Skills Barometer Update 2021

Information pack

Contents

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Acronyms & NQF qualifications

Acronym	Full Name
NI	Northern Ireland
UK	United Kingdom
UUEPC	Ulster University Economic Policy Centre
DfE	Department for the Economy
HE	Higher Education
FE	Further Education
NQF	National Qualification Framework
JACS	Joint Academic Coding System
SSA	Sector Subject Area
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
GCSE	General Certificate of Secondary Education
HESA	Higher Education Statistics Agency
OECD	Organisation for Economic Cooperation and Development

NQF 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	A-level (or equivalent) / Extended diplomas
Level 2	5 GCSEs A*-C (or equivalent)
Level 1	5 GCSEs D-G (or equivalent)
Level 0	Below NQF level 1/ no qualifications

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Section 1

Introduction and key findings

Introduction

Skills Barometer Background

Ulster University Economic Policy Centre (UUEPC) were commissioned by Department for the Economy (DfE) to report on the quantum of future skill requirements for Northern Ireland (NI).

The NI Skills Barometer involved the development of an economic model to forecast future skills needs and skills gaps by qualification level, subject area and sector for NI. The project was originally commissioned in 2015 and has been updated at two-year intervals.

The quantitative findings of the research have benefitted a wide range of stakeholders including; careers advisors, young people and parents; teachers and schools; business groups; DfE; and wider government.

This update report is the **fourth publication** in relation to the NI Skills Barometer, and covers the coming decade to 2030.

Methodological approach

Demand side indicators

Demand for jobs (by sector and occupation)

- Expansion demand
- Replacement demand

Demand for skills (by NQF and subject area)

- Current skills mix
- Projected skills mix

Supply side indicators

Supply of people (by age)

- Demographics of NI population

Supply of qualifications (by subject area and NQF)

- Gross supply
- Net supply
- Effective supply

Supply/Demand (im)balance

Identify the average annual supply gap

- By NQF level
- By subject studied (JACS and SSAs)

Modelling approach

Forecasting skills needs

It is prudent to plan for skills needs in an aspirational nature based on economic ambitions of an economy. The economic cost of skills shortages and skills mismatches can be substantial.

For example, if businesses are unable to meet their demand for skilled labour the competitiveness of an economy will fall, productive capacity decreases ultimately dampening future job growth.

Likewise, it is important to have in place measures to offset any potential individual costs if policy ambitions are not met leading to an oversupply of skills.

For example, a contingency plan may include conversion courses for redundant workers or training rights for young people unable to secure employment after graduation.

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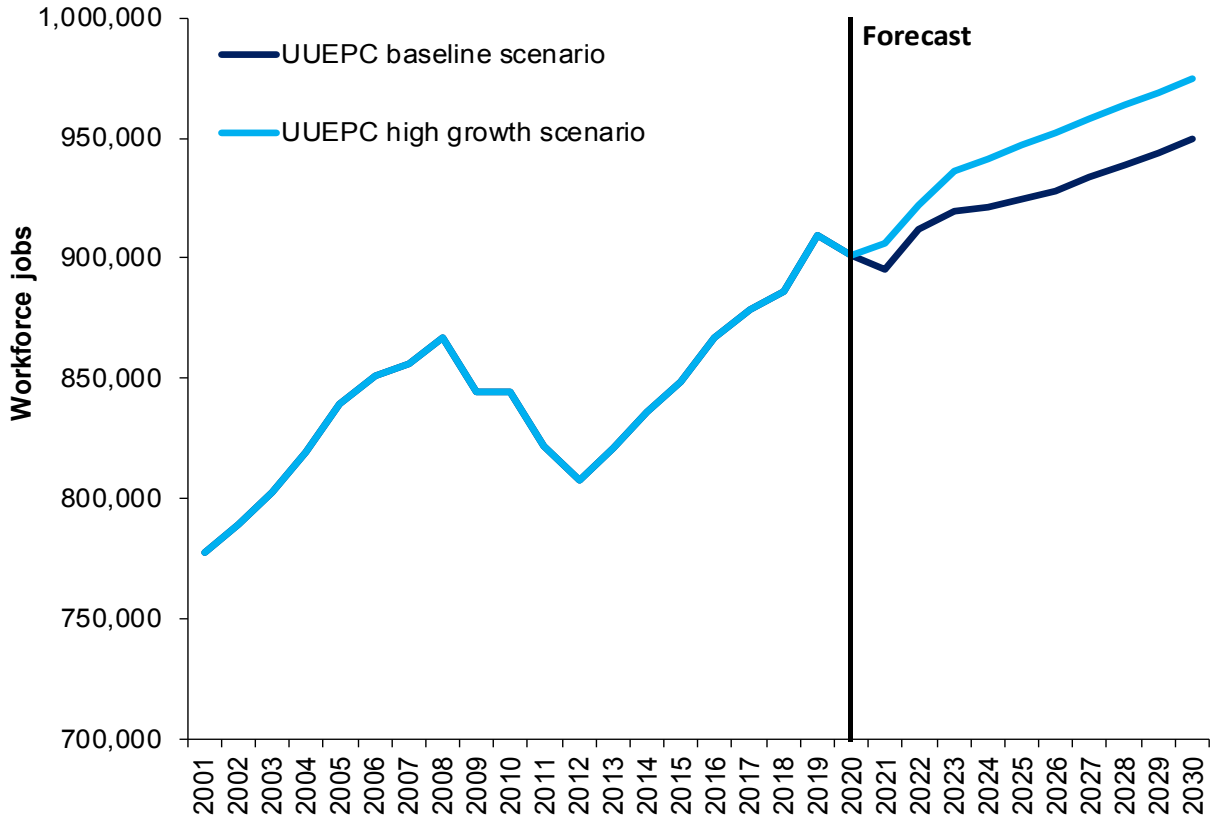
UUEPC economic model (1)

UUEPC produces regular economic forecasts for NI under three scenarios: lower scenario; baseline scenario; and 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.

This report will focus on outcomes associated with a high growth scenario as it is prudent to plan for skill needs in an aspirational nature based on economic ambitions of an economy.

Employment (jobs), high growth scenario versus baseline scenario, NI (2001-2030)



Source: *UUEPC*

UUEPC economic model (2)

UUEPC produces regular economic forecasts outlining the most likely economic outcome (baseline scenario) and an aspirational economic outcome based on NI achieving its economic ambitions (high growth scenario)*.

At the macro level, the assumptions applied to the high growth scenario are based on the following principles:

The NI employment rate will converge but not completely reach the United Kingdom (UK) employment rate. Overall, the level of job creation from 2020-2030 under the high growth scenario is lower than the 2012-2019 period (8.1% compared to 12.6%). In contrast the baseline forecast employment growth over the coming decade is 5.3%.

The largest growth is applied to the higher value-added sectors as identified in the Skills for a 10X Economy Strategy (i.e. Fintech/Financial Services and Digital, ICT and Creative Industries). Although growth in professional services and finance sectors are ambitious it remains lower than growth over the period 2012-2019. A significant number of additional jobs have also been allocated to the health sector, which is expected to benefit from additional government spending. Whereas, lower but appropriate levels of growth are applied to the wider supporting sectors such as hospitality, construction, administration and support services.

**Annex A1 and Annex A2 provide a detailed analysis of economic outputs under the baseline scenario and the high growth scenario.*

High growth and baseline

Industry	Total jobs 2020 baseline	Job growth (absolute terms) 2020-2030		Job growth (p.a.)	
		Baseline scenario	High growth scenario	High growth scenario (2020-2030)	Actual (2012-2019)
Agriculture	31,910	+10	+360	0.1%	-2.1%
Mining	2,040	-10	+70	0.4%	0.7%
Manufacturing	93,210	+4,080	+7,030	0.7%	3.0%
Electricity & gas	2,290	+80	+360	1.5%	6.2%
Water supply & waste	7,380	+630	+1,090	1.4%	3.6%
Construction	60,420	+5,740	+7,640	1.2%	2.0%
Wholesale & retail	141,460	-2,100	+1,330	0.1%	0.7%
Transport & storage	34,650	+3,020	+4,360	1.2%	2.4%
Restaurants and hotels	52,760	+3,220	+4,730	0.9%	2.6%
Information & communication	25,440	+5,600	+9,090	3.1%	4.4%
Finance & insurance	20,670	+770	+1,510	0.7%	0.0%
Real estate	11,600	+410	+730	0.6%	0.6%
Professional scientific & technical	44,810	+8,840	+10,910	2.2%	4.2%
Administrative & support services	55,450	+3,750	+4,490	0.8%	4.0%
Public admin & defence	52,130	+1,090	+2,200	0.4%	-1.5%
Education	78,010	+2,320	+2,960	0.4%	0.9%
Health & social work	144,900	+5,160	+8,130	0.5%	1.5%
Arts & entertainment	18,990	+2,030	+2,840	1.4%	1.7%
Other service activities	23,420	+3,070	+3,220	1.3%	6.2%
Total	**901,560**	**+47,720**	**+73,060**	**0.8%**	**1.7%**

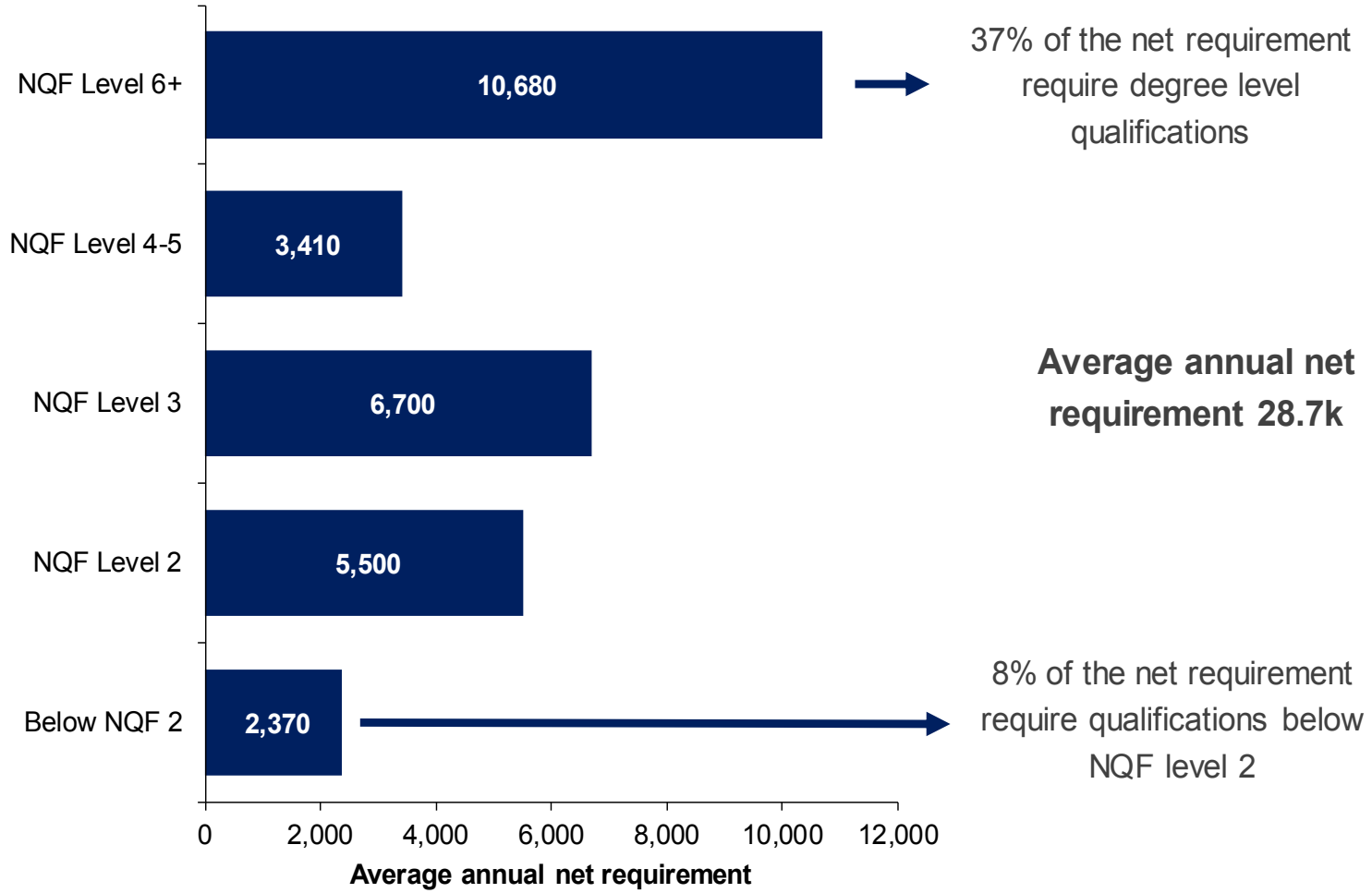
Source: *UUEPC*

Note: *Figures may not sum due to rounding.*
Note: *The labour market outlook is presented in 'job-based' terms and therefore differs from forecasts calculated on 'people-based' terms (i.e. some people have more than one job). It is essential to convert the forecasts from 'jobs' to 'people' based to determine the skills requirements of the labour market.*

Key findings

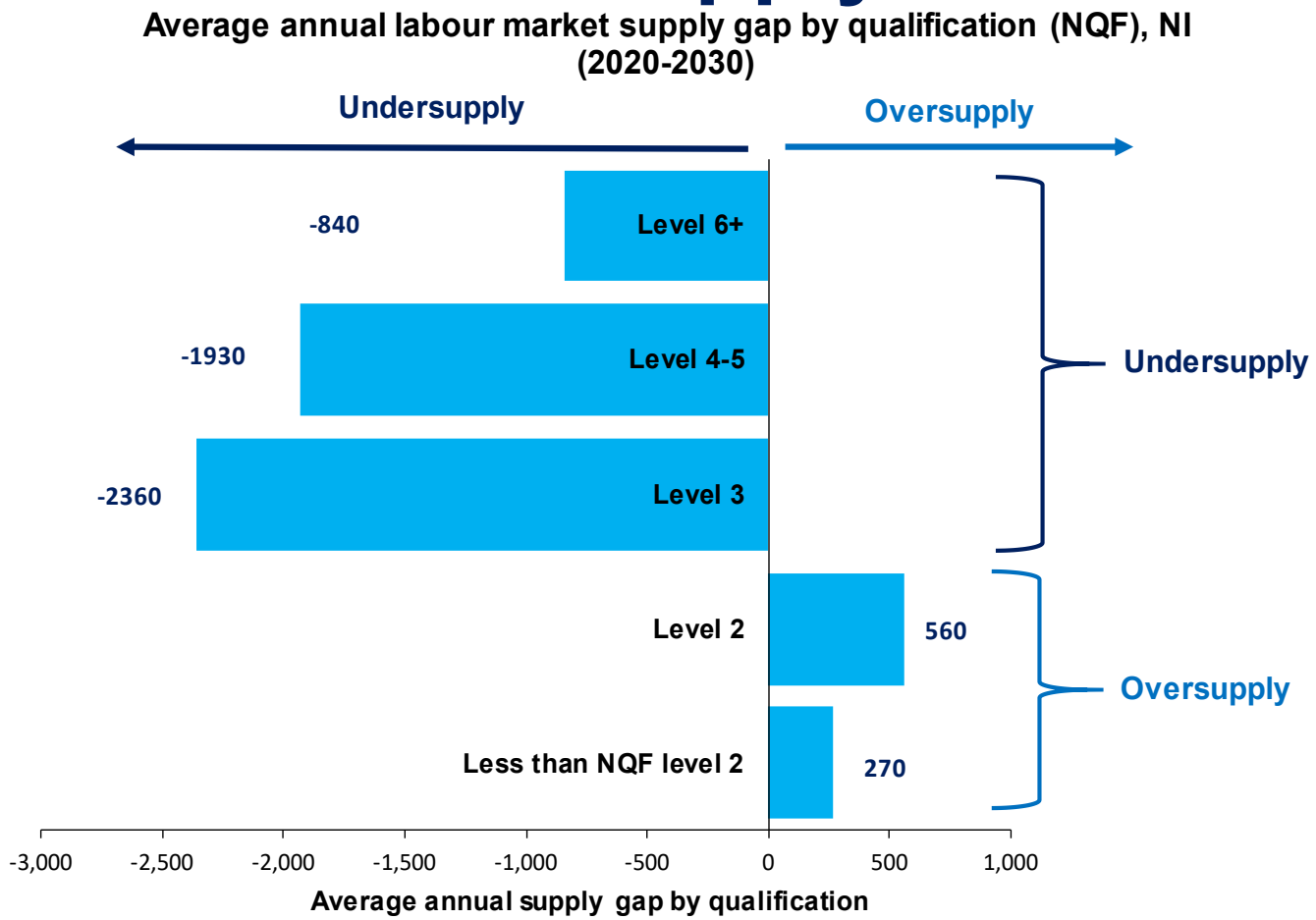
Demand from education and migration

Average annual net requirement from education and migration by qualification (NQF), NI, (2020-2030)



Source: UUEPC

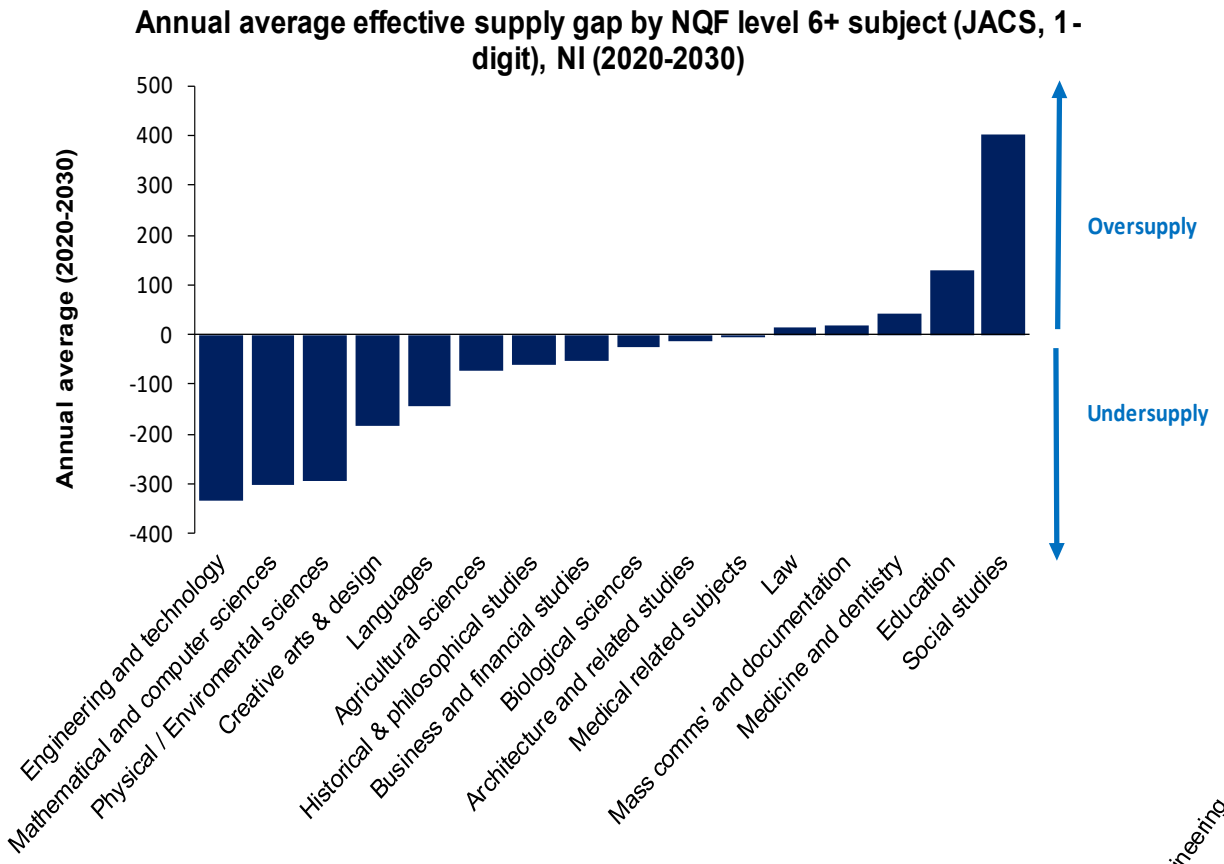
Demand and supply balances



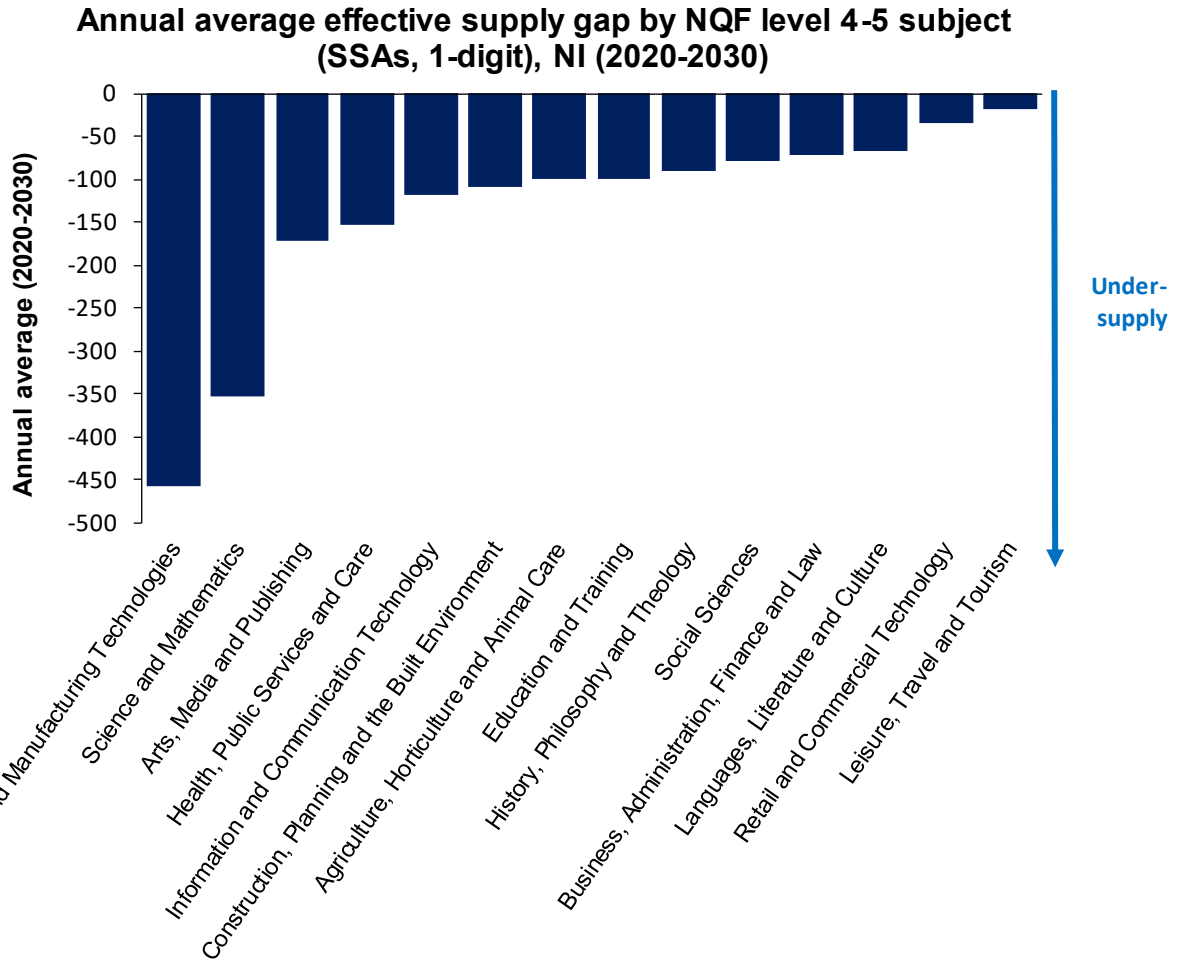
Source: *UUEPC*

Note: *The supply gaps in the above chart have been calculated based on 'effective supply'. This takes account of migration patterns amongst qualifiers at NI institutions and NI domiciled qualifiers qualifying from GB institutions, in addition to labour force participation. A supply adjustment is then applied to subtract tertiary qualifiers who require additional skills development to effectively fulfil the requirements of tertiary level employment. This group are not included in the above chart.*

Subject balances



Source: *HESA, UUEPC analysis*



Source: *DfE, UUEPC analysis*

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Section 2

Demand side

Demand side concepts

Key definitions

Expansion demand is the additional jobs created due to growth in a sector.

Replacement demand refers to 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 is 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 indicates the number of vacancies that can not 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.

Annual average gross demand is the total expansion demand and replacement demand for staff per annum plus the jobs that are filled by those already in the labour market (job to job moves, returners from unemployment and inactivity).

Net requirement

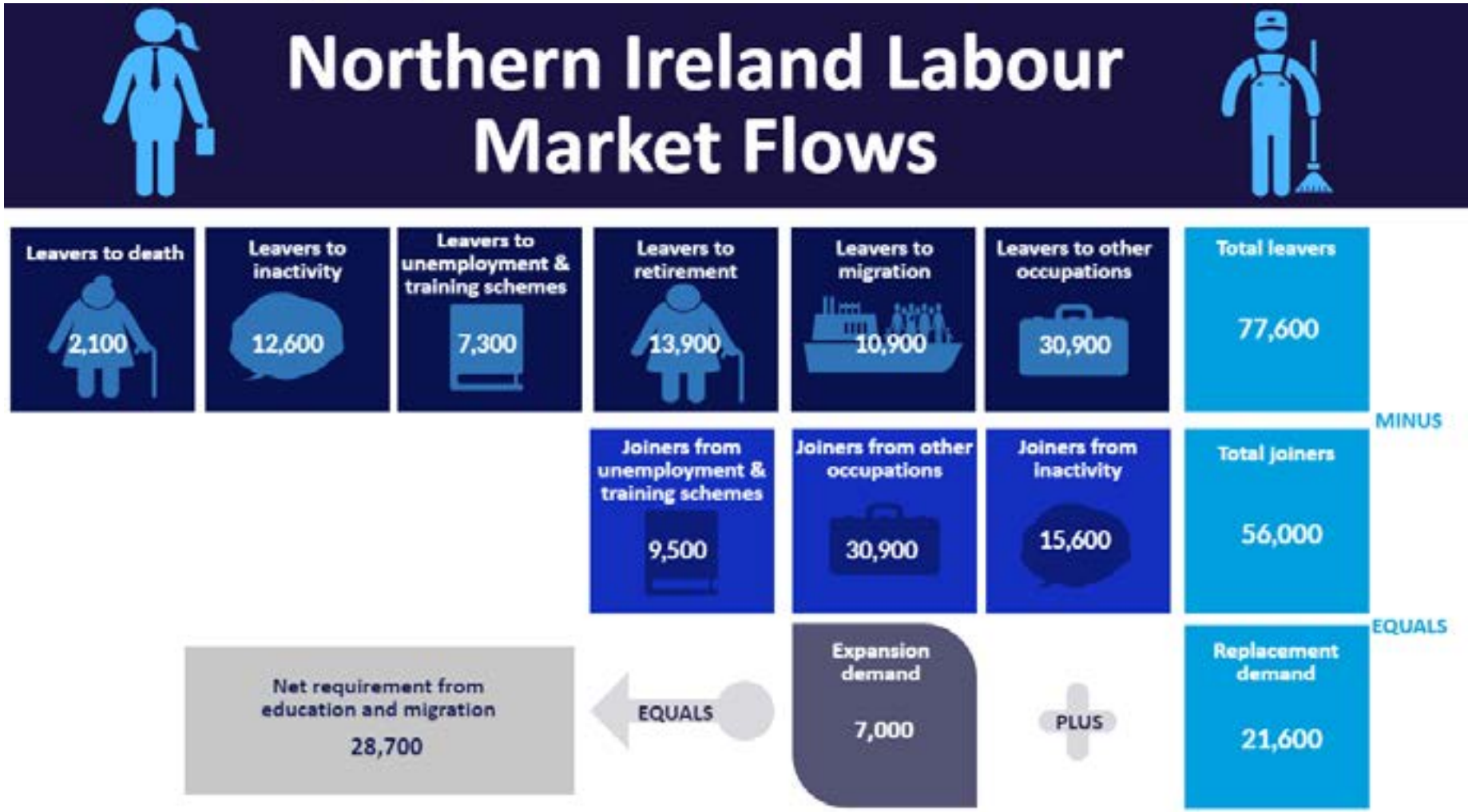
The figure of most interest is the **net requirement from education and migration** (net replacement demand plus expansion demand). This measures the quantum of vacancies for education leavers and migrants.

It takes account of 'churn' in the labour market. Skills demand associated with replacement demand is dependent largely on the existing stock and skill needs of current jobs. It can be compared directly to education outputs and the level of migrant inflows and is therefore useful for skills and wider workforce planning.

The focus on vacancies for education leavers and migrants should not be interpreted to mean that job opportunities for those out of work are ignored. Rather it is the case that joiners from unemployment and inactivity are already factored into replacement demand assumptions, and will essentially compete with education leavers and migrants for total arising vacancies.

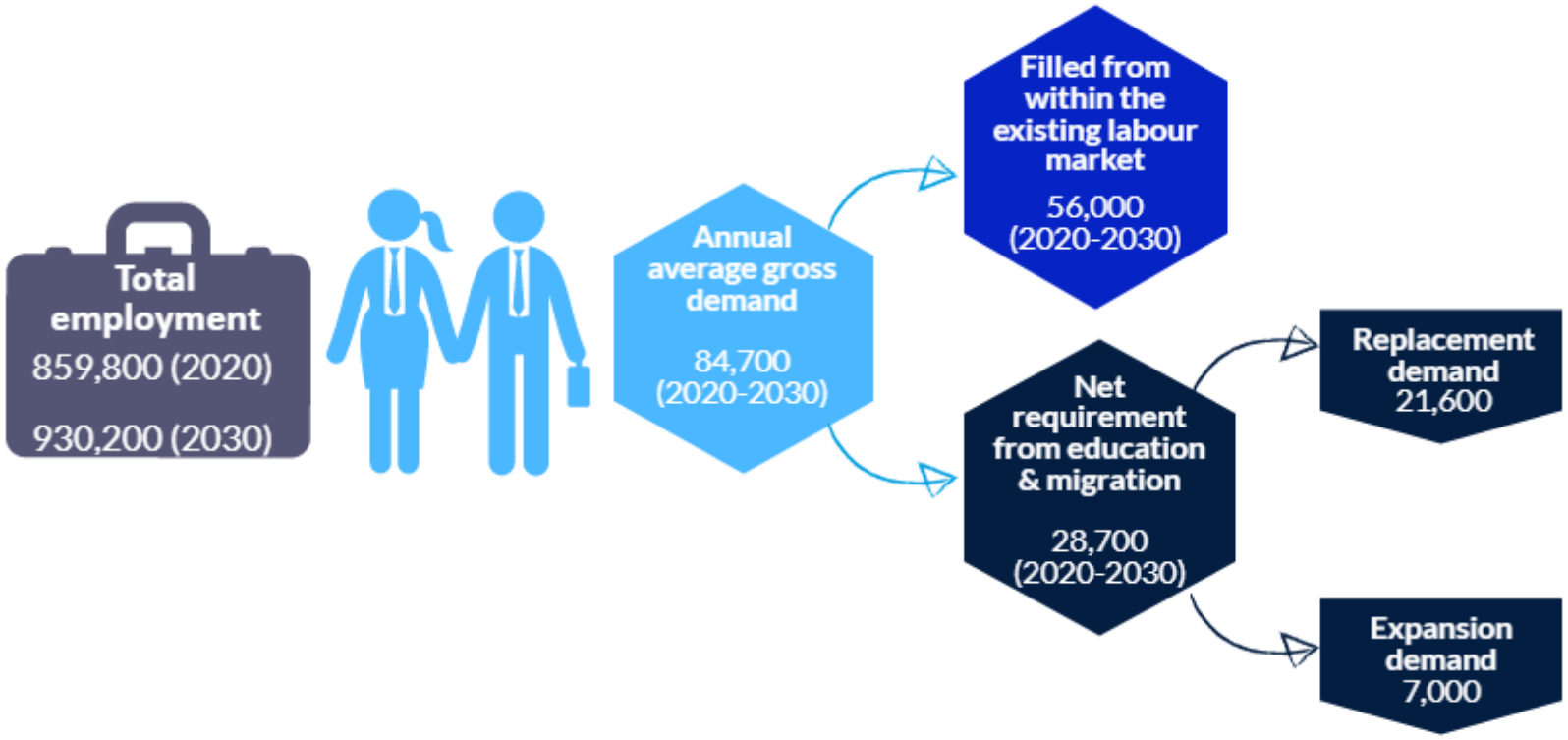
The expansion demand (net change in the stock of jobs) is often more widely understood as a driver of future demand, it remains the case that, future skills and employability demand will still be significantly determined by net replacement demand.

Labour market flows



Source: *UUEPC*
Note: *Figures may not sum due to rounding.*

Demand side concepts



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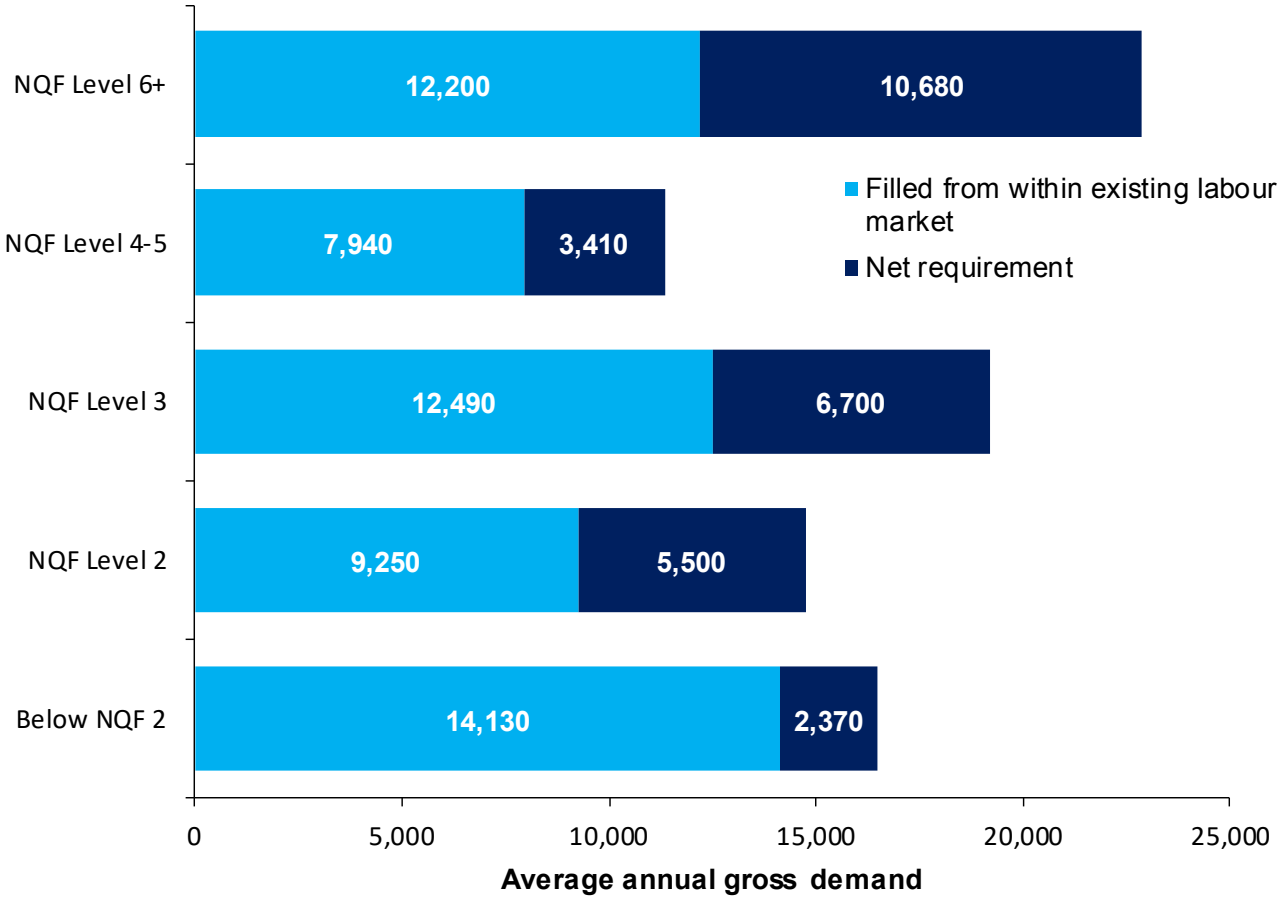
Source: *UUEPC*
Note: *Figures may not sum due to rounding.*

Gross demand for skills

Average annual gross demand by qualification (NQF), 2020-2030



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Source: *UUEPC*

Note: *There are still opportunities in the labour market for those with low level qualifications. However, experience is desired and a majority of job openings are filled within the existing labour market.*

Demand side sectors & occupations

Sector and occupation demand

To determine the (im)balance of qualifications and subjects a detailed analysis of the demand for **labour** at both sector and occupation level has been conducted. The analysis is based on employment forecasts across sectors and occupations from both the high growth scenario.

