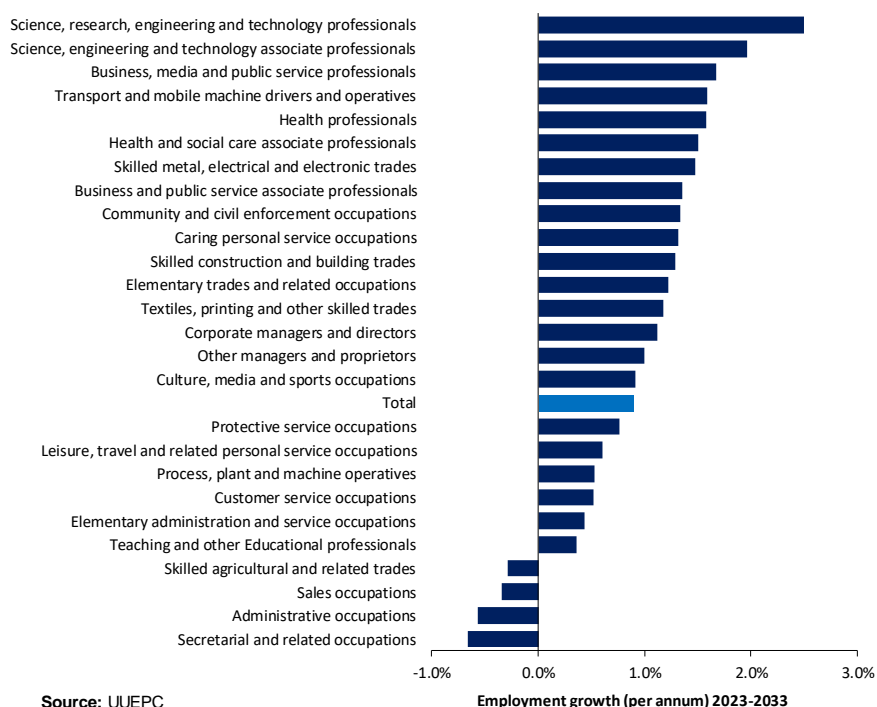
Higher growth rates are expected in sectors associated with higher qualification requirements (i.e. degree level and above). That is, higher value-added sectors generating high wage, high skilled employment. This is significant in driving demand for tertiary level qualifiers.

However, it is also worth noting that larger sectors, with relatively weak growth prospects, and are less graduate intensive, can still generate substantial demand for graduates due to their size. For example, the wholesale and retail sector has a relatively low graduate intensity (14% of people are qualified to degree level) but is the 2nd largest employer of graduates in the private sector (behind professional services). To put this in context, there are more graduates currently working in the wholesale and retail sector than in either financial services or ICT.

Which occupation will grow fastest?⁵

The occupation mix forms an important part of understanding skills demand and skills requirements⁶. Strong growth in the professional services and ICT sectors translates to high demand for science and technology professionals (2.5% p.a.) and science and technology associate professionals (2.0% p.a.). However, in absolute terms caring personal service occupations will create more jobs over the coming decade despite growing at a lower rate (1.3% p.a.) due to the absolute size of the health sector, which is expected to experience moderate growth.

Figure 4: Employment growth (people based) by occupation (2-digit, SOC) high growth scenario, NI, 2023-2033



Source: UUEPC

The expected marginal decline in the wholesale and retail sector is anticipated to reduce the number of sales and related occupations. Similarly, administrative and secretarial occupations are also expected to continue their decline due to the growing implementation of automation.

Looking at more detailed categories, the occupations forecast to grow at the fastest rate are: data analysts (5.9% p.a.); cyber security professionals (4.6% p.a.); and research and

⁵ Occupations referenced throughout this report are based on the Standard Occupational Classification 2020 (SOC 2020). Please see the following link for more detail. [ONS - SOC Classification \(2020\)](#)

⁶ It should be noted this analysis is 'people based' therefore based on the number of individuals, as opposed to the number of jobs (i.e. a person may have more than one job).

development managers (4.3% p.a.). However, it is worth noting that programmers and software engineers, despite having a marginally lower forecasted growth rate, is expected to create more jobs in absolute terms (+3.3k) than these three occupations combined. In general, the fastest growing occupations are linked to industries of the future and based on high skill, high wage jobs consistent with DfE’s economic vision whereby growth should be based on ‘Good Jobs’ which can drive productivity growth⁷.

Table 3: Top 15 employment growth occupations (4-digit, SOC) (people based) by scenario, NI

Top 20 growth occupations (4-digit) (based on CAGR)	Total jobs 2023 baseline	Employment growth (absolute terms) 2023-2033		Employment growth (p.a.)	
		Baseline scenario	High growth scenario	High growth scenario (2023- 2033)	Actual (2013- 2023)
Data analysts	1,310	+950	+1,020	5.9%	10.4%
Cyber security professionals	490	+260	+280	4.6%	12.4%
Research and development (R&D) managers	950	+470	+500	4.3%	9.7%
IT network professionals	400	+170	+180	3.8%	7.1%
Pharmaceutical technicians	900	+350	+370	3.5%	3.8%
IT quality and testing professionals	450	+170	+190	3.5%	4.9%
Programmers and software development professionals	8,190	+2,910	+3,250	3.4%	4.0%
Business, research and administrative professionals n.e.c.	1,610	+580	+640	3.4%	9.0%
IT business analysts, architects and systems designers	2,100	+720	+800	3.3%	3.1%
Conservation professionals	270	+90	+100	3.2%	3.6%
Health associate professionals n.e.c.	370	+130	+140	3.2%	1.7%
Medical and dental technicians	890	+310	+330	3.2%	1.2%
IT managers	3,090	+980	+1,110	3.1%	1.7%
IT project managers	650	+200	+230	3.1%	1.4%
Environment professionals	730	+230	+260	3.1%	2.2%
Information technology professionals n.e.c.	1,490	+450	+510	3.0%	0.5%
Actuaries, economists and statisticians	1,560	+460	+520	2.9%	6.6%
Project support officers	1,240	+370	+410	2.9%	6.9%
Legal professionals n.e.c.	1,240	+350	+390	2.8%	8.4%
Legal associate professionals	980	+270	+310	2.8%	3.2%

Source: UUEPC

Note: Figures may not sum to total due to rounding. Table excludes 4-digit occupations with less than 100 people employed.

However, it is important to note that whilst these types of jobs are growing at a rapid rate, job creation is relatively modest in absolute terms. **The largest projected growth of any detailed occupation category over the coming decade is for care workers and home carers (+4.1k).** Despite the forecast growth rate being relatively low (1.3%), the occupation will still create a large number of jobs due to its size. Indeed, it is anticipated that the growth of care workers and home carers will be around four times that of data analysts in absolute terms.

⁷ DfE (2024) Statement from Minister Murphy – economic vision. [Available via: [Murphy Economic Vision - DfE](#)]

Figure 5: Top 15 occupations (absolute size) (4-digit, SOC) (people based), NI, 2023 & 2033 (high growth scenario)



The structure of the labour market changes slowly over time. Therefore, occupations that are relatively large today are likely to remain relatively large over the coming decade. For example, the top 15 largest occupations in the NI labour market are projected to remain largely unchanged over the coming decade.

The top three occupations in 2033 are projected to be sales and retail assistants (45.9k); care workers and home carers (35k); and other nursing professionals (23.2k). The most significant movement amongst the top 15 largest occupations is programmers and software developers (11.4k) being projected to enter the rankings as the 12th largest occupation in the NI economy.

Key points

- The provision of skills should be based on an ambitious economic outlook to reflect that the labour market is not characterised by perfect matching of demand and supply, and to avoid the negative economic consequences of labour shortages holding back growth.
- Under the high growth scenario, the NI economy is forecast to grow by 7.9k jobs per annum (0.8%) over the 2023-33 period. Whilst ambitious, this represents a slower growth rate than the NI labour market has recorded in recent years as capacity constraints have reduced the economy's potential growth.
- The top growth sectors are expected to be in industries related to the net zero agenda, digital and cybersecurity; pharma; financials services including fintech; and wider professional services (legal, research and development, accountancy, management consulting, architecture etc.).
- Whilst the sectors recording the fastest growth rates are related to industries of the future, many are recording high growth rates from a small base. In absolute terms the highest volume of additional jobs over the next 10 years will be in the health and social work sector.
- Occupations directly linked to rapidly growing sectors will achieve high growth, notably data analysts, cybersecurity professionals and R&D managers. However, occupations which represent a large proportion of the current NI labour market will still create a large increase in the number of people employed even with a more modest growth rate (e.g. Caring personal services and nursing and midwifery professionals).

Tomorrow's economy: labour market demand

This section outlines the expected labour demand in the NI economy over the coming decade. This includes a review of sector and occupation demand, the associated demand for qualifications and resulting demand for subjects studied.

Introduction

A comprehensive understanding of labour demand (i.e. current and projected qualification profile by sector and occupation and subjects studied within sectors and occupations) results in a robust account of skills requirements for the future labour market. The demand side forms one half of the model developed to determine the (im)balance of future skills needs in NI.

The NI Skills Barometer demand side model incorporates outputs from the UUEPC economic model including occupation forecasts, sector forecasts and qualification projections. For the purposes of this summary paper, the figures presented will focus on outputs aligned to the high growth scenario. Detail on the baseline scenario is included in the information pack which accompanies this report.

Demand concepts

There are several key concepts developed in determining future labour demand. It is not simply the expansion of the labour market, but rather a combination of labour market expansion and labour market flows (e.g. job-to-job movers, labour market leavers to retirement or sickness, labour market entrants from education or migration etc.). The table below provides an overview of demand side concepts.

Table 4: Demand side concepts, NI Skills Barometer

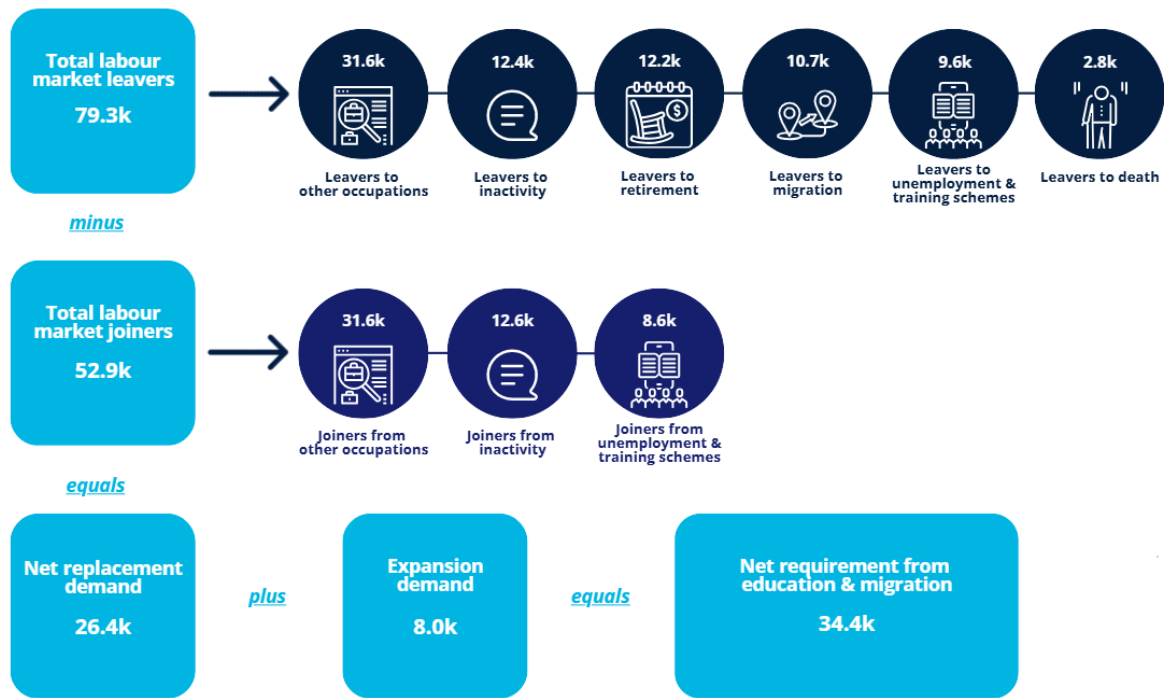
Demand side concept	Definition
Expansion demand	The additional jobs created as a result of growth in a sector.
Replacement demand	The number of positions which become available as a result of staff leaving employment (typically due to retirement, family reasons, ill health or to move to another job).
Net replacement demand	The difference between all leavers from employment – to retirement, inactivity, unemployment, other jobs and out migration - and joiners to employment – from unemployment, inactivity (excluding education leavers) and other jobs.
Net requirement from education and migration	The difference between all leavers from employment – to retirement, inactivity, unemployment, other jobs and out migration - and joiners to employment – from unemployment, inactivity (excluding education leavers) and other jobs.

Labour demand in the NI economy

While the net change in the stock of jobs – technically termed expansion demand – is often more widely understood and ‘visible’ within the economy as a driver of future demand, it remains the case that, **future skills and employability demand will still be significantly determined by net replacement demand.**

Labour demand is estimated based upon an analysis of labour market flows in the LFS. The figure overleaf summarises labour market flows forecasts for the NI economy over the next 10 years.

Figure 6: Annual average labour market flows (people based), NI, 2023-2033



The largest component of labour demand comes from replacing workers who have created a vacancy by leaving their position (for retirement, sickness, moving to another job etc.). However, most of these vacancies are filled by people already in the labour market (e.g. job movers, people leaving the unemployment register etc.). **Vacancies that cannot be filled by people already in the labour market (i.e. joiners from inactivity, unemployment or job-to-job moves) must be filled either by leavers from the education system or by migrants.** This is known as the net requirement from education and migration and is equivalent to 34.4k people per annum over the 2023-33 period.

In this edition of the Skills Barometer, our analysis indicates that replacement demand is expected to be higher. This is a function of:

- **An ageing workforce**, whereby the number of retirements is expected to be higher.
- A **changing profile of economic inactivity**, where the profile has become increasingly weighted towards long-term sickness. This now accounts for over two-fifths of working age economic inactivity, compared to less than one-third five years ago. Outflow rates from economic inactivity are very low, and this changing mix results in a smaller number of joiners from economic inactivity and therefore a higher replacement demand.
- A **sustained period of low unemployment**, which is expected to continue over the coming decade suppresses the number of potential joiners from unemployment. This results in higher levels of replacement demand.

It is important to stress that the majority of the net requirement from education and migration is generated by the need to replace workers within the existing labour market. **Replacement demand is forecast to generate over three times as much labour demand relative to expansion demand.** Even in an economy with lower forecast growth (i.e. UUEPC’s baseline forecast) the level of replacement demand is a similar quantum. Therefore, with a weaker economic outlook the skills system will still be required to supply a significant volume of labour to replace workers leaving the labour market.

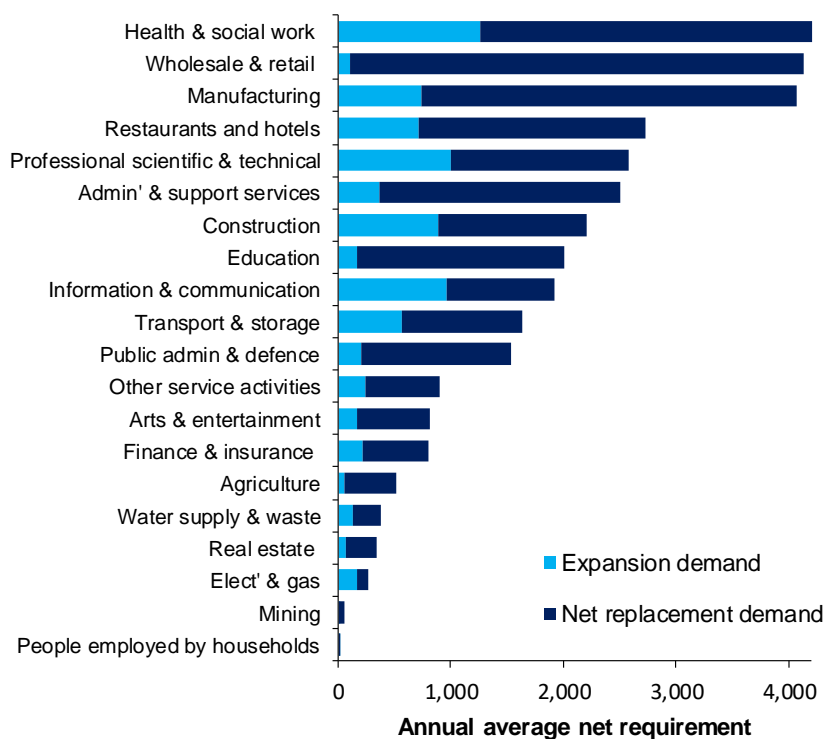
Labour demand by sector

The net requirement from education and migration is determined by the composition of the sector (i.e. replacement demand is largely a function of sector size, job-to-job move patterns and demography) and the forecast employment growth (i.e. stronger growth in knowledge intensive sectors such as ICT and professional services).