This section will present the following:

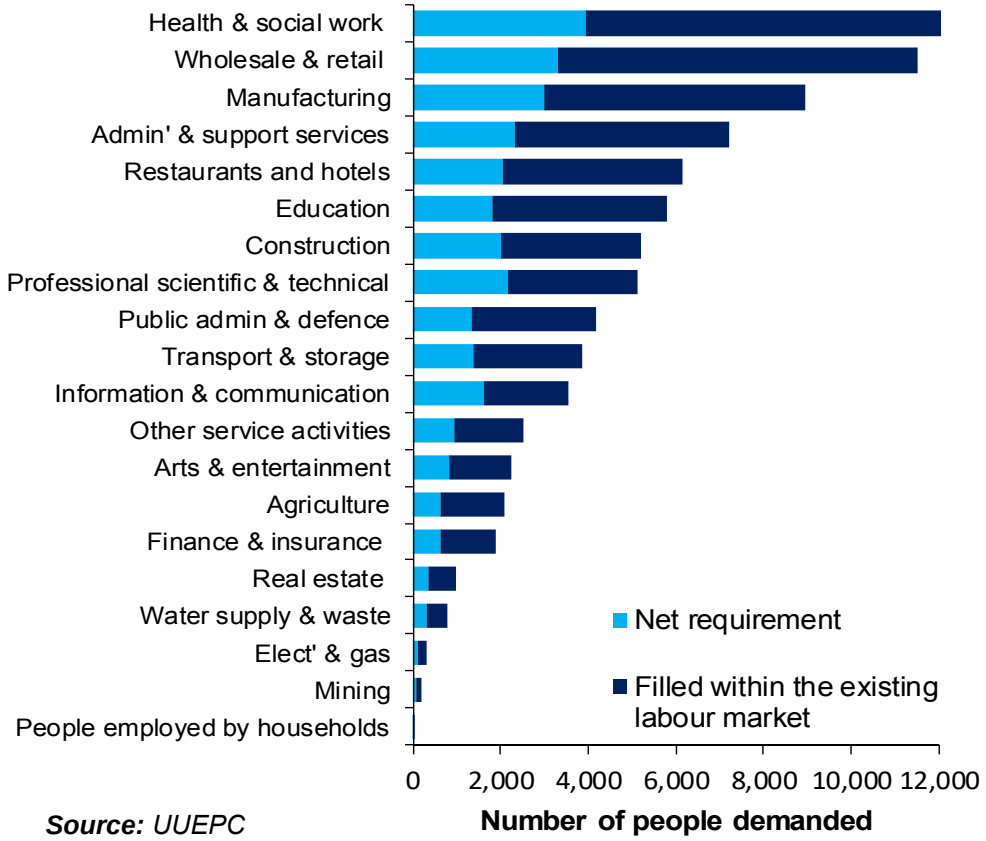
1. Gross demand for jobs (total recruitment) by sector and occupation.
2. Net requirement from education and migration by sector and occupation.

Recall, **expansion demand** is directly related to the growth (or reduction) in size of the sector and **net replacement demand** refers to the number of positions created from 'churn' which cannot be filled within the existing labour market.

The **annual average net requirement from education and migration** does not include the positions to be filled by labour market participants from other sectors, from unemployment or from economic inactivity.

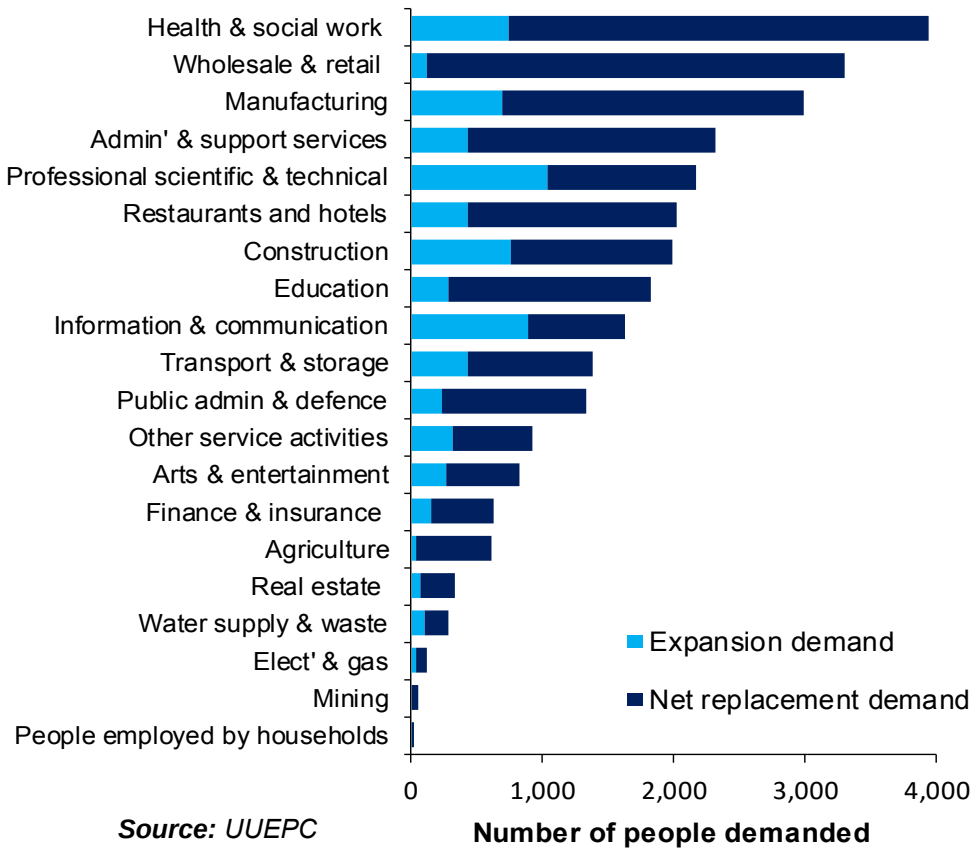
Demand by sector

Average annual gross demand by sector (1-digit), NI (2020-2030)



Source: UUEPC

Average annual net requirement from education and migration by sector (1-digit), NI (2020-2030)



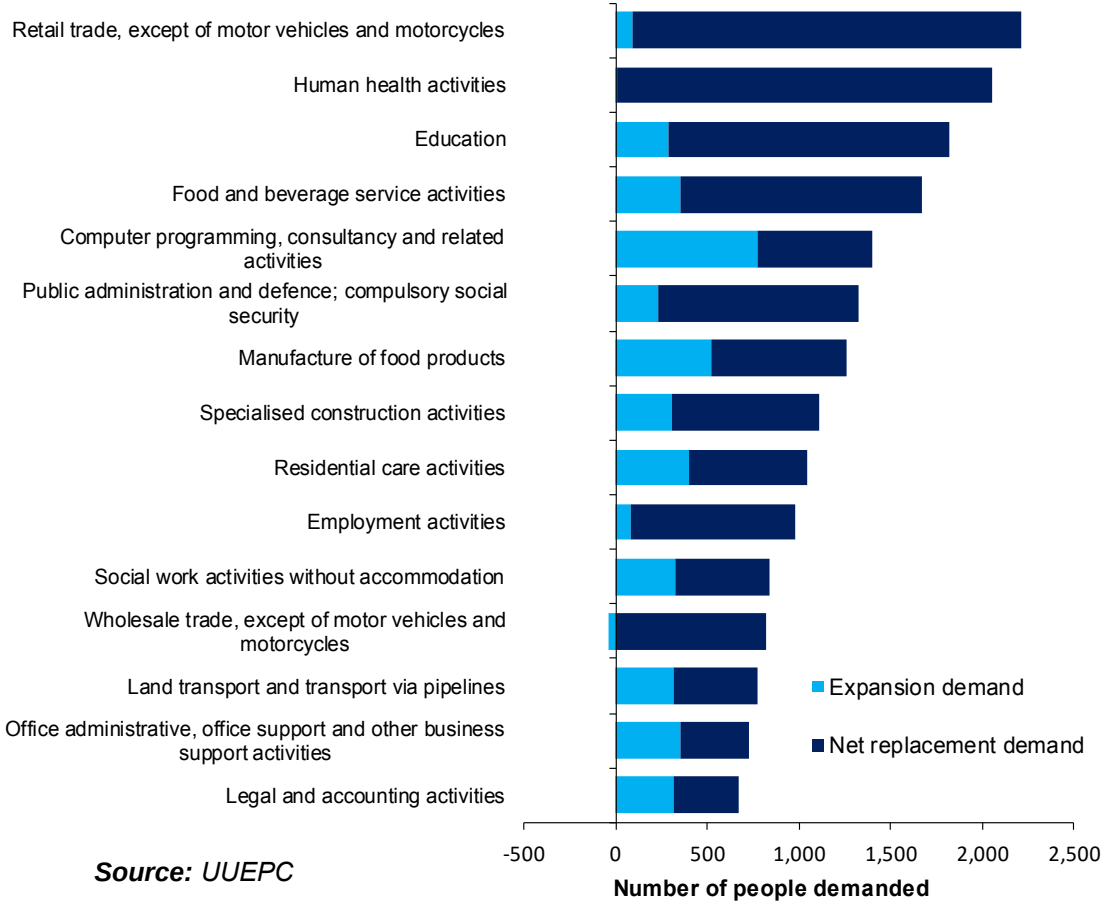
Source: UUEPC

Gross demand includes recruitment from the labour market (other sectors, unemployment and economic inactivity) as well as recruitment from education institutions and migrants.

Net requirement from education and migration refers only to the number of people required to meet demand from education institutions and migration flows.

Net requirement by sector

Average annual net requirement from education and migration by sector (top 15, 2-digit), NI (2020-2030)



Source: *UUEPC*

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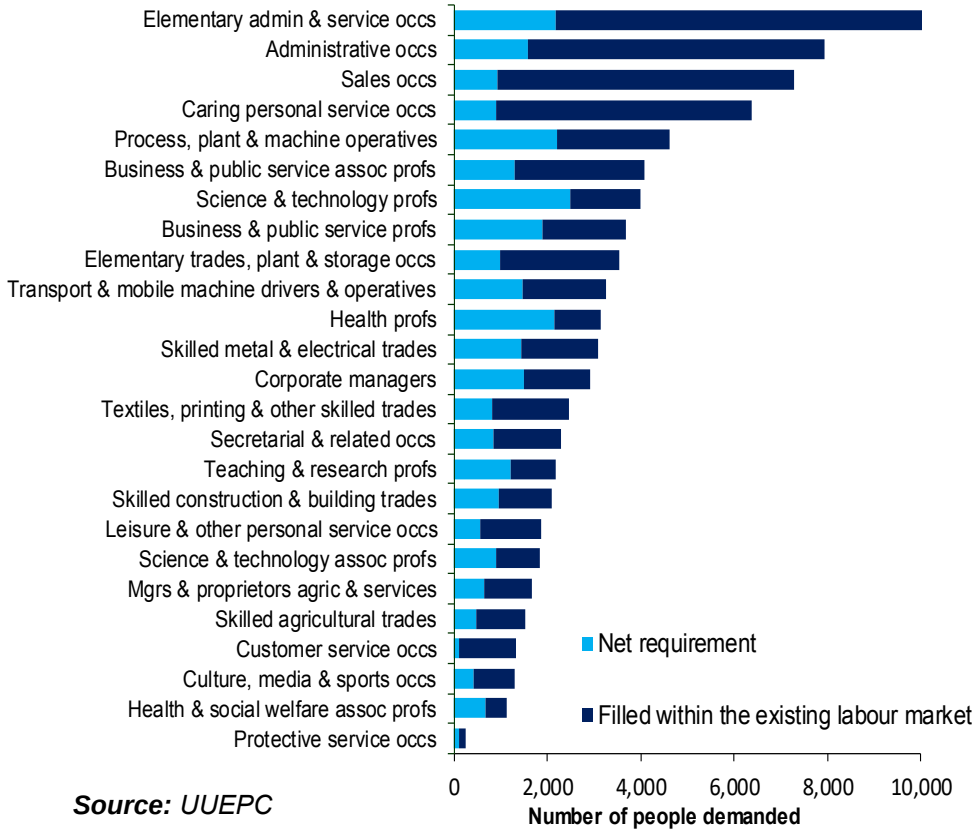
The top 15 sectors (2-digit) account for 65% of the overall net requirement.

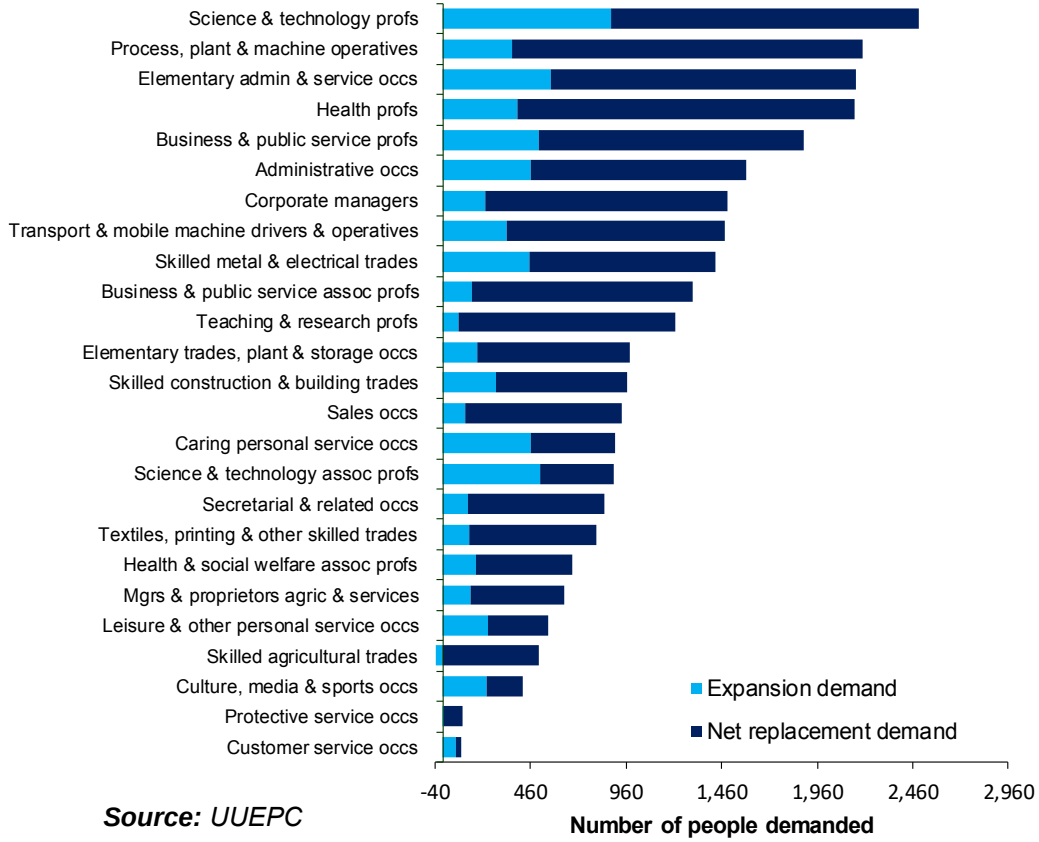
Gross demand by occupation

Average annual gross demand by occupation (2-digit), NI, (2020-2030)



Source: *UUEPC*

Average annual net requirement from education and migration by occupation (2-digit), NI (2020-2030)

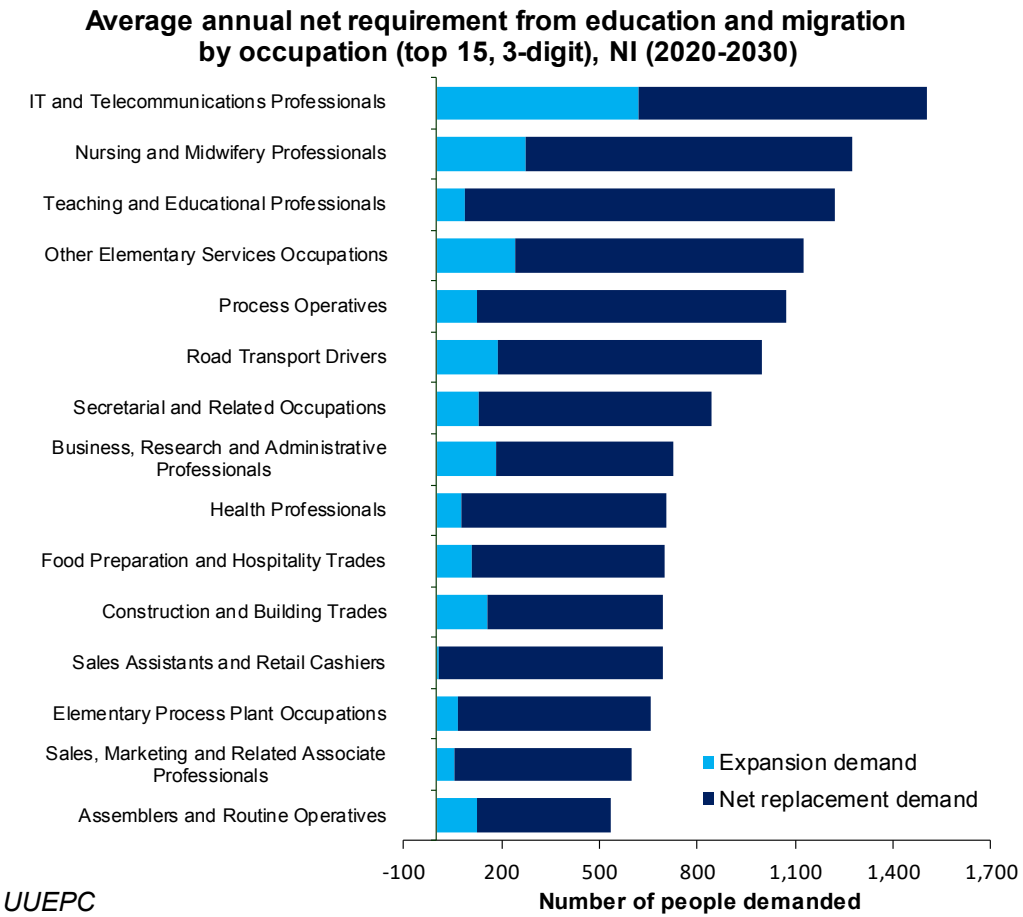


Source: *UUEPC*

Gross demand includes recruitment from the labour market (other sectors, unemployment and economic inactivity) as well as recruitment from education institutions and migrants. It is a proxy measure for all vacancies.

Net requirement from education and migration refers only to the number of people required to meet demand from education institutions and migration flows.

Net requirement by occupation



Source: *UUEPC*

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The top 15 occupations (3-digit) account for 47% of the overall net requirement.

Qualifications by sector & occupation

Sector and occupation demand

To determine the (im)balance of qualifications and subjects within the future labour market a detailed analysis of the demand for **qualifications** at both sector and occupation level has been conducted.

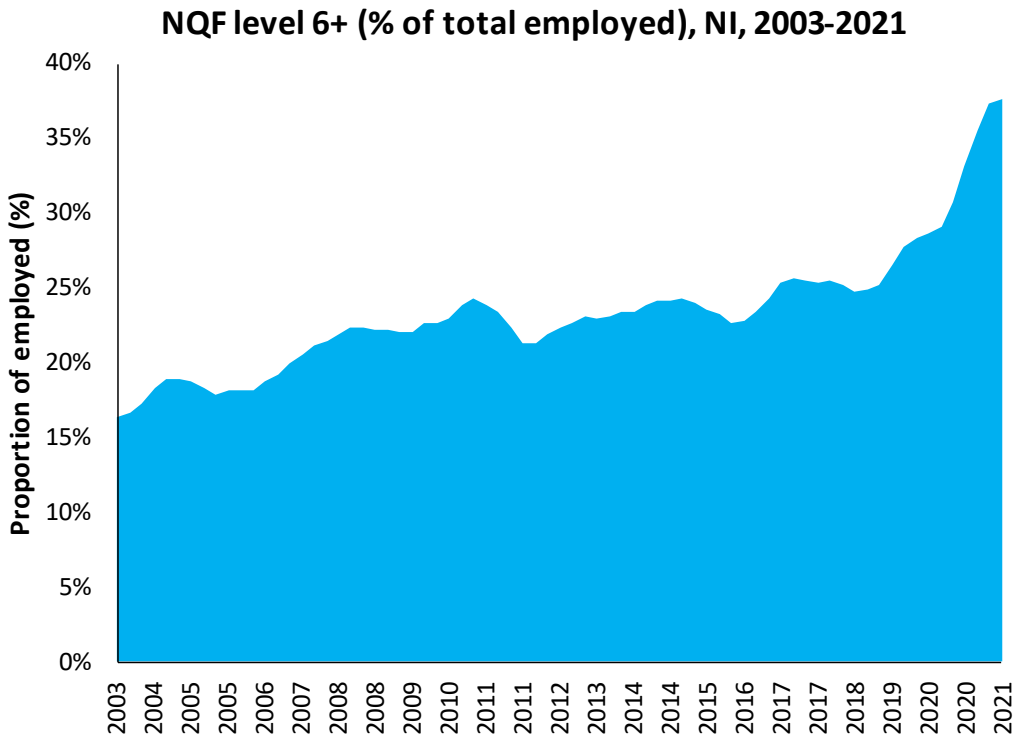
The analysis is based on current and projected skills mix across sectors and occupations* under a high growth scenario, and jobs forecasts across sectors and occupations from the high growth scenario**.

This section will present the following:

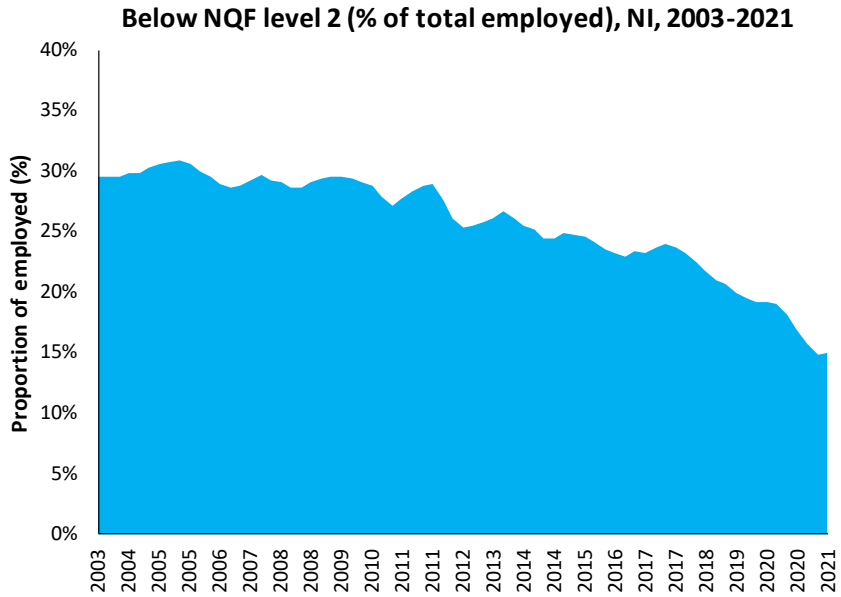
1. Net requirement (demand) by qualification (NQF).
2. Net requirement by sector and qualification (NQF level 6+ and NQF level 4-5).
3. Net requirement by occupation and qualification (NQF level 6+ and NQF level 4/5).

** Annex B1 and Annex B2 provide a detailed list of the current and projected skills mix by sector and occupation.*
*** Annex A1 and A2 provide results for the baseline scenario.*

Changing skills mix of the employed



Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

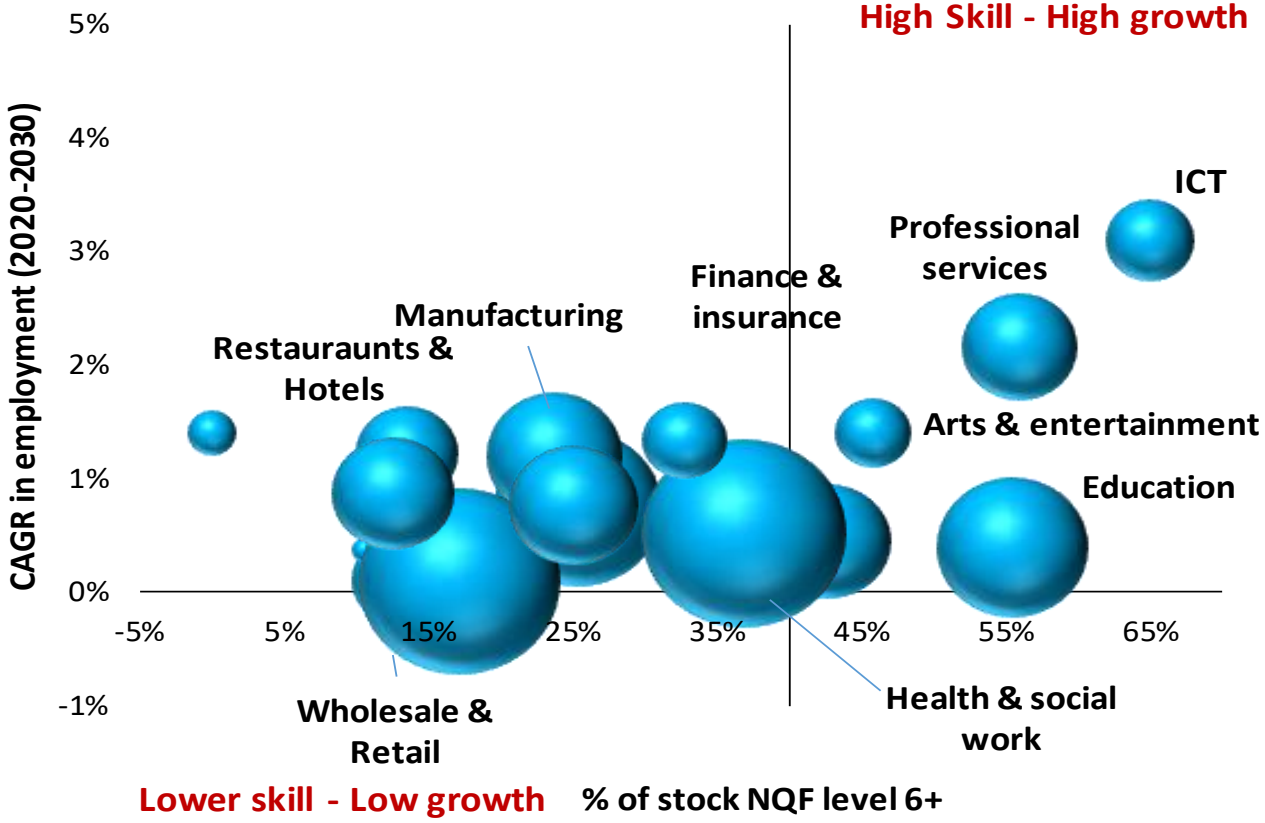


Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

The skills mix of people in employment has become more qualifications intensive since the publication of the 2019 Skills Barometer. The proportion of people in employment with an NQF level 6+ qualification rose from 25% to 38% between Q1 2019 and Q3 2021. Over the same period the proportion of people in employment with a highest level of qualification below NQF level 2 has fallen from 21% to 16%. It is now half the proportion recorded in 2010.

High qualifications in growth sectors

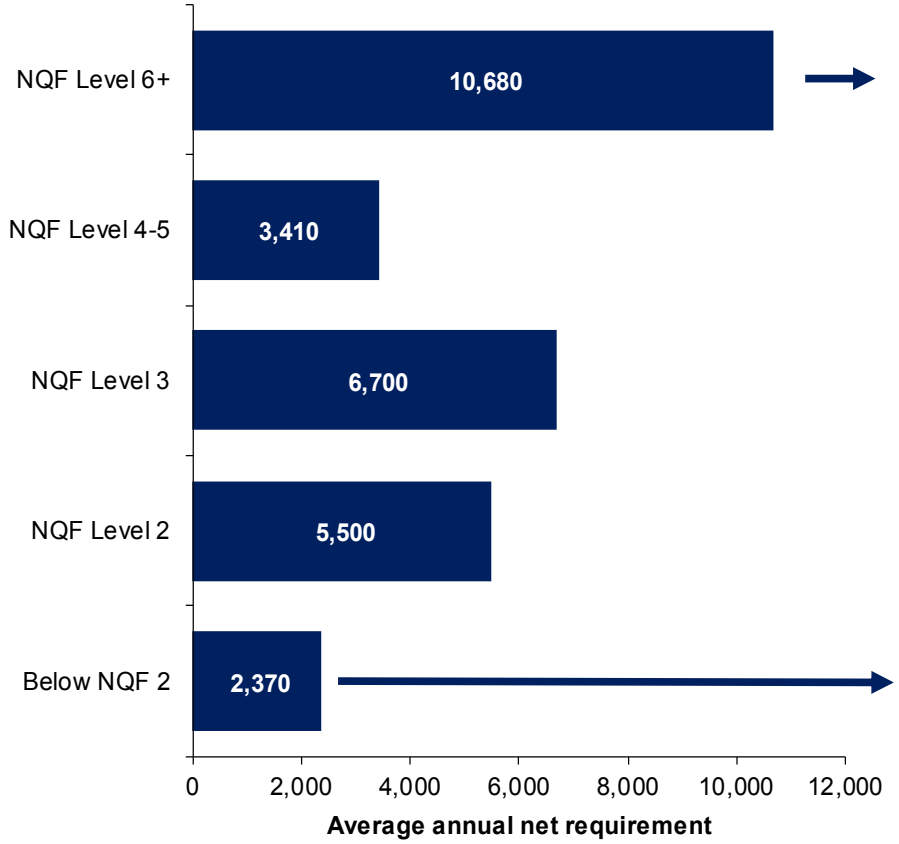
Employment by sector, employment growth vs % of stock NQF level 6+, NI, 2020



Source: Labour Force Survey, UUEPC analysis
Note: Stock figures are based on a 4-quarter rolling average

Net requirement by NQF

Average annual net requirement from education and migration by qualification (NQF), NI (2020-2030)



37% of the net requirement require degree level qualifications

Average annual net requirement 28.7k

8% of the net requirement require qualifications below NQF level 2

Source: *UUEPC*

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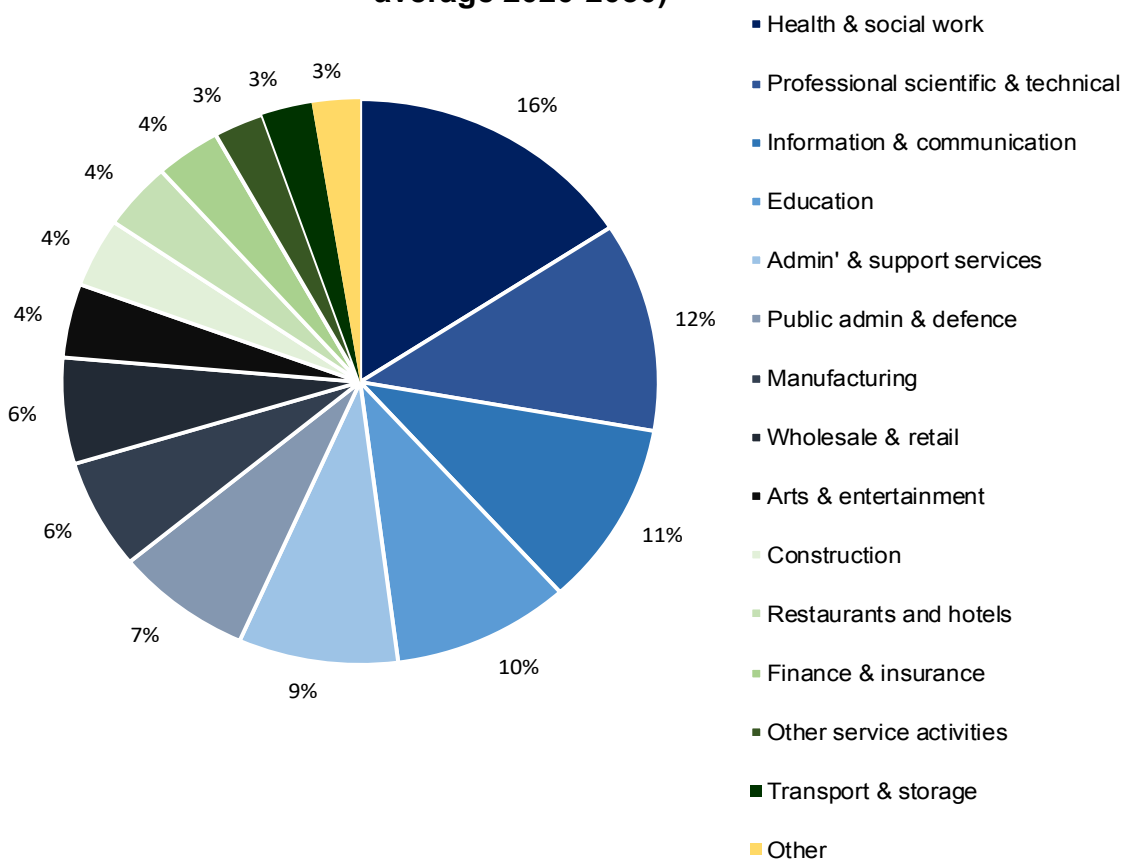
Net requirement by NQF and sector (NQF level 6+)

NQF level 6+ net requirement by sector (1-digit), NI (annual average 2020-2030)



The health and social work sector requires the largest quantum of NQF level 6+ qualifiers, accounting for 16% of the net requirement. This is followed by professional services (12%), IT (11%), and education (10%).

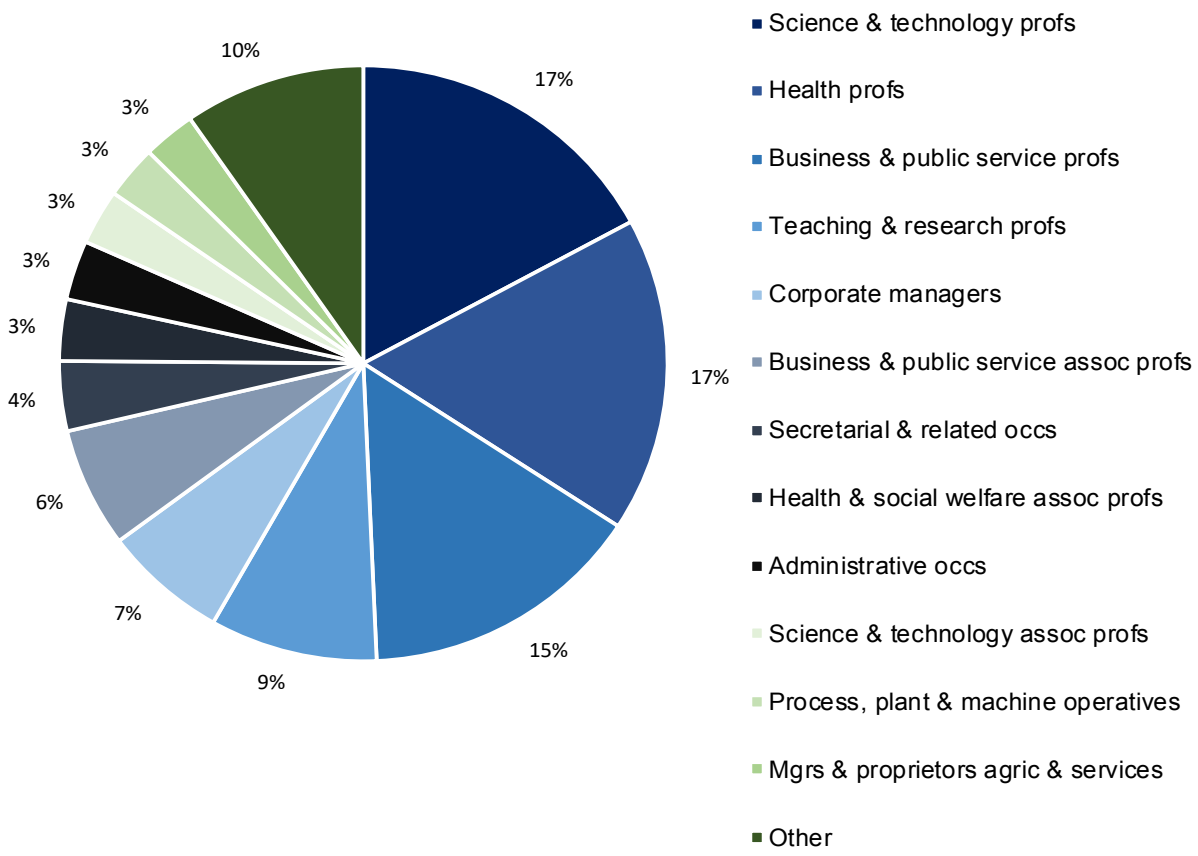
NQF level 6+ net requirement by sector (top 15, 2-digit), NI (annual average 2020-2030)

2 digit SIC	% of NQF level 6+ net requirement
Education	9.6%
Computer programming, consultancy and related activities	9.6%
Human health activities	9.2%
Public administration and defence; compulsory social security	7.4%
Employment activities	5.0%
Retail trade, except of motor vehicles and motorcycles	4.3%
Social work activities without accommodation	4.3%
Legal and accounting activities	3.4%
Architectural and engineering activities; technical testing and analysis	3.2%
Activities auxiliary to financial services and insurance activities	3.1%
Food and beverage service activities	3.0%
Manufacture of food products	2.6%
Sports activities and amusement and recreation activities	2.5%
Residential care activities	2.4%
Activities of head offices; management consultancy activities	2.3%

Source: *UUEPC*

Net requirement by NQF and occupation (NQF level 6+)

NQF level 6+ net requirement by occupation (2-digit), NI (annual average 2020-2030)



Science & technology professionals require the largest quantum of NQF level 6+ qualifiers, accounting for 17% of the total net requirement. This is followed by health professionals (17%) and business and public service professionals (15%).