The Health and Social Work sector records the largest volume of expected labour demand over the 2023-33 period. This is followed by the Wholesale and Retail sector, which ranks second despite only marginal expansion demand. As a large sector, the replacement demand component still generates significant labour demand despite the limited prospects for employment growth in the sector. This is an important point for careers advice, in that sectors do not have to be growing at a rapid rate to provide a plentiful supply of job opportunities.

In contrast, **the ICT sector is expected to generate more expansion demand than any other sector.** However, as the sector is relatively small the replacement demand generated is also smaller. ICT and electricity and gas (owing to the additional jobs expected related to the net zero agenda) are the only sectors where expansion demand accounts for most of the anticipated demand.

Figure 7: Annual average net requirement from education and migration by sector (1-digit, SIC), NI, 2023-2033



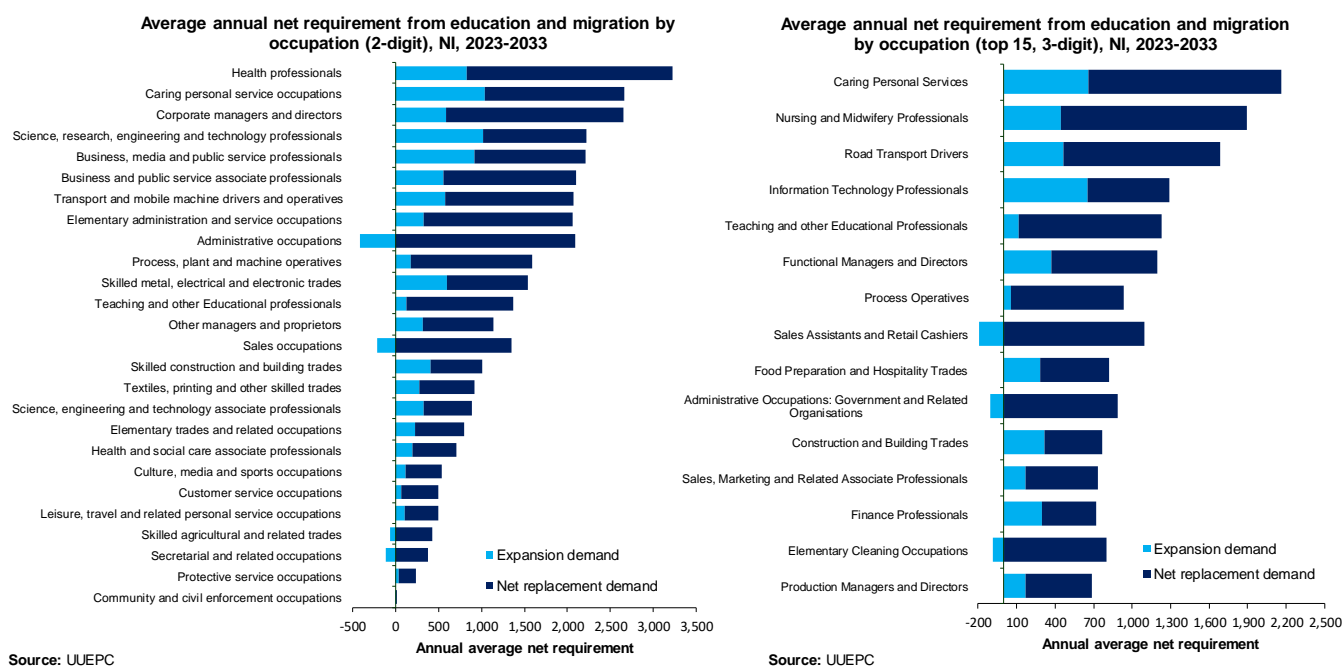
Source: UUEPC

Labour demand by occupation

Health professionals and caring personal services occupations will provide the most job opportunities over the coming decade, annually requiring 3.2k and 2.7k people respectively from outside the existing labour market. Combined, this represents 17% of the overall net requirement from education and migration.

The next largest 'high demand' occupations are corporate managers and directors (2.7k); science, research, engineering and technology professionals (2.2k); and business, media and public service professionals (2.2k).

Figure 8: Annual average net requirement from education and migration by occupation, NI, 2023-2033



Source: UUEPC

Source: UUEPC

There is a noticeable **squeeze in the expansion demand within occupations which have traditionally required low levels of formal qualifications** (e.g. sales occupations, secretarial and related occupations etc.). Part of the reason for this is advances in labour saving technology, reorganisation of the office alongside working from home arrangements, evolving consumer patterns and challenges facing non-food high street retail.

However, although there is relatively little demand for these occupations from the education system, that is not to say that there will not be job opportunities. Whilst these jobs are associated with low formal qualifications, they are typically filled by experienced workers, who are not necessarily low skilled, moving between jobs or re-joining the labour market after a period of unemployment or inactivity.

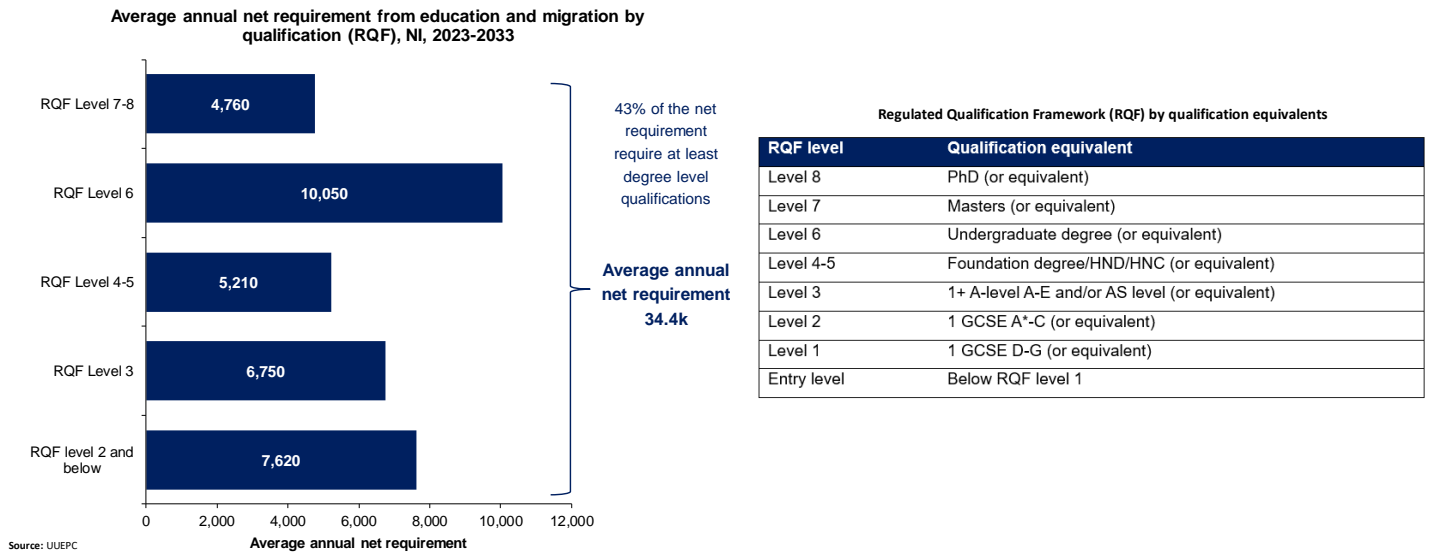
Looking at more detailed occupation classifications (SOC, 3 digit), the top five occupations in demand are: caring personal services (2.2k); nursing and midwifery professionals (1.9k); road transport drivers (1.7k); IT professionals (1.3k); and teaching and educational professionals (1.2k). Once again, **the mix of occupations generating the most labour demand highlights the importance of replacement demand**, and how sectors with low growth prospects can provide a plentiful supply of opportunities through natural labour market churn (e.g. health and education sectors).

Labour demand by qualification

The annual average long-term demand for tertiary qualifications (RQF 4-8) from education and migration is 20k. This represents almost three-fifths of the total net requirement. **Undergraduate degree (RQF Level 6) and postgraduate qualifications (RQF level 7+) account for over two-fifths of demand from education and migration.** This is higher compared to earlier Skills Barometer publications reflecting the use of a new skills forecasting methodology, changes to the underlying datasets, a continuation of trends towards higher

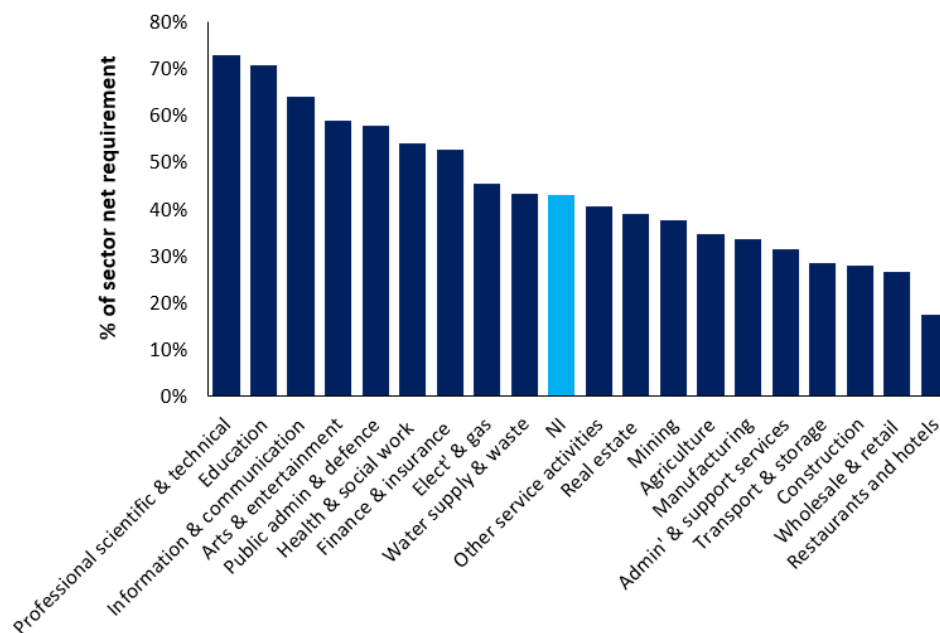
level qualifications amongst young people, and structural shifts in the labour market towards higher skilled employment. **Just over one-fifth of the total net requirement is for people with qualifications equal to RQF level 2 and below, highlighting the difficulty in gaining employment for those with low-level qualifications.**

Figure 9: Annual average net requirement from education and migration by qualification, NI, 2023-2033



The share of higher qualification requirements in the total net requirement varies significantly across sectors. For example, in the professional services sector almost three-quarters of the sector’s demand from the education system is for people qualified at least to undergraduate degree level. Similarly, nearly two-thirds of the total net requirement in the ICT sector is for graduate and postgraduate qualifiers. Whereas, for the hotels and restaurants sector less than one-fifth of demand from the education system is for university level qualifiers.

Figure 10: RQF Level 6+ annual average net requirement by sector (% of total sector net requirement), NI, 2023-2033

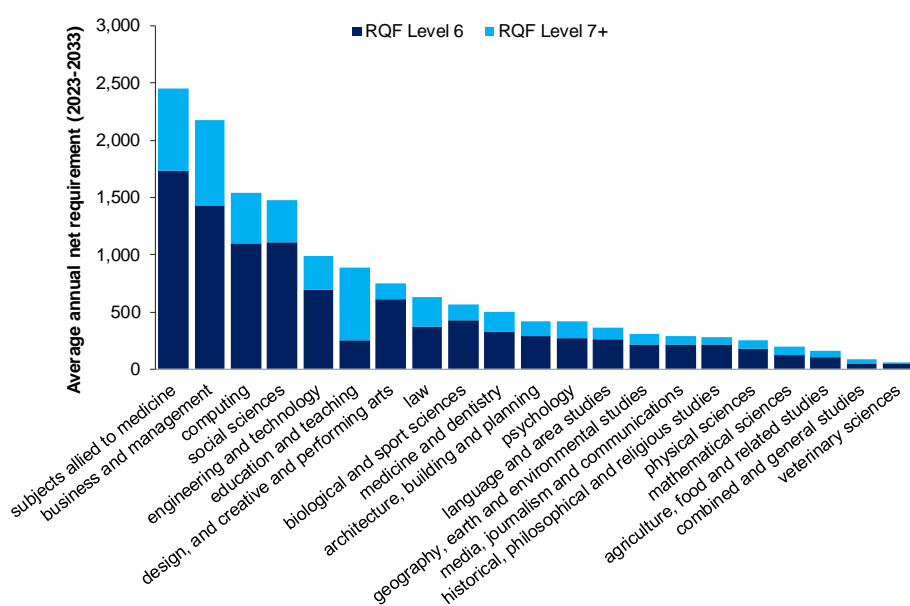


Labour demand by subject

Labour demand can also be presented by subject for RQF level 4+ qualifiers. At RQF level 3 and below it is not possible as students study a range of subjects simultaneously at this level. In this iteration of the Skills Barometer 'graduate' demand has been estimated separately for undergraduate and postgraduate subjects. This is the first time this type of analysis has been undertaken in NI.

Overall, the largest demand for 'graduate level' (RQF level 6+) qualifications is for subjects allied to medicine (which includes nursing) (2.5k), business and management (2.2k), computing (1.5k) and social science subjects (1.5k). Almost half (48%) of postgraduate demand is for health, education and business and management subjects. This is partly attributed to certain subject areas lacking a strong culture of postgraduate study. However, if the supply of qualifiers were to shift towards a higher postgraduate qualifier weighting, it is likely that employer demand preferences would undertake a corresponding shift.

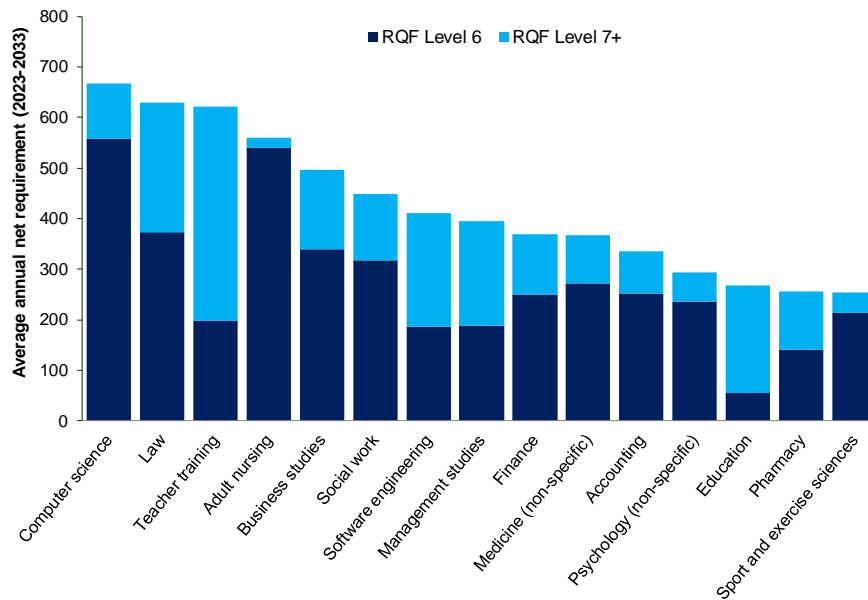
Figure 11: Annual average net requirement for RQF Level 6+ by subject (CAH, 2-digit) NI, 2023-2033



Source: UUEPC

Using more granular subject categories (CAH, 3-digit) **computer science is the most in-demand graduate subject area**. This is followed by law, teacher training and adult nursing. Although it should be noted that law is a broad subject area using the CAH-1 subject categories, that is not disaggregated at CAH 3-digit, and therefore appears high in the rankings when compared to more narrowly defined CAH-3 subject categories.

Figure 12: Annual average net requirement RQF Level 6+ by subject (CAH, 3-digit, top 15) NI, 2023-2033



Source: UUEPC

Using more narrow subject categories (CAH, 3-digit) the distinction between undergraduate and postgraduate demand is clearer. For example, teacher training demand is mostly at the postgraduate level, and adult nursing demand is predominately for undergraduate qualifications. Importantly, **there are several subject areas which align to DfE’s priority sectors which demonstrate significant demand for postgraduate qualifications, including software engineering and finance.**

Key points

- The importance of replacement demand cannot be understated. It provides a larger quantum of job opportunities than sector growth.
- Replacement demand is higher relatively to earlier iterations of the Skills Barometer. This is a function of an ageing workforce, rising long-term sickness and the changing profile of economic inactivity and a sustained period of very low unemployment.
- Sector expansion drives demand in high growth sectors (e.g. ICT) and occupations (e.g. science and technology professionals), but replacement demand is larger in stable sectors (e.g. retail) and occupations (e.g. health professionals).
- Demand for higher-level qualifications is steadily increasing in NI as undergraduate and post graduate qualifications account for over two-fifths of demand from education and migration.
- Distinct trends emerge when undergraduate and postgraduate demand is disaggregated. At the undergraduate level, the highest demand is forecast in subjects allied to medicine (including nursing), business and management, and computing. In contrast, postgraduate demand is more narrowly focused, with nearly half concentrated in health, education, and business and management disciplines.

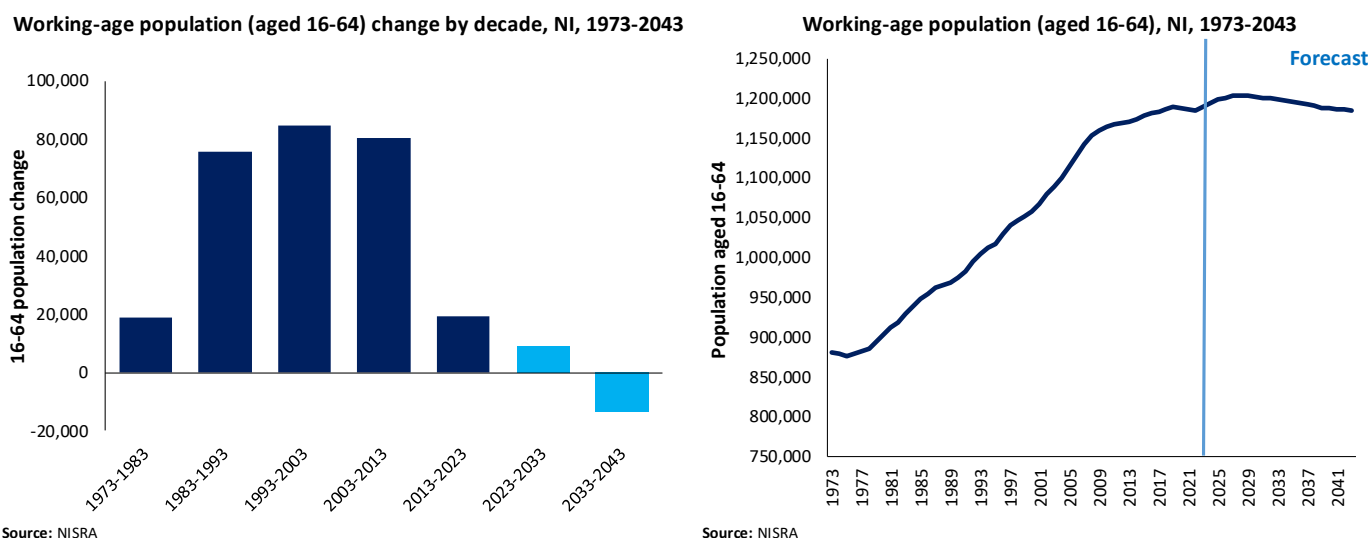
The supply of skills

This chapter provides an overview of supply side information, including trends in school performance, Further Education (FE) participation and HE participation.

Demographics

NI's demographic trends indicate that the competition for labour will be a feature of the future labour market. In the period 1983-2003 NI increased its working age population by an average 80k per decade. In the past 10 years NI's working age population has increased by only 20k, and over the coming decade is projected to grow by just 10k, before declining in the 2030's and 2040's.

Figure 13: Working age population change by decade and forecasts, NI, 1973-2043

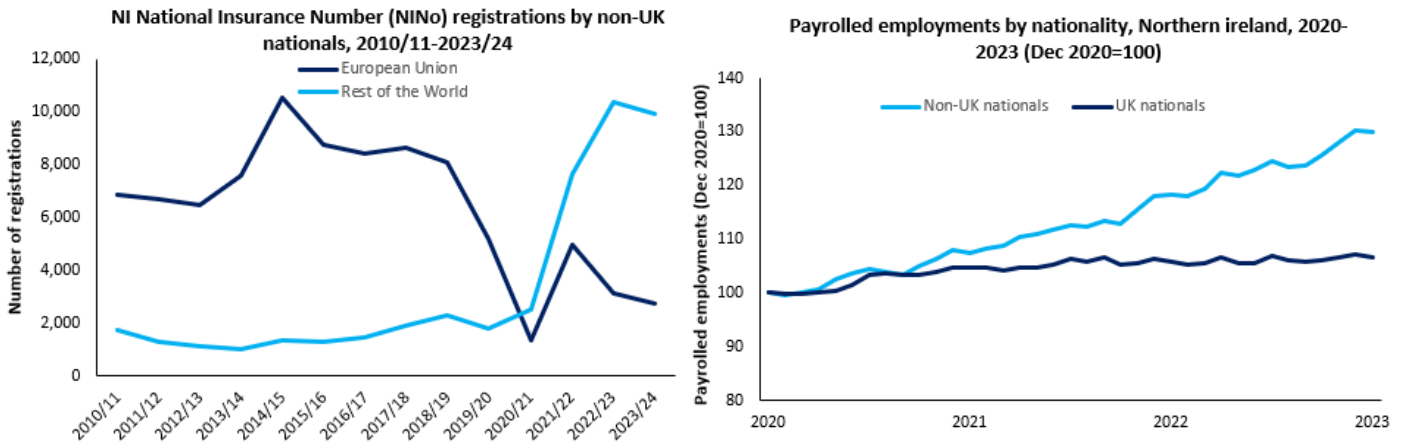


It is not a coincidence that NI has experienced widespread labour shortages during a slowdown in population growth. The end of NI's 'demographic dividend' should be a central consideration in economic growth and skills strategies. In Q2 2024, four in five manufacturing firms and three in four service firms reported facing recruitment difficulties⁸. These metrics have remained consistently high over the past three years. With NI's working age population expected to be only marginally higher than today by 2033, **there is a significant risk that the coming decade will be characterised by persistent labour shortages.**

The labour market has responded to skills shortages in recent years by importing skills from abroad through migration. In 2022/23 net migration in NI was at its highest rate in 15 years. Data from new national insurance number (NINo) registrations indicates that the composition of international migrants has changed in recent years from being predominately individuals from the European Union (EU), to now being predominately individuals from outside the EU. **In 2023, HMRC PAYE data indicated that non-UK or non-EU nationals accounted for over seven-tenths of the annual growth recorded in employee jobs.** With such recent evidence of local employers having to import skills from abroad to fill vacancies, the future role of migration in the local economy is worthy of much greater policy attention.

⁸ NI Chamber of Commerce (2024) Quarterly Economic Survey. Quarter 3 2024. Available via: - [Northern Ireland Chamber - Quarterly Economic Survey](#)

Figure 14: NI No registrations by non-UK nationals, NI, 2010/11-2023/24 and Payrolled employments by nationality (Dec 2020=100), 2020-2023



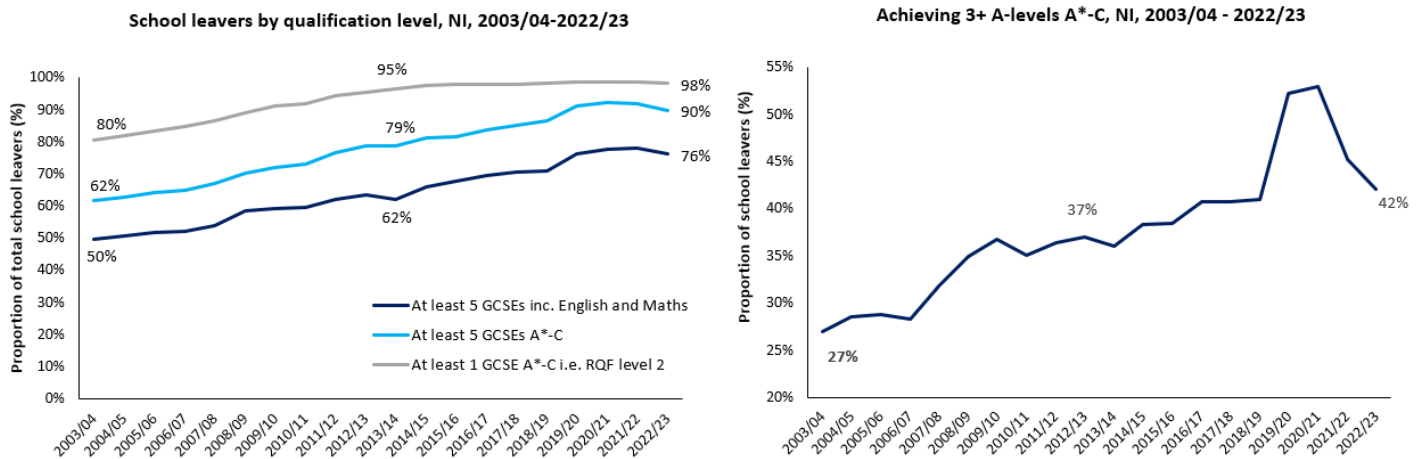
Source: Department for Work and Pensions

Source: HMRC

School leavers

The proportion of school leavers who achieve at least 5 GCSEs including (English and Maths) decreased in 2022/23 to 76%, from a record high of 78% in 2020/21. However, this still represents **significant progress over the longer term** with only 50% of school leavers achieving this level of attainment as recently as 2003/04.

Figure 15: School leavers by qualification level, NI, 2003/04-2022/23



Source: School Leavers, DE

Source: School Leavers, DE

A school leaver achieving a single GCSE (grades A*-C) is an RQF level 2 qualifier. In 2003/04 20% of school leavers failed to achieve this level of qualification, compared to less than 2% today. In other words, **the issue of people leaving school with no qualifications has all but disappeared**, except in a small number of circumstances. To ensure that young people are continually moving up the qualifications ladder throughout their education journey, **post-secondary education for most school leavers should be on courses that equate to RQF level 3 and above (i.e. at least 1+ A-level A*-E).**

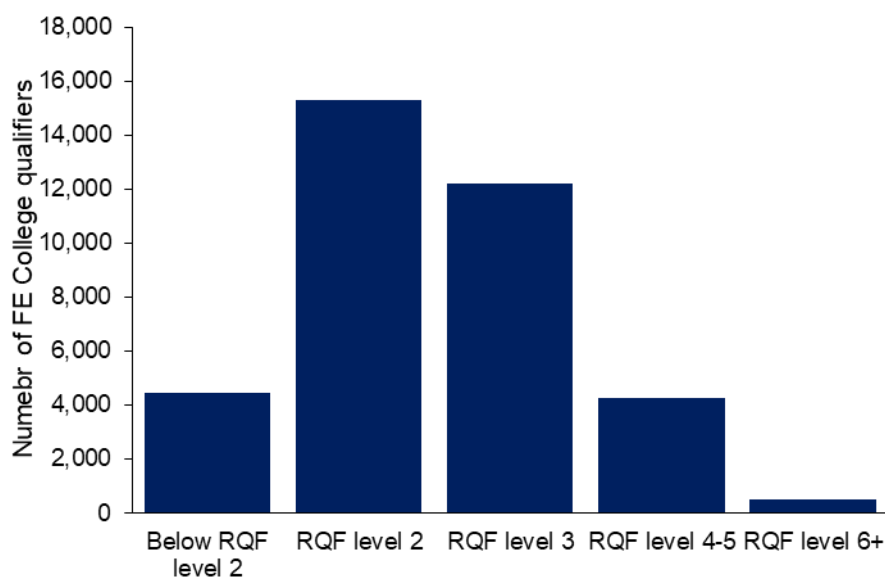
Further, the proportion of school leavers who achieved 3+ A-levels at grades A*-C decreased to 42% in 2022/23, from a peak of 53% in 2020/21. However, this largely represents a correction to levels of attainment broadly in line with pre-pandemic performance (41% in

2018/19) as the spike reflected changes to methods of assessment during the global pandemic. **From a long-term perspective, it remains the case that educational attainment at school has steadily improved over the past two decades**, from 27% achieving this benchmark in 2003/04 compared to 42% of today's school leavers.

Further Education College qualifiers⁹

FE colleges deliver the largest number of qualifications in the NI education system. However, **the majority of qualifiers achieve relatively low-level qualifications**. In 2022/23, 54% of qualifiers highest qualification achieved was equal to RQF level 2 and below.

Figure 16: Further Education College qualifiers by highest level RQF achieved, NI, 2022/23



Source: DfE, Further Education Sector Activity

Note: Data refers to the gross supply of mainstream regulated qualifications at NI FE colleges.

Given that 98% of school leavers have achieved a highest qualification of at least RQF level 2 (i.e. 1+ GCSE at grades A*-C), almost all school leavers should be enrolling in post-secondary courses at higher RQF levels. Post-secondary enrolments at RQF level 2 and below should largely be an option for those with essential skills needs and people in the adult population with low levels of qualifications, rather than large numbers of school leavers¹⁰.