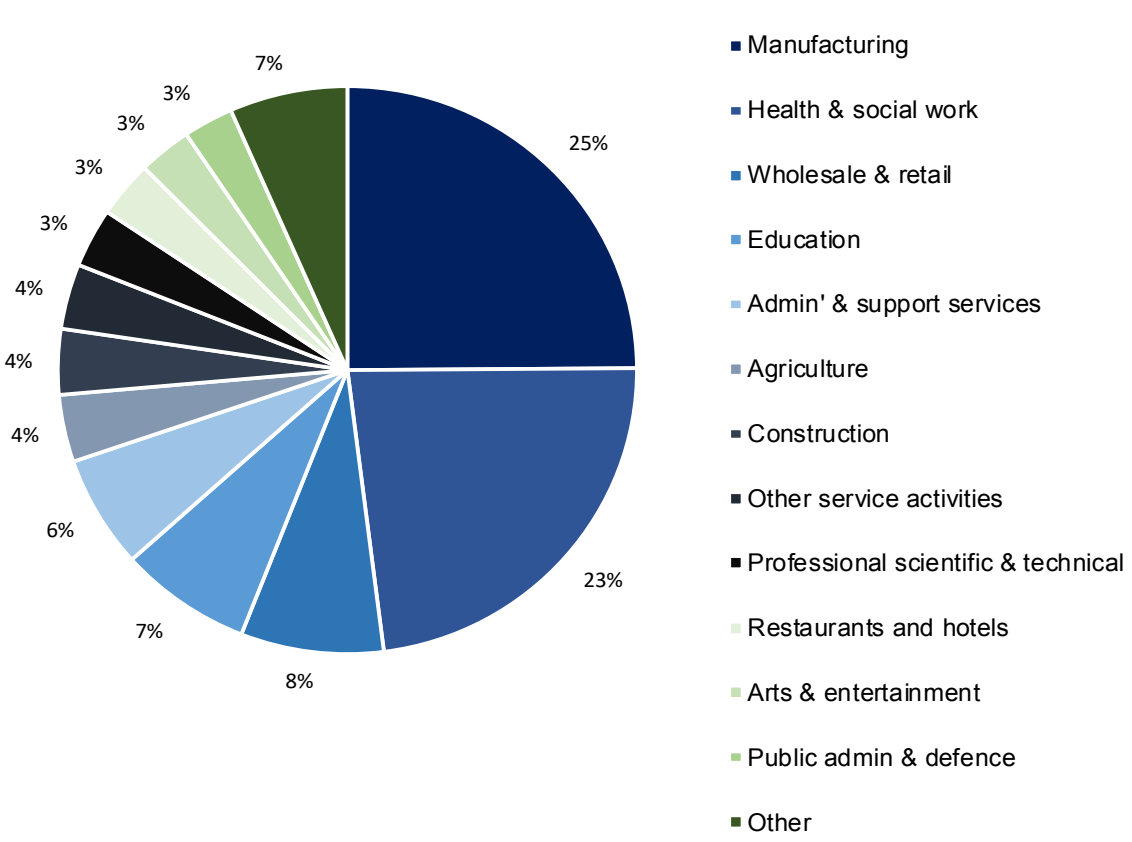
NQF level 6+ net requirement by occupation (top 15, 3-digit), NI (annual average 2020-2030)

3 digit SOC	% of NQF level 6+ net requirement
Information technology and telecommunications professionals	10.3%
Nursing and midwifery professionals	10.1%
Teaching and educational professionals	8.9%
Business, research and administrative professionals	5.8%
Health professionals	5.6%
Secretarial and related occupations	3.8%
Engineering professionals	3.4%
Sales, marketing and related associate professionals	3.0%
Architects, town planners and surveyors	2.2%
Legal professionals	2.2%
Natural and social science professionals	2.0%
Health associate professionals	2.0%
Welfare professionals	1.9%
Managers and directors in retail and wholesale	1.9%
Science, engineering and production technicians	1.7%

Source: *UUEPC*

Net requirement by NQF and sector (NQF level 4-5)

NQF level 4-5 net requirement by sector (1-digit), NI (annual average 2020-2030)



The manufacturing sector requires the largest quantum of NQF level 4-5 qualifiers, accounting for 25% of the total net requirement. This is followed by health and social work (23%), wholesale and retail (8%) and education (7%).

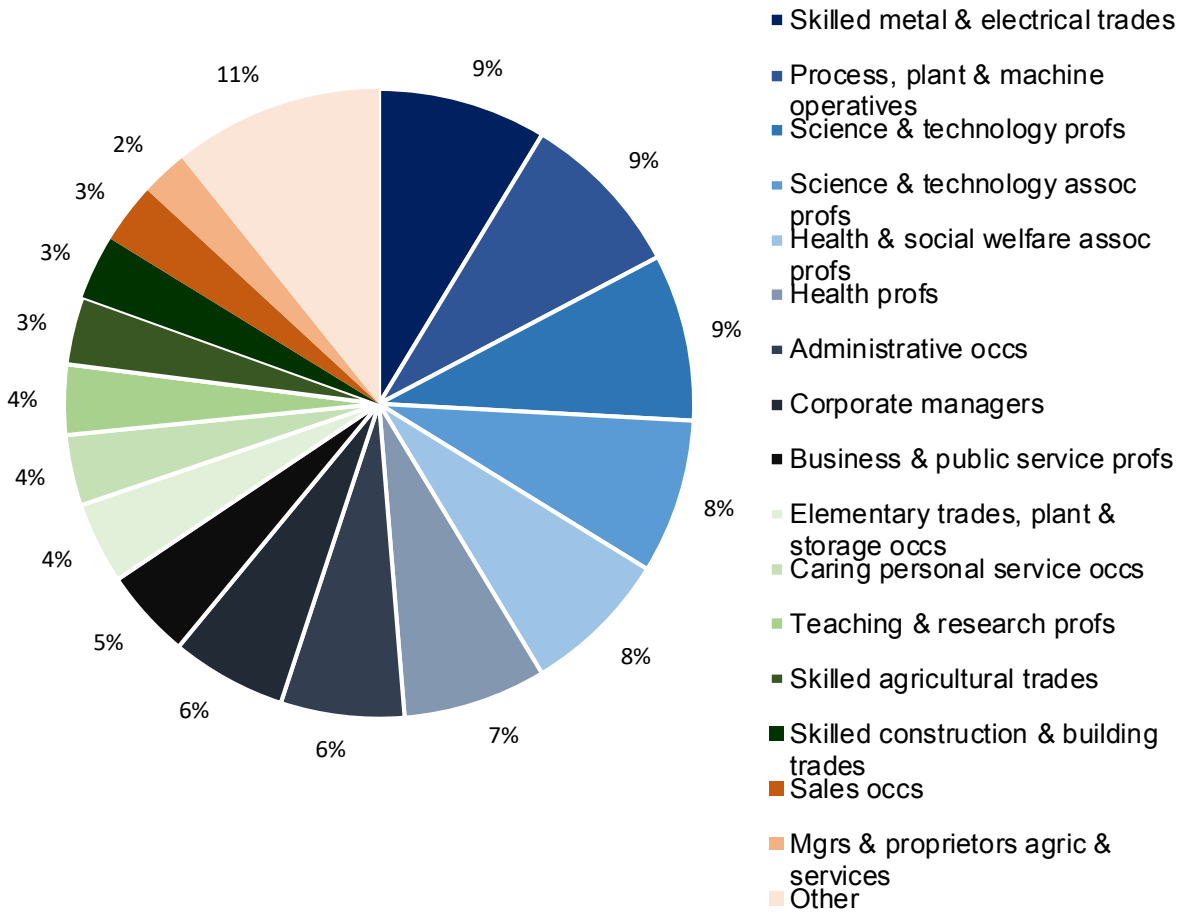
NQF level 4-5 net requirement by sector (top 15, 2-digit), NI (annual average 2020-2030)

2 digit SIC	% of NQF level 4-5 net requirement
Human health activities	16.4%
Manufacture of food products	9.8%
Education	7.4%
Residential care activities	6.5%
Retail trade, except of motor vehicles and motorcycles	4.3%
Crop and animal production, hunting and related service activities	3.8%
Wholesale trade, except of motor vehicles and motorcycles	3.2%
Manufacture of other transport equipment	3.0%
Public administration and defence; compulsory social security	2.8%
Food and beverage service activities	2.7%
Sports activities and amusement and recreation activities	2.6%
Manufacture of computer, electronic and optical products	2.3%
Specialised construction activities	2.2%
Office administrative, office support and other business support activities	2.1%
Employment activities	2.0%

Source: *UUEPC*

Net requirement by NQF and occupation (NQF level 4-5)

NQF level 4-5 net requirement by occupation (2-digit), NI (annual average 2020-2030)



Skilled metal and electrical trades require the largest quantum of NQF level 4-5 qualifiers, accounting for 9% of the total net requirement. This is followed by process, plant and machine operatives (9%) and science and technology professionals (9%).

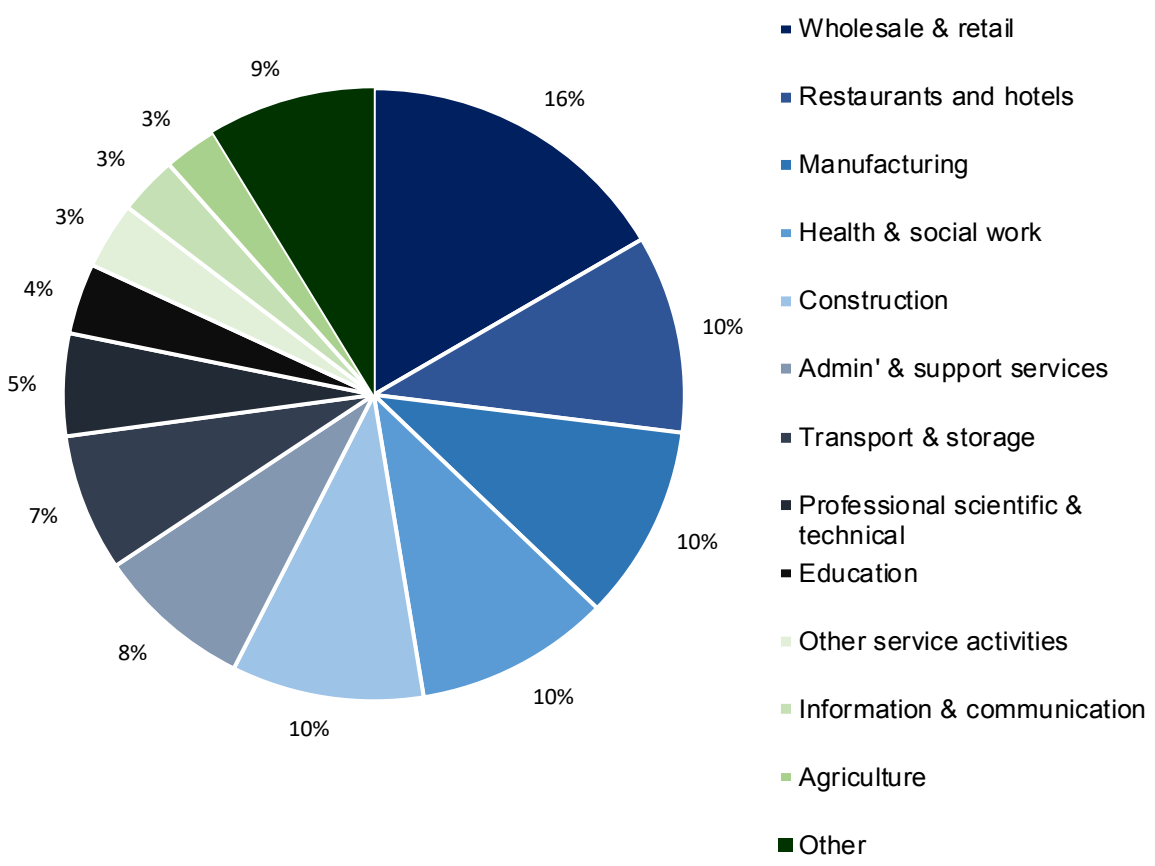
NQF level 4-5 net requirement by occupation (top 15, 3-digit), NI (annual average 2020-2030)

3 digit SOC	% of NQF level 4-5 net requirement
Information technology and telecommunications professionals	5.2%
Science, engineering and production technicians	4.5%
Health associate professionals	4.5%
Nursing and midwifery professionals	4.3%
Process operatives	4.2%
Teaching and educational professionals	3.6%
Agricultural and related trades	3.5%
Welfare and housing associate professionals	3.0%
Metal machining, fitting and instrument making trades	3.0%
Information technology technicians	2.9%
Elementary process plant occupations	2.8%
Health professionals	2.4%
Construction and building trades	2.4%
Sales assistants and retail cashiers	2.3%
Assemblers and routine operatives	2.1%

Source: *UUEPC*

Net requirement by NQF and sector (NQF level 3 & below)

NQF level 3 and below net requirement by sector (1-digit), NI (annual average 2020-2030)



The wholesale and retail sector requires the largest quantum of NQF level 3 and below qualifiers, accounting for 16% of the total net requirement. This is followed by restaurants and hotels (10%), manufacturing (10%) and health and social work (10%).

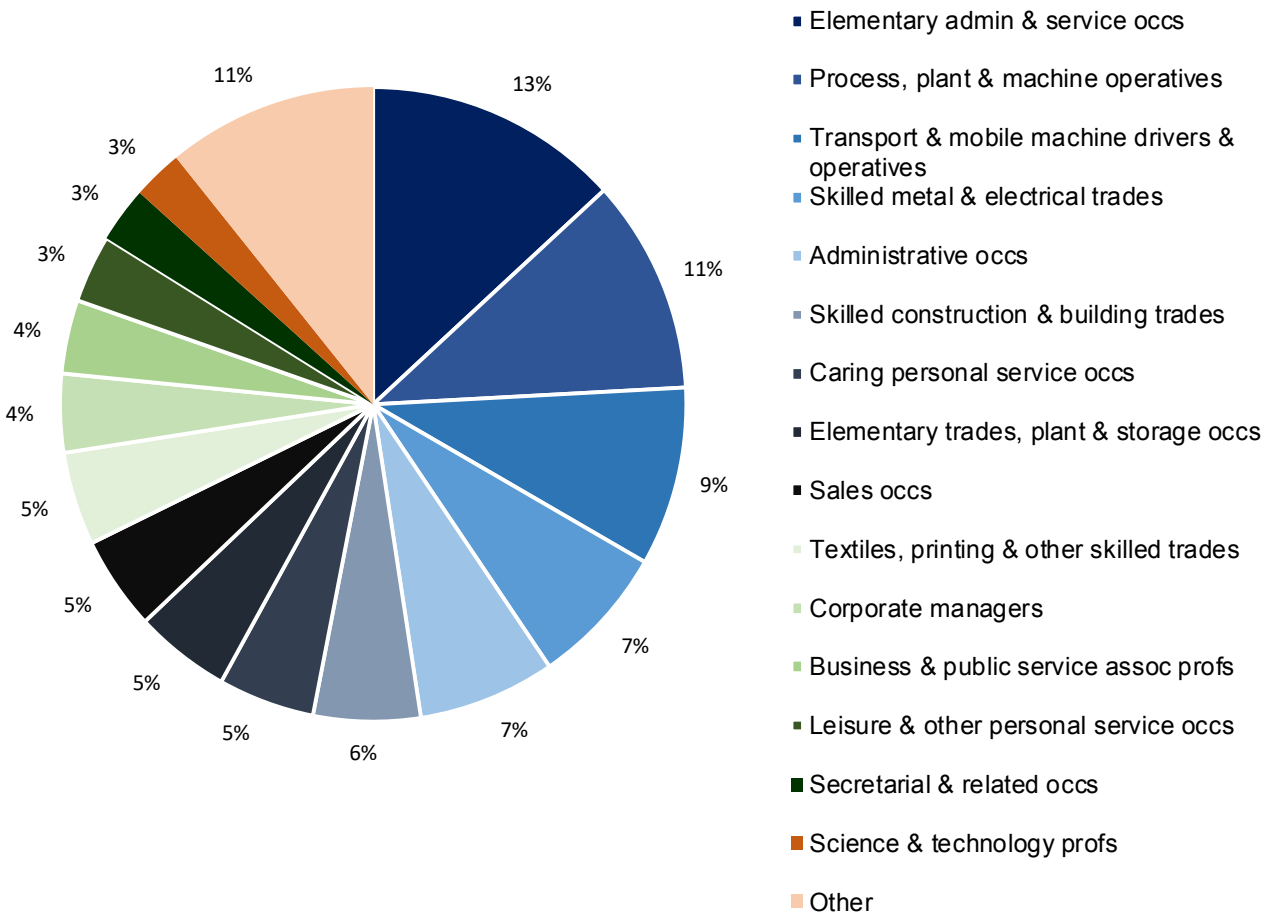
NQF level 3 and below net requirement by sector (top 15, 2-digit), NI (annual average 2020-2030)

2 digit SIC	% NQF level 3 and below net requirement
Retail trade, except of motor vehicles and motorcycles	11.1%
Food and beverage service activities	8.6%
Specialised construction activities	5.9%
Manufacture of food products	4.5%
Land transport and transport via pipelines	4.0%
Residential care activities	3.9%
Education	3.7%
Human health activities	3.5%
Wholesale trade, except of motor vehicles and motorcycles	3.4%
Public administration and defence; compulsory social security	3.0%
Construction of buildings	3.0%
Office administrative, office support and other business support activities	2.9%
Crop and animal production, hunting and related service activities	2.6%
Social work activities without accommodation	2.6%
Employment activities	2.6%

Source: *UUEPC*

Net requirement by NQF and occupation (NQF level 3 & below)

NQF level 3 and below net requirement by occupation (2-digit), NI (annual average 2020-2030)



Elementary admin' and service occupations require the largest quantum of below NQF level 3 qualifiers, accounting for 13% of total. This is followed by process plant and machine operatives (11%) and transport and mobile machine drivers (9%).

NQF level 3 and below net requirement by occupation (top 15, 3-digit), NI (annual average 2020-2030)

3 digit SOC	% NQF level 3 and below net requirement
Other elementary services occupations	6.9%
Road transport drivers	6.2%
Process operatives	5.3%
Food preparation and hospitality trades	4.2%
Construction and building trades	4.0%
Sales assistants and retail cashiers	3.6%
Elementary process plant occupations	3.3%
Caring personal services	2.9%
Secretarial and related occupations	2.8%
Assemblers and routine operatives	2.7%
Metal machining, fitting and instrument making trades	2.5%
Elementary storage occupations	2.4%
Elementary cleaning occupations	2.2%
Plant and machine operatives	2.0%
Agricultural and related trades	1.9%

Source: *UUEPC*

Subjects

Demand for subjects (1)

To determine the (im)balance of qualifications and subjects within the future labour market a detailed analysis of the demand for **subjects** has been conducted*.

The analysis is based on employment forecasts, replacement demand and recruitment patterns by subject, sector and occupation from both the high growth scenario and baseline scenario.

Subjects are categorised as the following:

1. **Joint Academic Coding System (JACS)** which refers the coding system used to group Higher Education (HE) subjects (NQF level 6+). The '1-digit' breakdown is the broad grouping of subjects and '2-digit' is a more detailed grouping of subjects.
2. **Sector Subject Areas (SSAs)** which refers to the coding system used to group Further Education (FE) subjects (predominantly NQF level 4-5). The '1-digit' breakdown is the broad grouping of subjects and '2-digit' is a more detailed grouping of subjects.

It should be noted, the annual average requirements for skills at NQF Level 3 and below have not been identified at subject level because students typically study a wide range of subjects at the these NQF levels. As a result demand at NQF level 3 and below has been identified by industry and occupation only**.

Annex C1 provides a detailed list of the JACS (NQF level 6+) subject mix by sector (1-digit)

**Annex D1 provides a range of demand side outputs for below NQF level 3*

Demand for subjects (2)

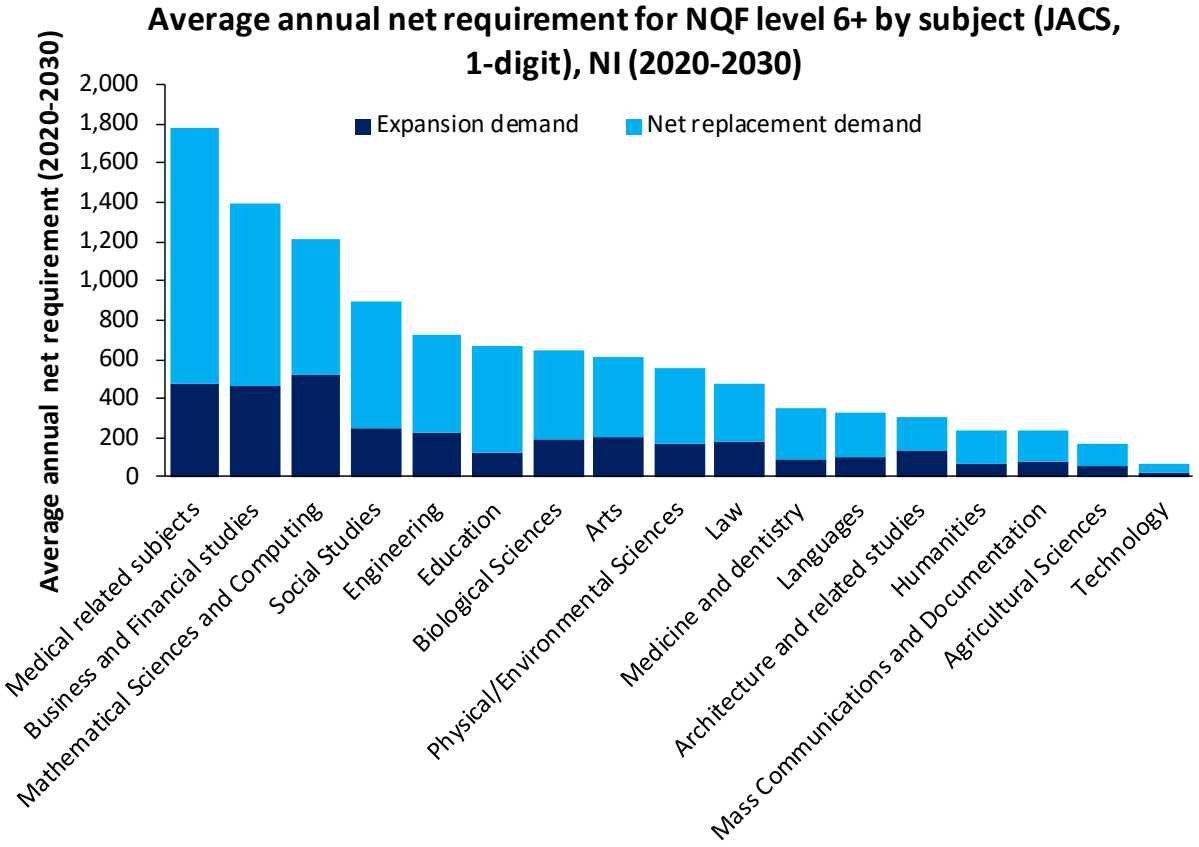
Estimates of future skill/subject demands are based on historic patterns. Therefore, it is possible demand in some sectors has the potential to evolve over time changing the required subject mix within sectors.

This section will present the following:

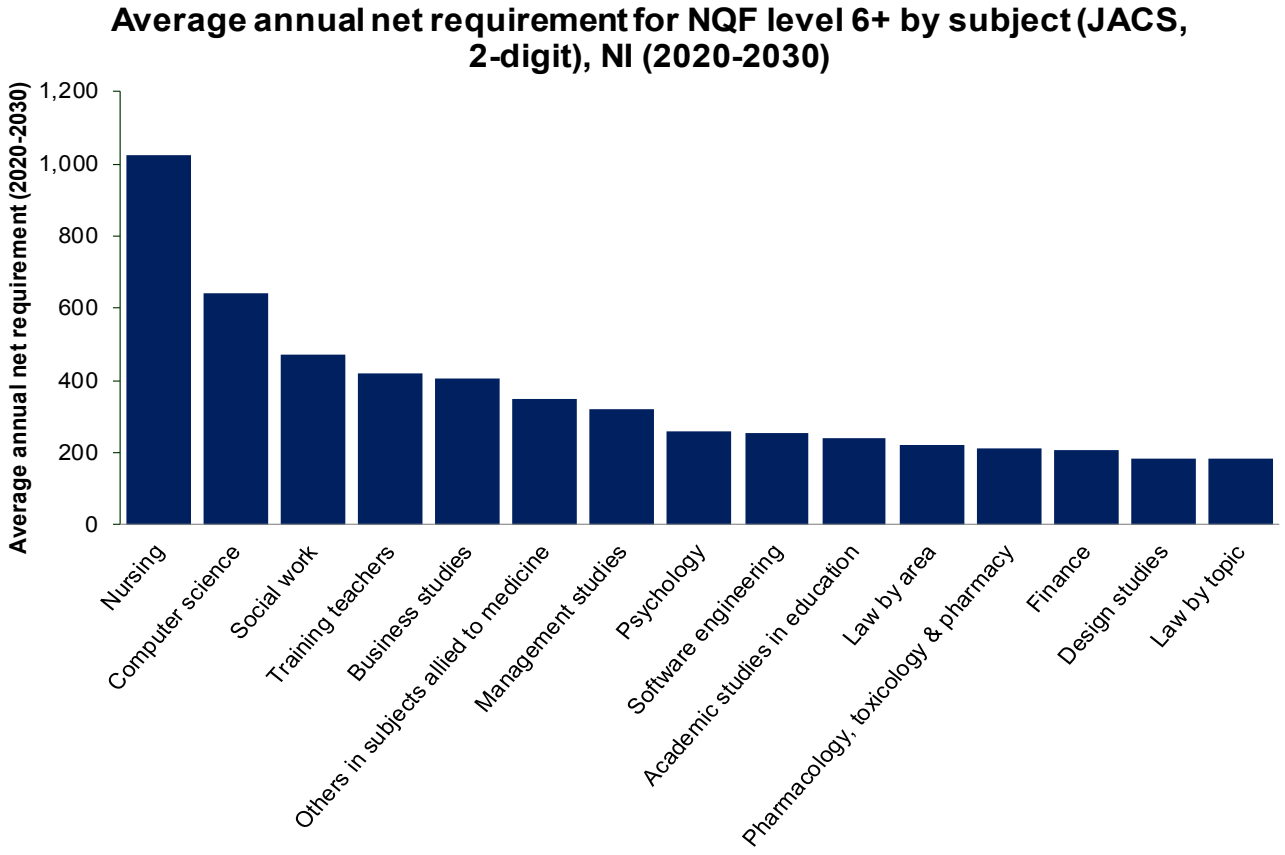
1. Net requirement (demand) by NQF level 6+ subject (JACs, 1-digit).
2. Net requirement (demand) by NQF level 6+ subject (JACs, 2-digit).
3. Net requirement (demand) by NQF level 4-5 subject (SSAs, 1-digit).
4. Net requirement (demand) by NQF level 4-5 subject (SSAs, 2-digit).

It is important to state that although some subject areas may rank amongst the most in-demand in the NI economy, they can still be oversupplied. The demand and supply balances are explained within the '(im)balances' in this report.

Graduate demand by subject

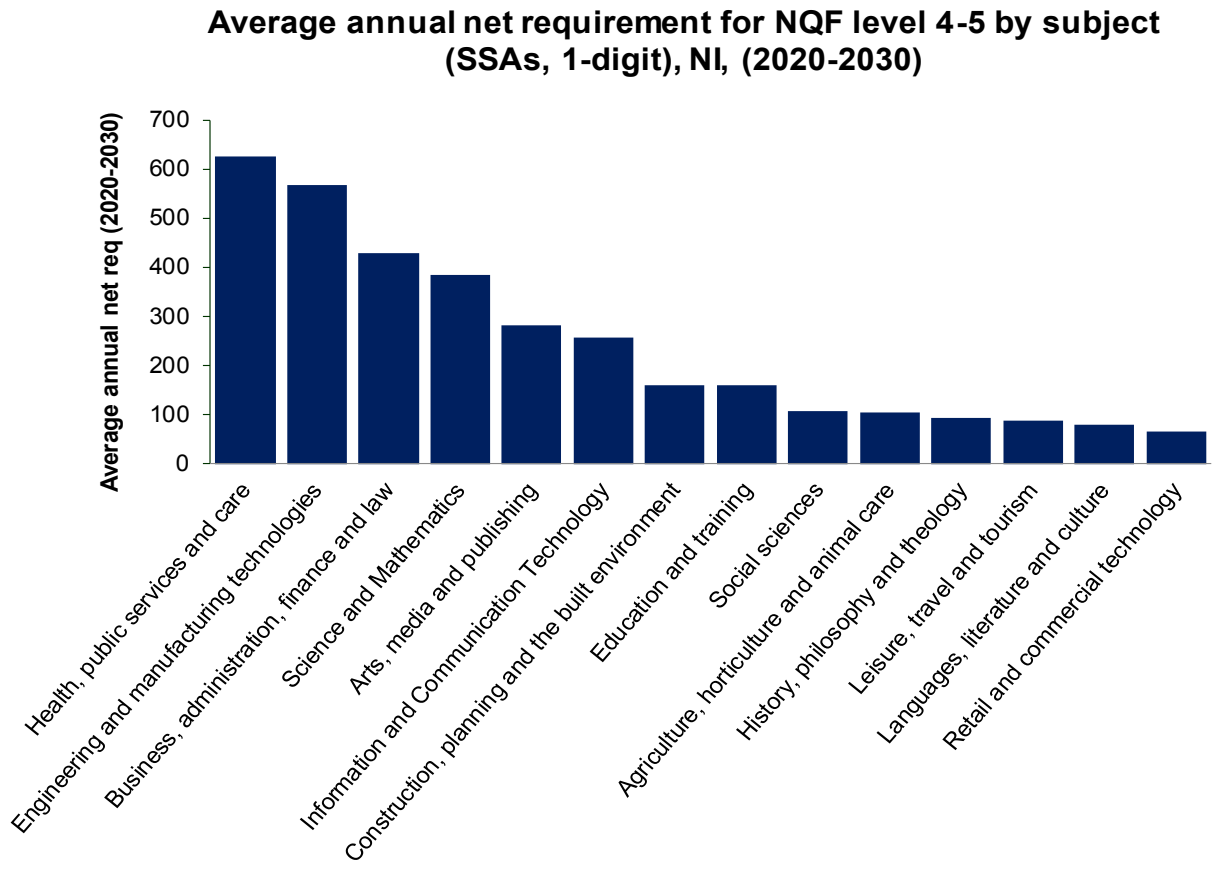


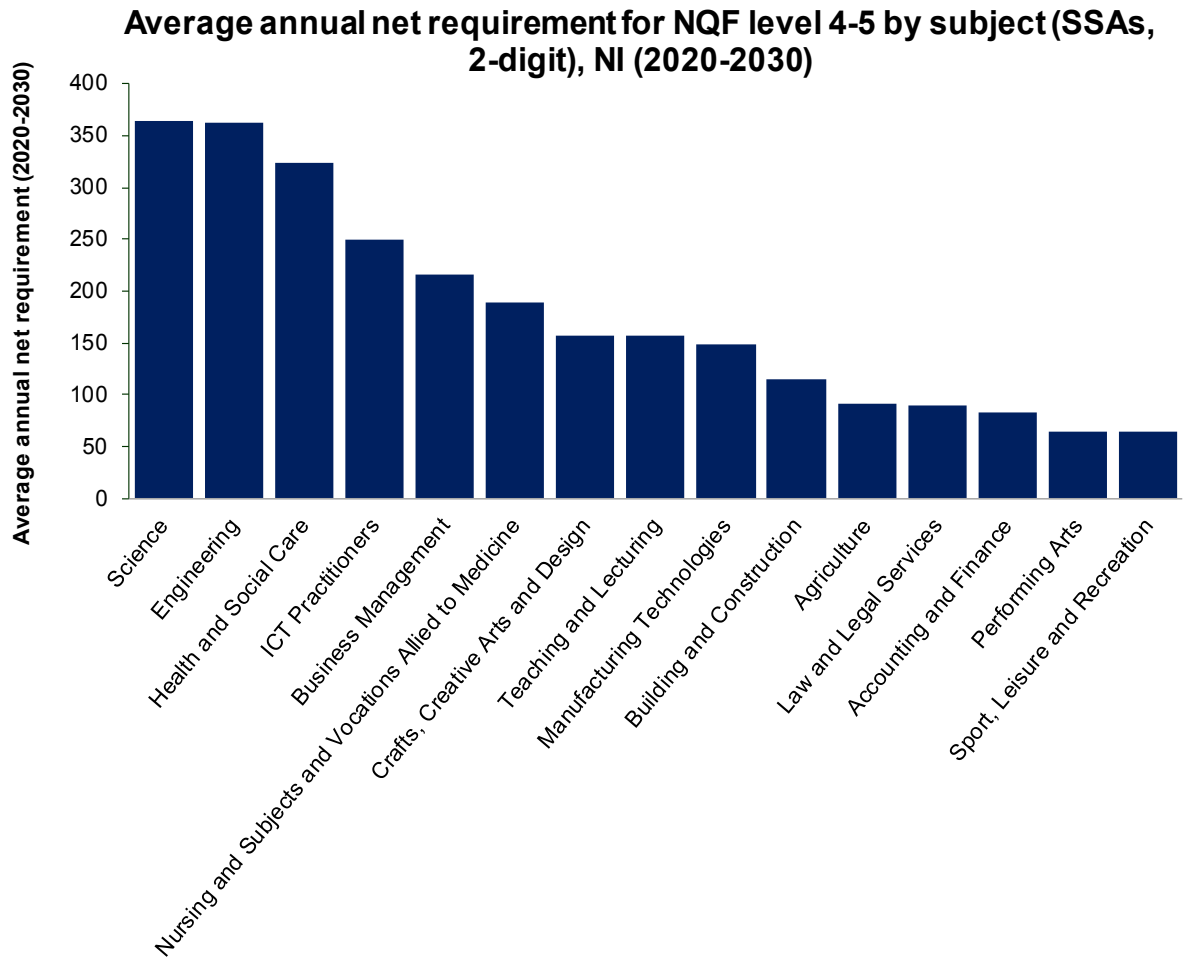
Source: UUEPC



Source: UUEPC

Sub-degree demand by subject





Source: *UUEPC*

Source: *UUEPC*

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Supply side

Supply side concepts

Supply side concepts (1)

The supply forecast is based on current participation rates in education and NISRA demographic projections. It does not assume a change in policy. Therefore, highlighting areas where under or over supply could become an issue.

Supply estimates consider a number of factors (e.g., students leaving NI, students returning to NI etc.) therefore a number of supply estimates are calculated:

1. **Gross Supply** which is the number of qualifiers produced across all NI education institutions.
2. **Net Supply** which includes all students educated in NI institutions ***plus*** NI domiciled students returning from education at GB HEI's ***minus*** students educated in NI who then leave ***minus*** students who proceed to further study.
3. **Effective Supply** which is calculated using the net supply but applies a *'supply adjustment'*. The adjustment factor is applied at NQF level 4+ qualifiers from FE and HE.

Supply side concepts (2)

The difference between gross supply and net supply can be explained by the following concepts.