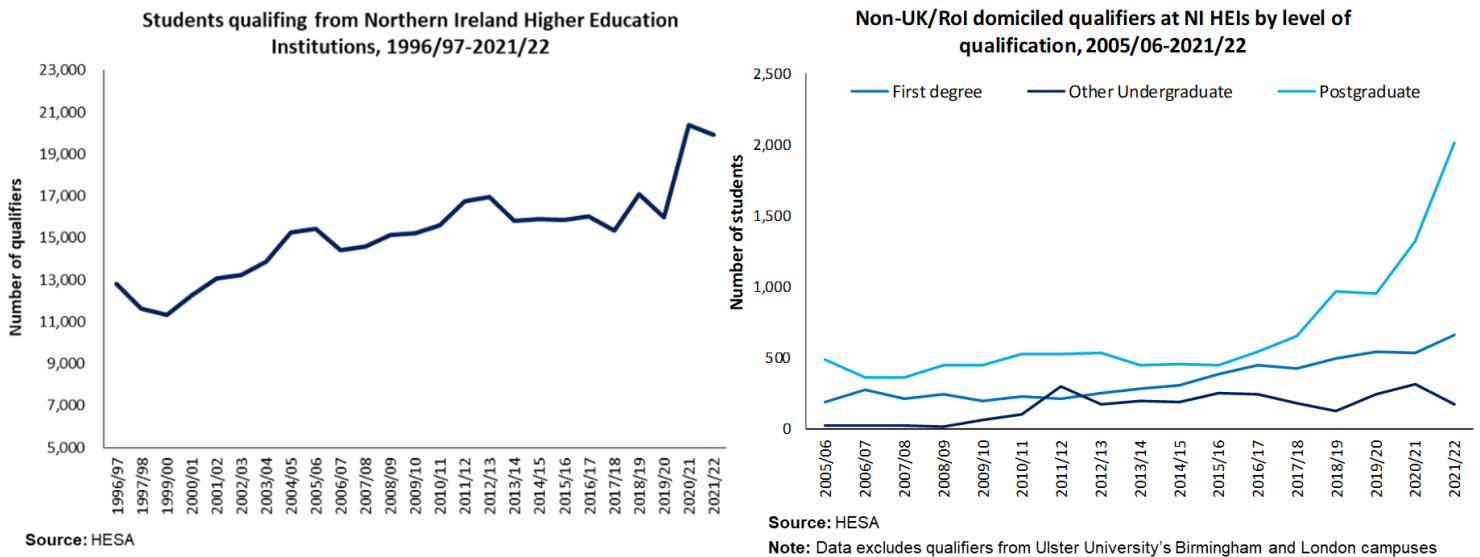
Higher Education Institution qualifiers

The number of qualifiers from NI Higher Education Institutions (HEI) was 19.9k in 2021/22, which represents a higher level than had been recorded over the pre-pandemic decade. The higher level is partly attributable to temporary pandemic related factors such as course extensions and delays in awards. However, other factors have also played a role, such as the recent availability of postgraduate loans and an increase in the number of international students.

⁹ This analysis excludes qualifiers from the College of Agriculture Food and Rural Enterprise.

¹⁰ It is acknowledged that the threshold for 'achieved RQF level 2' is very low (i.e. 1+ GCSE at A*-C or equivalent) and there is a need for some school leavers to complete further RQF level 2 qualifications to achieve 5 GCSEs A*-C (including English and Maths) or equivalent. However, the quantum of school leavers who are required to do this decreases each year due to higher levels of academic achievement amongst school leavers.

Figure 17: NI HEI qualifiers, NI, 1996/97-2021/22



In 2005/06 there were approximately 0.7k non-UK/Republic of Ireland (RoI) domiciled students graduating from local universities, accounting for 5% of total NI HEI qualifiers. By 2021/22 this figure has increased to 2.9k, accounting for 16% of total qualifiers. This has predominantly been driven by a rise in non-EU postgraduate qualifiers, whom now account for over one-quarter (28%) of all postgraduate qualifiers.

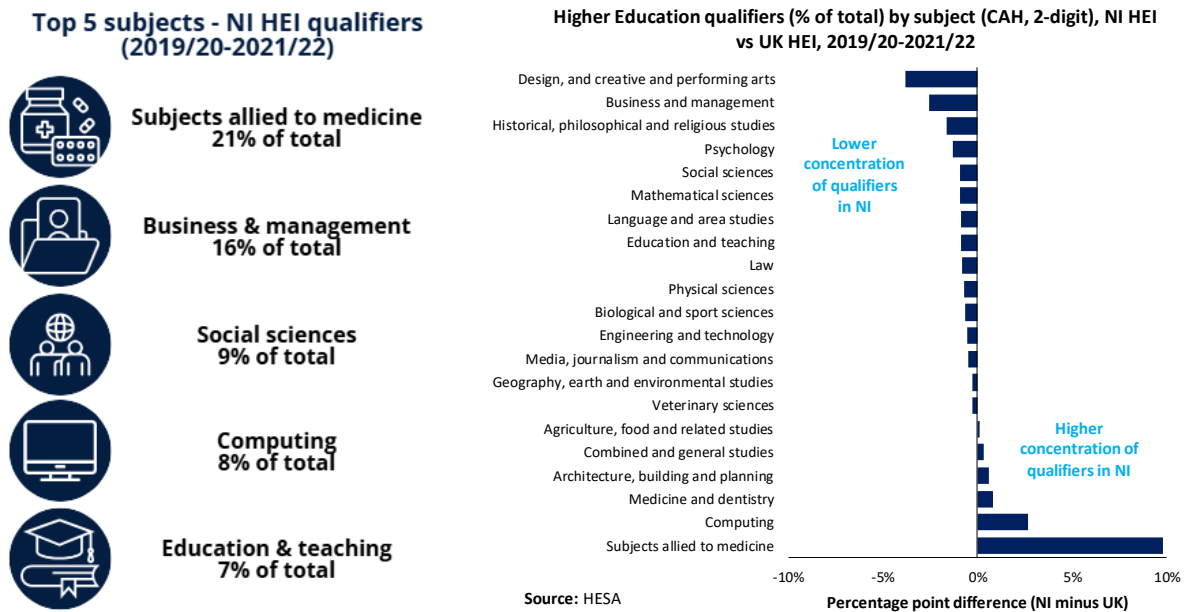
This could represent a potential source of labour supply in the constrained NI labour market. However, the latest data indicates that only around one in four non-UK or non-Irish domiciled qualifiers from NI HEIs are working in NI 15 months after graduating. In other words, even if the number of international student qualifiers at NI HEIs continues to increase, **for international students to make a meaningful contribution to NI's labour supply it would require a significant increase in post-qualification retention rates.** Further, whilst increases in international student numbers have reflected the recruitment strategies of Universities across the UK, it is important to note that these numbers are vulnerable to changes in UK Government legislation on visa applications.

Regarding subjects studied in HEIs, NI HEIs appear to have a very high concentration of qualifiers in subjects allied to medicine (21% of qualifiers, compared to 11% in the UK). This is of course not to say NI is oversupplying in health-related subjects, but rather to emphasise the point that to meet NI's health sector workforce demand a significant proportion of NI's overall higher education supply qualify in health-related subjects. Public sector related degrees (medicine, subjects allied to medicine and education and training) also account for a much higher proportion of total graduates in NI (31%) compared to the UK (21%)

NI HEIs also have a higher percentage of qualifiers in computing compared to the UK (8% versus 5% in the UK), reflecting high growth in IT jobs in recent years. Although business and management accounts for more graduates from NI HEIs (16%) than any other subject area except subjects allied to medicine, NI produces relatively fewer graduates in this discipline relative to the UK (19%)¹¹.

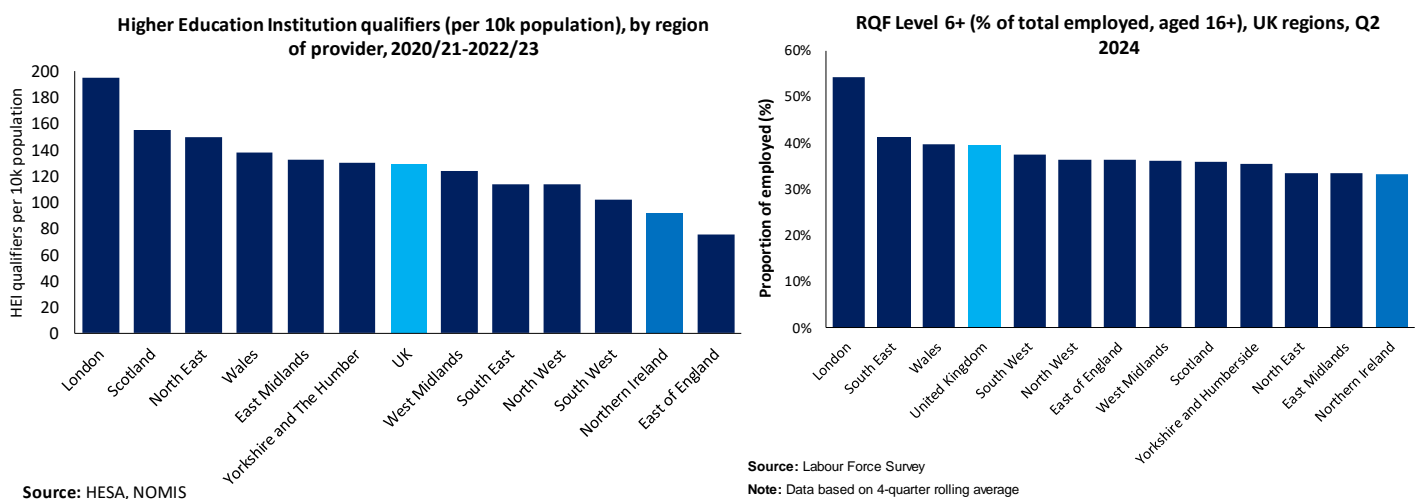
¹¹ It should be noted that comparisons to the UK are provided for context, and differences between NI and the UK do not indicate that a subject is either over or undersupplied.

Figure 18: NI HEI qualifiers by subject (CAH, 2-digit), NI, 2019/20-2021/22 and NI HEI qualifiers versus UK HEI qualifiers by subject (CAH, 2-digit), 2019/20-2021/22



These patterns also hold when measuring the number of degree qualifiers from NI HEIs by subject, per 10k working age population. **NI HEIs have relatively fewer graduates per 10k persons of working age compared to the UK in every subject discipline except subjects allied to medicine and computing.** This is explained by NI HEIs having fewer graduate qualifiers per 10k working age persons overall, ranking 11th of the UK’s 12 regions.

Figure 19: Higher Education Institution qualifiers (per 10k population) by region of provider, 2020/21-2022/23 and RQF Level 6+ (% of employed), UK regions, Q2 2024

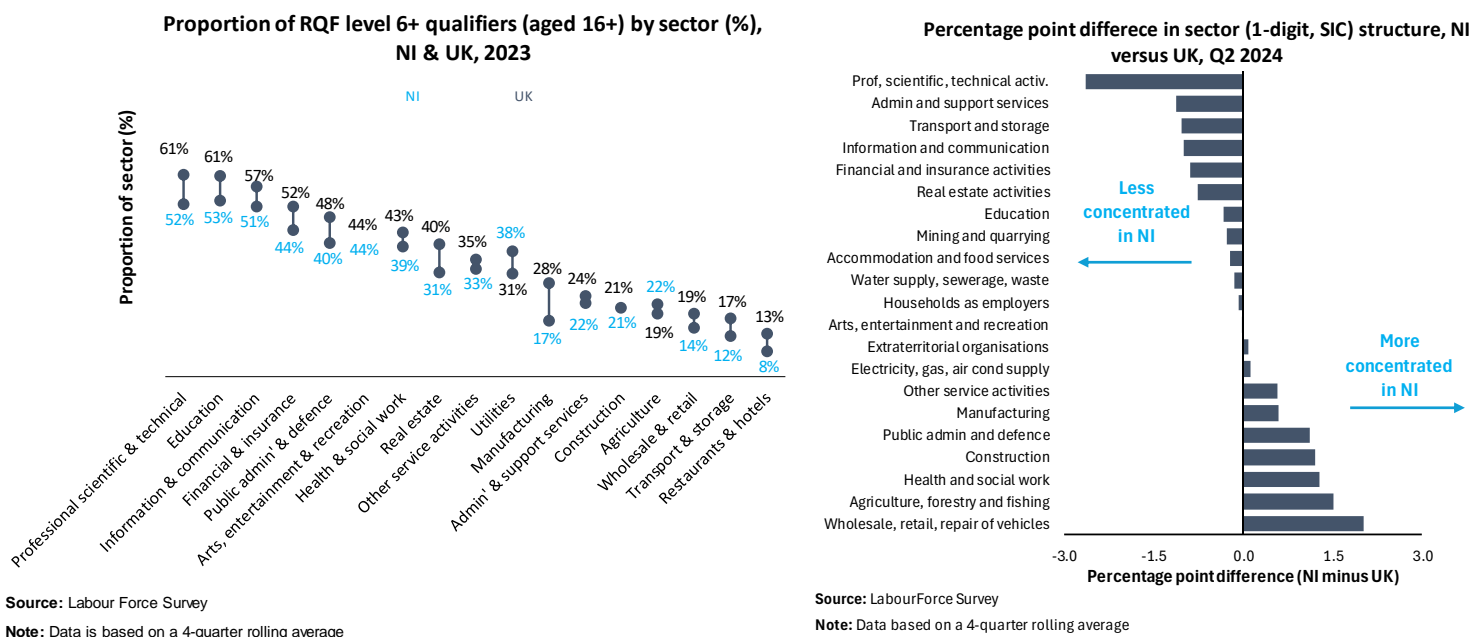


In NI, one-third (34%) of the employed population has a highest level of qualification at RQF level 6+. This compares unfavourably to the UK, where 39% have achieved this level of qualification. NI’s labour market has the lowest graduate intensity of the 12 UK regions. In other words, the **high skills intensity amongst the stock of labour lags nearby regions** and metrics measuring the inflow of high-level qualifications indicate that, based on current trends, **this gap is unlikely to narrow in the short term.**

A minor explainer as to why NI lags the UK regarding graduate intensity is structural. In other words, sectors requiring high level qualifications account for a smaller proportion of employment in NI compared to other UK regions (notably professional, scientific and technical activities, ICT and financial services). If NI had the same industrial structure as the UK, the gap in graduate intensity would narrow from 6.3 percentage points to 5.6 percentage points.

However, it is important to recognise that structure only accounts for a relatively small part of the gap. **In NI, most sectors have fewer people qualified to graduate level compared to their equivalent sector in the UK.** The graduate intensity deficit within specific sectors largely explains the overall gap. For instance, if sectors in NI achieved graduate intensity levels comparable to their counterparts in the UK, the disparity would decrease significantly, from 6.3 percentage points to just 1.3 percentage points.

Figure 20: RQF Level 6+ qualifiers (aged 16+) as % of total sector (1-digit, SIC), NI & UK, 2023 and Percentage point difference in sector structure, NI versus UK, Q2 2024

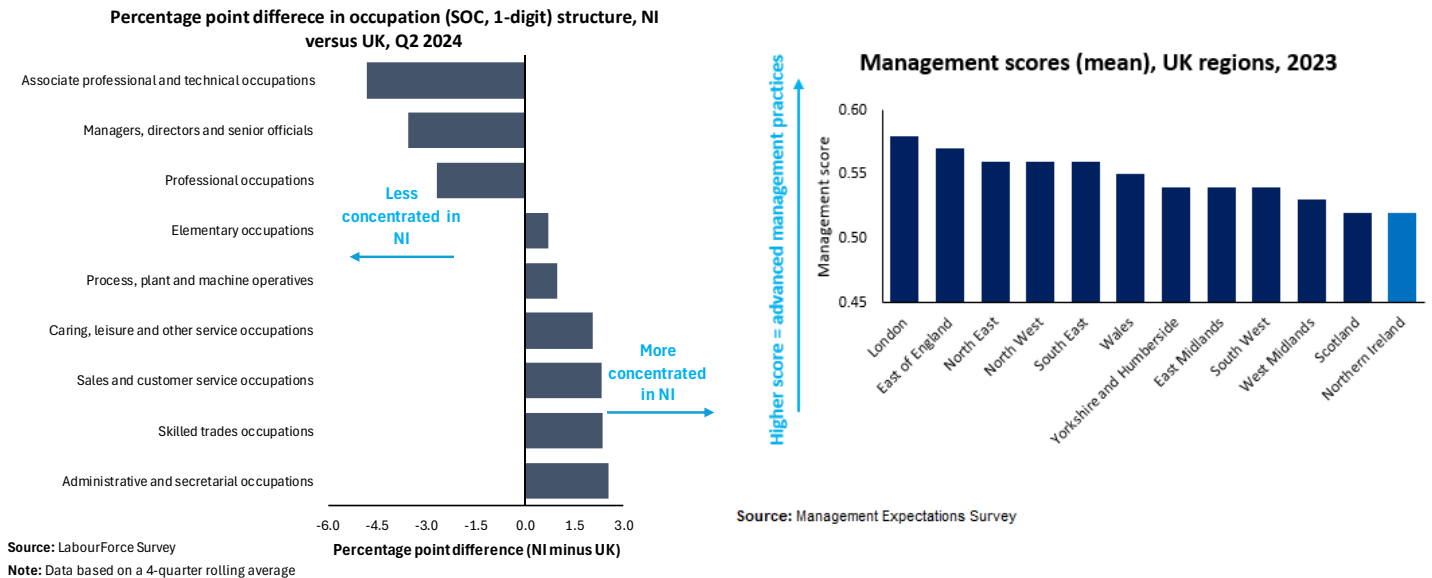


NI also has a relative under-representation of managerial, professional and associate professional occupations. Combined, these three occupation groupings comprise a smaller proportion of total employment than in any other UK region. This is likely a reflection of the limited 'high-end' activities located in the region [reflected in the small number of Public Limited Companies (PLC), limited head office activity and the Small and Medium-sized Enterprise (SME) structure of the economy].

A shortage of managerial and professional roles can significantly hinder the development of management and leadership (M&L) skills. These roles often serve as key platforms for cultivating strategic thinking, decision-making, and people management capabilities. Where there are a limited number of these positions, opportunities for individuals to gain practical experience in overseeing teams, driving organisational growth, and navigating complex business challenges are limited. Furthermore, the absence of robust managerial opportunities may discourage investment in formal leadership training and development programs, further

hindering the development of M&L skills¹². In the 2023 Management Expectations Survey NI recorded a lower management practice score¹³ than any other UK region, highlighting the need to develop skills in this area.

Figure 21: Occupation (1-digit, SOC) structure, NI versus UK, Q2 2024 and Management scores (mean), UK regions, 2023



Gender and subject choice

Gender differences in labour supply often form a key part of the debate when discussing policy options to address skills shortages. Of note is the range of campaigns that have been implemented over a long period of time to encourage more women into narrow¹⁴ Science Technology Engineering and Manufacturing (STEM) subjects. The gap between the proportion of males and females who study narrow STEM subjects remains and is largely unchanged over the past decade.

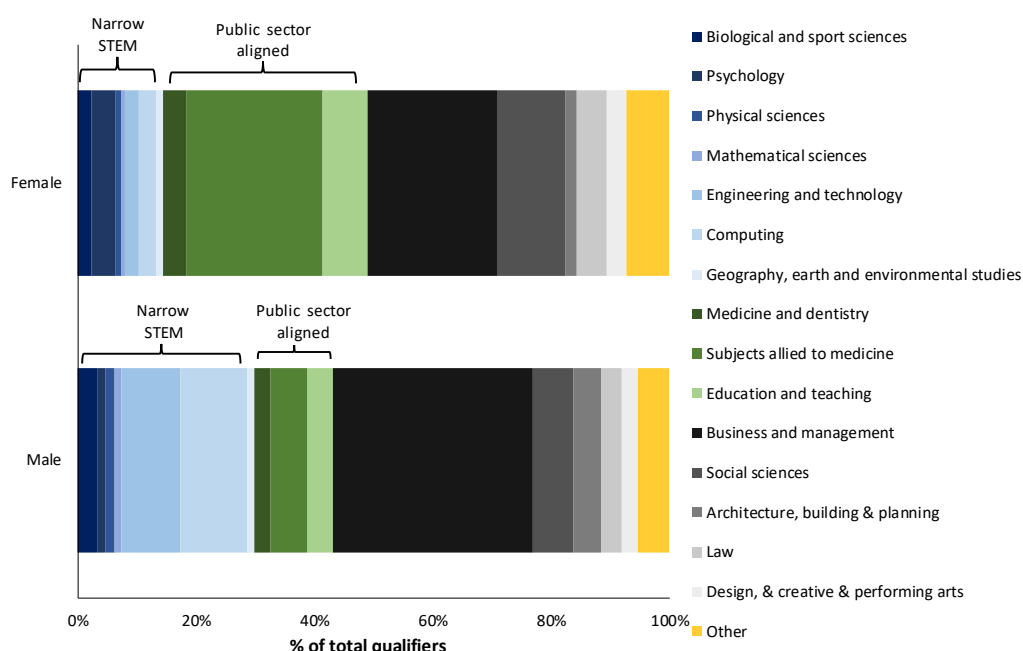
In 2022/23 30% of male qualifiers from NI HEIs graduated in narrow STEM subjects, compared to just 14% of female qualifiers. Differences remain particularly pronounced in engineering and technology subjects (accounting for 10% of male graduates and 2% of female graduates) and computing subjects (accounting for 11% of male graduates and 3% of female graduates).

¹² Bonner, K. Martin, G. & Arique, A. (2024) Management and Leadership Training in NI SMEs. [Available via: [UUEPC - Management and Leadership Training in NI-SMEs](#)]

¹³ Management practice scores range from 0 to 1. Firms score 0 if they do not respond to ongoing problems, base promotion decisions on factors other than merit, and do not track performance or set targets. Conversely, to score 1, firms need to continuously review their processes with the aim to minimise future challenges, carry out regular performance reviews, train employees, and base hiring and promotion decisions on merit.

¹⁴ Narrow STEM includes the following subject areas - biological and sports sciences; psychology; physical sciences; mathematical sciences; engineering and technology; computing; and geography, earth and environmental studies (natural sciences).

Figure 22: NI Higher Education Institution qualifiers by gender and subject, 2022/23



Source: HESA

Note: Other includes: Historical, philosophical & religious studies; Language & area studies; Media, journalism & communications; Combined & general studies; Agriculture, food & related studies; and Veterinary sciences.

Whilst the focus of gender-based policy considerations are often focussed on increasing the proportion of females studying narrow STEM subjects, the discussion fails to consider the subjects in which women already study. For example, 34% of female qualifiers from NI HEIs study subjects related to health and education, which compares to 13% of male qualifiers. Therefore, if current HE participation rates remained unchanged and proportion of women studying narrow STEM subjects increased it would be achieved by attracting women from other in-demand subject areas. In other words, **if there is an overall undersupply of RQF level 6+ qualifiers then addressing shortages in one subject may create or exacerbate shortages in another**. This point also holds for policy initiatives to increase male enrolment in subject areas where males are underrepresented (e.g. nursing).

Higher Education¹⁵ – Net supply of qualifications (RQF level 6+)

There is an important distinction to make between the gross supply of skills and the net supply of skills. The gross supply of skills refers to all qualifiers from NI HEIs, whereas the net supply refers to the number of people who qualify and participate in the NI labour market. The arithmetic is summarised in the bullets below¹⁶:

- **Gross supply:** It is estimated that the gross supply of graduate labour from NI HEIs will equate to 17.5k qualifiers per annum over the 2023-33 period (i.e. this includes qualifiers across all domiciles).
- **Distribution of NI domiciled students:** It is forecast that there will be 18.7k per annum NI domiciled qualifiers across all UK HEIs over the next ten years. Approximately 72% of NI domiciled qualifiers will qualify from NI HEIs, and 28% will

¹⁵ This analysis primarily includes qualifiers from NI Higher Education Institutions, but also includes a small number of qualifiers from NI Further Education Colleges that have qualified in courses at RQF Level 6+.

¹⁶ Forecasts relate to the 2023-33 period and are based upon NI's demographic structure, assuming current rates of higher education participation and subject enrolment patterns.

qualify from Great Britain (GB) HEIs. Amongst the 12 UK regions only Scotland retains a higher proportion of their students within the local university system.

- **Non-NI domiciled students:** NI attracts relatively few students from other parts of the UK or Ireland. Based on current enrolment patterns it is estimated that the number of NI HEI qualifiers domiciled in other parts of the UK or Ireland will be approximately 1.6k per annum. There has been recent growth in the number of international students qualifying from NI HEIs, and it is forecast that there will be approximately 3.1k international (excluding RoI) NI HEI graduates per annum over the next ten years.
- **Graduate outcome:** An adjustment is also made to reflect proportion of graduates who participate in the labour market after qualifying. A person is participating if they are recorded as economically active 15 months after qualifying. Approximately 88% of NI domiciled qualifiers at GB HEIs participate in the labour market. The majority of those 'not participating' proceed to further study and will eventually enter the labour market at a later date.
- **NI domiciled - Location of employment¹⁷:** The majority (93%) of NI domiciled qualifiers at NI HEIs who are in employment are recorded as working in NI¹⁸. Of the NI domiciled students qualifying from GB HEIs approximately 46% are working in NI. Overall, 82% of NI domiciled qualifiers (regardless of the location of their institution) are working in NI 15 months after qualifying. Amongst UK regions this retention rate is second only to Scotland.
- **Non-NI domiciled – Location of employment:** Non-NI domiciled graduates represent a small labour supply for the NI economy, as few remain to work in NI after qualifying. Approximately 25% of non-NI graduates from NI HEIs are working in NI 15 months after qualifying, and the proportion of GB domiciled qualifiers at NI HEIs who stay in NI is similarly low. A higher proportion of Irish domiciled qualifiers at NI HEIs stay to work in NI after qualifying, but the absolute number is small due to the small number of Irish domiciled students overall.
- **Labour supply adjustment –** An adjustment is made to reflect the fact that the proportion of qualifiers from post-secondary education institutions do not represent 'new labour supply'. In other words, their reason for undertaking the course is related to improving their ability to do an existing job.
- **Net supply –** After accounting for labour market participation, post qualification mobility flows and upskilling, it is forecast that the net supply of graduate labour to the NI labour market will be 11.7k per annum over the 2023-33 period.

The gross-to-net labour supply calculation is conducted at a detailed level, incorporating labour market outcomes by subject area, qualification level, domicile, and the location of the institution attended. Therefore, the difference between gross and net will be larger in subjects which have more international students, since fewer international students remain to work in NI after qualifying. Similarly, the difference will also be larger in subjects which have a culture of postgraduate study, since a higher proportion of the qualifying cohort will remain in education rather than transitioning directly into the labour market.

Net supply by qualification level and subject studied

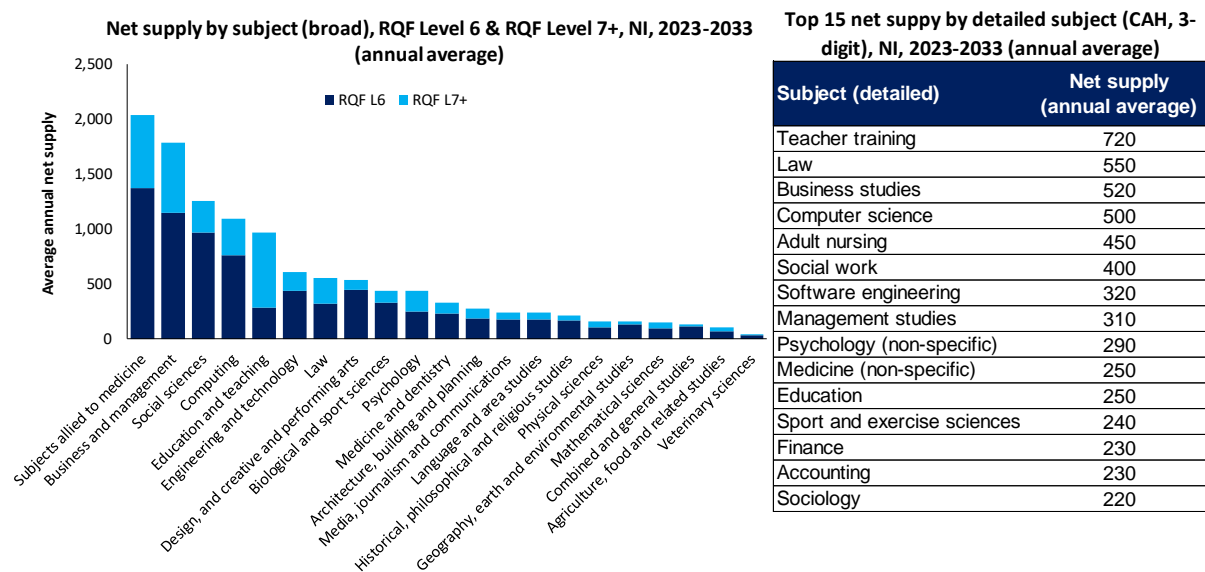
Subjects allied to medicine will produce the largest number of RQF Level 6+ qualifiers over the 2023-33 period (2.0k). This is followed by business and management (1.8k), social sciences (1.3k) and computing (1.1k). Using more granular subject classifications, over the

¹⁷ Calculated based on graduates who have stated 'work' is their most important activity.

¹⁸ Location of employment data is taken from the Graduate Outcomes Survey and relates to 15 months after qualifying.

coming decade the top five subjects supplied to the NI labour market will be teacher training, law¹⁹, business studies, computer science and adult nursing. When combined, these five detailed subjects account for almost one quarter (23%) of RQF level 6+ net supply.

Figure 23: RQF level 6+ net supply by subject (CAH 1-digit LHS and CAH 2-digit RHS), NI, 2023-2033



Source: HESA, UUEPC analysis

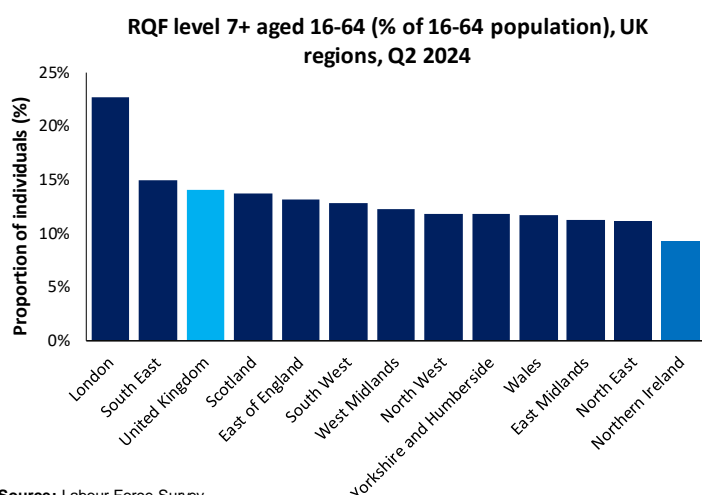
Source: HESA, UUEPC analysis
Note: Figures are rounded to the nearest 10.

Postgraduate qualifications represent 34% of the net supply of RQF level 6+ qualifications. Subjects which have developed a culture of postgraduate study are clear (e.g. business and management), alongside subjects which are linked to a profession requiring postgraduate level qualifications (e.g. education and teaching). Overall, **the top three subjects (education and teaching; subjects allied to medicine; and business and management) account for half of the net supply of postgraduate qualifications.**

NI faces a notable shortfall in postgraduate qualifications within its labour market. Currently, only 9% of the working-age population (16–64) in NI holds qualifications at RQF level 7 or above, compared to 14% in the UK. Furthermore, NI has the smallest proportion of people with RQF level 7+ qualifications amongst the UK's 12 regions. Considering the flow of qualifications, NI provides relatively fewer postgraduate qualifications compared to the UK when standardised by population size. Therefore, based on current enrolment patterns NI is unlikely to narrow the gap in postgraduate qualifications. Excluding health and education subjects the standardised inflow of new postgraduate qualifications to the NI labour market of lower than any other UK region.

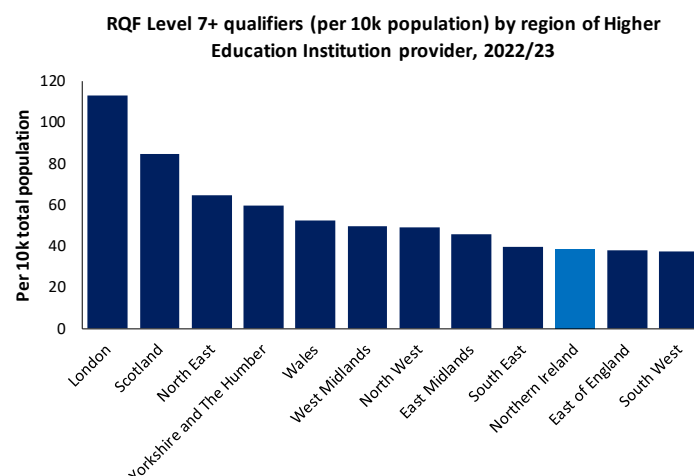
¹⁹ Law is a broad CAH-1 subject that is not further disaggregated further when analysing data at CAH-3 level.