1. **Migration flows** - a number of students qualifying from NI education institutions will leave NI to live and work elsewhere. This trend has increased in recent years as the number of international students has increased (international students study in NI then typically return home). Similarly, there are a number of NI domiciled students qualifying from institutions outside NI who return to NI upon graduating. Net supply accounts for these flows by netting out the qualifiers that leave NI and adding in those who return to NI (and enter the labour market).

2. **Labour market participation** - students are only counted 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 after six months). The difference between gross supply and net supply is more significant in FE than HE as greater proportions of FE students continue to further study (as opposed to entering the labour market) compared to HE.

Supply adjustment – effective supply (1)

This adjustment is to recognise that a proportion of graduates and other qualifiers (NQF level 4+) require additional skills development before they would be capable of taking employment opportunities at a grade for which they are qualified.

The supply adjustment is then applied to the net supply to calculate **effective supply**. This concept is an important element in understanding the skills challenges faced by local employers.

Consultations undertaken during the research highlighted a requirement for a supply adjustment to reduce the quantum of qualifiers from FE and HE at NQF level 4+, referred to as **effective supply**.

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Supply adjustment – effective supply (2)

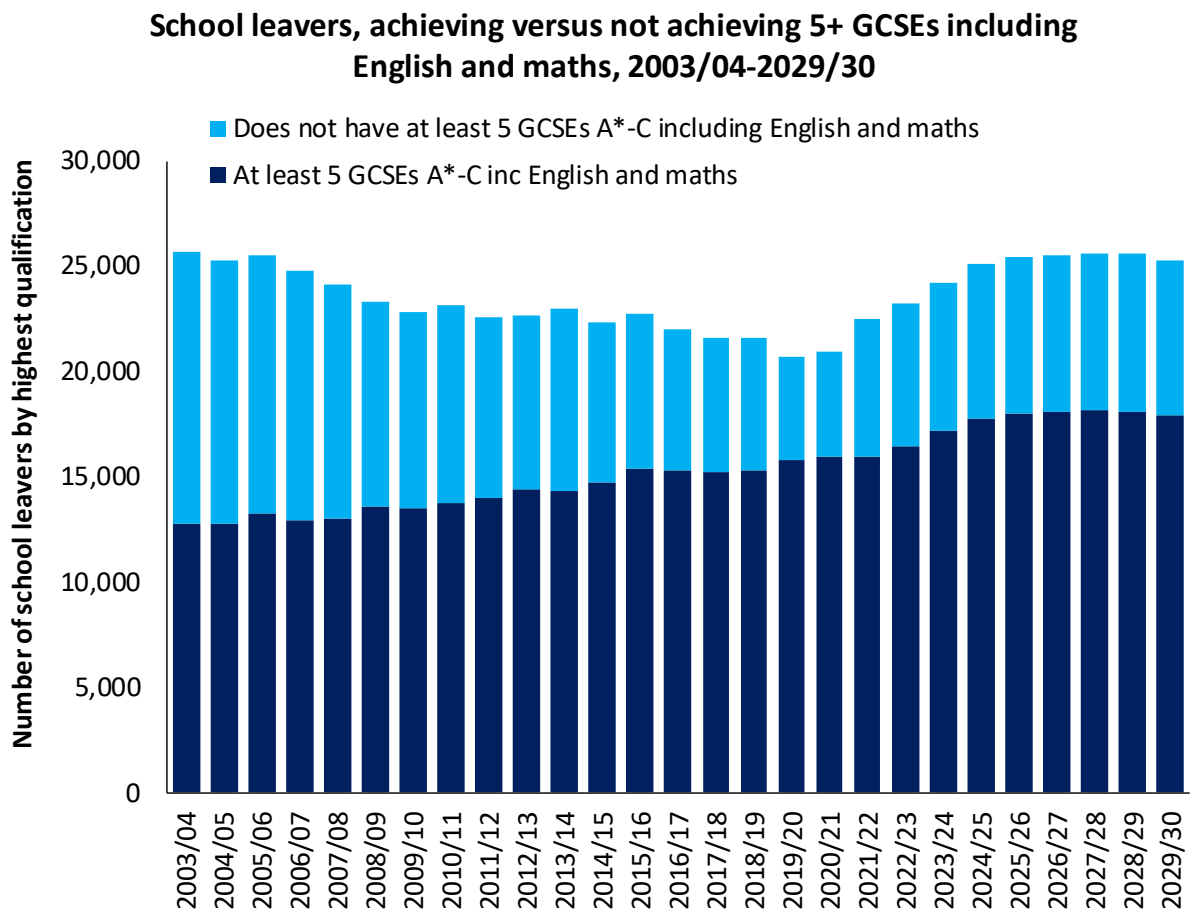
These findings have been underpinned by more recent survey evidence:

- The latest CBI/Birkbeck Employment and Skills Survey (2021) reported around one in five respondents were not confident in their ability to meet entry level skill needs over the next three to five years through recruitment or training.
- The 2019 Employer Skills Survey highlighted that **35% of NI firms identified an incidence of skills underutilisation** (employees with qualifications and skills more advanced than required for their current job role). This indicates that there are likely a number of graduates, although employed, have been unable to access graduate level employment.
- Data from the Institute of Student Employers and the Graduate Recruitment Bureau indicated a high proportion of employers use a 2:1 classification as a minimum entry requirement. According to HESA 85% of qualifiers from first degrees in NI achieve a 2:1 or above degree classification. Therefore, there are a number of qualifiers who are unable to access graduate level vacancies.

The impact of the supply adjustment increases the under-supply of skills in some subject areas and reduces the over-supply in other subject areas.

Qualifications from education institutions

School leavers by qualification (1)



Source: *UUEPC analysis, HESA*

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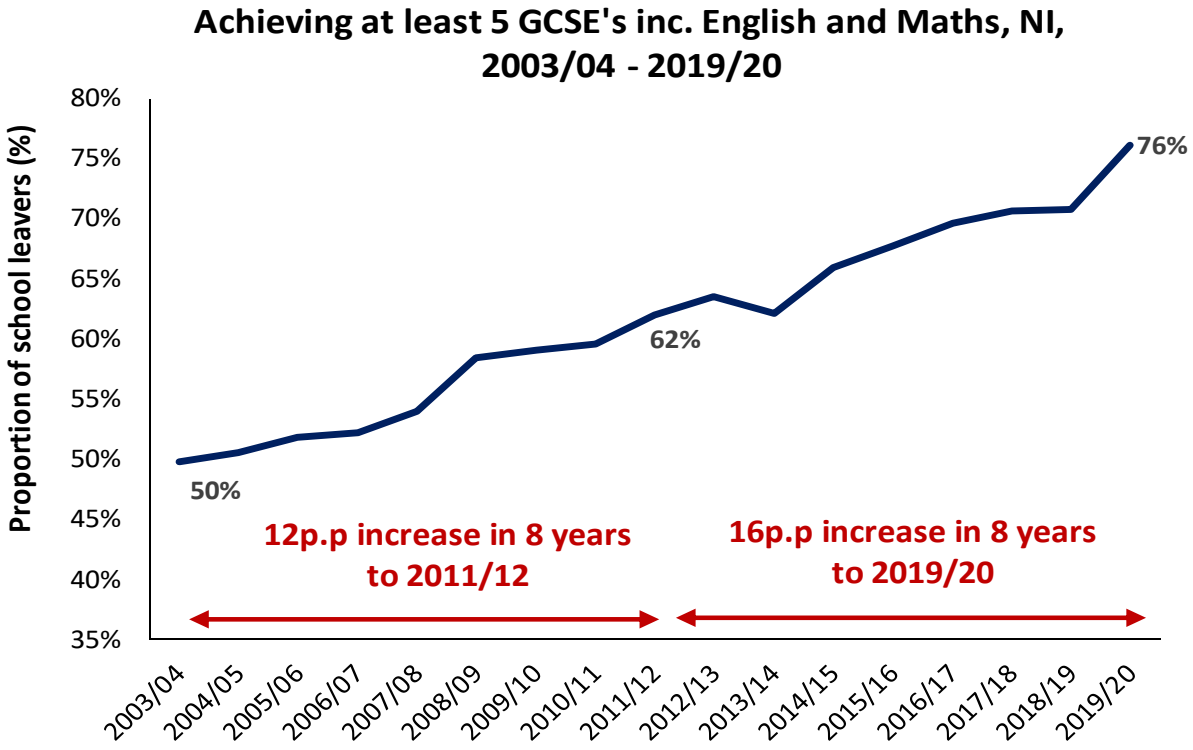
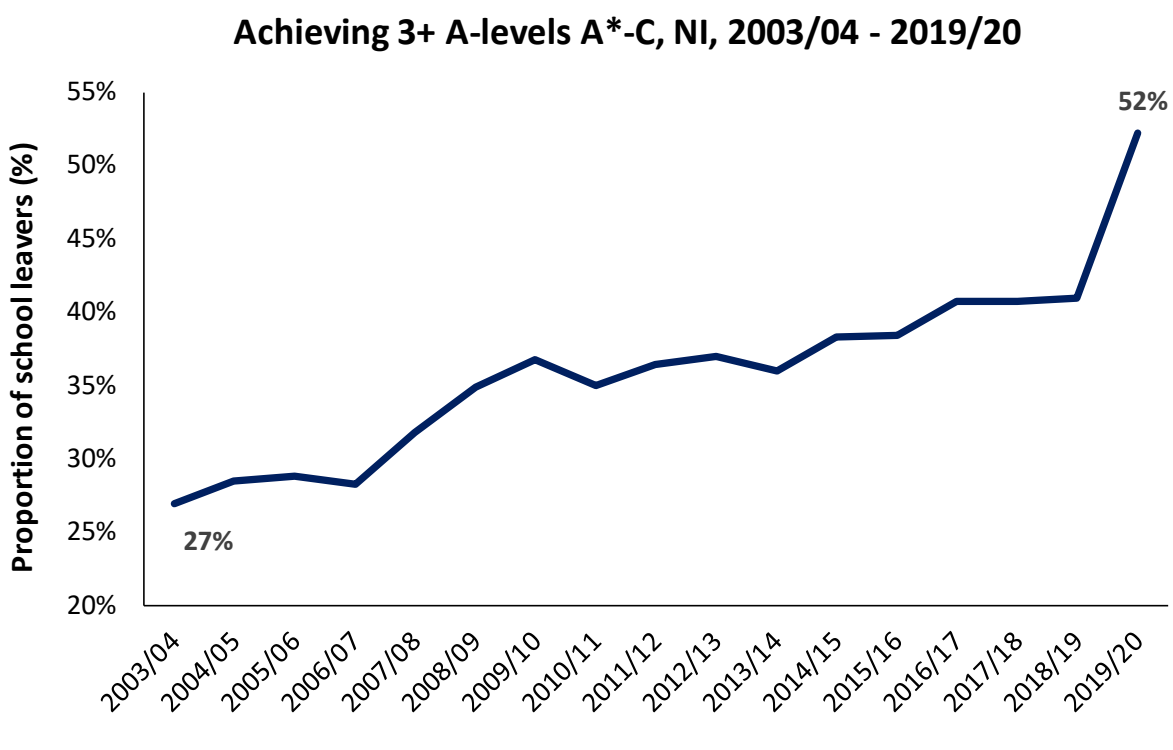
School leavers by qualification (2)

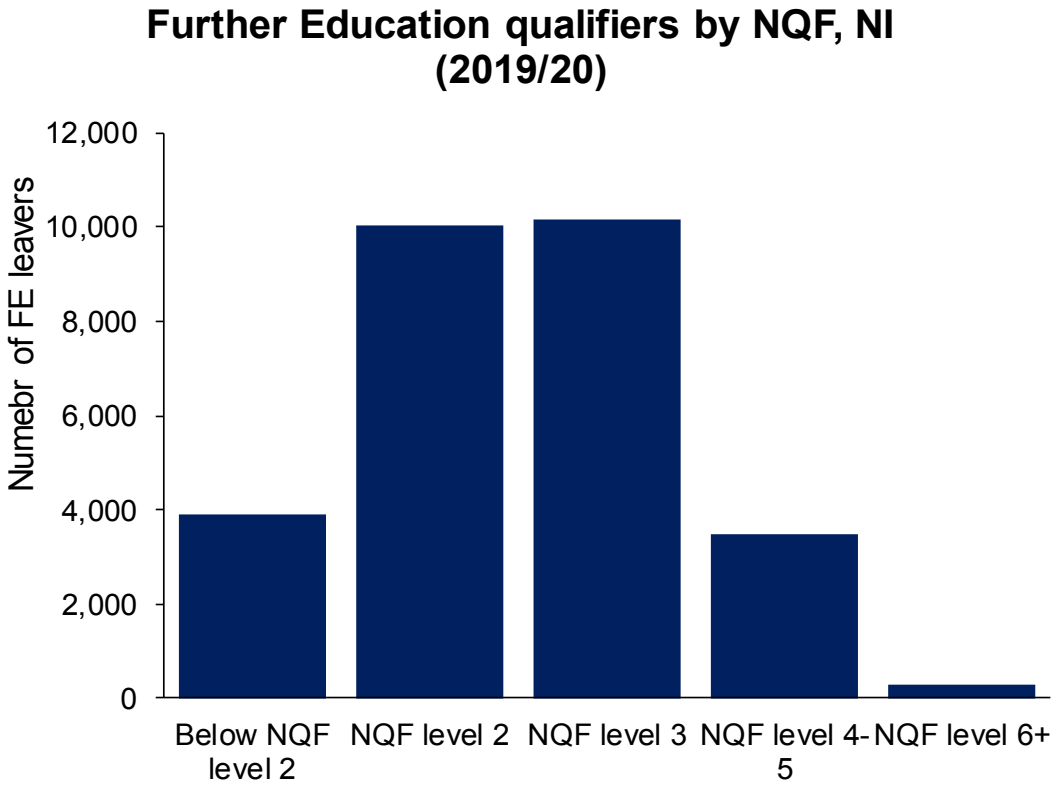


Source: *School Leavers Survey, DE*

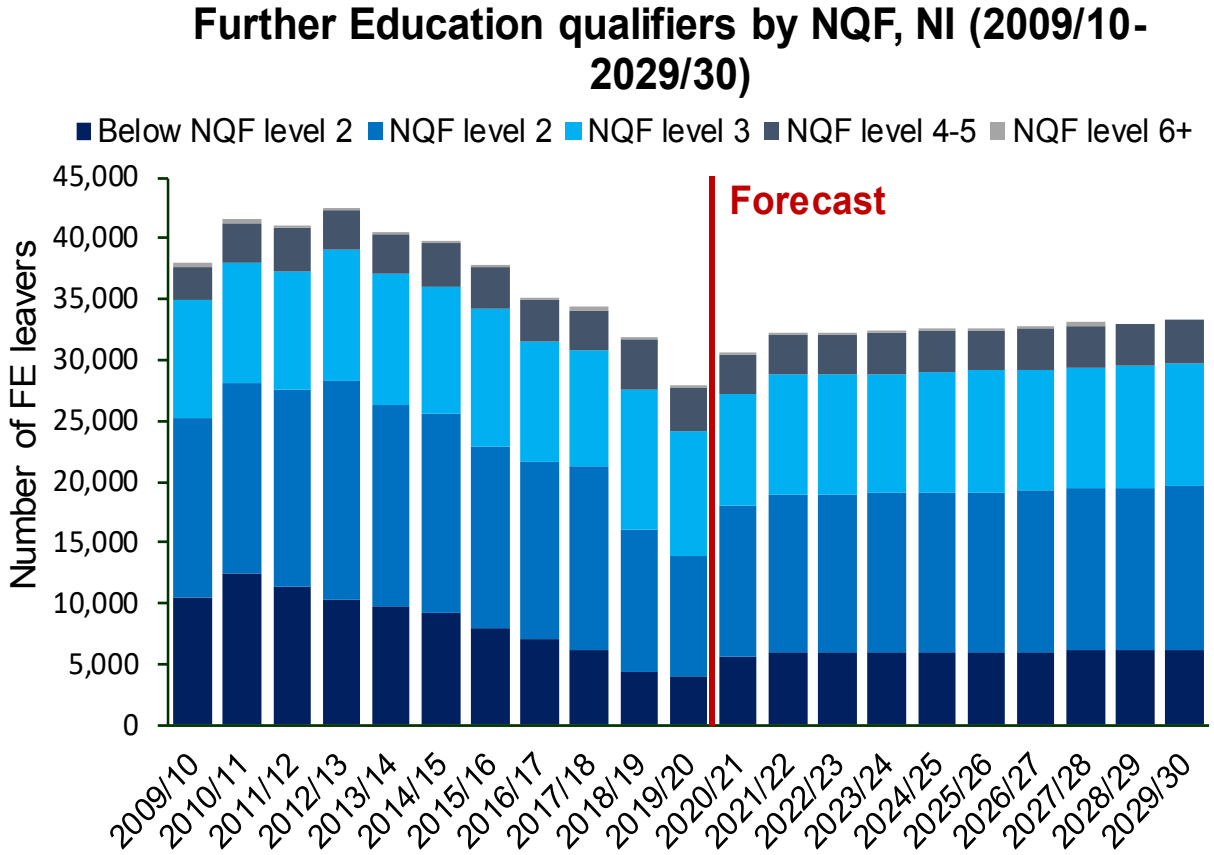


Source: *School Leavers Survey, DE*

Further Education leavers by qualification



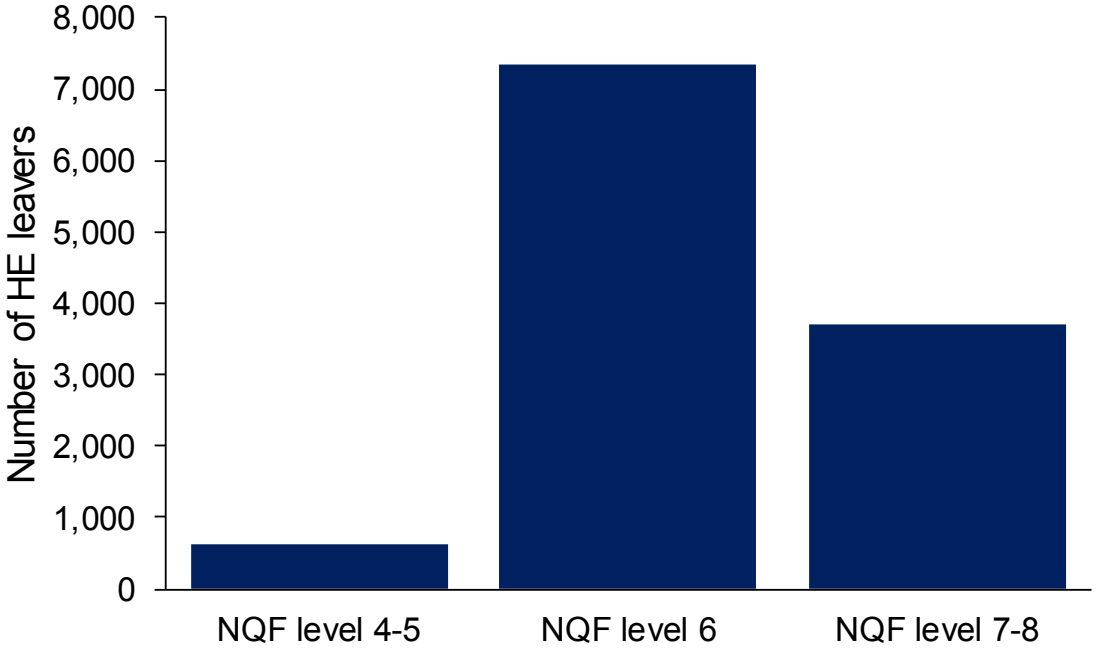
Source: *DfE*
Note: *Data refers to the gross supply of mainstream qualifiers regulated qualifications at NI FE colleges.*



Source: *DfE, UUEPC analysis*
Note: *Data refers to the gross supply of mainstream qualifiers regulated qualifications at NI FE colleges*

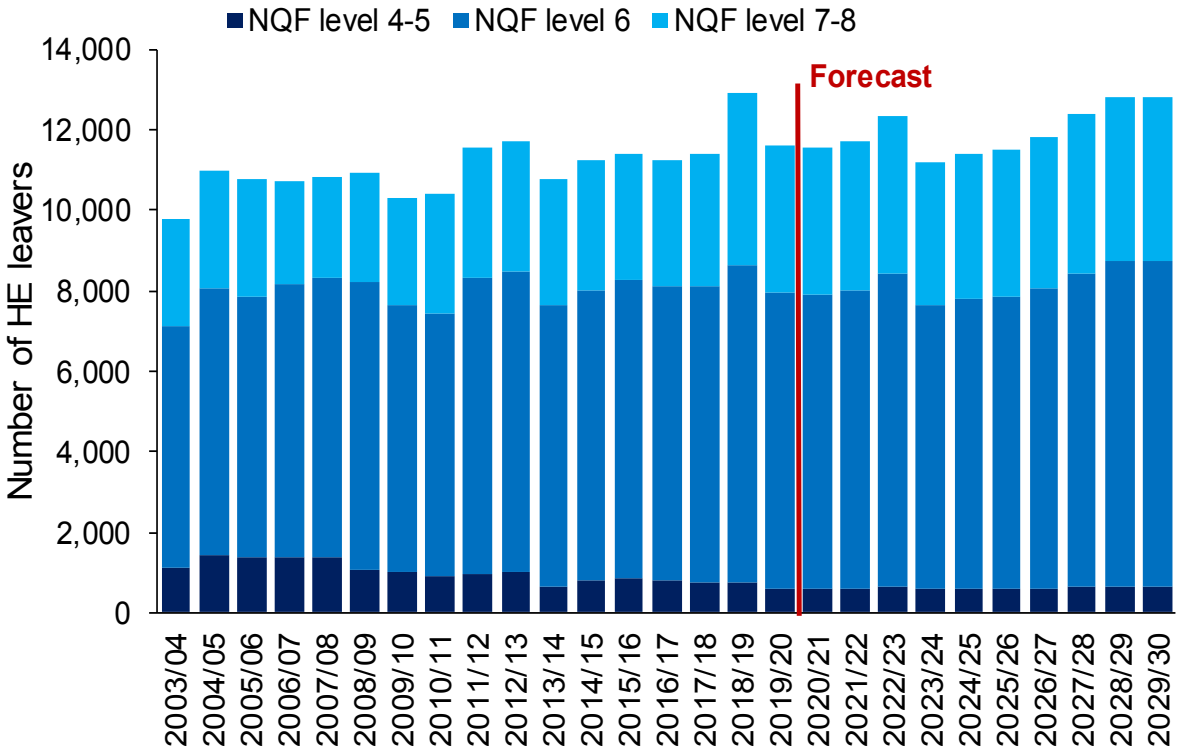
Higher Education leavers by qualification (1)

Net supply from higher education qualifiers by NQF, NI (2019/20)



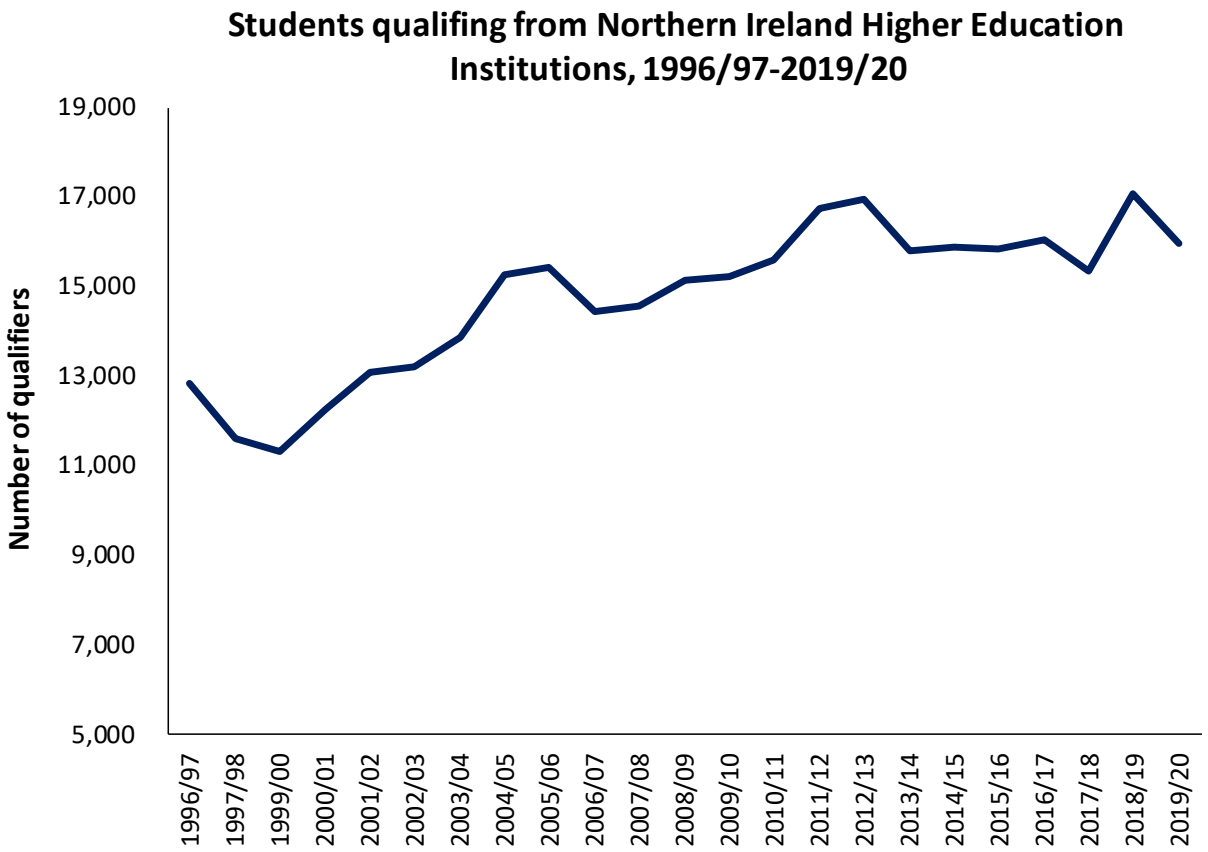
Source: *HESA*

Net supply from higher education by NQF, NI (2003/04-2029/30)

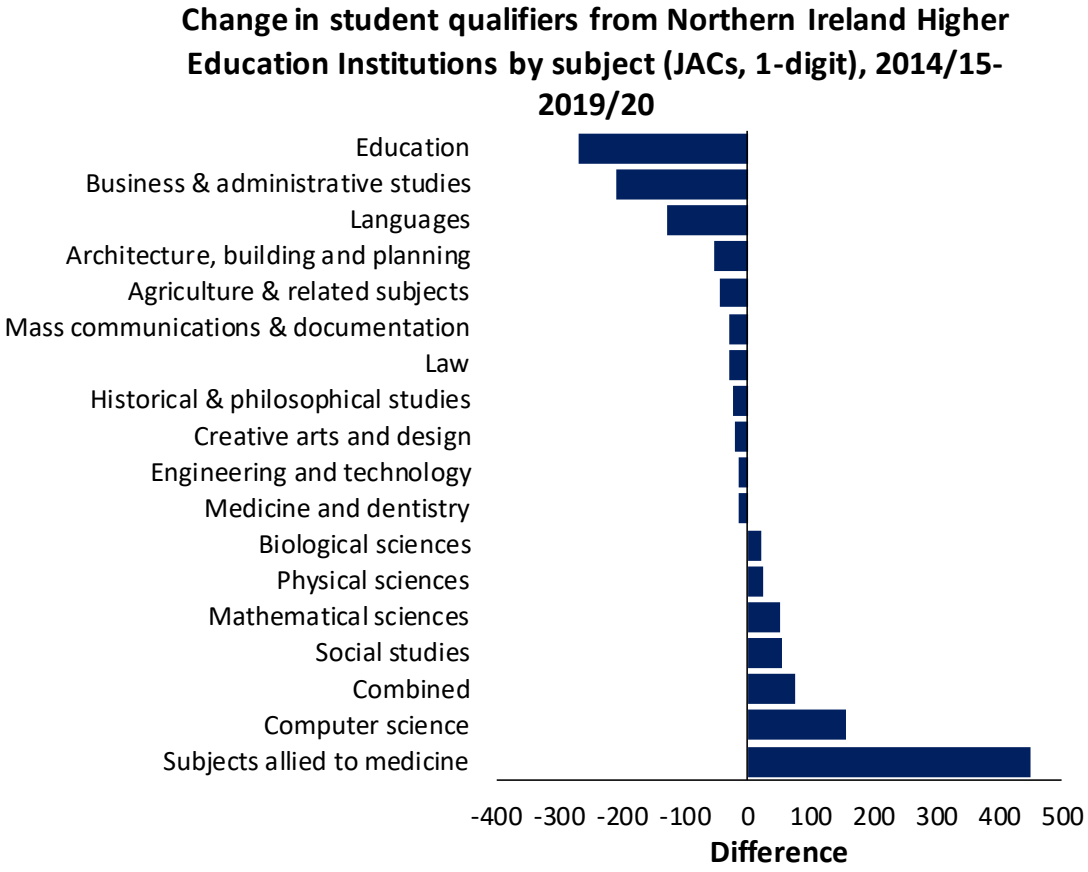


Source: *HESA, UUEPC analysis*

Higher Education leavers by qualification (3)

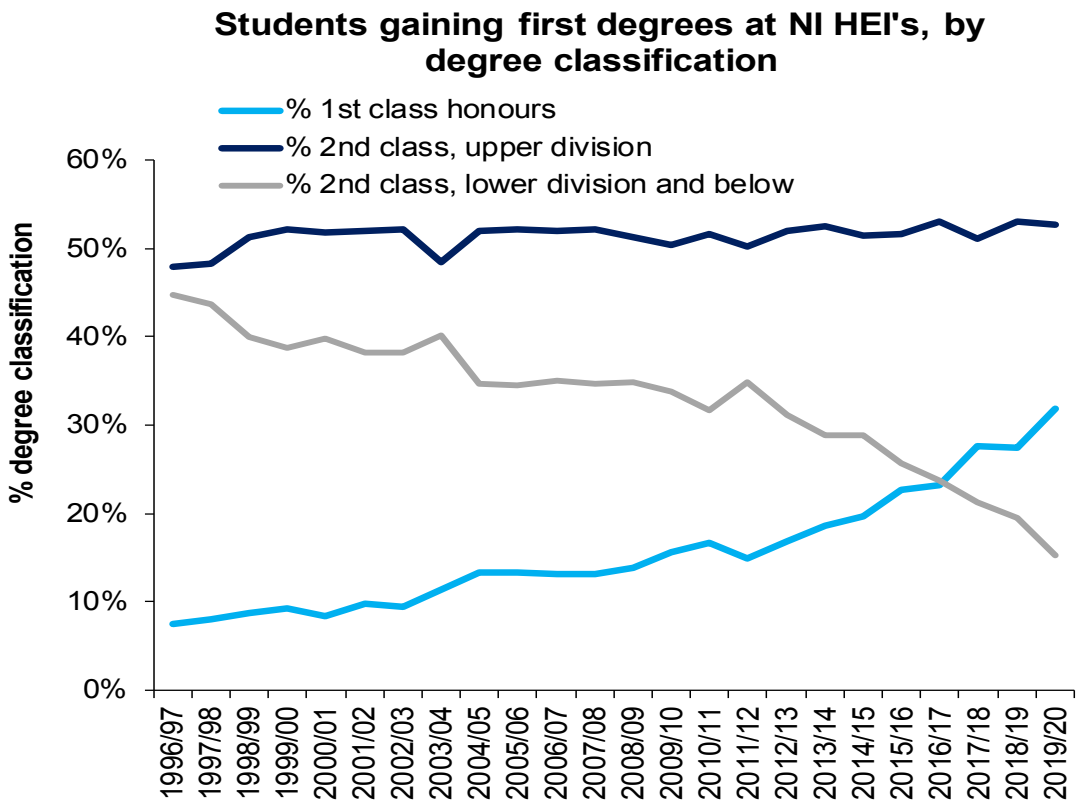


Source: HESA

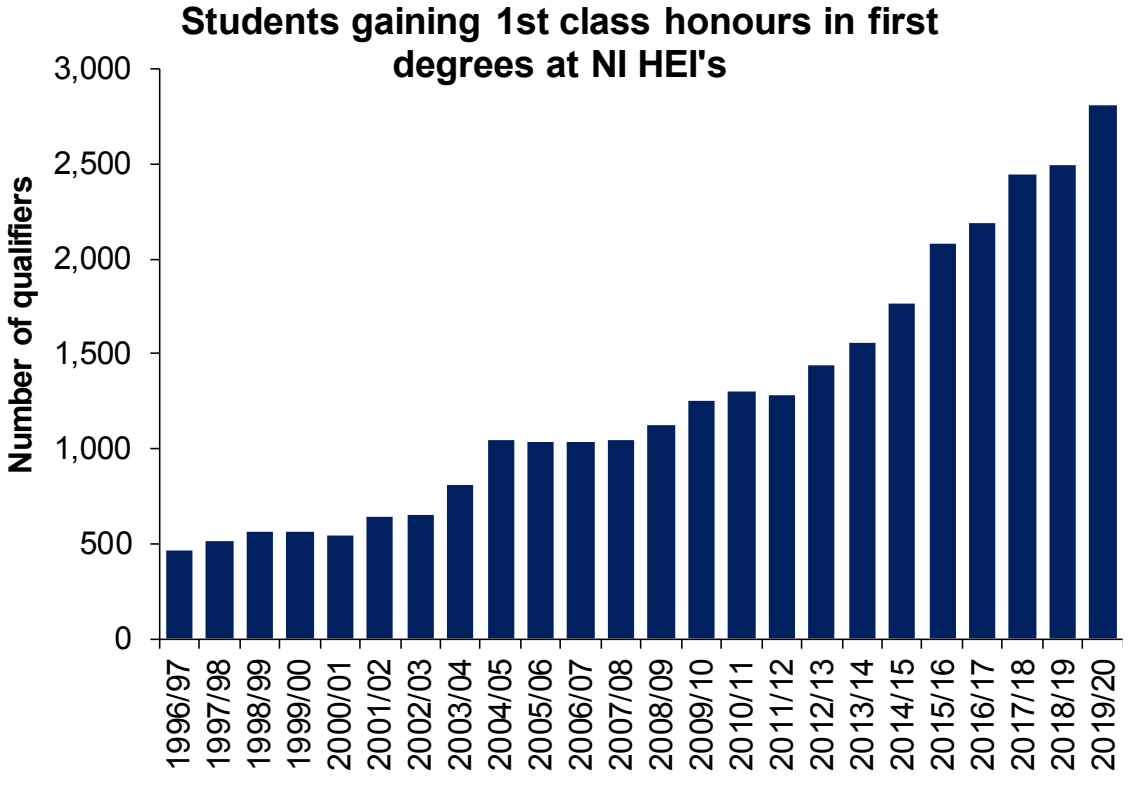


Source: HESA

Higher Education leavers by qualification (2)