Figure 24: RQF Level 7+ (% of 16-64 population), UK regions, Q2 2024 and HEI qualifiers (per 10k population) by region of provider, 2022/23



Source: Labour Force Survey

Note: Data based on 4-quarter rolling average



Source: HESA, NOMIS

Beyond qualifications

Transversal skills—such as problem-solving, collaboration, creative thinking, digital literacy, and global competence—are built upon two essential capacities. First, they equip individuals to adapt and excel in rapidly changing environments, such as navigating the expanding digital landscape and transitioning to a green economy. Second, they enable individuals to demonstrate both cognitive and non-cognitive competence in addressing the complexities of the modern world.

These skills are broad and cross-cutting, making them difficult to capture accurately through analysis of qualification levels or subject categories alone. For instance, the need for digital skills extends far beyond the demand for computing degrees. Similarly, the skills required to manage the green transition will be demanded across a wide range of professions²⁰. There are new emerging frameworks which link these types of transferrable skills (rather than qualifications) to occupations such as the US Department for Labour’s O*NET database²¹. While quantifying the future demand for such skills is beyond the scope of this research, conducting such an analysis would significantly strengthen the evidence base for informed skills policy planning.

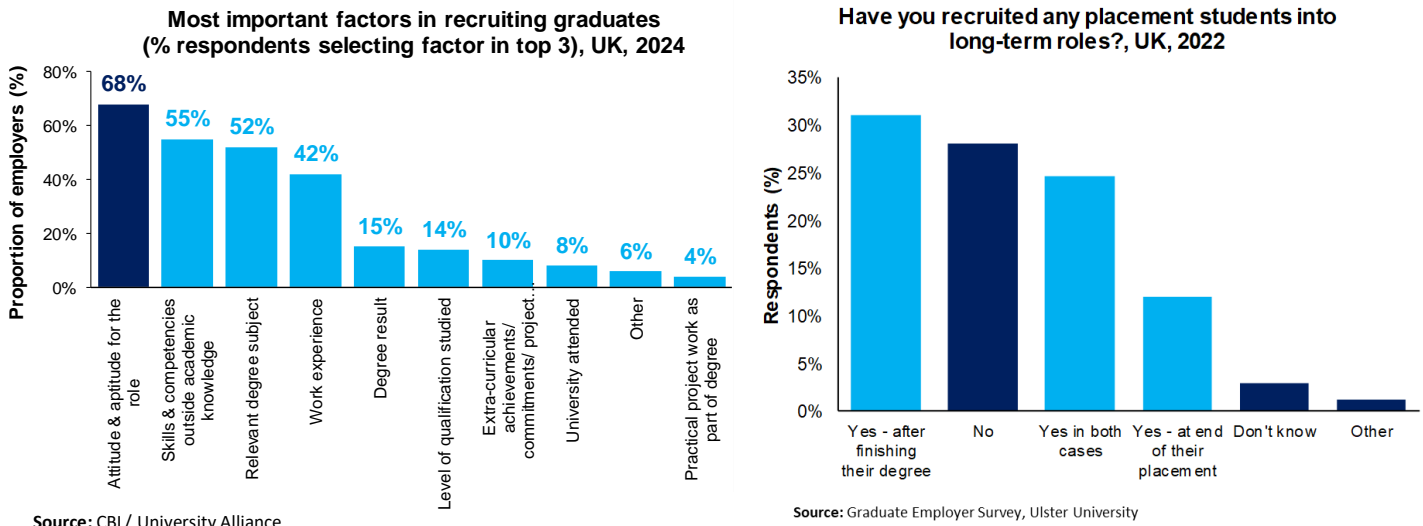
The critical value employers place on these types of skills is reported consistently in surveys. For instance, the 2024 CBI/University Alliance survey²² reported that employers ranked ‘attitude and aptitude for the role’ and ‘skills and competencies outside academic knowledge’ as the most important factors in recruiting graduates, ranking them above both degree subject and degree classification.

²⁰ Energy and Utility Skills (2023) Transitioning to a greener economy – a skills perspective. [Available via: [DfE - Greener Economy Skills Perspective](#)]

²¹ The O*Net framework is a comprehensive occupational database developed that provides detailed information on job roles, including required skills, knowledge, abilities, and work activities, to support workforce development and career planning.

²² Ulster University (2023) Graduate Employer Survey 2022/23. Available via: [UU - Graduate Employer Survey](#)

Figure 25: Most important factors in recruiting graduates, UK, 2024 and Recruitment of placement students to long-term roles, UK, 2022



Relevant work experience is also highly valued by employers. According to the 2023 UU Graduate Employer Survey, "relevant work experience" and "work placements during studies" were identified as the top criteria for graduate recruitment. The importance of work placements is underscored by the fact that over two-thirds of employers (68%) who hire placement students go on to offer them longer-term paid roles, either immediately after their placement or upon completion of their degree programme.

Lifelong learning

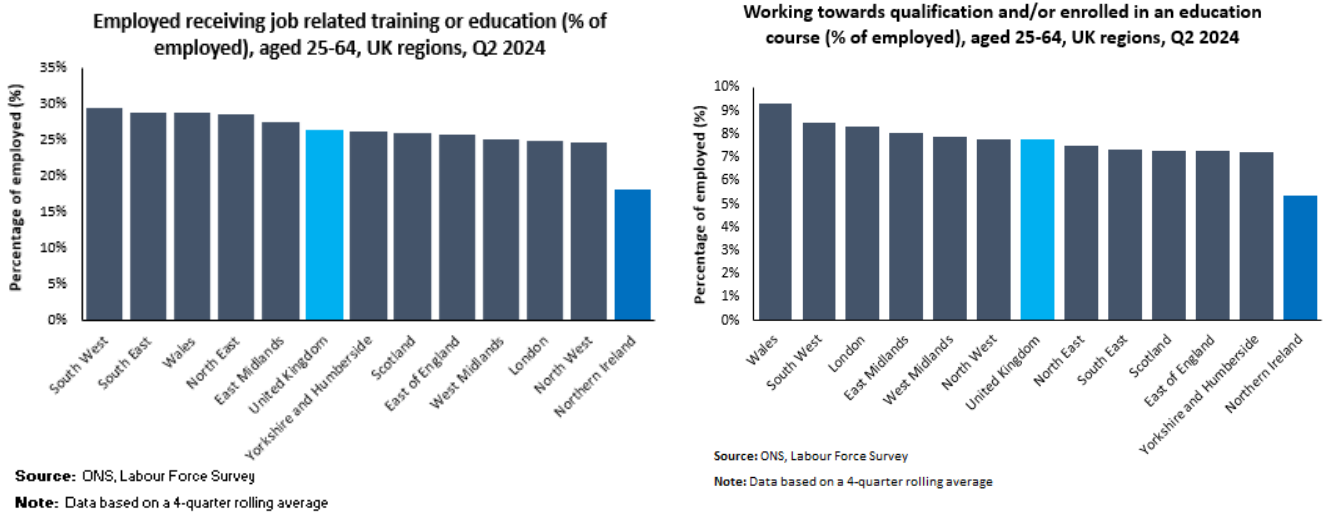
Another mechanism through which to close the qualifications gap between NI and the UK is through lifelong learning. This could be either via workplace training or independent study working towards accredited qualifications. As automation, digital transformation and the transition to a green economy reshape job requirements, even for those who already possess high level qualifications, **continuous learning ensures employees remain competitive and capable of meeting new challenges.**

The latest data indicates that **NI has the lowest proportion of people aged 25-64 in employment receiving job related education or training of any UK region**, with 18% having received job related training in the past three months compared to 26% in the UK. Additionally, **the proportion of people working towards a qualification or enrolled in an education course at 5% is lower than the UK at 8%, and the lowest amongst UK regions.**

This has been an area of consistent underperformance, with NI lagging other UK regions on both metrics over most of the past twenty years. It is important to better understand the barriers which contribute to this underperformance as lifelong learning can play an important part in the 'good jobs' agenda²³. It can ensure inclusivity by enabling individuals at all levels to upskill, enhancing employability, driving innovation, and supporting sustainable economic growth.

²³ For more information please refer to: [DfE - Good Jobs Employment Rights Bill Consultation](#)

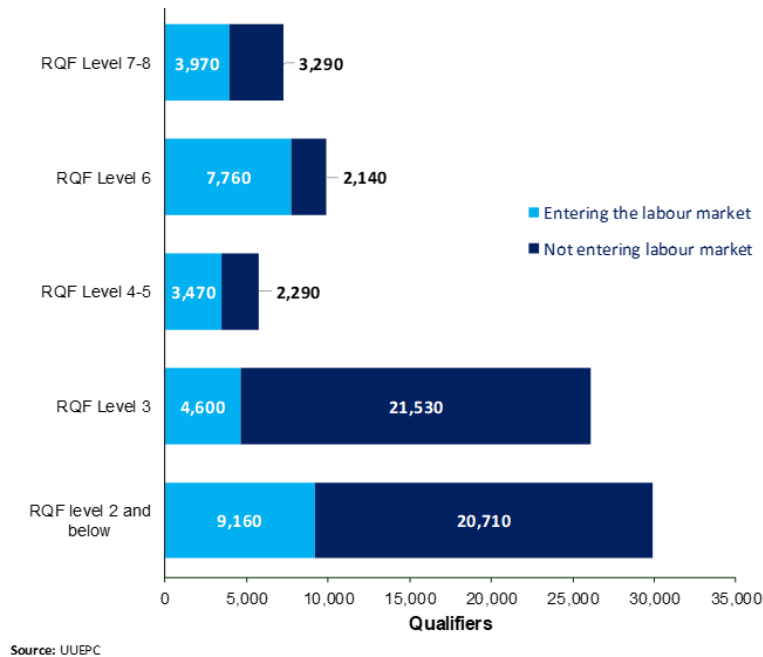
Figure 26: Employed receiving job-related training or education, aged 25-64, UK regions, Q2 24 and employed working towards qualification and/or enrolled in in education course, aged 25-64, UK regions, Q2 24



Total supply of skills

In total 29.0k qualifiers per annum will enter the labour market (i.e. become economically active whereby they are either employed or unemployed and actively seeking employment). The total number of qualifiers across all layers of the education system is much larger, but many of these qualifiers proceed to further study or are already in work and upskilling.

Figure 27: Annual average destination of leavers by qualification (RQF), NI, 2023-2032²⁴



²⁴ This graphic includes data from the NI School Leavers survey. Therefore, school qualifiers who did not leave the institution after qualifying are not included (i.e. GCSE qualifiers remaining in the same school to study A-levels, or equivalent).

Overall, there are a significant number of qualifiers at RQF level 3 and below (mostly GCSE and A-level qualifiers). However, relatively few of this cohort enter the labour market, with the majority proceeding to further study and becoming economically active later. Several factors including a traditional focus on academic routes rather than professional and technical pathways, relatively few Higher-Level Apprenticeships (although this is improving) and individuals leaving the education system with low-level qualifications contribute to a relatively low number of qualifiers at sub-degree level (RQF level 4-5). This is often referred to as the 'missing middle' in the skills supply system. The largest group of qualifiers entering the labour market are graduates at 11.7k per annum, accounting for 41% of NI's net supply of skills.

Key points

- Demographic projections indicate the potential for persistent labour shortages under a high growth scenario. In recent years, the local economy has relied on importing skills from abroad to fill skills gaps, with non-EU migrants accounting for a majority of job growth over the past two years.
- Attainment has also increased across all levels of the education system. With a larger number of qualifiers achieving higher level qualifications, the average number of years spent in full-time education has increased.
- The profile of FE qualifiers is weighted towards qualifications at RQF level 2 and below. However, most school leavers have already achieved this level of qualification.
- The NI labour market demonstrates a notable shortfall in high-level qualifications compared to other regions, particularly at the postgraduate level. When adjusted for population size, NI's inflow of graduates into the labour market is lower than the UK average. This disparity indicates that the gap in advanced skills relative to the rest of the UK is unlikely to close in the short to medium term, posing challenges for competitiveness and economic development.
- The overall supply of qualifications in NI remains characterised by relatively few mid-level skills provided by the education system which directly transition to the labour market, often referred to as the 'missing middle'.
- The subject profile of tertiary level qualifications is highly weighted towards public sector subjects – notably health and education.
- Transversal skills are essential for navigating the modern workforce, underpinning the adaptability required to harness digital advancements and successfully manage the green transition across industries.
- NI continues to significantly underperform other UK regions on lifelong learning metrics, such as employer training and adult learning. As a lagging region, it is arguable that NI needs to outperform other regions to close the qualifications gap.

The demand and supply (Im)balance

The supply/demand (im)balance or “supply gap” represents the net requirement of individuals from education and migration (demand) minus qualifiers from education institutions entering the labour market at a level on par with their qualifications (supply) i.e. demand minus net supply.

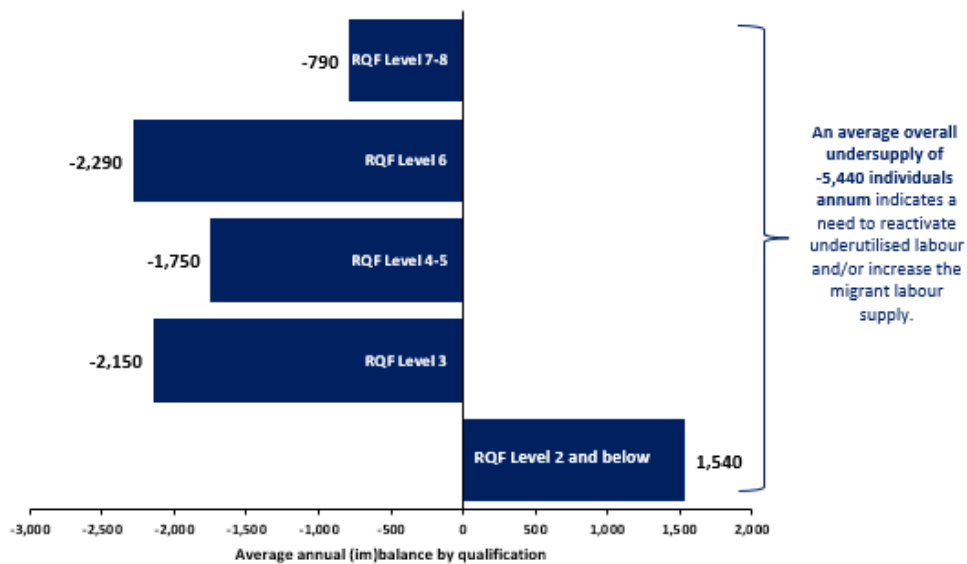
Supply gap – Qualification level (RQF)

Based on net supply, the balance between demand and supply varies across qualification levels. Three broad points emerge from an analysis of balances at the macro level:

- **An oversupply of low-level qualifications (RQF L2 and below)** – As RQF level 2 is a relatively low-level qualification, equating to achieving at least 1 GCSE at grades A*-C (or equivalent), the demand for education leavers at this level is relatively low. Whilst there are a higher number of job opportunities at this level across the economy, it is expected that most of these vacancies will be filled by people already in the labour market (the inactive, unemployed or job to job moves). Squeezed demand for qualifiers from the education system at this level has contributed to an oversupply.
- **A shortage of mid-tier skills (RQF L3 and L4-5)** – There is an undersupply of qualifications at RQF levels 3-5, primarily driven by supply trends. Typically, most students studying at RQF level 3 continue their education thereby reducing the supply leaving education at that level. The provision of professional and technical qualifications in NI is relatively small, and this lack of supply contributes to a shortage of skills at this level. For example, RQF level 4-5 qualifications accounts for only 12% of the net supply to the NI labour market, compared to 41% at RQF level 6+. Addressing this undersupply could be met by either increasing the course offering and participation in mid-level qualifications at FE or increasing the number of apprenticeships which achieve at least mid-level qualifications.
- **An undersupply of graduates (RQF L6-8)** – Changes in the underlying data used in the Skills Barometer modelling and the high growth achieved by ‘qualifications hungry’ sectors results in higher demand for graduates. This contributes to a supply gap for undergraduates (RQF level 6) and a smaller undersupply of postgraduate qualifications (RQF level 7-8).