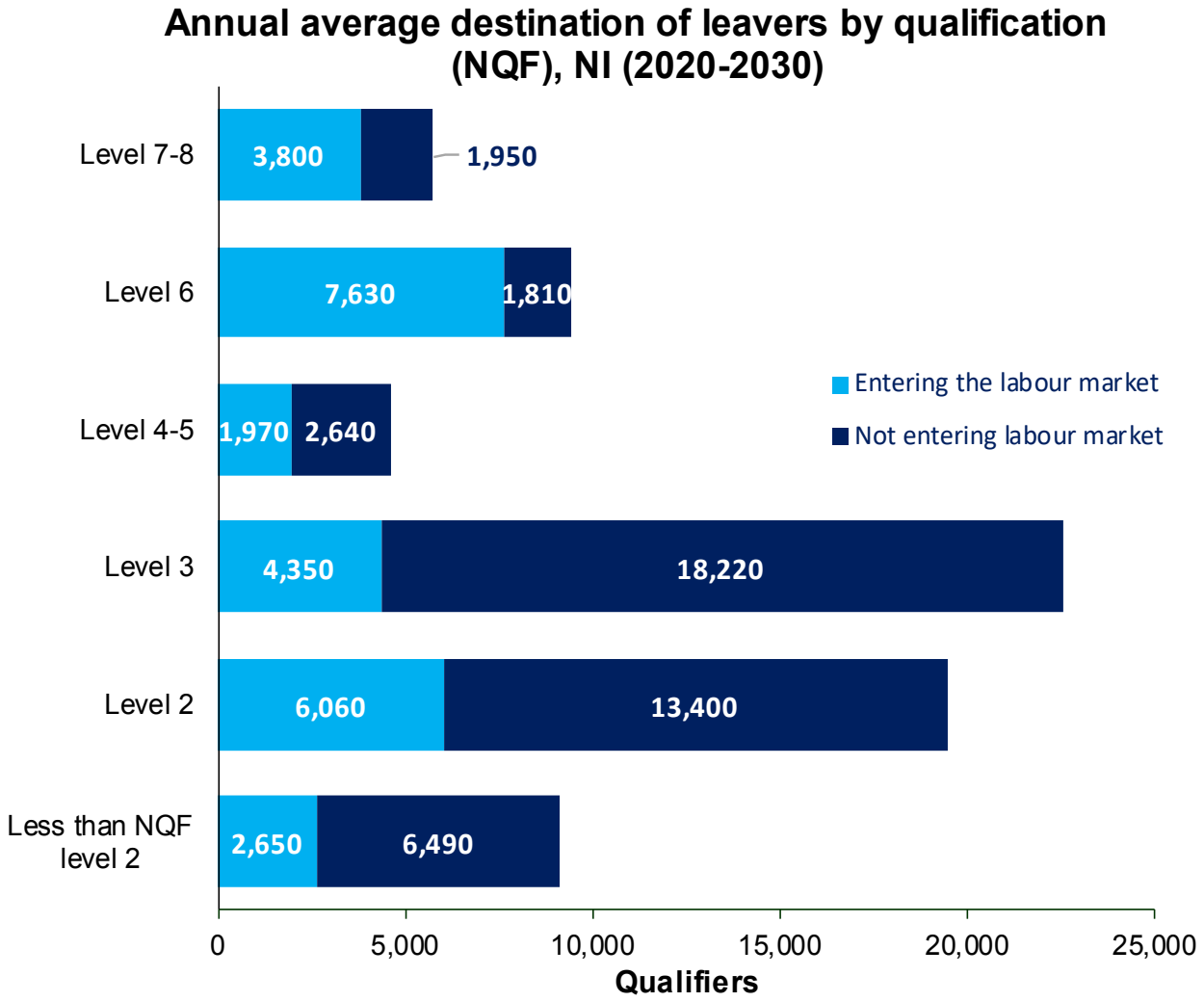


Source: *NISRA*
Note*: Excludes unclassified degrees*



Source: *NISRA*
Note*: Excludes unclassified degrees*

Destination of leavers by NQF level



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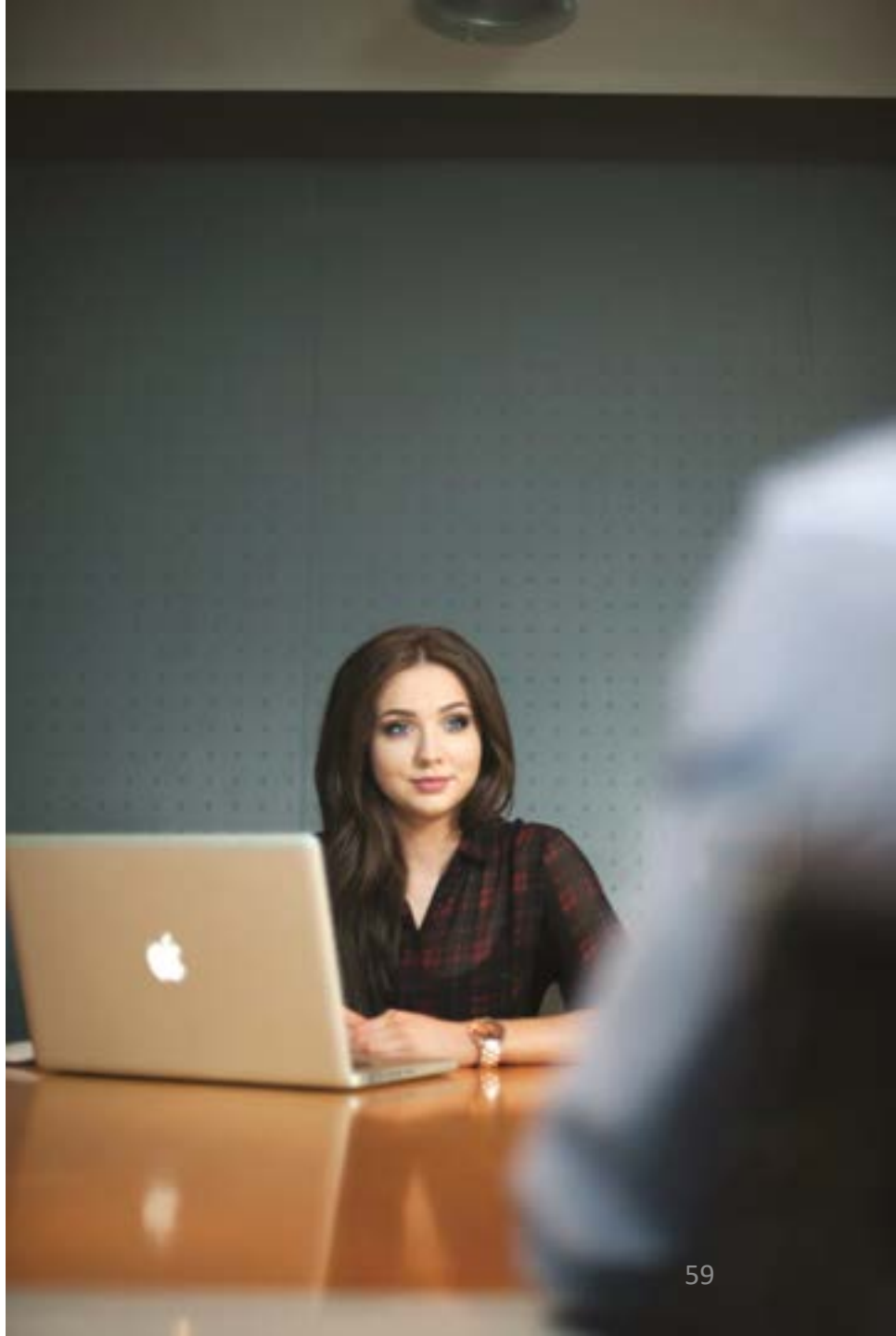
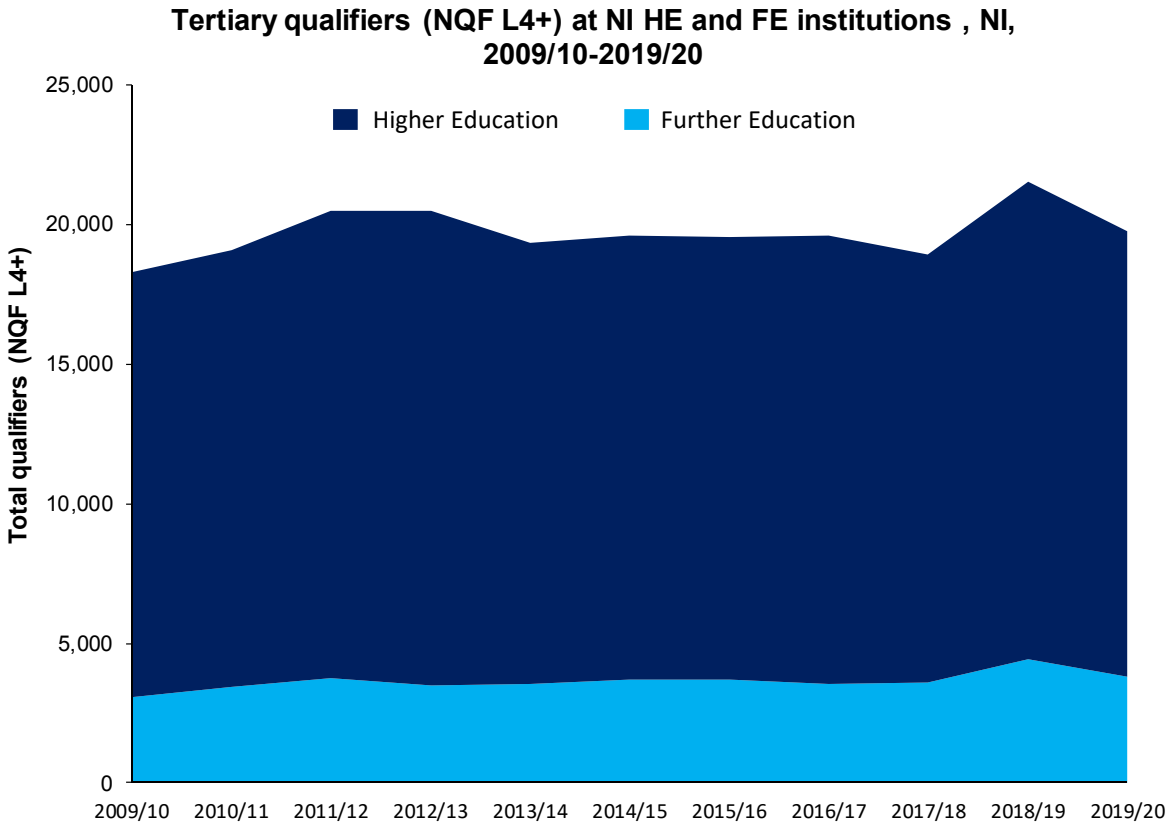
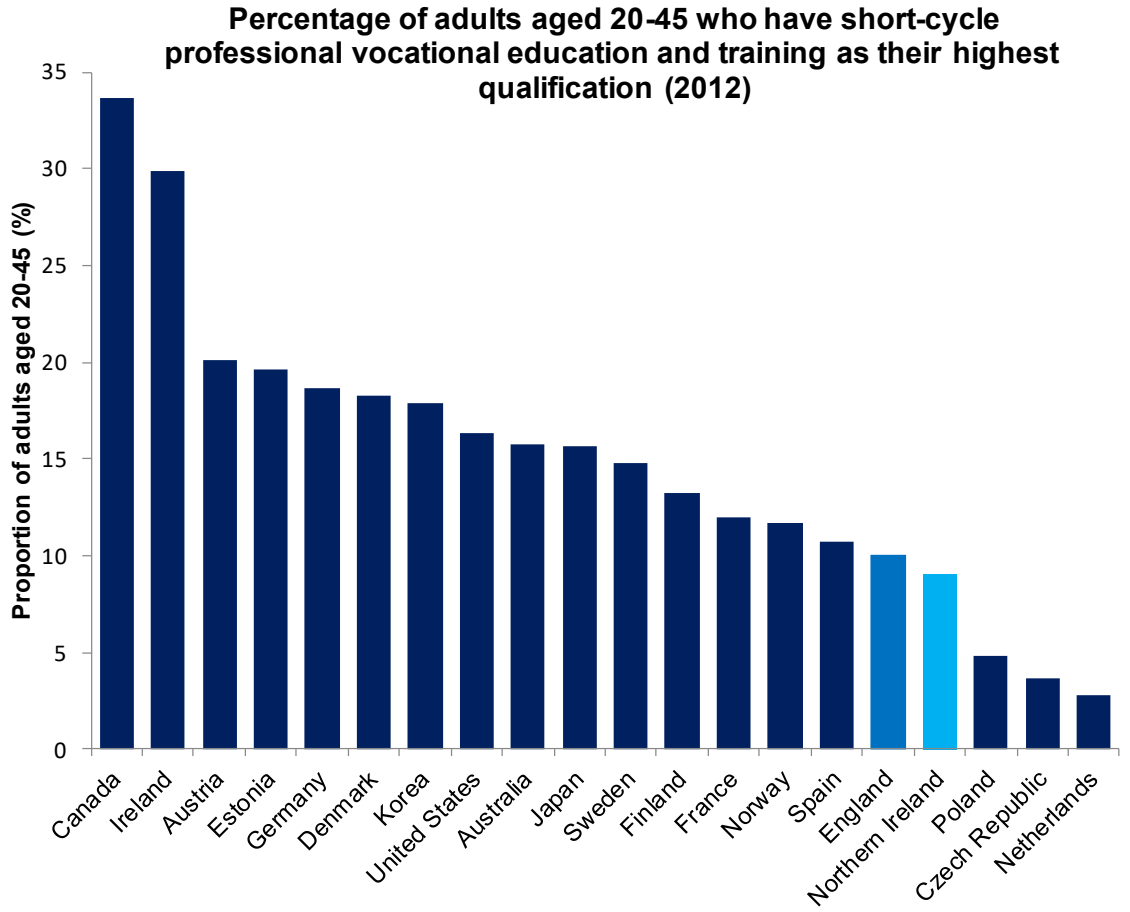
Source: *UUEPC*



Professional vocational education

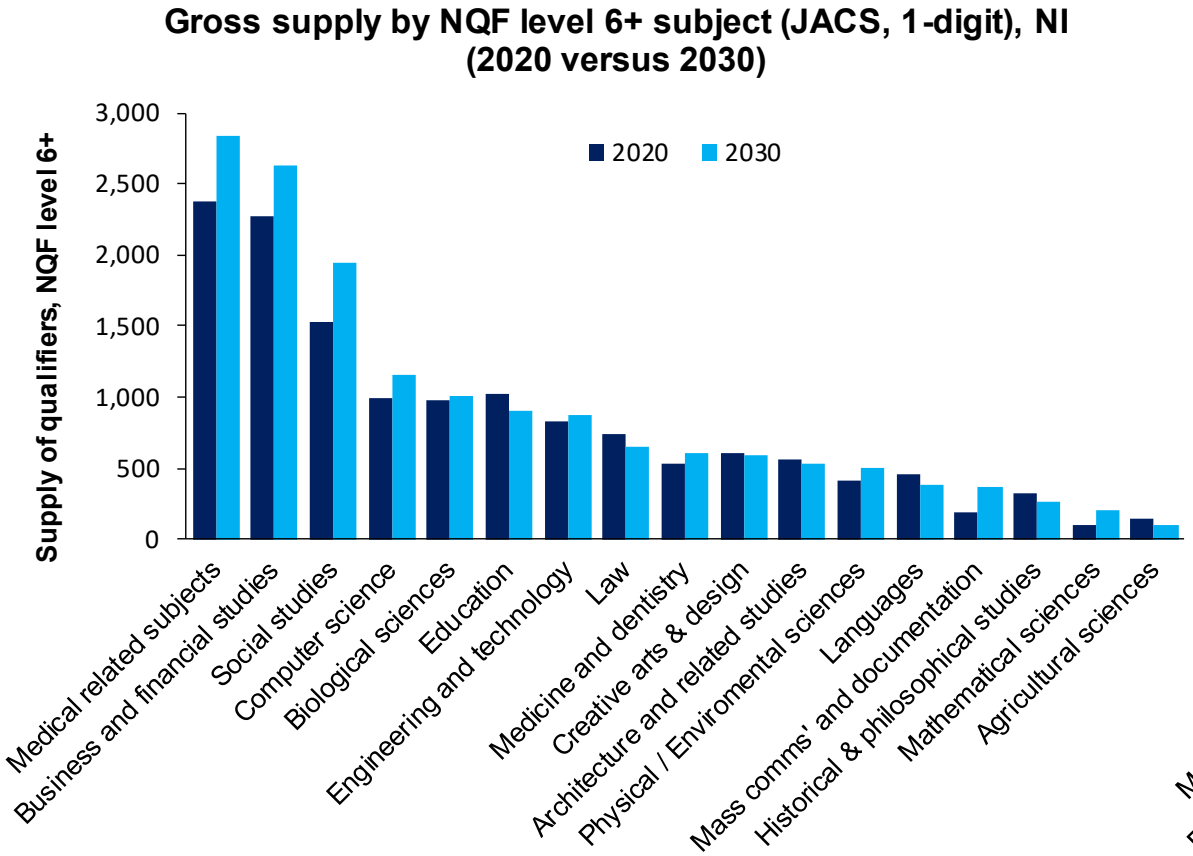


Source: NISRA

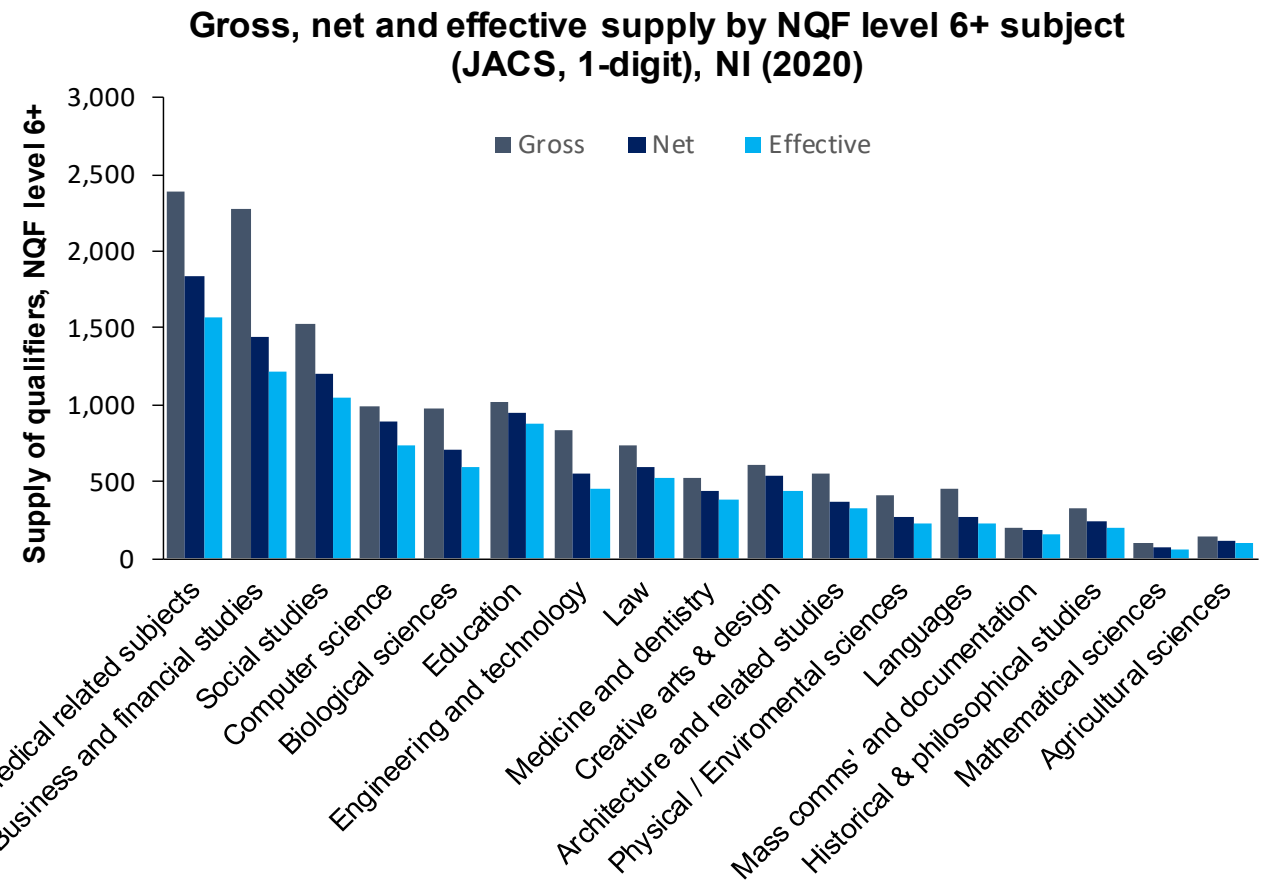


Source: OECD, PIAAC

Gross supply of NQF level 6+

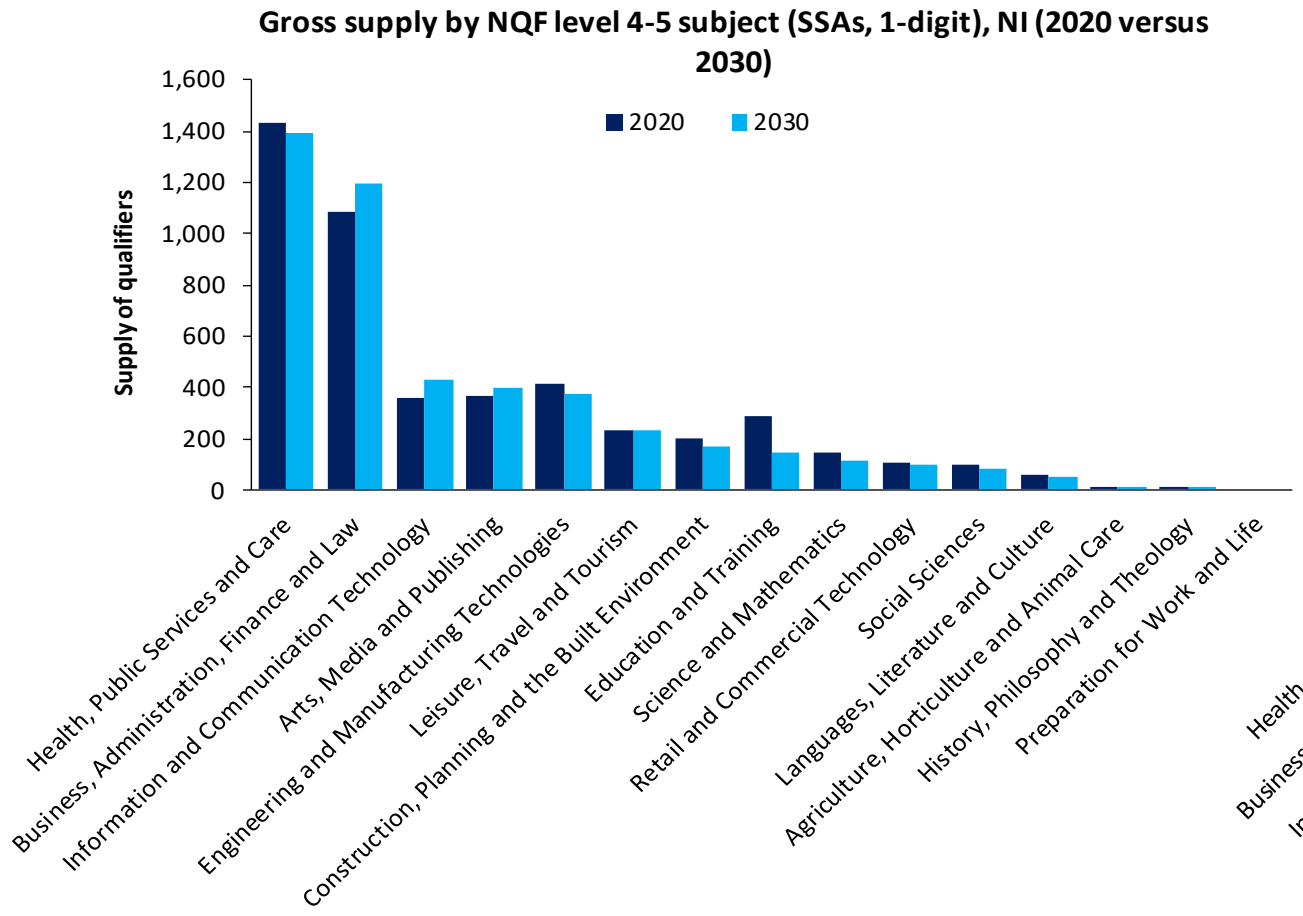


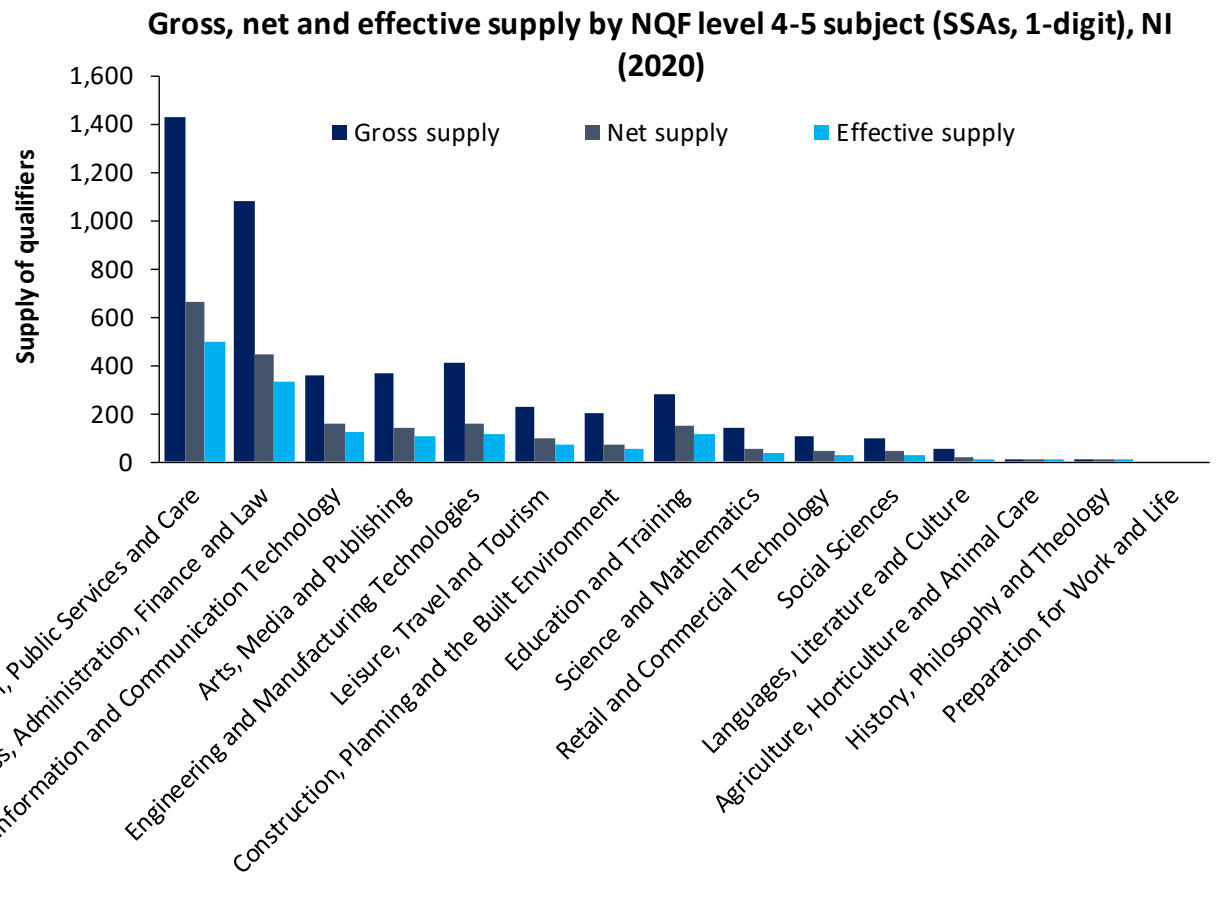
Source: *HESA, UUEPC analysis*



Source: *HESA, UUEPC analysis*

Gross supply of NQF level 4-5





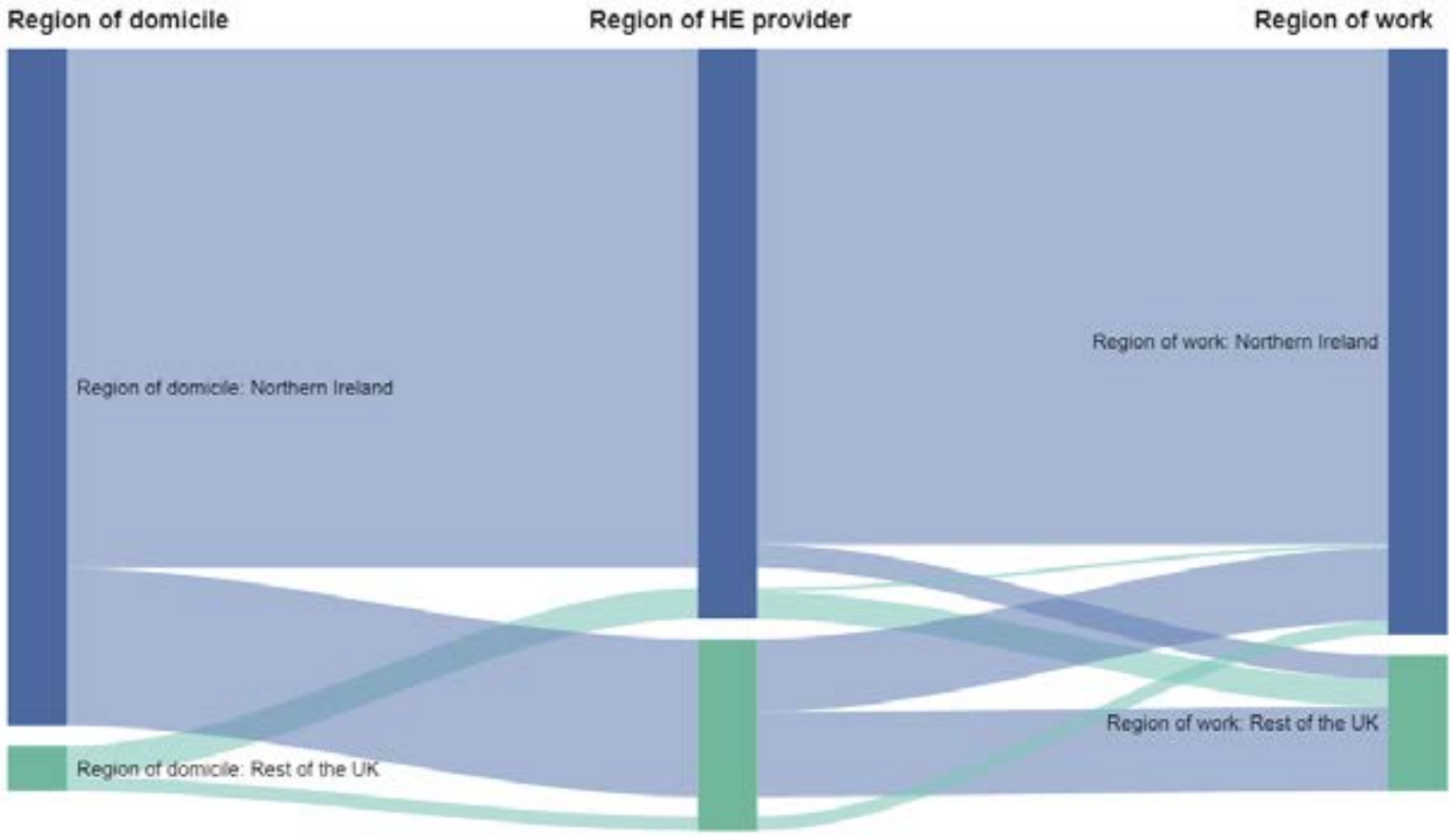
Source: *UUEPC analysis, DfE*

Source: *UUEPC analysis, DfE*

NI qualifiers – location of study and employment

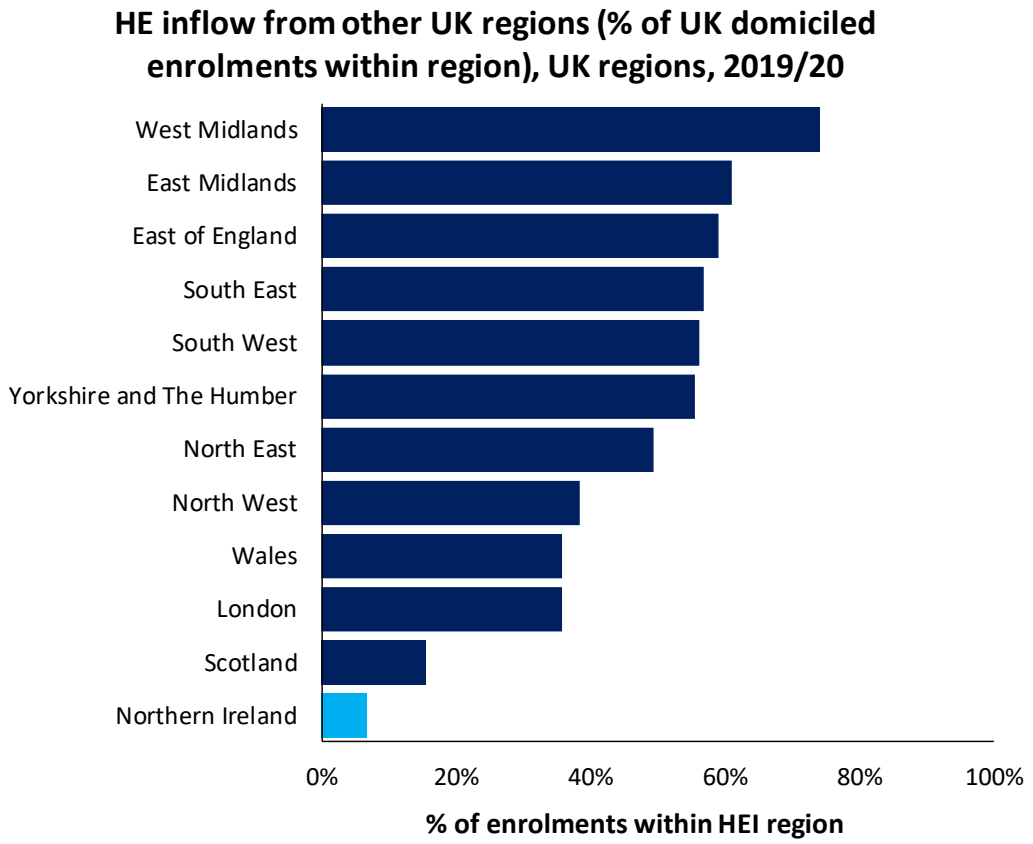
Education and work destinations for the class of 2019

NI domiciled graduates entering work in the UK by region of provider and region of work (2018/19)

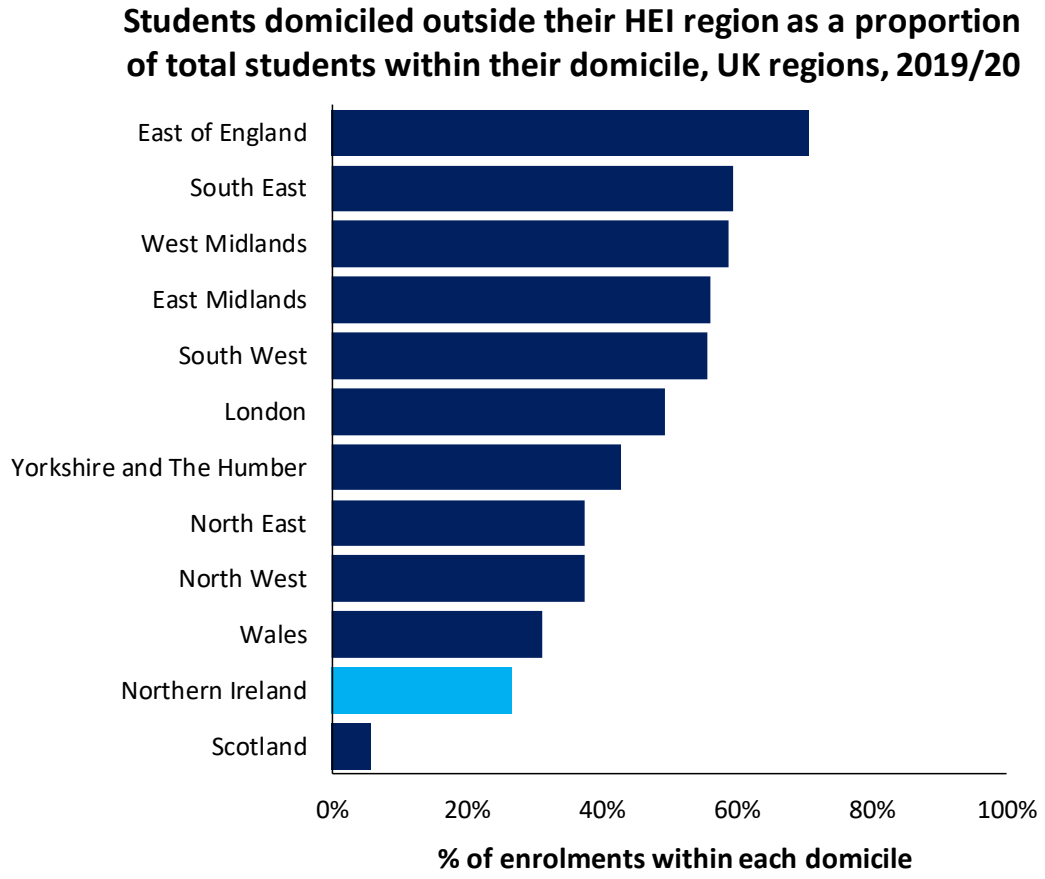


Source: *HESA*

Local students less likely to study outside NI, but low inflows

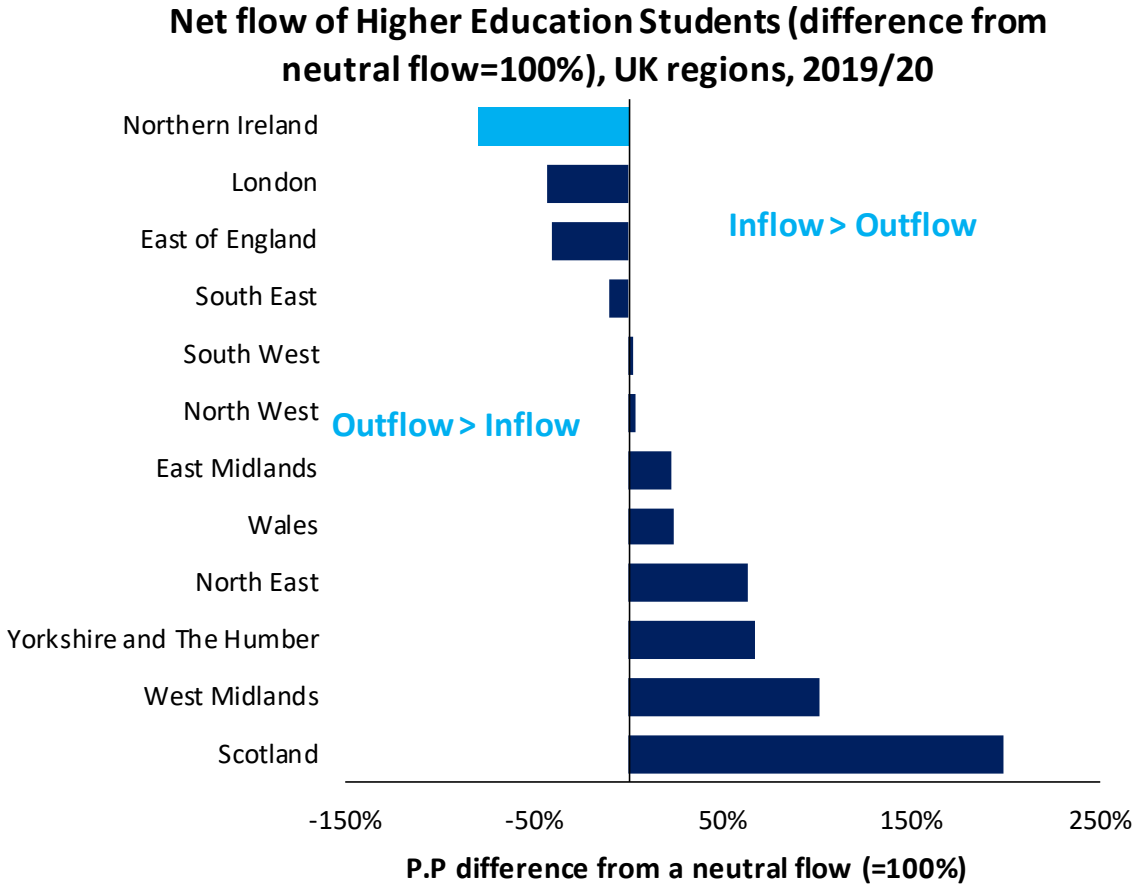


Source: HESA

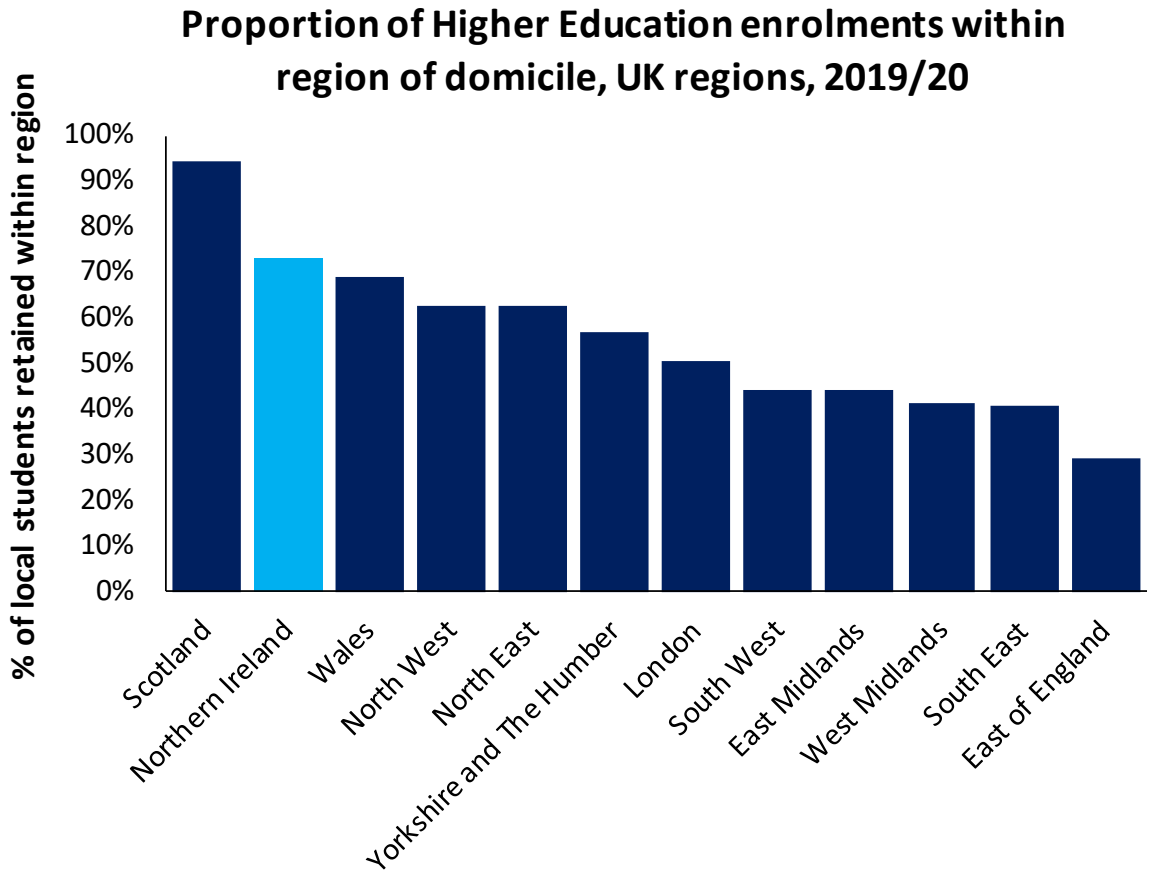


Source: HESA

NI has a high retention rate, but a negative net flow of students

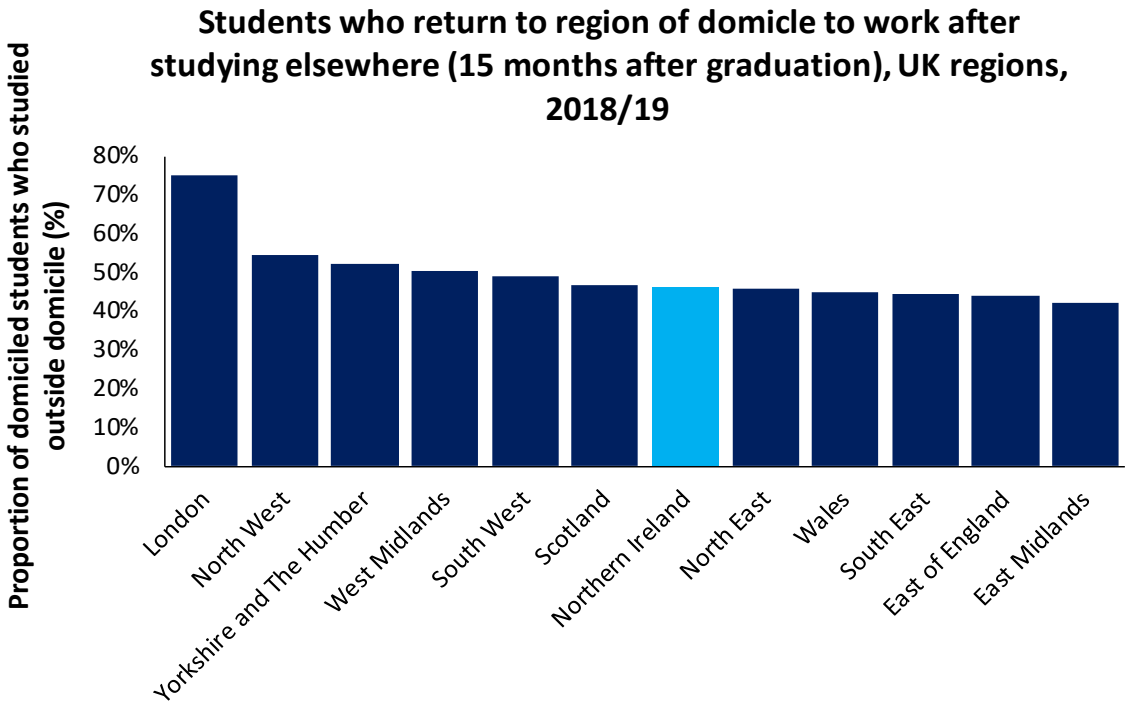


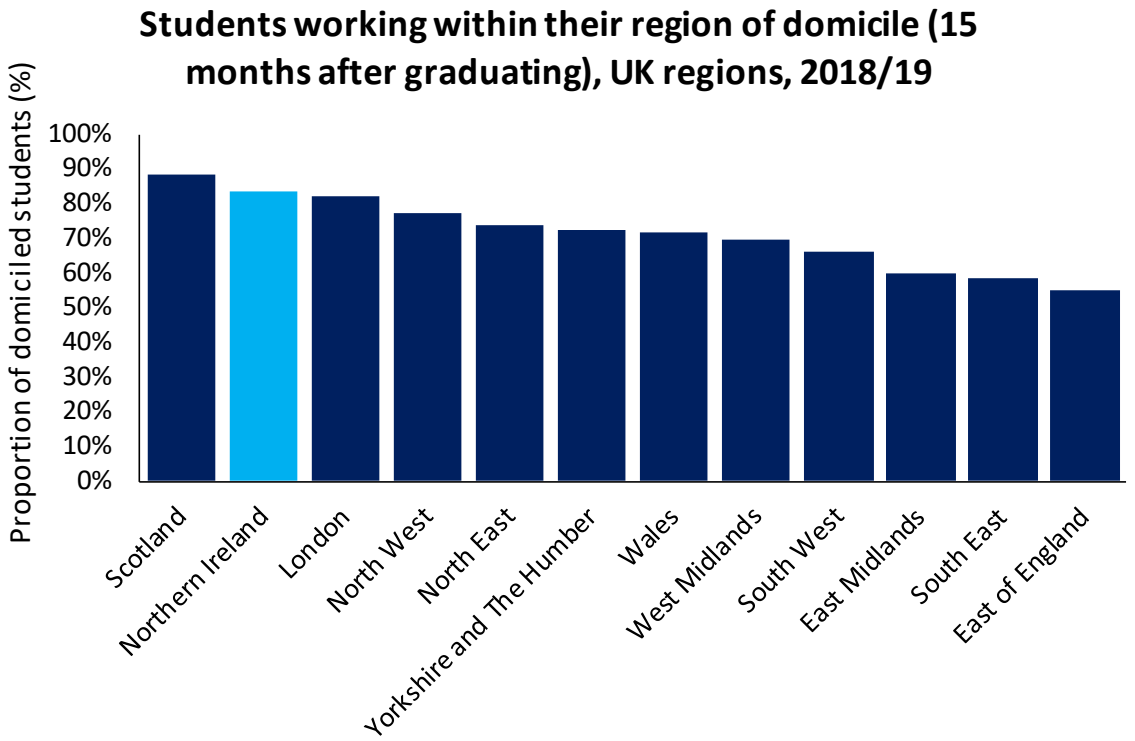
Source: HESA



Source: HESA

NI has a relatively high retention rate for local talent



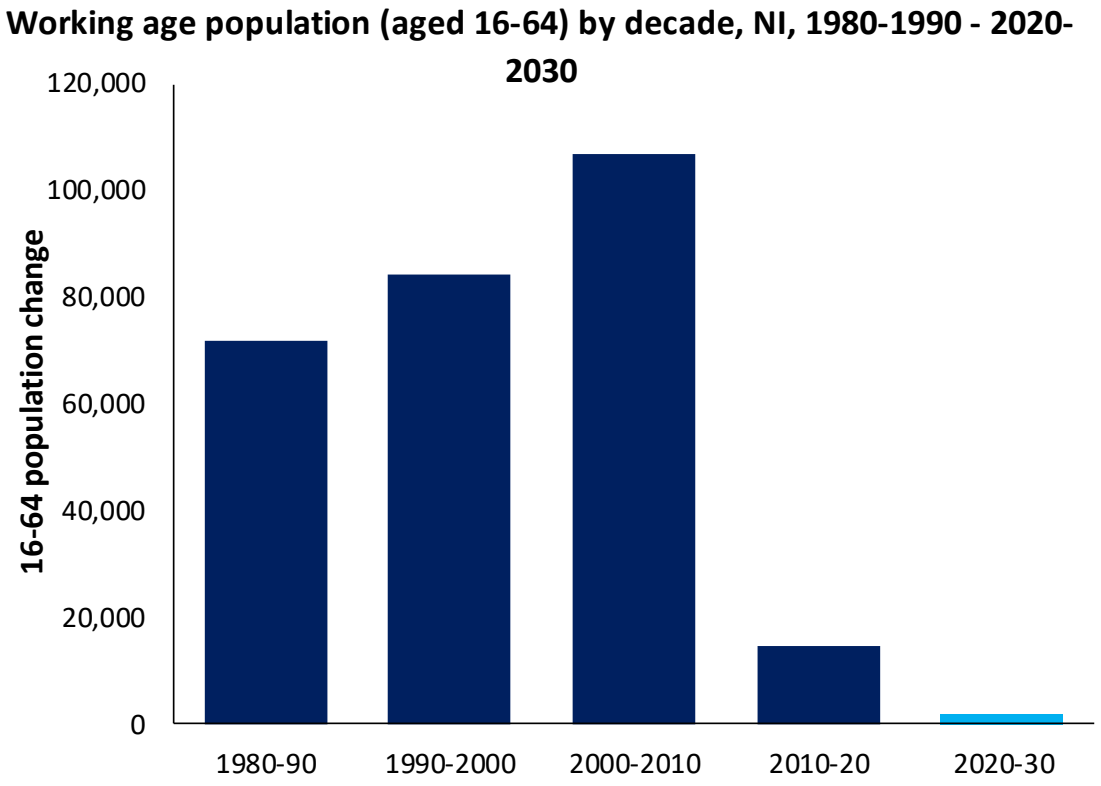


Source: *HESA*

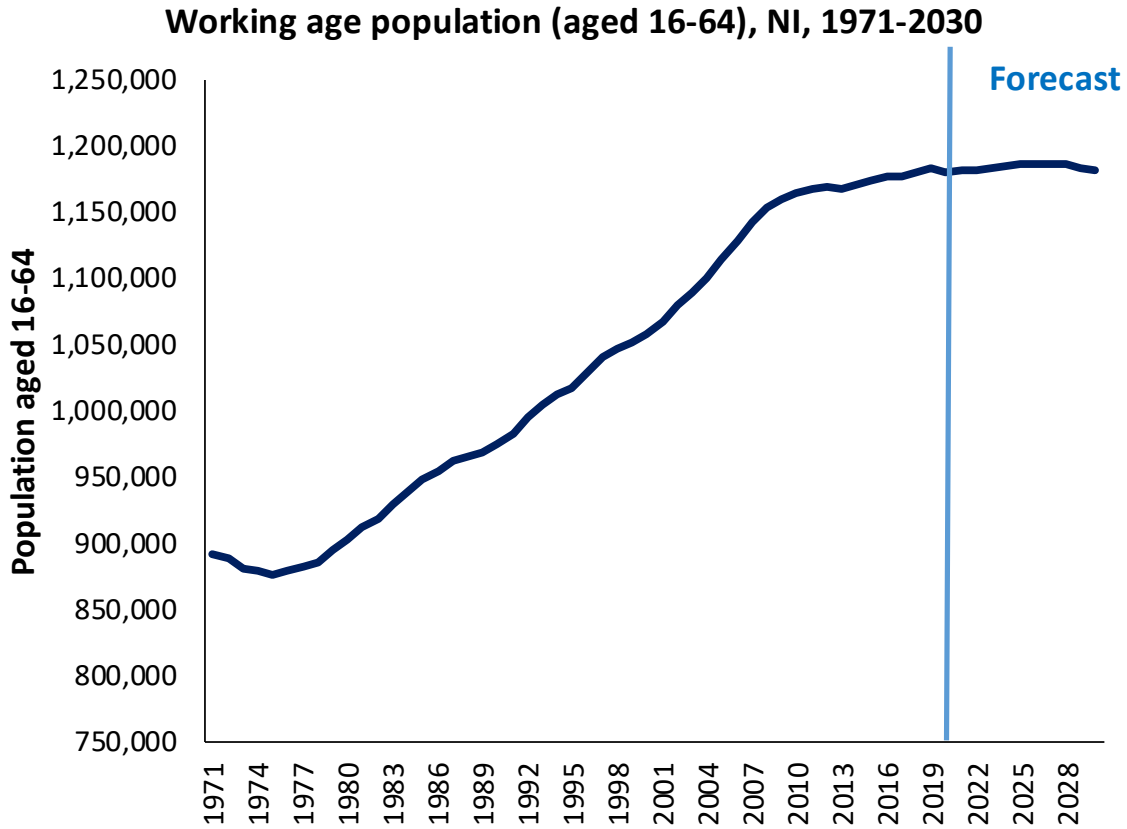
Source: *HESA*

Wider labour market supply context

Working age population growth slowing



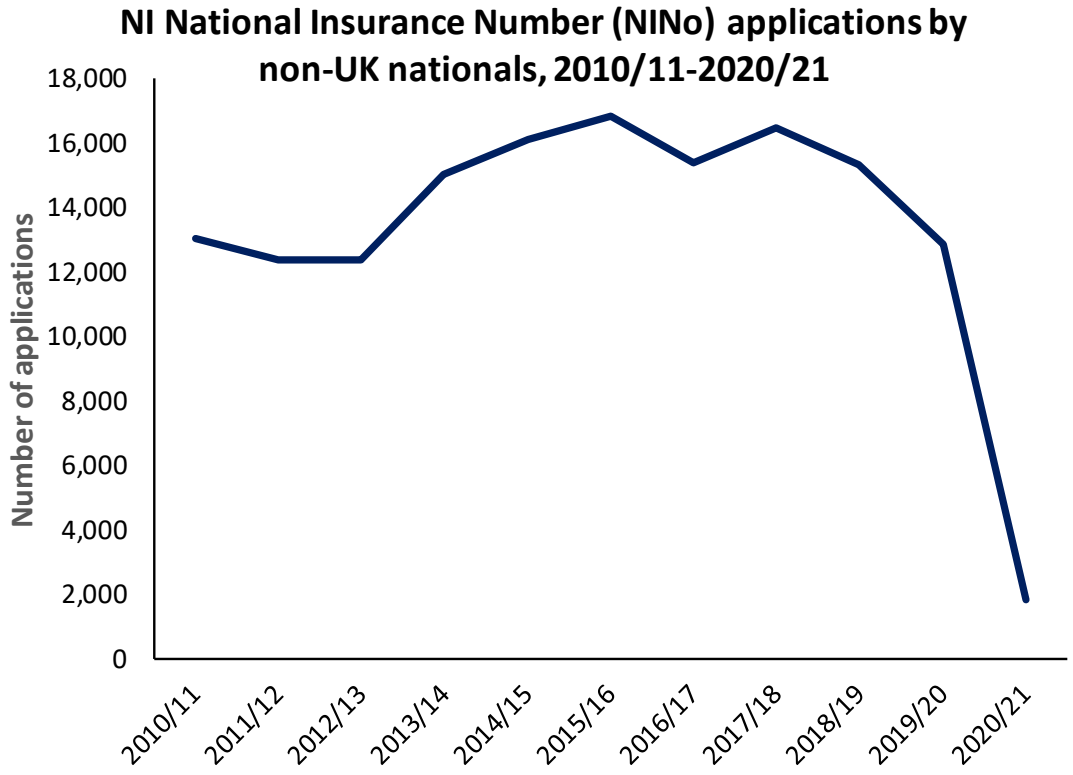
Source: NISRA



Source: NISRA

National Insurance applications by non-UK nationals

il 2010 – March



Source: *NISRA, DfC, DWP*

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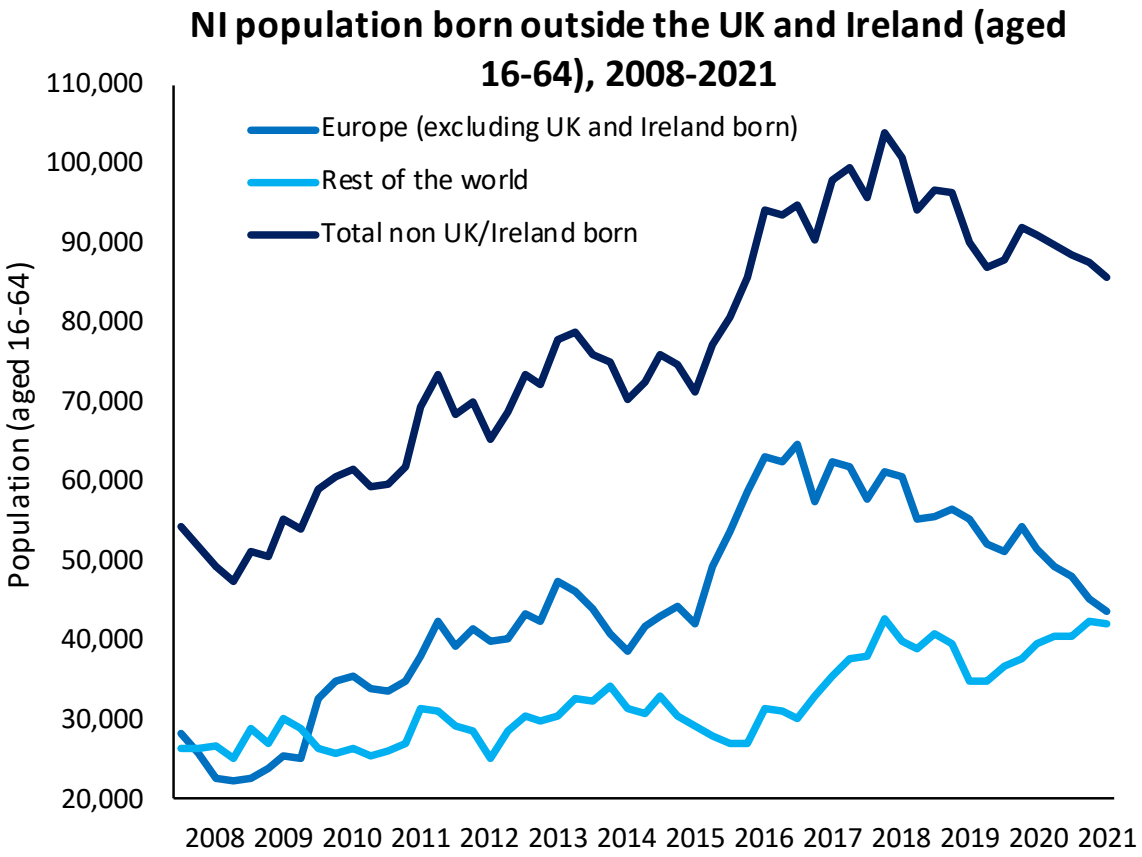
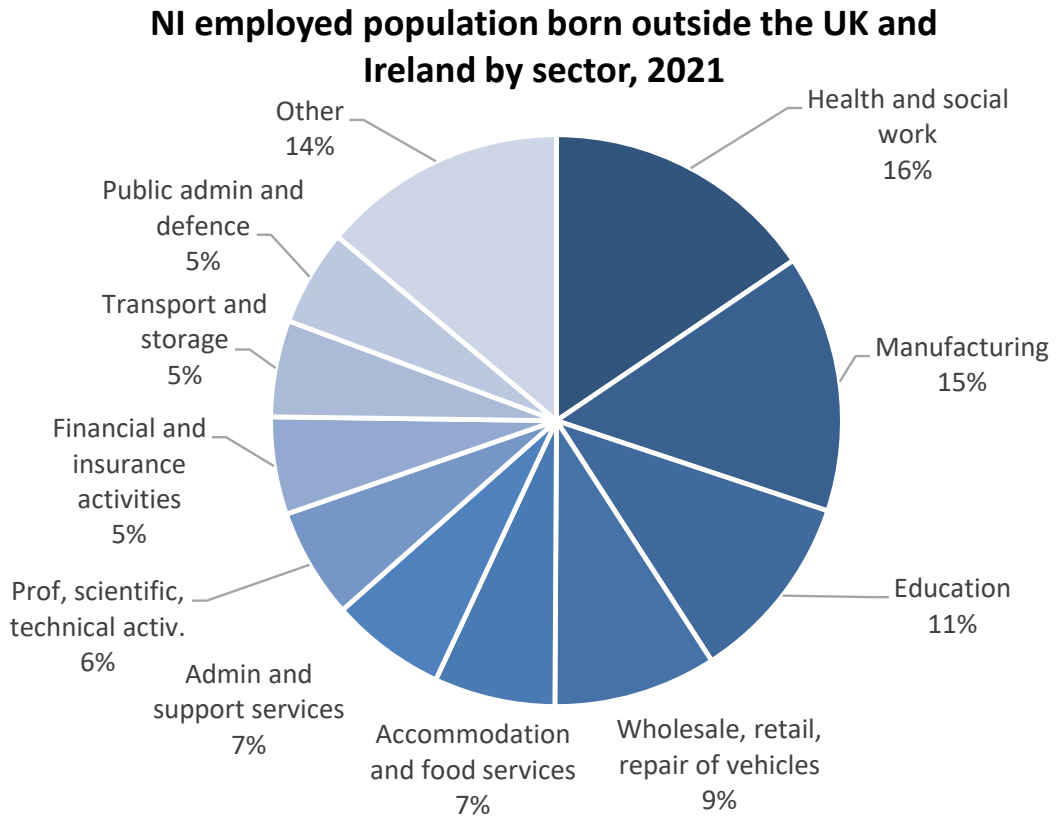
Population born outside UK & Ireland

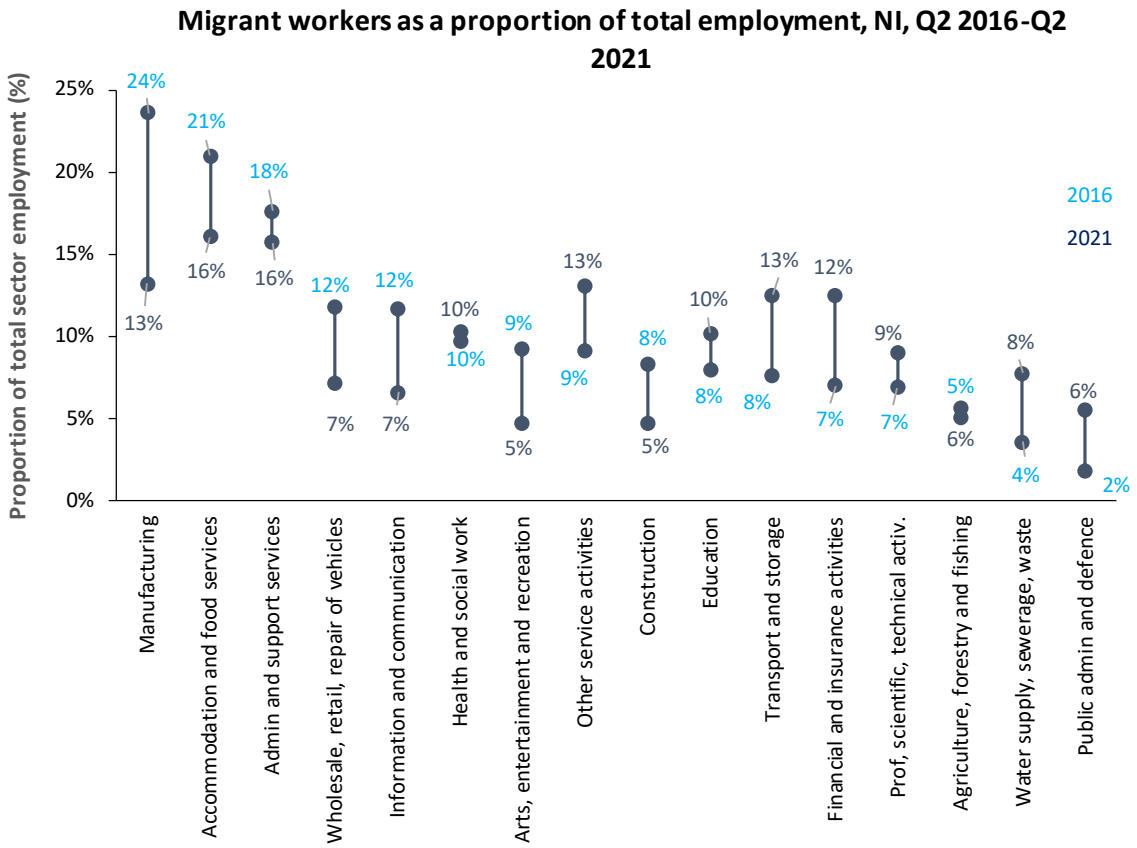


Source: *APS*



Source: *APS*

Population born outside UK & Ireland



Source: *ONS, LFS*

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(Im) balance

Section 5

Demand side versus supply side concepts

The supply/demand (im)balance

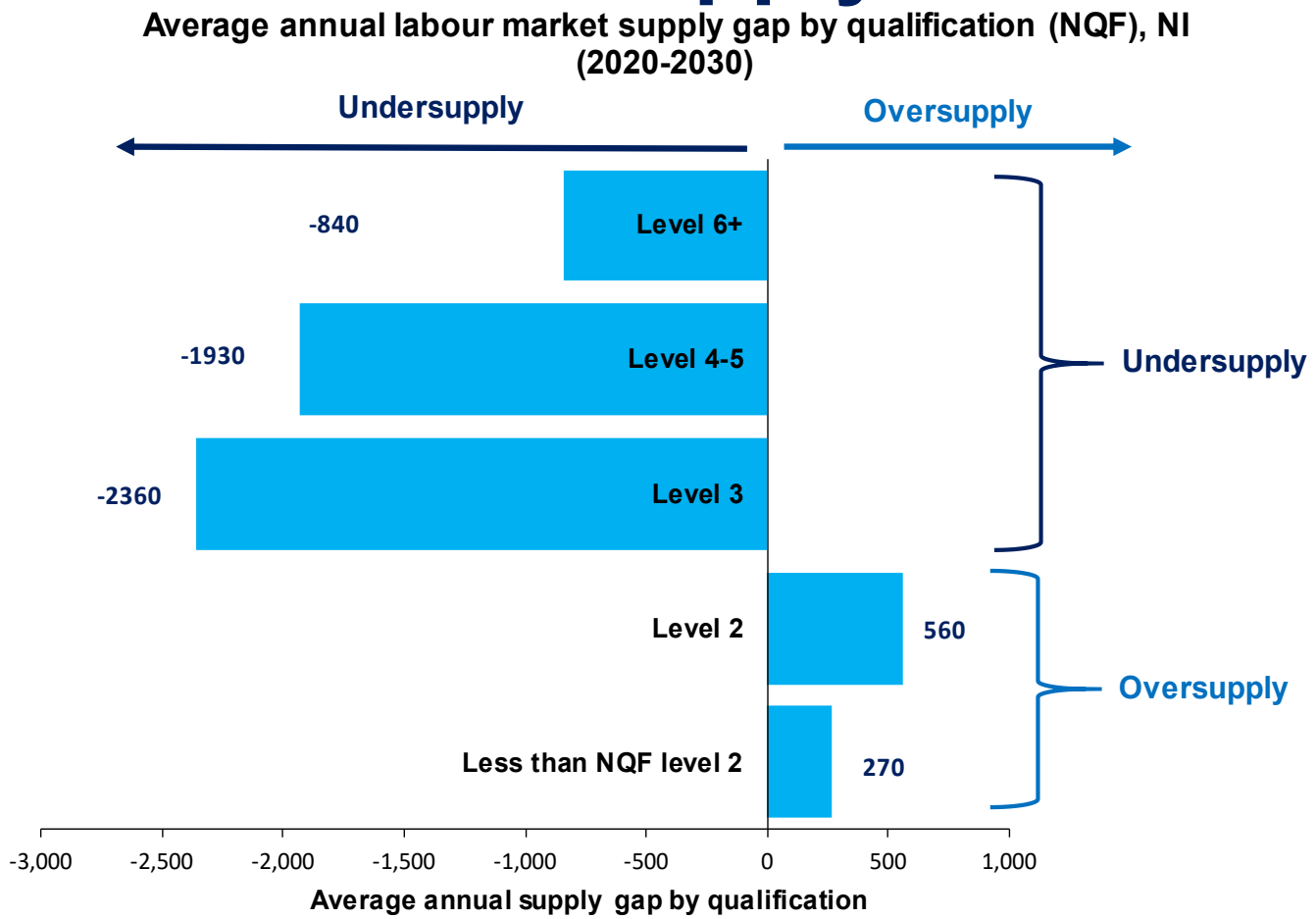
The supply/demand (im)balance or *"supply gap"* represents the net requirement of individuals from education and migration (demand) ***minus*** qualifiers from education institutions entering the labour market at a level on par with their qualifications (supply) i.e. demand net supply.

The information presented within this section is based on an annual average over the 10-year period 2020-2030 under the high growth scenario. For example, if education related subjects is oversupplied by +130, that represents an average annual oversupply of 130 per annum within that subject group over the 10-year period 2020-2030. Similarly, if mathematics and computer science graduates are undersupplied by -300 graduates, that represents an average annual undersupply of 300 graduates within that subject group over the next decade. This concept is referred to as the **average annual supply gap**.

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

This section identifies the annual average supply gap by qualification level (NQF) and subject studied at NQF level 4 and above (JACS and SSAs). As students tend to study more than one subject area at NQF level 3 and below, demand is only presented at a sector level (and not a subject level). Therefore, subject supply gaps are not produced at NQF level 3 and below.