However, the most important point to note from this analysis is there is expected to be an overall undersupply of skills across the whole spectrum of qualifications (Levels 1-8), with a shortage of 5.4k people per annum to fill all vacancies under the high growth scenario. In other words, **the local economy only has a quantum of labour resources to support filling positions created through replacement demand and a moderate rate of expansion demand.** This raises a range of questions regarding NI’s growth model, and the need to switch from growth led by expansion of labour inputs towards a model based on innovation, technology and productivity growth which can generate sufficient output growth with fewer labour inputs. Without a change in NI’s growth model, methods to expand the labour supply will become increasingly important aspects of economic policy (i.e. migration, reactivation of the economically inactive, retention of older workers, alternative education pathways, upskilling etc).

Figure 28: Annual average (im)balance by qualification (RQF), NI, 2023-2033



Source: UUEPC

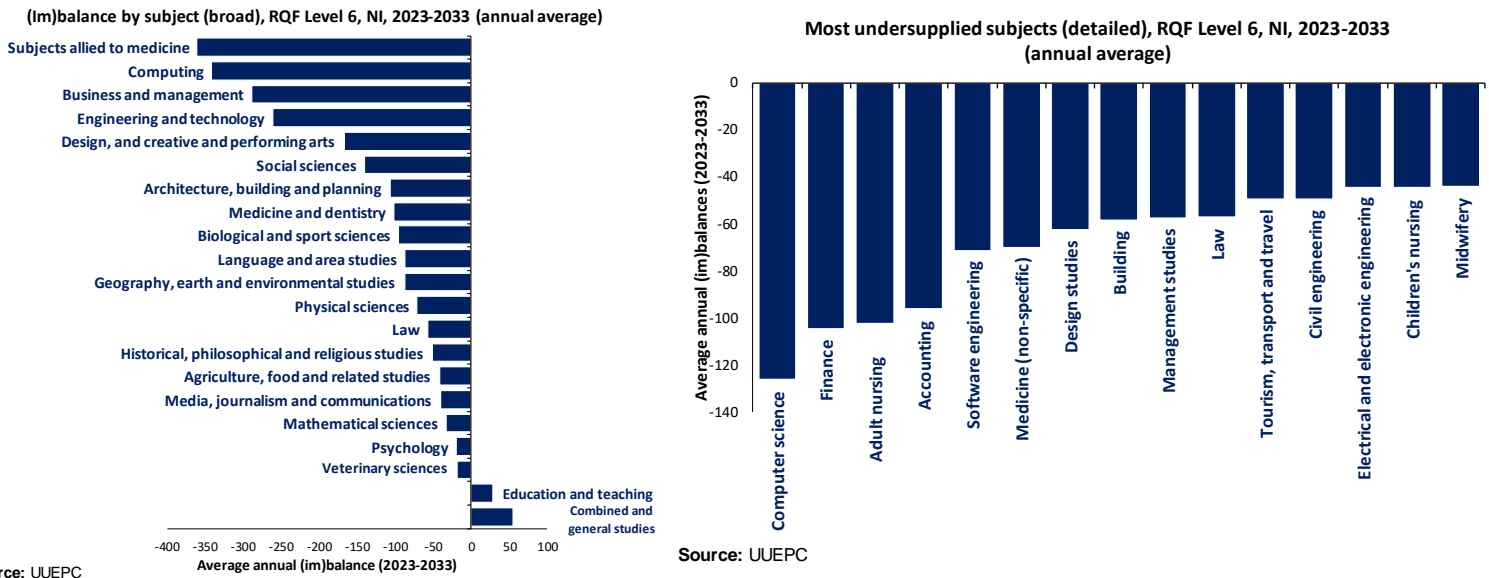
Supply gap – Subject studied (RQF level 4+ only)

For the first time in NI, supply gaps can be analysed separately for undergraduate and postgraduate qualifications. Given the overall undersupply of qualifications, most subjects are undersupplied, but to differing extents.

Estimating a supply gap is not an exact science. Most subject areas do not directly map across to a single occupation, and qualifications can fulfil demand in any occupation in the economy. Therefore, subject areas with balances of +/- 50 can be broadly considered to be in balance.

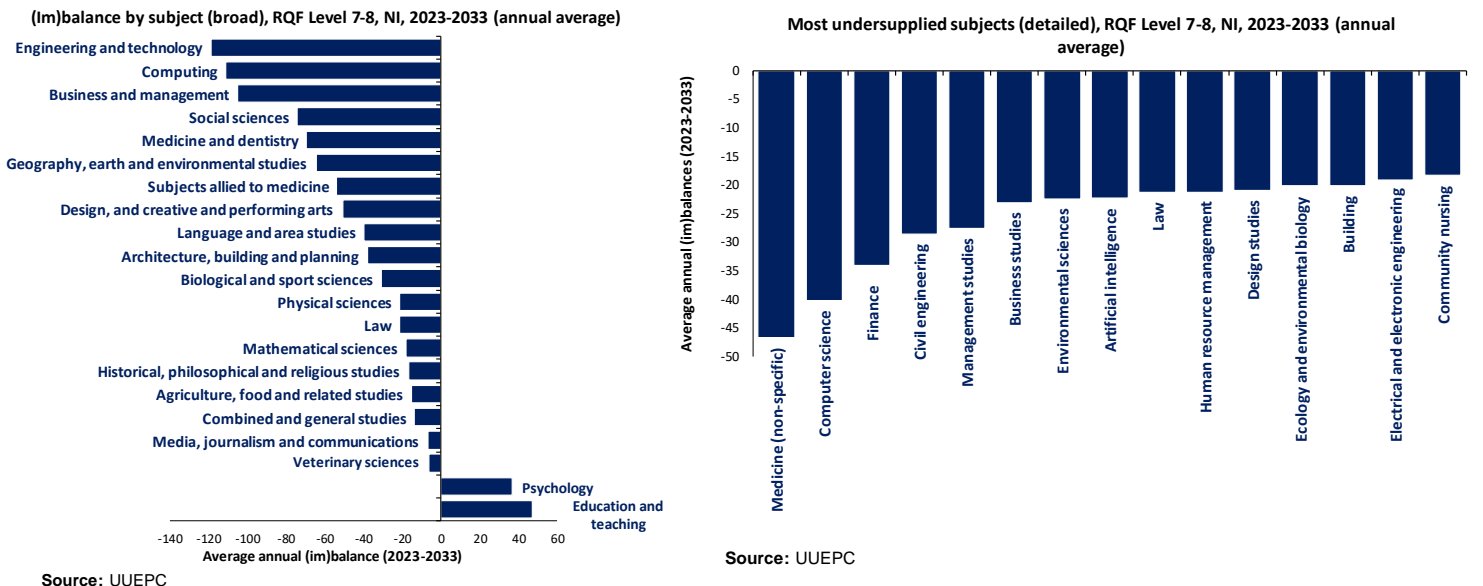
The largest RQF level 6 undersupply is recorded in subjects allied to medicine, which is mostly explained by an undersupply in nursing subjects. This is followed by computing; business and management; engineering and technology; and design and creative subjects. This is linked to the nature of the high growth scenario which includes high growth in the ICT and professional services sectors, and a significant number of additional jobs above the baseline in advanced manufacturing as well as rising demand for creative skills. Using more granular subject definitions (CAH-3) the largest undergraduate supply gaps are in computer science, finance, adult nursing and accounting.

Figure 29: Annual average RQF Level 6 (im)balance by subject (CAH), NI, 2023-2033



At postgraduate level (RQF level 7+) the scale of undersupply is smaller relative to undergraduate. At the broad subject level (CAH, 2-digit) the largest gaps are recorded in engineering and technology; computing; and business and management. Using more granular subject definitions (CAH, 3-digit), the largest postgraduate undersupply is recorded for medicine (non-specific); computer science; finance; civil engineering; and management studies.

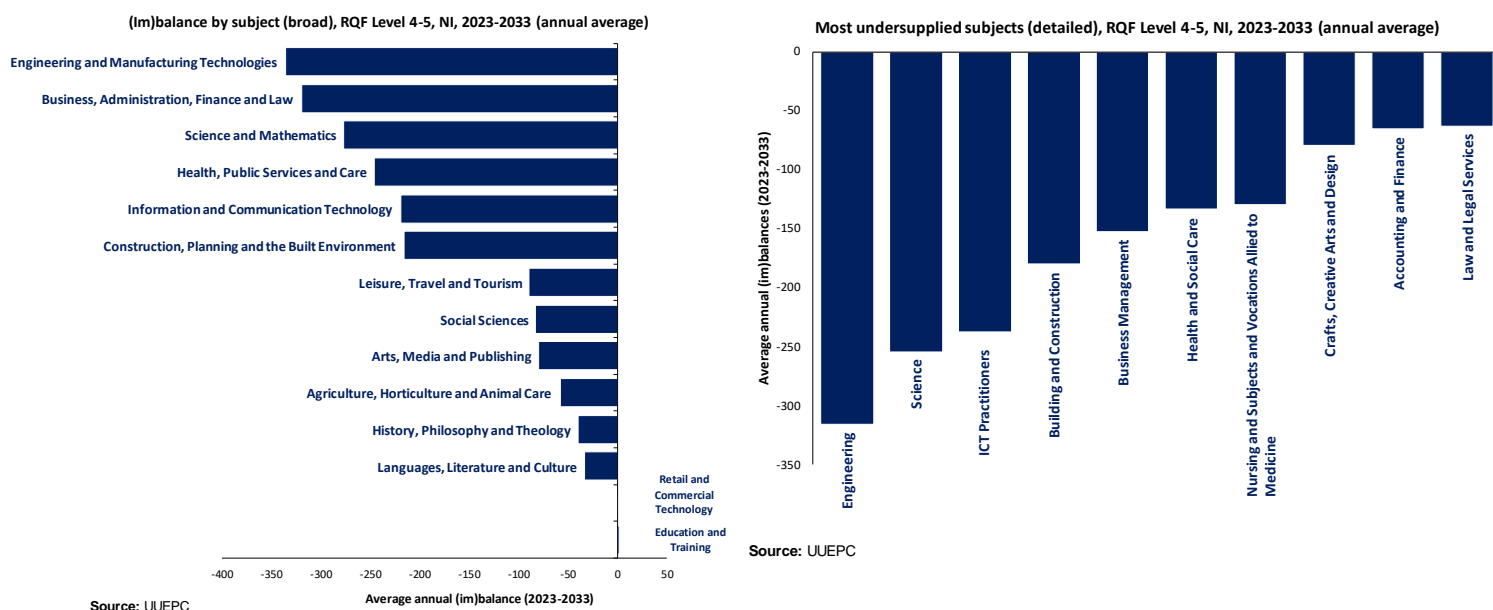
Figure 30: Annual average RQF Level 7+ (im)balance by subject (CAH), NI, 2023-2033



Analysis of the demand and supply of RQF level 4-5 subjects (Sector Subject Area framework (SSA)) highlights that all subject categories are undersupplied, stemming from the low supply of skills to the NI labour market at this level of qualification. The largest undersupply is recorded in engineering and manufacturing technologies; business, administration, financial and law; and science and mathematics. Using more detailed subject categories (SSA, 2-digit) the largest undersupply is recorded in engineering, science; ICT practitioners; building and construction; and business management. Overall, the profile of undersupply mirrors the

analysis for other RQF levels, with the largest undersupply concentrated in Science, Technology, Engineering, Arts, and Mathematics (STEAM) subject areas.

Figure 31: Annual average RQF Level 4-5 (im)balance by subject (SSA), NI, 2023-2033



Generally, across all levels of tertiary education there is evident strong demand for STEAM and business and management subjects. These disciplines are central to the development of high-growth sectors such as the NI Government’s priority sectors (agri-tech; life and health sciences; advanced manufacturing, materials and engineering; fintech/financial services; software; screen industries; and low carbon). Therefore, any skills shortages in these areas could potentially hamper growth prospects in target sectors.

Key points

- There is projected to be an overall undersupply of skills over the next 10 years.
- The NI economy has a quantum of labour resources consistent with filling vacancies created through replacement demand and supporting relatively moderate expansion demand.
- There is an undersupply of mid-level (RQF level 3-5) qualifications, reflecting a relatively small number of qualifiers at this level who transition to the labour market.
- There is an oversupply of low-level qualifications (RQF level 2 and below) over the next 10 years.
- There remains a subject imbalance at HE level, with undersupply in health, business and management and narrow STEM subject areas (e.g. computer science, engineering, physical and environmental sciences).

Summary, policy remarks and further research

This research has identified several interesting conclusions with respect to the NI economy and its future skills needs. As this is the 5th iteration of the NI Skills Barometer, much of the analysis is providing confirmation of known trends with updated data. In other cases, new challenges have been identified. The main policy remarks are summarised below.

Skills should remain at the core of economic development policy. The importance of skills to achieve a high growth economy based on ‘good jobs’ is well established, not least as are the improved returns to individuals regarding employment and earnings prospects. For example, 87% of working age graduates are in employment compared to 50% of people with qualifications below RQF level 2. Further, degree holders enjoy a salary premium of 187% compared to people with qualifications below RQF level 2.

The stock of skills in the working age population compares unfavourably to other UK regions. NI has the lowest graduate intensity amongst the working age population of any UK region. The inflow of high-level skills from education institutions to the labour force also compares unfavourably to most other UK regions, meaning that the qualifications deficit in NI is likely to persist. This is an important consideration for competitiveness, given the well-established link between the stock of qualifications and productivity.

The era of ‘easy’ recruitment is over. The NI economy benefitted from a demographic dividend in recent decades. A young age profile and growing working age population accounted for a significant proportion of NI’s economic growth. Looking forward, virtually no growth is forecast in the working age population and the population is ageing. Unemployment is at record lows, with less than a third as many unemployed persons compared to 10 years earlier. The profile of the economically inactive has shifted, with an increasingly higher weighting towards long-term sickness. This group have relatively low exit rates, thus only a small proportion currently fill vacancies. These trends have combined to create a shallow pool of labour, contributing to a highly competitive recruitment market. Given the structure of the labour market and demographic trends, the coming decade is likely to be characterised by persistent skills challenges.

Labour shortages limit capacity for employment growth. Even under the high growth scenario, which is based on aspirational (but achievable) assumptions, forecasted job growth is lower than has been recorded in recent years. For example, the high growth scenario projects annual job growth of 7.9k per annum over the 2023-33 period compared to 14.5k per annum over the 2012-19 period. Additionally, job growth over the past three years has significantly exceeded the 2023-2033 forecast growth rate, though much of this can be attributed to recovery following the pandemic-induced recession of 2020-21 and high levels of immigration in 2022 and 2023. With the labour market characterised by extreme tightness, the local labour market only has sufficient resources to support filling vacancies created through replacement demand alongside moderate levels of employment growth.

Rethinking NI’s growth model. Raising NI’s productivity growth is one route through which the pressure on skills demand could be eased, whilst not sacrificing economic growth. In other words, doing more with less. Tackling NI’s relatively low levels of productivity and accelerating the weak productivity growth recorded since the Global Financial Crisis is easier said than done. It is difficult to achieve productivity goals in a region where the economy is predominately service orientated, remains relatively dependant on the public sector, is weighted towards SMEs, lacks PLCs and has limited head office activity. However, that is not

to say that NI's productivity performance could not be significantly improved. Achieving this requires a comprehensive policy intervention that involves investment in cutting edge technologies, automation of existing activities, higher levels of research and development, investment in the skills of the workforce, a structural shift towards export orientated sectors etc. Overall, economic growth in NI over recent decades has primarily been driven by increasing labour inputs. However, sustaining growth through this approach over the longer term is challenging, and a higher proportion of growth must come from making better use of existing labour resources and transitioning to higher value-added activities.