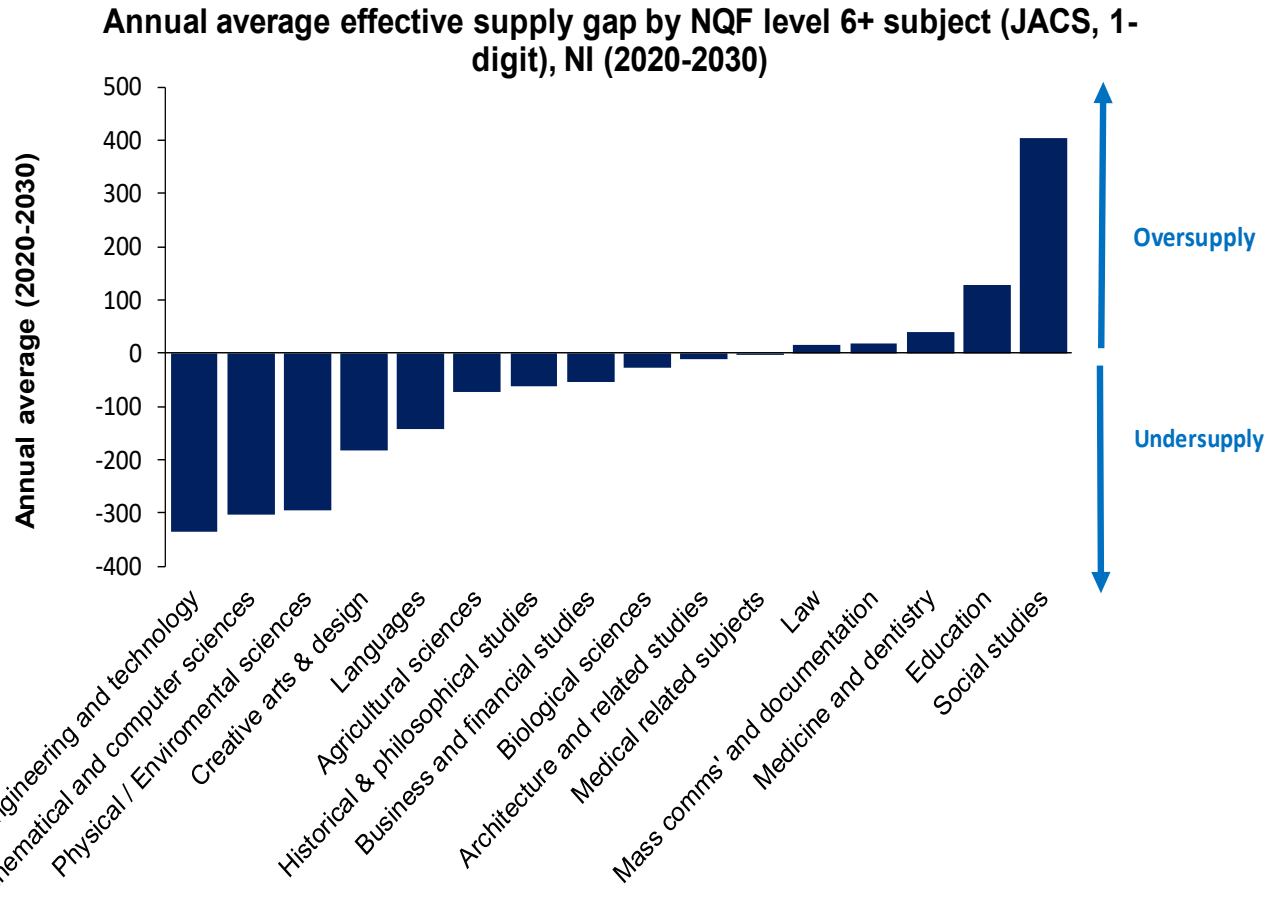
Demand and supply balances



Source: *UUEPC*

Note: *The supply gaps in the above chart have been calculated based on 'effective supply'. This takes account of migration patterns amongst qualifiers at NI institutions and NI domiciled qualifiers qualifying from GB institutions, in addition to labour force participation. A supply adjustment is then applied to subtract tertiary qualifiers who require additional skills development to effectively fulfil the requirements of tertiary level employment. This group are not included in the above chart.*

Supply gap by degree subject



Source: *UUEPC analysis, HESA*

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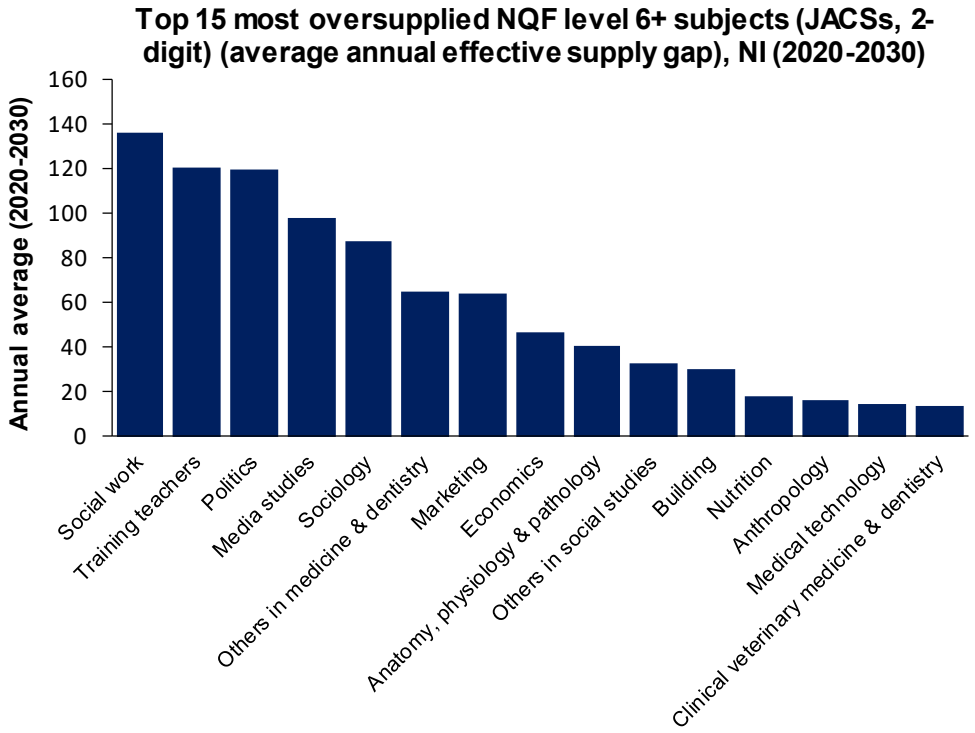
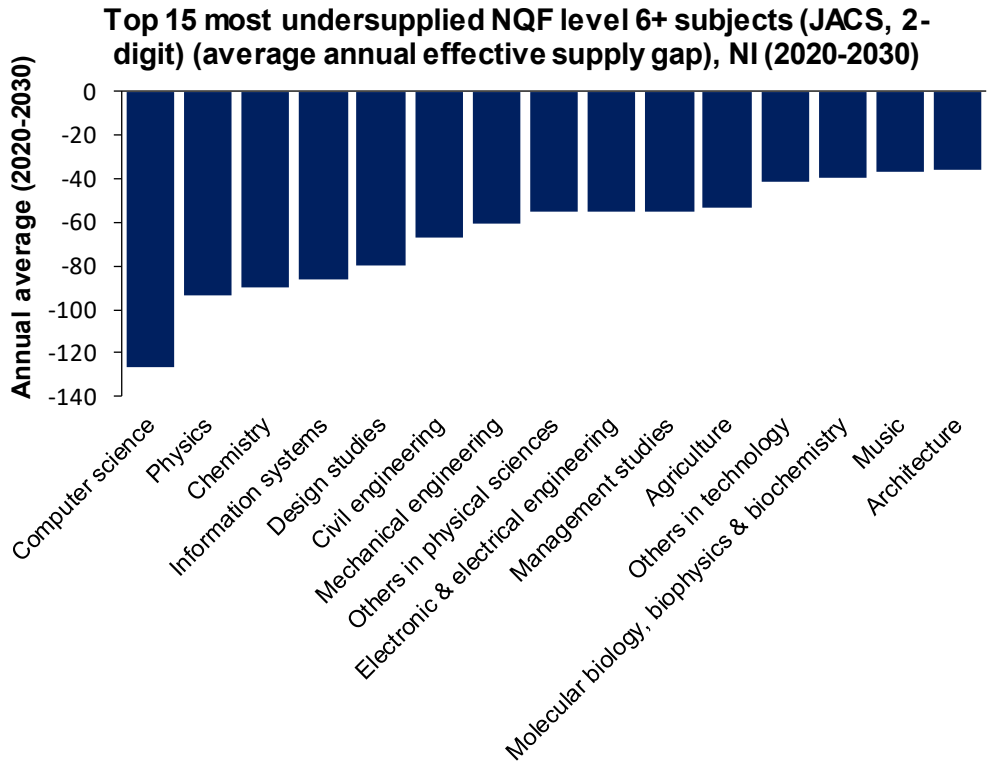
Supply gap degree subjects (detailed)





The social work category includes health and welfare; childcare; youth work; community work; careers guidance; probation/after-care; and social work not elsewhere classified.

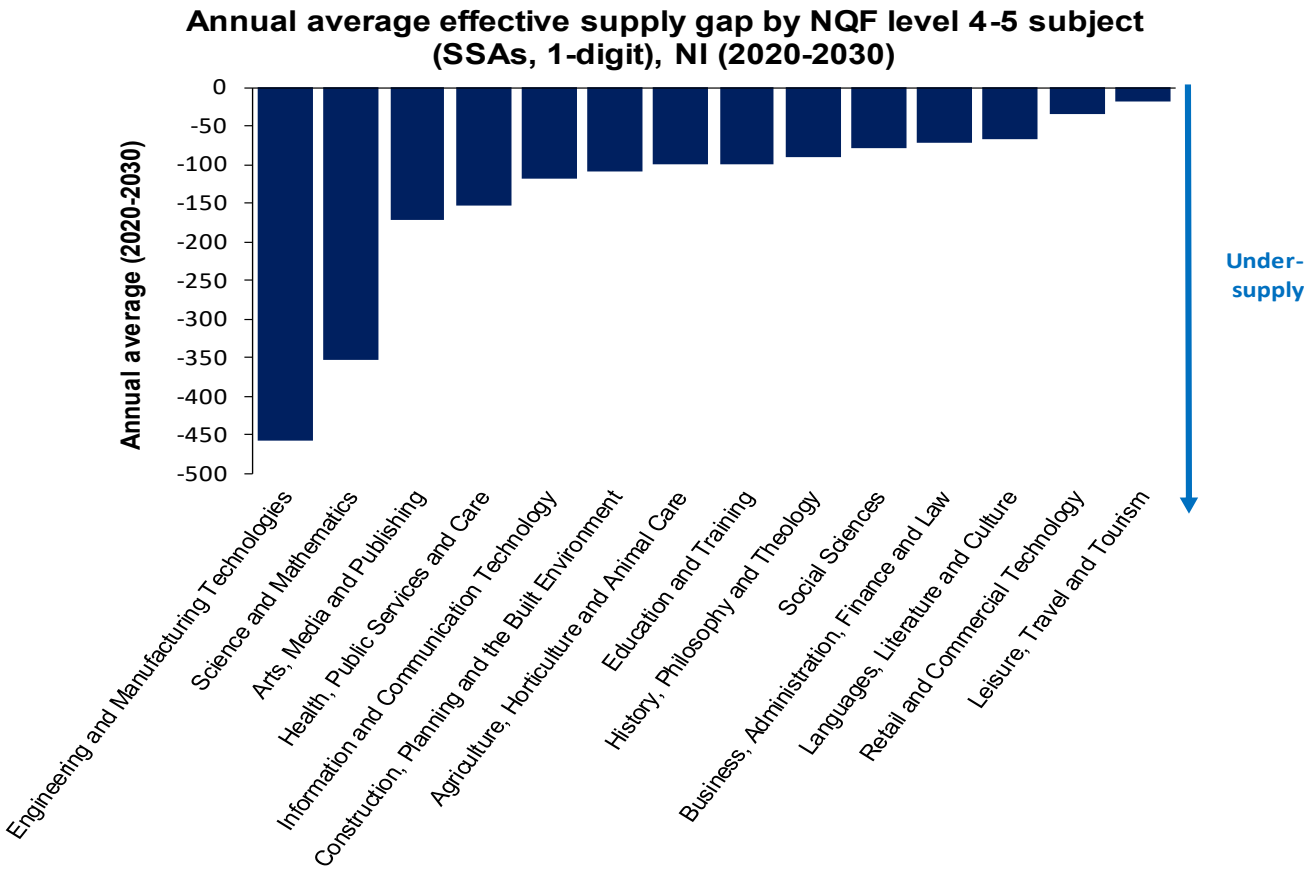
Source: *UUEPC analysis , HESA*

The top 5 oversupplied subjects (JACS, 2-digit) account for 52% of total oversupplied subjects.

Source: *UUEPC analysis, HESA*

The top 5 undersupplied subjects (JACS, 2-digit) account for 25% of total undersupplied subjects.

Supply gap by sub-degree subject



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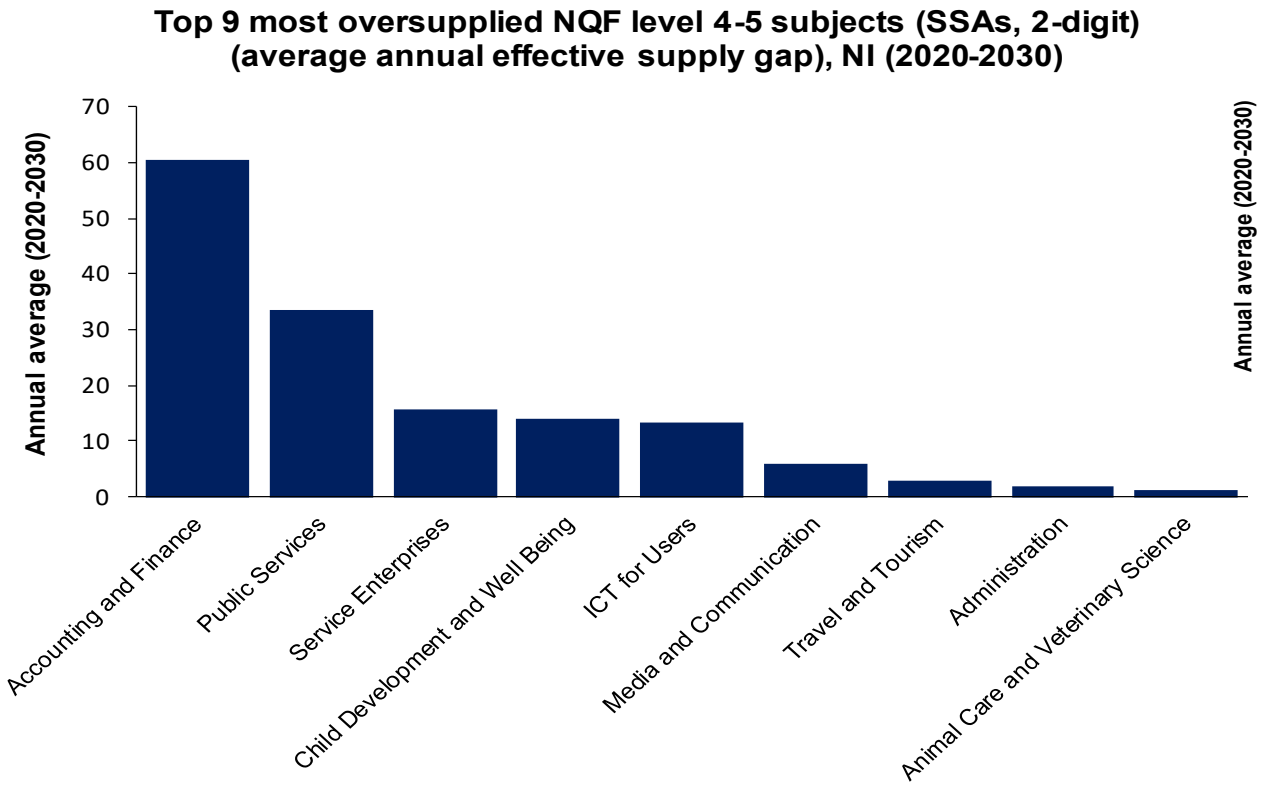
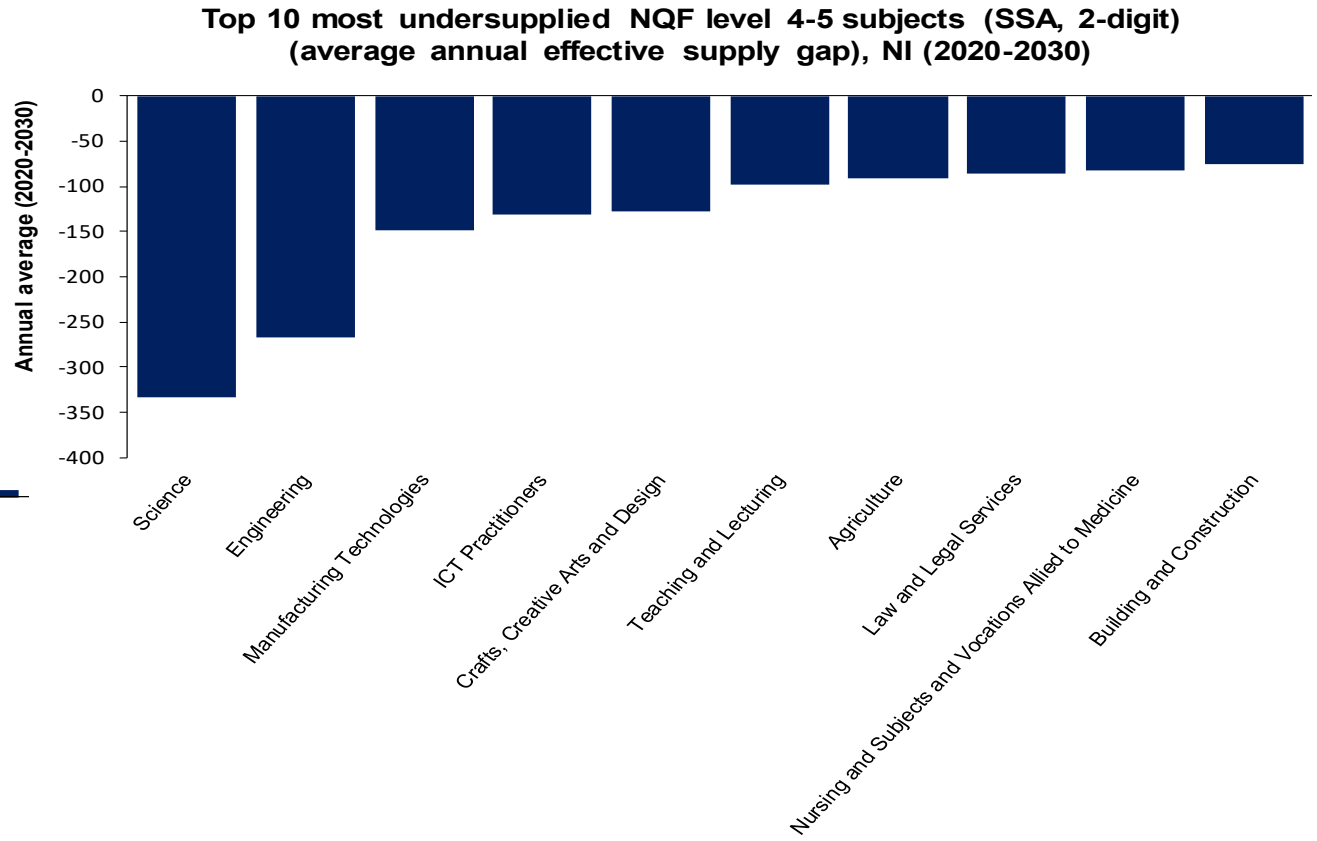
Source: *UUEPC analysis, DfE*

Supply gap by sub-degree subjects (detailed)



Source: *UUEPC analysis, DfE*

The top 3 oversupplied subjects (SSAs, 2-digit) account for 74% of total oversupplied subjects.



Source: *UUEPC analysis, DfE*

The top 3 undersupplied subjects (SSAs, 2-digit) account for 36% of total undersupplied subjects.

Careers information

Earnings and employment prospects

Careers information

Decisions and choices made by young people during their journey in education shapes their labour market prospects (e.g. employment and earnings prospects).

For example, the higher a person's qualifications, the higher their earnings and employment prospects are likely to be. With that, employment opportunities and earnings prospects differ by subject area studied. Finally, a person's qualification level and subject studied may impact the sector they are most likely seek an employment opportunity within.

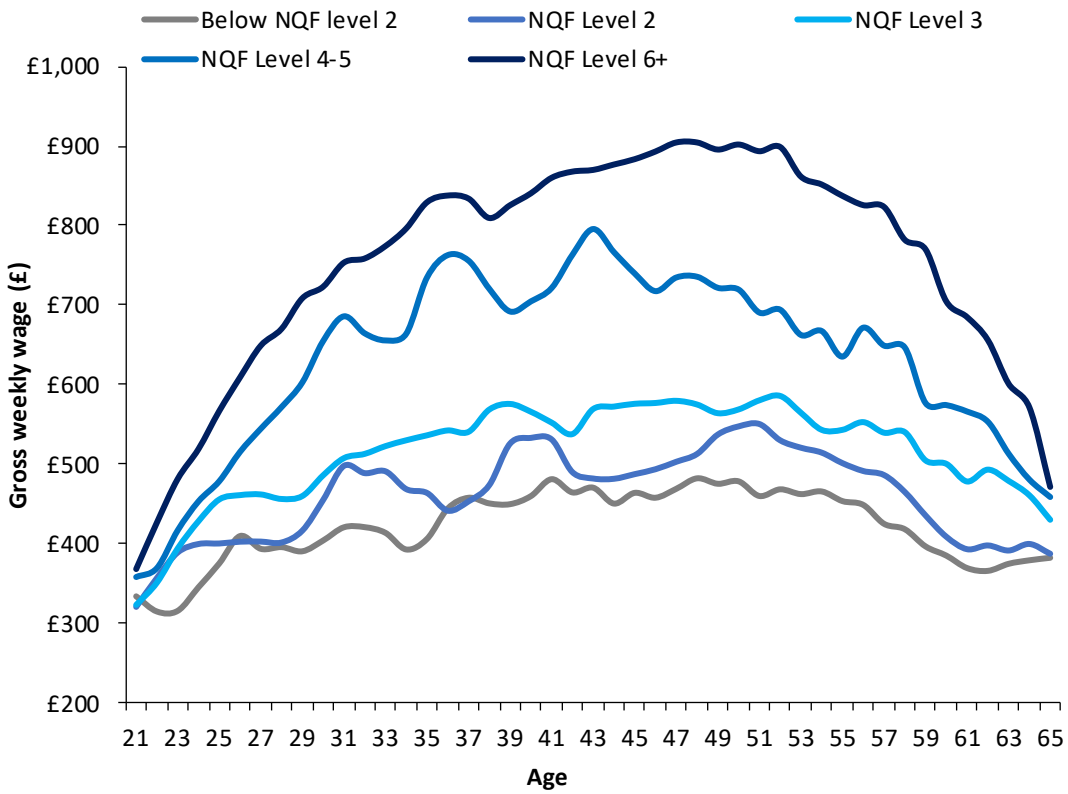
To adequately prepare young people for their future career it is important such careers information is widely accessible.

This section seeks to identify headline careers information including:

- Earnings prospects by level of education
- Employment prospects by level of education
- Sector mix by subject
- Importance of soft skills to compliment hard skills
- Job readiness of education leavers

Earnings progression by age and qualification

Gross weekly earnings progression by NQF qualifications, UK (4 quarter rolling average to Q3 2021)



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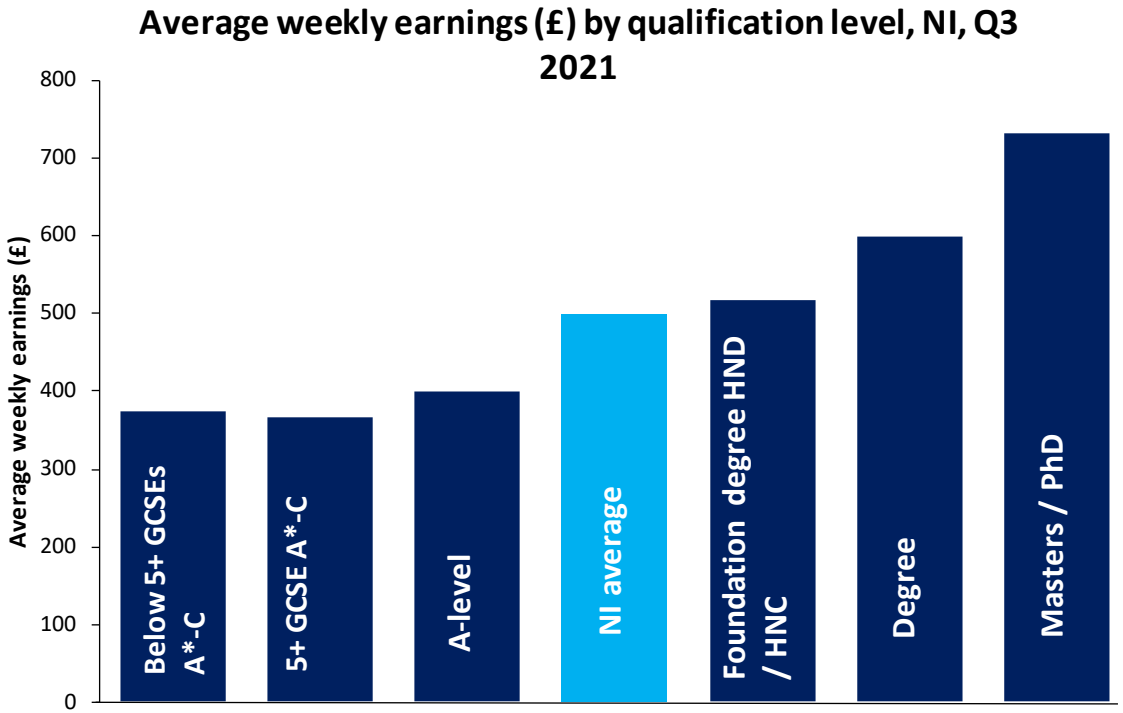
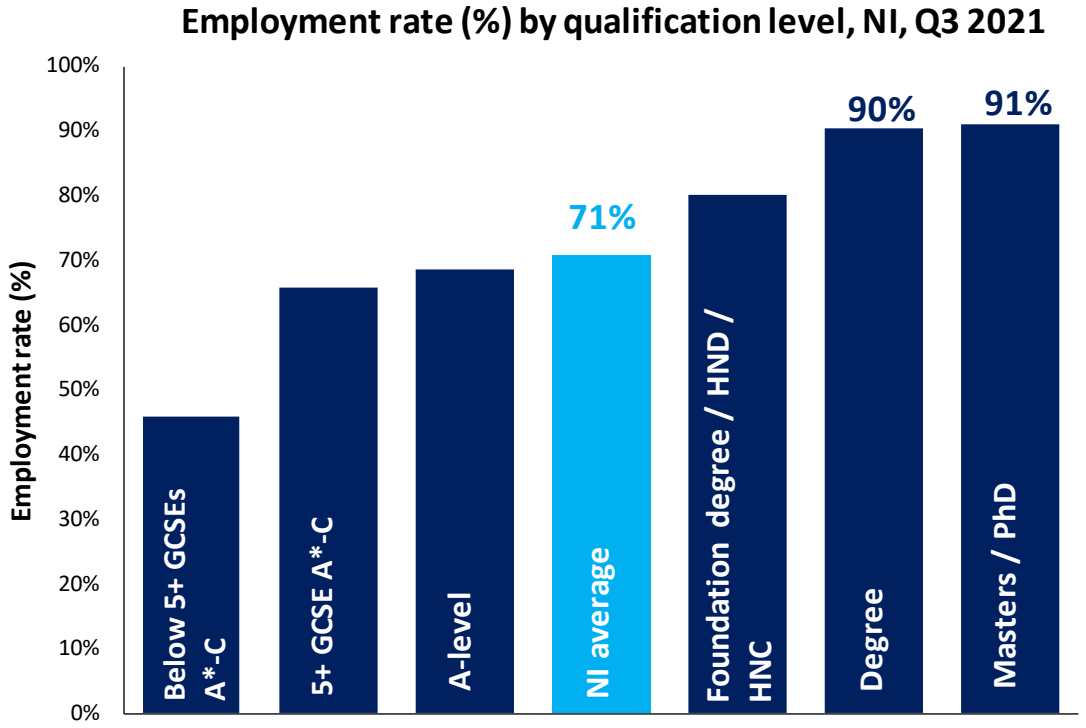
Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Labour market prospects

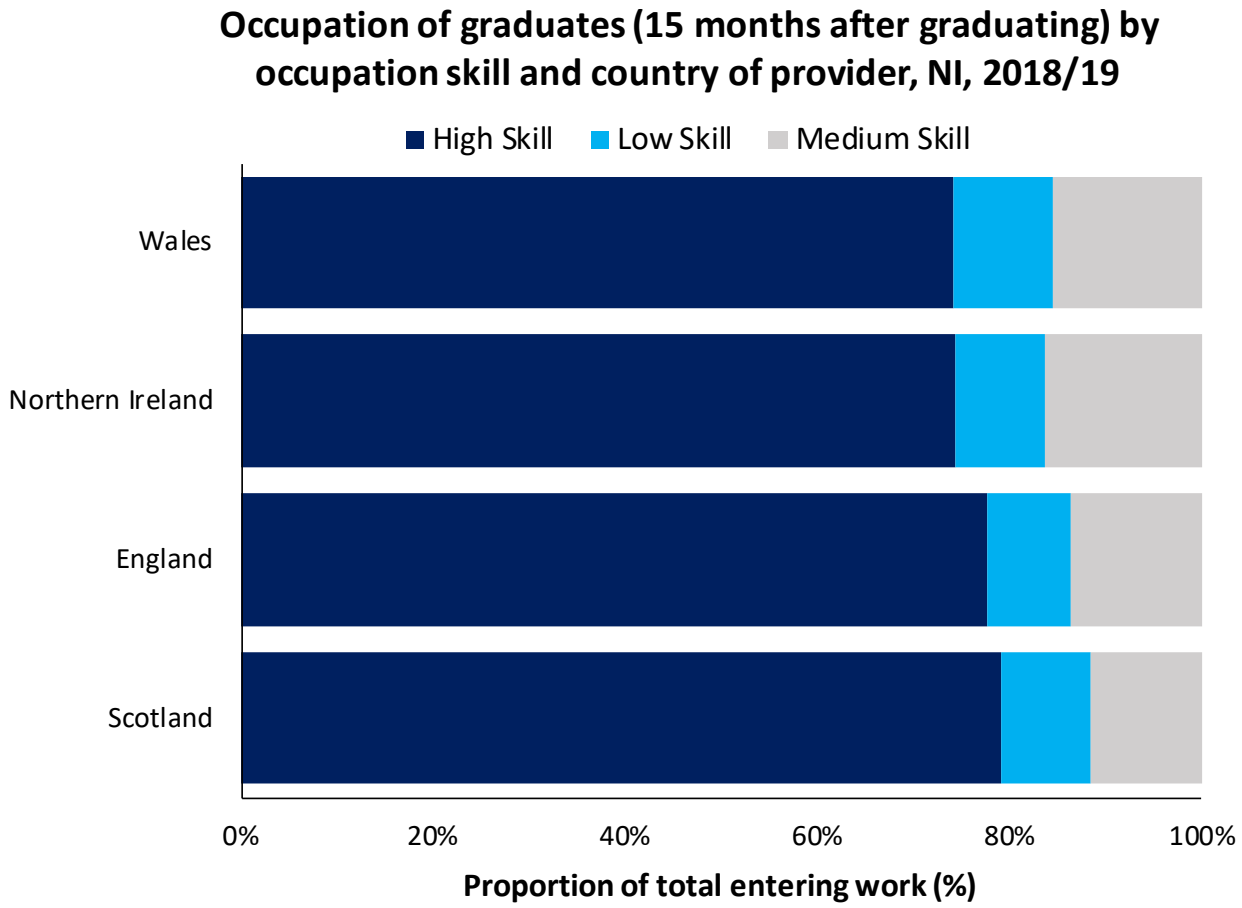


Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*



Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

High skill employment



Source: *HESA*

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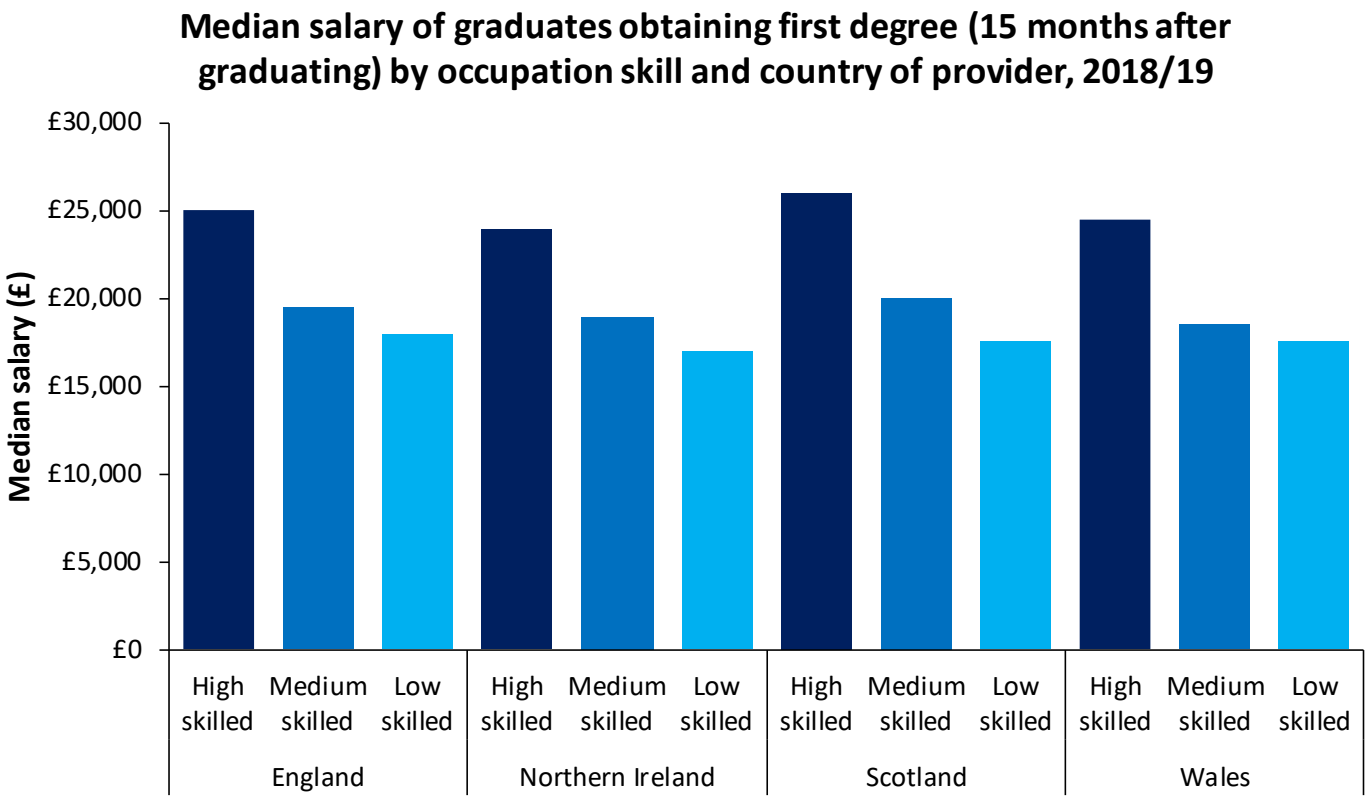
Graduate earnings



Source: *HESA*

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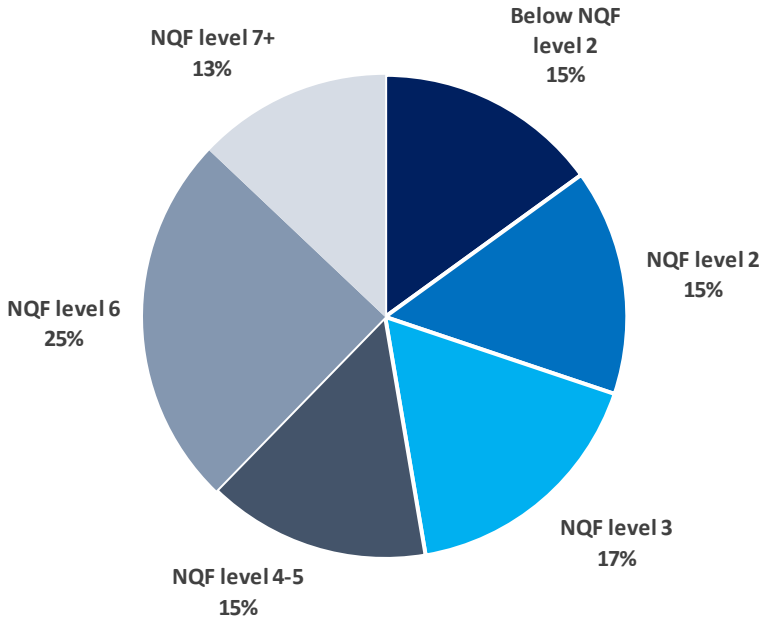
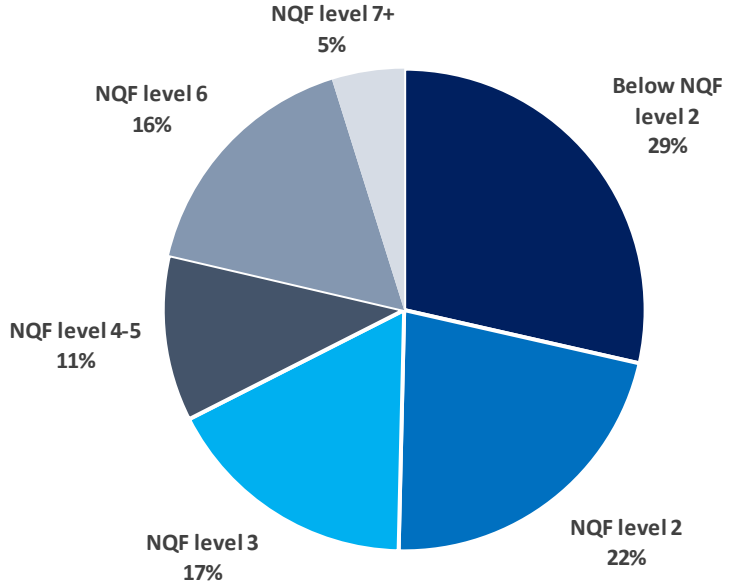
Qualifications by economic status

Employed qualification profile (NQF) aged 16-64, NI, Q3 2021



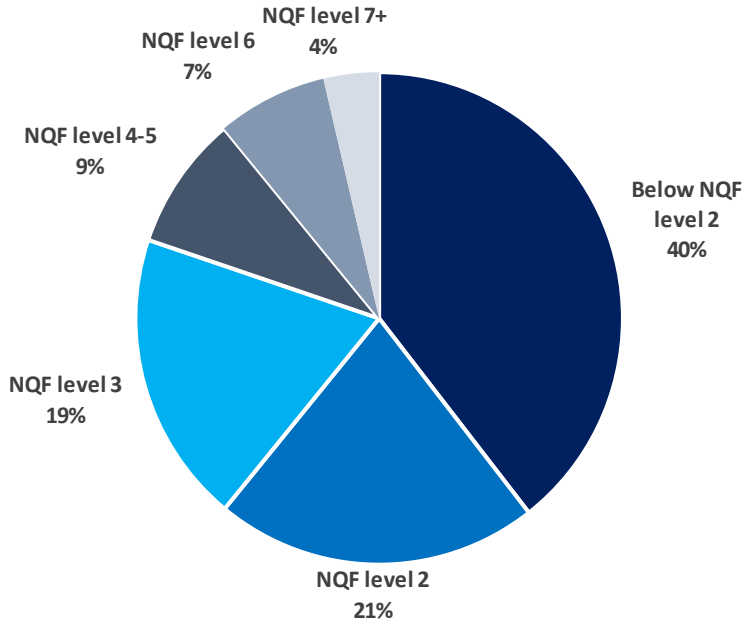
Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Unemployed qualification profile (NQF) aged 16-64, NI, Q3 2021