A strategy is needed to play the numbers game and avoid a decade of persistent skills shortages. The Skills Barometer modelling indicates that there will be an overall undersupply of labour. This is not unusual, previous editions of the Skills Barometer also highlighted a labour deficit at the macroeconomy level. However, with higher levels of replacement demand the scale of the labour shortage is projected to be larger than the recent past. This raises several policy questions which require consideration to ensure that skills shortages do not hinder the growth of the NI economy over the coming decade and beyond:

- **Re-engaging the economically inactive** would reduce net replacement demand (as more vacancies would be filled by those already in the labour market) and ease pressure on the demands from the local education system. Recent research by UUEPC highlighted that NI has the tightest labour market amongst UK regions, with the largest labour reserves being hidden amongst the economically inactive. Most of this group are precluded from working due to a wide range of issues including sickness, disability, caring responsibilities etc. However, there are a proportion who would like to work if a suitable job opportunity were available. These individuals face a range of labour market barriers and have a qualification profile increasingly weighted towards low-level qualifications. As such, a significant proportion of this group would be required to upskill to align with labour market demand, and it is unlikely that this source of labour would be able to successfully plug skills shortage gaps across the entire skills distribution. *UUEPC recently published research related to encouraging underutilised groups in the labour market to move from inactivity into work*^{25,26}.
- **Retention of older workers.** Net replacement demand is determined by labour market flows, with retiring workers being a major driver. Encouraging older workers to remain in the labour market for longer would have the impact of lowering net replacement demand, thereby easing the pressure on the education system to supply new workers. Several policies can support extended workforce participation including flexible working arrangements, part time hours, upskilling initiatives and incentives through the tax and pension systems.
- **Importing skills from abroad.** The post-pandemic labour market in NI has faced unprecedented labour shortages, with migration playing a key part in filling vacancies. For example, in 2023 net migration reached its highest level in the past 15 years and labour from outside the UK and EU accounted for over seven-tenths of the increase in employee jobs. However, the marketplace for international labour has also become increasingly competitive, as advanced economies are facing similar challenges regarding labour shortages and ageing populations. OECD countries set a record high

²⁵ Magill, M. Shannon, M. & Perry, S. (2024) Spare capacity in the NI labour market. Papers 1-3. [Available via: [UUEPC - Publications](#)]

²⁶ UUEPC (2024) Economic inactivity: Who, what, where, why? [Available via: [UUEPC - Economic Inactivity Report](#)]

for new permanent immigrants in 2023²⁷, and the UK, EU27 and United States all recorded the highest immigrant employment rates on record²⁸. Therefore, attracting a higher quantum of skills from abroad is difficult within the current environment, and will require employer investment in marketing and recruitment campaigns. Moreover, as NI operates under UK migration law, the region lacks the flexibility to adapt to specific local challenges, which could further hinder international recruitment. The Irish migration system includes a ‘critical skills employment permit’, which is designed to attract highly skilled people to Ireland in skills shortage areas that are important to growing Ireland’s economy (e.g. ICT professionals, engineers, technologists etc.). While NI employers can still recruit international talent if both the job and individual meet UK Government criteria, the NI Executive has no authority to adjust migration policies to address regional-specific skills shortages that may differ from those in Great Britain.

- **Attracting talent from the rest of the UK and Ireland.** Attracting talent from across the UK and Ireland can play an important role in addressing workforce shortages in NI. According to the 2021 Census, individuals born outside NI, whether from GB or the Republic of Ireland, represent only 8% of the employed population in the region. Additionally, the number of students from GB or the RoI studying at NI HEIs remains notably low. NI also experiences a negative migration balance, with more people leaving for GB than arriving, alongside a similar outflow of students. Reversing these trends—either by attracting a larger pool of talent from the rest of the UK and Ireland, or by retaining more local graduates—could significantly contribute to alleviating labour shortages in the region.
- **Retention of international students.** NI HEIs have achieved considerable success in attracting higher numbers of international students in recent years, notably at postgraduate level. However, retention rates remain low, with only a small proportion of graduates staying in NI after completing their studies. The Graduate Route Visa enables international qualifiers to remain in the UK for up to two years (three years for PhD qualifiers)²⁹, with none of the other restrictions that come with other work-related visas. This should be an attractive option for employers, since those using this route are highly skilled and there are no direct costs to the employer. However, there is some evidence at a UK level that employer understanding of the graduate route could be improved³⁰. Visa issues aside, there is a need to market NI to international students not just as a place to achieve their qualification, but also as an attractive place to live and work post-graduation.
- **Retaining more indigenous graduates.** In 2021/22 there were 19.5k NI domiciled qualifiers from UK HEIs. Around 28% of those qualifiers had studied at GB HEIs, with 46% living and working in NI 15 months after qualifying. In other words, of the NI domiciled 5.4k qualifiers at GB Universities in 2021/22, more than half did not return to NI. While a significant proportion of these students may be considered ‘determined

²⁷ The new record high has been recorded excluding Ukrainian refugees.

²⁸ OECD (2024) International Migration Outlook 2024.

²⁹ Once in employment it is possible to switch to the Skills Worker Visa for a permanent stay, providing the necessary requirements are met.

³⁰ Higher Education Policy Institute (2023) ‘Not heard of this’: Employers’ perception of the UK’s graduate route visa. [Available via: [HEPI - Employers perceptions of UK graduate Route visa](#)]

leavers' (individuals unlikely to return regardless of policy changes), many do return. This suggests that limitations in university places within NI have compelled some students to study elsewhere, despite a preference to remain in the region. The direct policy intervention regarding this issue would be to adjust the Maximum Student Number (MaSN) cap upwards with a goal of retaining more local talent, or providing some form of flexibility for NI HEIs whereby student numbers could be increased in subjects experiencing the most acute skills shortages.

- **Attraction of the diaspora.** Over the past decade, NI has experienced average annual migration outflows of approximately 22.5k individuals. While a significant portion of these outflows may consist of international migrants returning to their home countries, a notable proportion are likely to be NI domiciled persons who have resettled elsewhere but could be encouraged to return. For instance, an estimated 135k individuals born in NI currently reside in England and Wales, representing a potential talent pool for repatriation initiatives.
- **Consideration of alternative models of delivery.** The education system has been characterised over the past twenty years by increasing levels of academic attainment. This has led to an increase in the number of years spent in full-time education and has the effect of reducing the annual flow of qualifiers into the labour market. Alternative modes of delivery for high-level qualifications which enable young people to enter employment earlier would help address some short-term pressures (e.g. High-level apprenticeships).

The challenges facing NI's labour supply are complex and multifaceted, with no single policy intervention capable of resolving them. For instance, the choice between productivity led growth and growth led by expanding labour inputs is a long-term issue and would have limited impact on short-term challenges. Given the qualifications profile of the economically inactive, engaging more of this group would not solve skills shortages across the entire skill distribution. Retaining significant numbers of older workers in the labour market is difficult without raising the retirement age, and there is limited political support for such a move. The NI Executive does not currently have power to adjust NI's migration policy, and the international market for talent is increasingly competitive. Attraction and retention of HE students from elsewhere is challenging, as students will usually remain attached to their country or region of origin. Retaining more local graduates is difficult as there are a significant number of 'determined leavers' within the target cohort, and additional university places are subject to funding constraints. Increasing the supply of high-level qualifications through work-based learning is dependent upon employer participation, which is challenging to achieve in an economy largely based on SMEs. **Addressing these issues will require a holistic approach, involving coordinated interventions targeting multiple sources of skills to meet NI's labour market needs effectively.**

Public finances challenges – The state of NI's public finances can at best be described as precarious. Recent years have been beset by political disagreements over budget allocations and industrial action stemming from pay disputes. The early signals following the Autumn 2024 Budget indicate that a similar pattern is expected in 2025. In prior tight fiscal environments spending has been ringfenced to protect front line services, notably health. The impact of this is to distribute the impact of any real terms public spending cuts across non-protected departments. With the labour market facing such difficult challenges it is important to continue to invest in our skills system to help resolve the shortages recorded across the economy. NI's spending on 'skills in industry' is currently lower than it was in the early years of the 2010s, despite the much higher incidences of skills shortages recorded in today's labour market.

Graduate subject diversity – Overall NI appears to remain by far the UK region with the greatest proportion of its graduates with degrees in subjects allied to medicine (where nursing is the largest subject). The second highest proportion of graduates from NI HEIs have studied business and management, although it accounts for 16% of qualifiers, it remains below the overall UK proportion 19%. Further, NI has a higher proportion of qualifiers in computing subjects. This is a subject area where skills shortages have been highlighted in earlier iterations of the Skills Barometer, and the increase in computing graduates recorded over the past decade illustrates the local HE sector successfully responding to labour market demand. In other words, when suitable labour market intelligence is available, the local education system has the flexibility to adapt its provision to meet workforce needs effectively.

Managerial (and professional) weakness – NI's workforce structure has a lower proportion of managerial and professional occupations compared to the UK. The gap has narrowed over time as the local economy has experienced strong growth in the professional services and IT sectors. Albeit this growth has been from a relatively low base. The lack of these types of roles may have held back the development of management and leadership (M&L) skills in the local economy. It has been many years since a systematic review was undertaken regarding M&L skills in NI³¹, but in 2023 NI was included in the Management Expectations Survey (MES) for the first time, recording the lowest management score amongst the 12 UK regions. *UUEPC recently completed research into M&L training in SMEs in NI³², the research highlighted that a majority of employees in NI receive no M&L training, and managerial skills gaps are particularly pronounced in smaller businesses.*

Upskilling the existing workforce remains important – NI's workforce qualifications improves organically as young people with high level qualifications enter sectors and replace lesser qualified retiring older persons. However, NI's qualifications profile continues to lag the UK average. Without targeted efforts to upskill the existing workforce, this gap is likely to persist in the short to medium term. Upskilling initiatives should focus on both those already in employment, who can benefit from independent learning or employer-provided accredited training, and individuals currently out of work, to help bridge the qualifications gap between those in employment and out of work persons. There is limited information on lifelong learning patterns. However, the evidence that is available indicates a decline in employer investment in training, fewer people working towards new qualifications and less employees receiving training in the workplace. *UUEPC's future research plans include undertaking research to better understand the barriers to lifelong learning in the local labour market.*

The missing middle – Previous editions of the NI Skills Barometer have identified an unbalanced skills supply, with few sub-degree level qualifications providing direct transitions into the labour market. This remains a feature, with many of the qualifiers in sub-degree programmes proceeding to further study rather than entering the labour market. Undersupply in this area could be met by either the development of new courses for in-demand subject areas with close employer links, or by expansion of higher-level apprenticeships. There is a competitive strength in having a diverse education offering by enhancing student choice and providing the labour market with a wider range of professional and technical skills.

Transversal skills – Surveys frequently highlight that employers face challenges finding candidates who possess not only technical competencies but also the "soft skills" that foster

³¹ McKinsey and Company (2009) Management Matters in Northern Ireland and Republic of Ireland. [Available via: [DfE - Management Matters in NI and RoI](#)]

³² Bonner, K. Martin, G. & Arique, A. (2024) Management and Leadership Training in NI SMEs. [Available via: [UUEPC - Management and Leadership Training in NI SMEs](#)]

effective collaboration, innovation, and leadership. Transversal skills equip individuals to navigate a rapidly evolving job landscape, particularly in the face of automation, digital transformation, and global economic shifts. Workers with strong problem-solving abilities, creativity, and adaptability are better positioned to transition between roles or sectors as demand changes. To meet future workforce demands, integrating these skills into education, training, and lifelong learning frameworks is essential. *There is an evidence gap in relation to the demand for transversal skills, as these types of skills do not fit neatly within occupation or subject frameworks. UUEPC's future research plan includes the quantification of the demand for transversal skills.*

Skills to support the digital and green transition – These skills are vital for ensuring sustainable economic growth and resilience in a rapidly changing world. Whilst these areas are aligned with the NI Government's priority sectors and will make an important contribution towards growth, the number of jobs specialising in the green economy or rapidly emerging technologies such as AI are still likely to represent a small proportion of total jobs. However, these skills are important across virtually all disciplines and should be embedded across curricula at all levels of education and subject areas to ensure that people have the necessary skills adjust to the digital transition and adapt behaviours better aligned with the achievement of environmental objectives.

The importance of replacement demand – Although NI experiences robust employment growth in the UUEPC high growth scenario, net replacement demand provides more than treble the number of job opportunities (replacing workers who have retired, left employment due to illness, moved to another position etc.). The largest sectors tend to be associated with the highest levels of replacement demand. Therefore, sectors such as health, retail and manufacturing will have relatively large levels of replacement demand. This is an important point regarding careers advice, as sectors do not necessarily have to be growing rapidly to provide job opportunities.

Sub-regional variations in skills demand – The NI Skills Barometer provides a macro level overview of the demand and supply of skills in the local labour market. However, it is important to note that this picture may not accurately reflect the situation across sub-regions within NI. For instance, areas with a stronger focus on production activities are likely to exhibit higher demand for mid-level skills and greater specialisation in disciplines such as engineering, deviating from the broader trends reflected in the macro-level analysis. *UUEPC will build upon this work to develop a skills forecasting model for sub-regions within NI, using a methodology consistent with the NI Skills Barometer.*

STEM skills – These are crucial for addressing industry-specific challenges and driving innovation in key sectors. These skills are critical for growth areas like data analytics, robotics, cybersecurity, biotechnology, fintech, life and health sciences and software engineering. Some of the largest undersupplies of skills are forecast in STEM subject areas including subjects allied to medicine (notably nursing), computing, engineering and technology. The skills strategy for NI³³ set a target to increase the proportion of individuals leaving NI HEIs with first degrees and postgraduate qualifications in narrow STEM subjects from 24% in 2019/20 to 27% by 2029/30, but the dial has remained unmoved at 24% in the two years since the target was set. Relatively few women study narrow STEM subjects, but when there is an overall undersupply of RQF level 6+ skills then encouraging more women into narrow STEM subjects could exacerbate skills shortages in other subject areas.

³³ Department for the Economy (2024) Skills Strategy for Northern Ireland. [Available via: [DfE - Skills Strategy in Northern Ireland](#)]

Continue to monitor – Irrespective of the validity of forecasts, the exercise of forecasting future skills needs has produced a range of useful information to help develop the framework for skills policy in NI. Recurrent monitoring of the kind carried out in this project should be continued as a key input to the skills evidence base within DfE. It must sit alongside more specific sectoral and firm level knowledge, but as an empirical base it provides a useful stimulus for policy debate and contribute to the high-level macro picture. *UUEPC's future research plans include the development of sector specific skills intelligence packs for key sectors. These will summarise key labour market data, draw on Skills Barometer forecasting data and utilise jobs posting data to provide up to date labour market intelligence on sector specific issues.*

Scenario modelling – The skills forecasting model is flexible across economic scenarios and the model will compute the anticipated skill requirements by qualification level and subject (for tertiary education). Therefore, if the Government has a different economic vision compared to the forecasts in UUEPC's high growth scenario, alternative scenario analysis can be undertaken. For example, how would skills demand change if the NI economy experienced a large productivity shock and shift from growth based on the expansion of labour inputs to a productivity led growth model? *UUEPC is willing to work collaboratively with government departments and use UUEPC's skills model to test the implications of any relevant economic scenario on the demand for skills.*

Achieving success across all areas of the education and training system presents a complex and multifaceted challenge. The Skills Barometer serves as a valuable resource, among others, to guide policy development. A more in-depth presentation of the Skills Barometer's modelling outputs can be found in the accompanying PowerPoint information pack, which supplements this summary report. The information can be used by policymakers, educators, students, career advisors, and employers to inform decision-making and support the continuous development of the workforce.