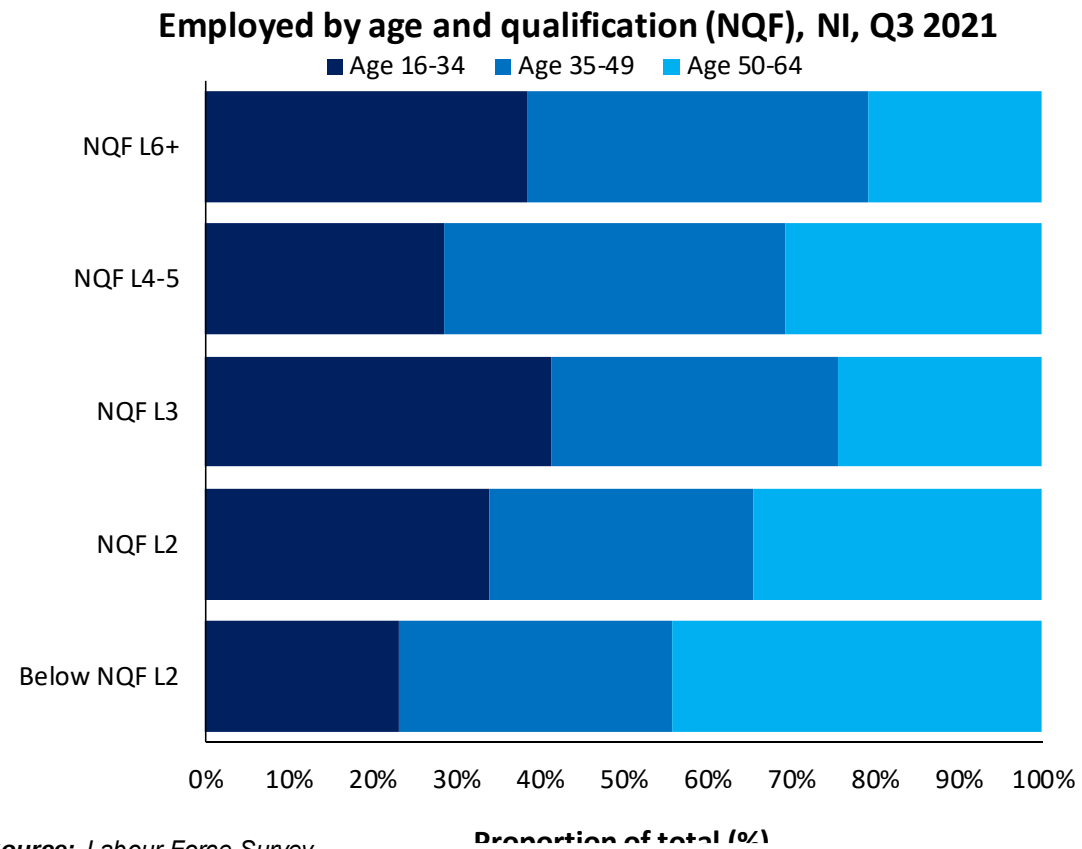
Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Economically inactive qualification profile (NQF) aged 16-64, NI, Q3 2021



Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Qualification profile by age

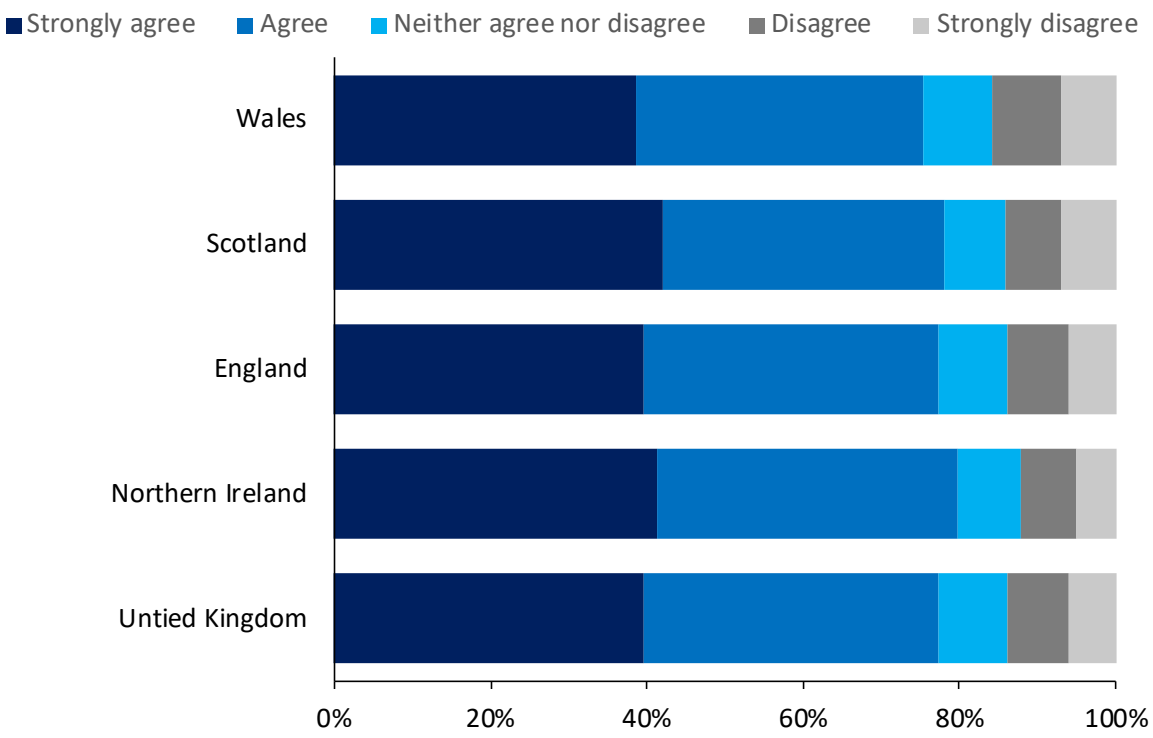


Source: *Labour Force Survey*

Note: *4-quarter rolling average*

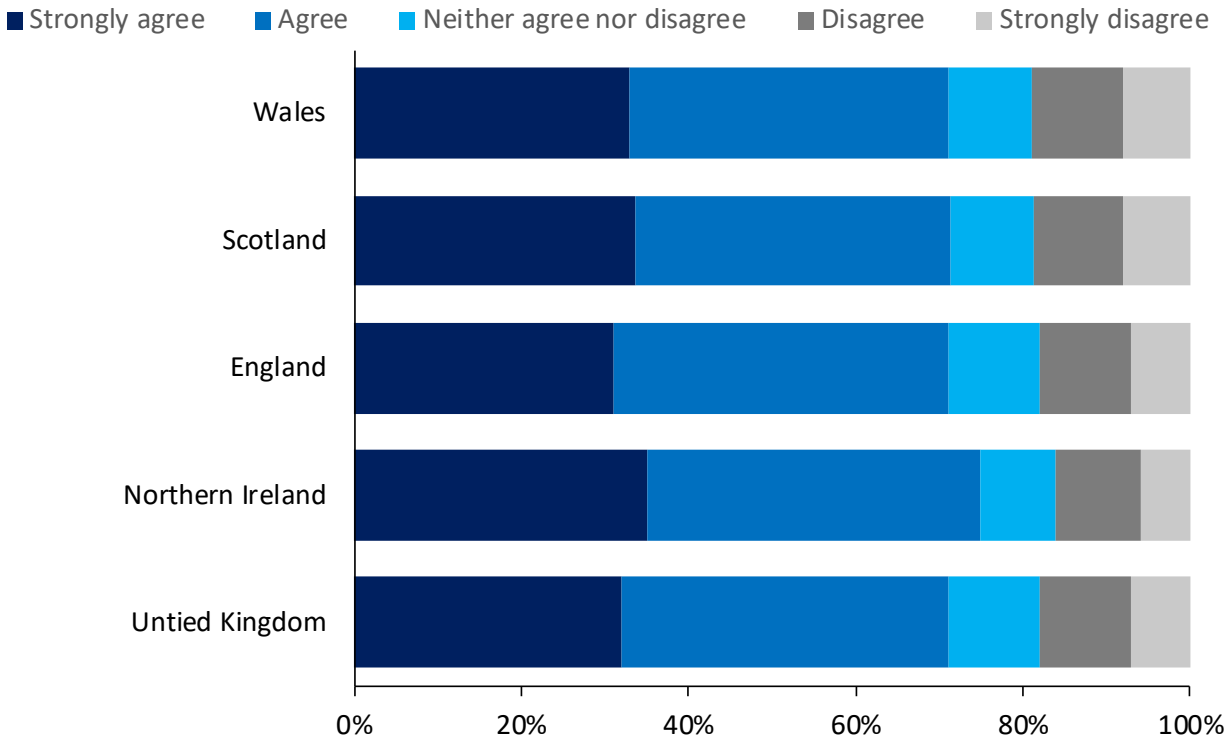
Graduate reflection on qualifications

Graduate reflection: my current activity fits with my future plans by country of provider, 2018/19



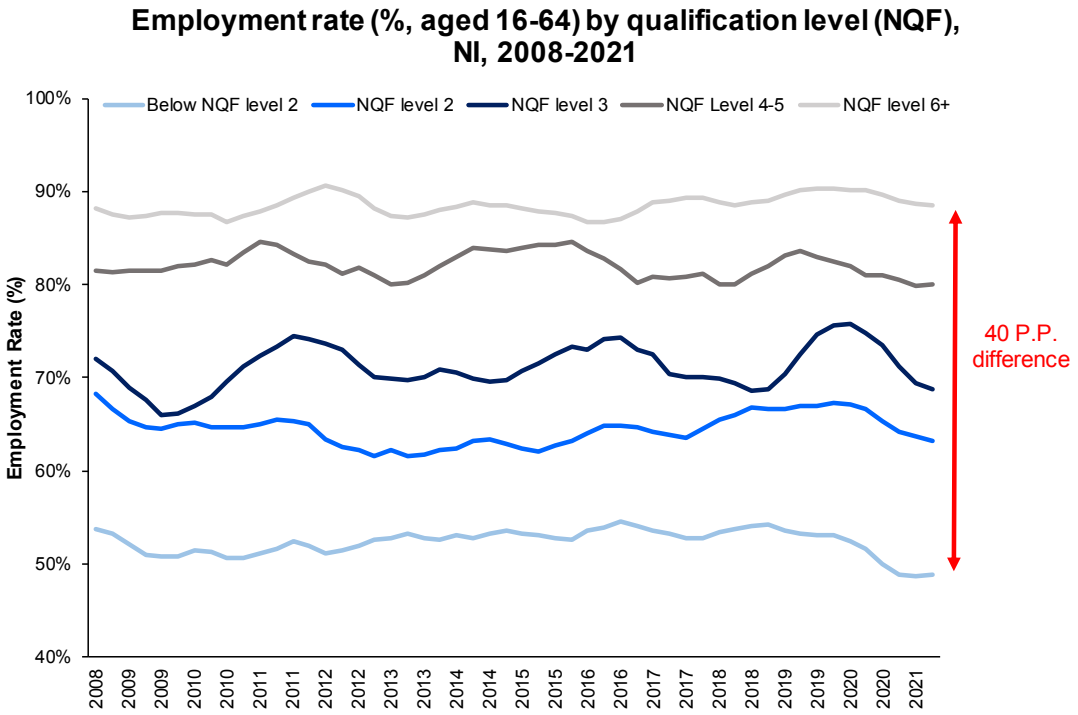
Source: *HESA*

Graduate reflection: I am using what I learnt during my studies in my current activity by country of provider, 2018/19



Source: *HESA*

Employment rate gap between the highest and lowest qualified



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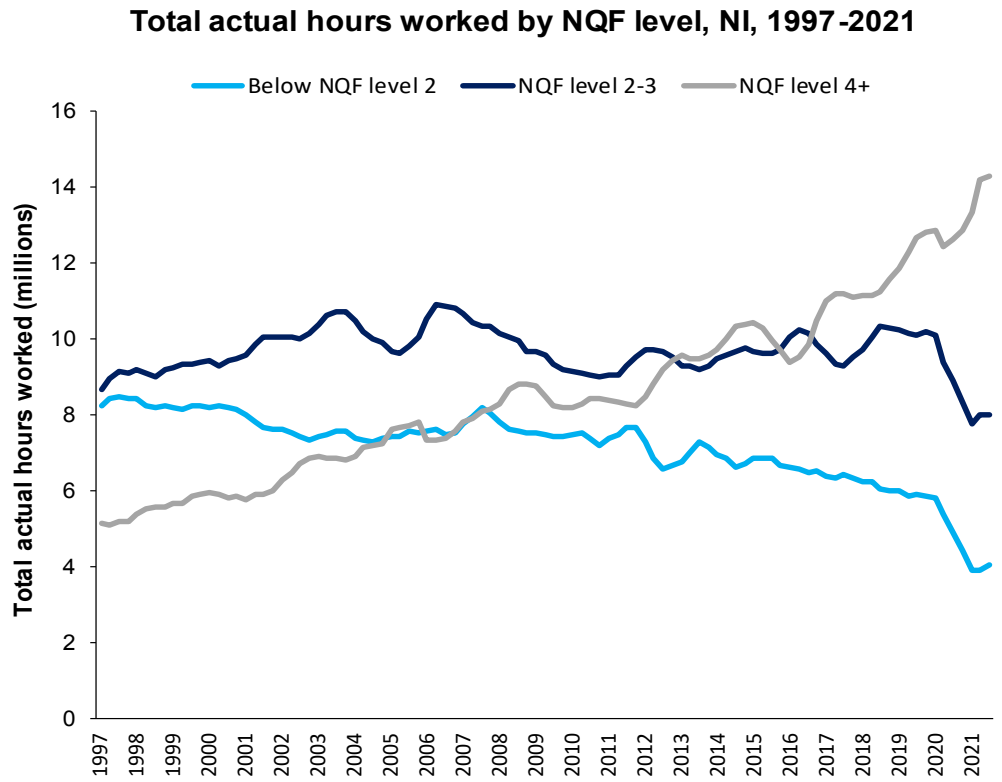
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Data refers to a 4-quarter rolling average*

Higher qualifications account for a majority of NI labour inputs



Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

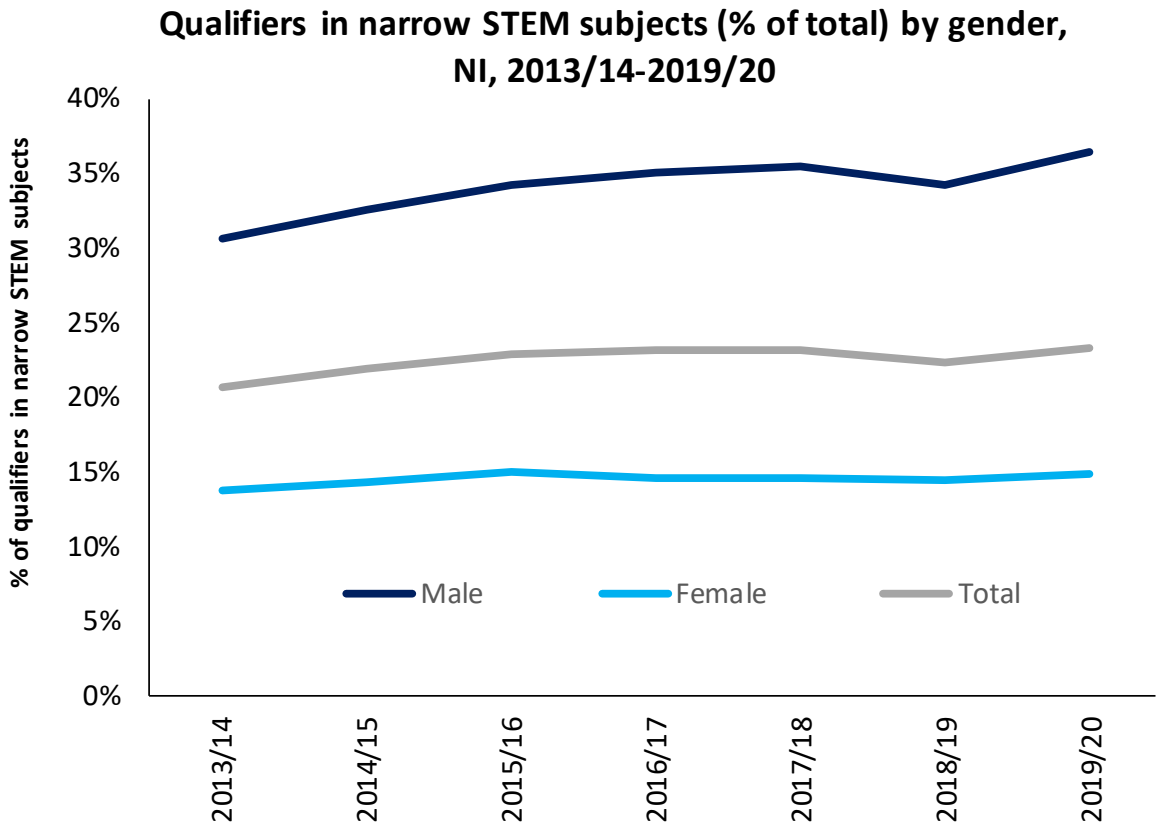
The unequal nature of the COVID-19 pandemic has caused a pronounced fall in the labour input of people with qualifications below tertiary level. However, as this is an acceleration of an exiting trend it is unlikely to recover to pre-pandemic levels.

Proportion of women in STEM remains low

Qualifiers in narrow STEM subjects (% of total), by gender, NI, 2019/20

Narrow STEM	Male	Female	Total
Biological and sport sciences	5%	3%	4%
Psychology	1%	4%	3%
Physical sciences	2%	1%	2%
Mathematical sciences	1%	1%	1%
Engineering and technology	12%	2%	6%
Computing	13%	3%	7%
Geographical and environmental studies (natural sciences)	2%	1%	1%
Narrow STEM	**36%**	**15%**	**23%**

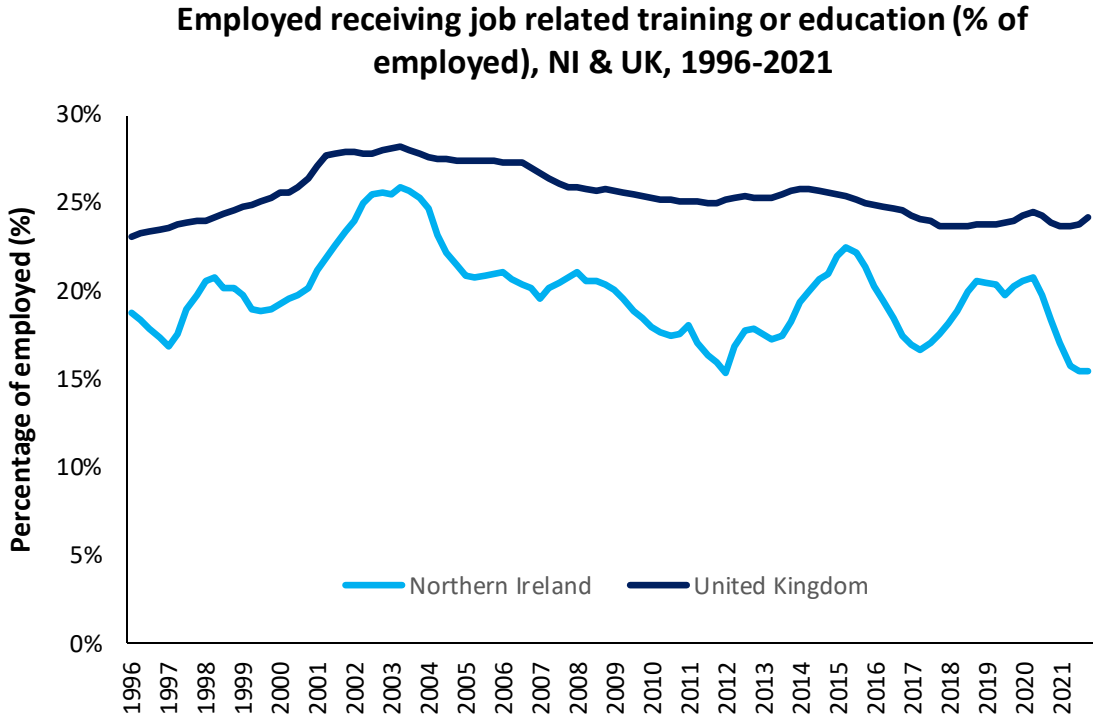
Source: *NISRA, HESA*



Source: *NISRA, HESA*

Training and adult learning

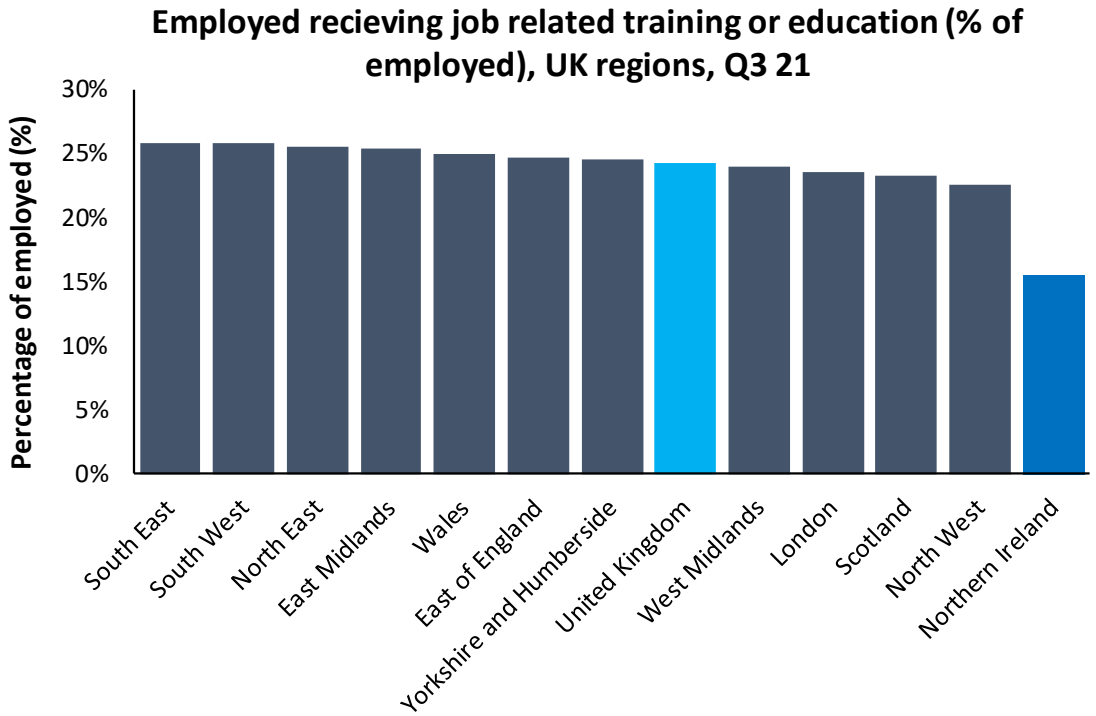
Job related training



Source: *ONS, Labour Force Survey*

Note: *Data refers to job related training or education in the last 3 months*

Note: *Data refers to a 4-quarter rolling average*

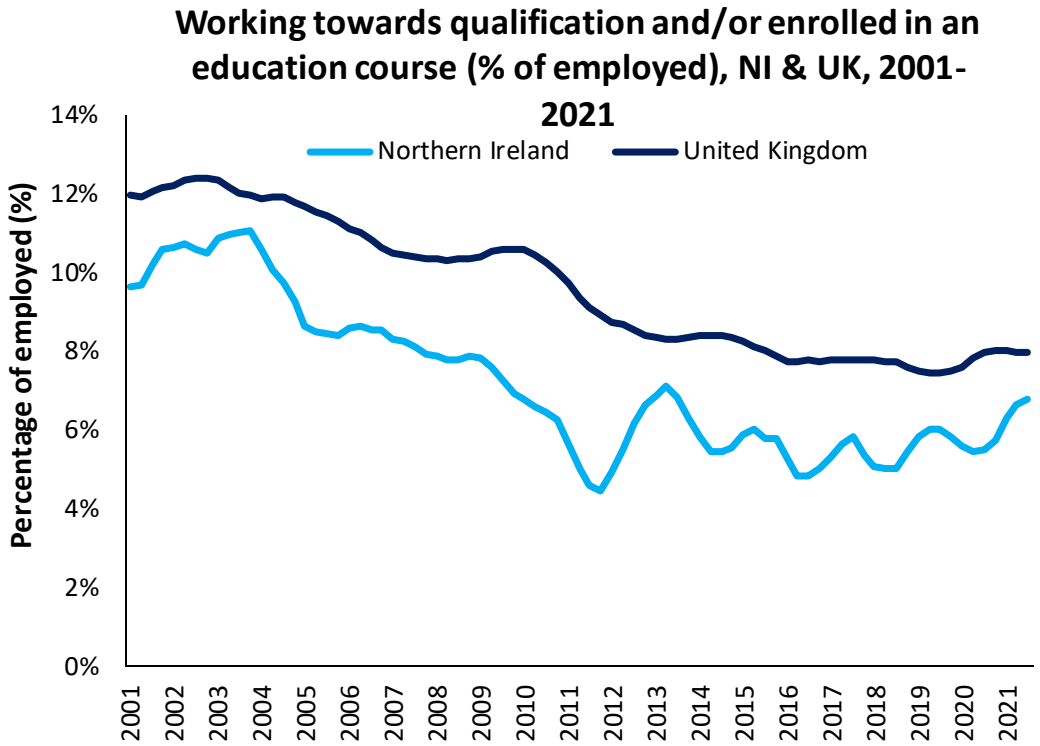


Source: *ONS, Labour Force Survey*

Note: *Data refers to job related training or education in the last 3 months*

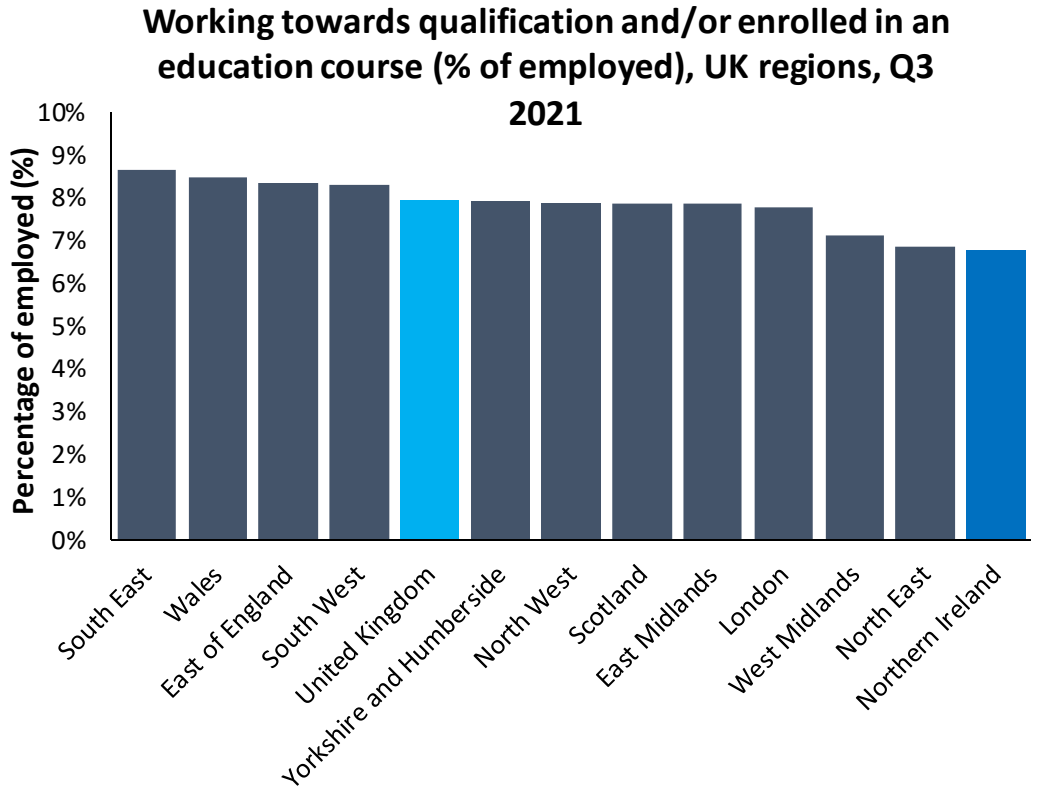
Note: *Data refers to a 4-quarter rolling average*

Working towards qualification



Source: *ONS, Labour Force Survey*

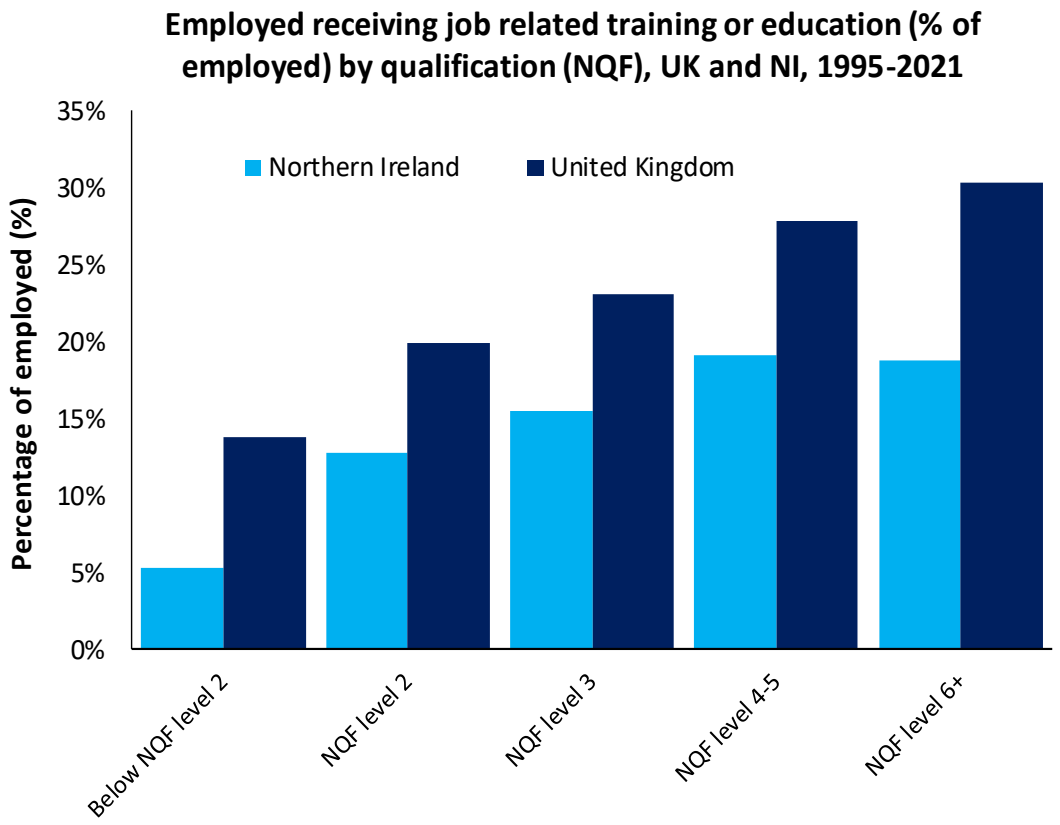
Note: *Data based on a 4-quarter rolling average*



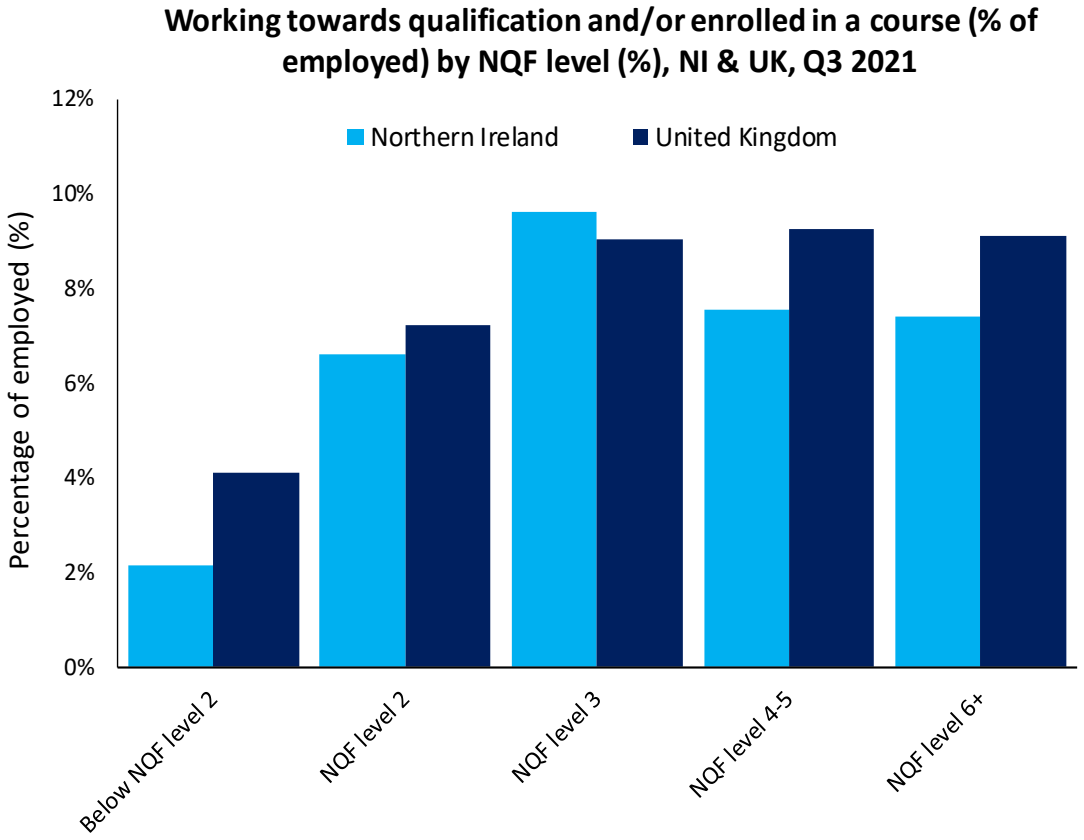
Source: *ONS, Labour Force Survey*

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

Training/adult learning by qualification



Source: ONS, Labour Force Survey

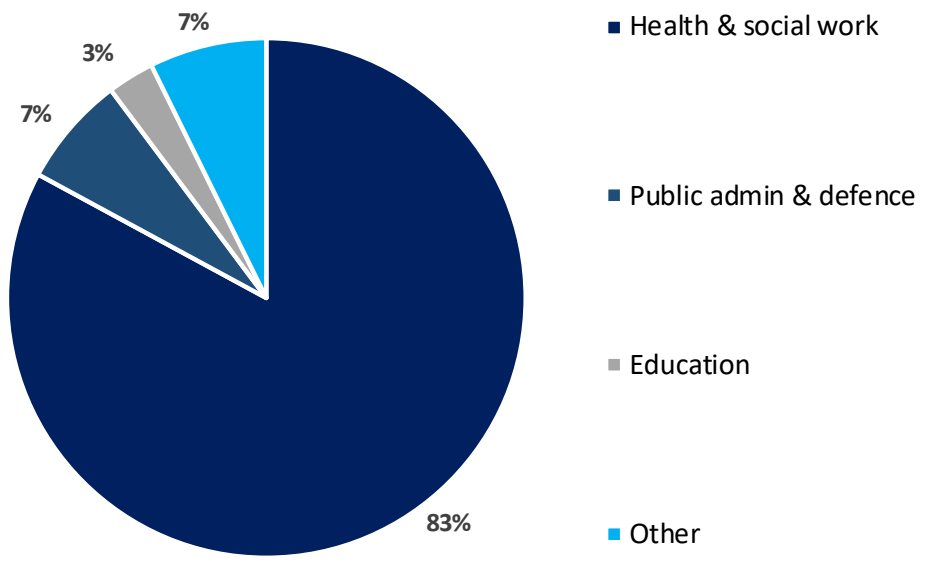


Source: ONS, Labour Force Survey

Sector mix by subject studied

Sector mix by subject studied (NQF level 6+) – stock (1)

Medicine and dentistry - Sector mix (NQF level 6+), NI (2020)

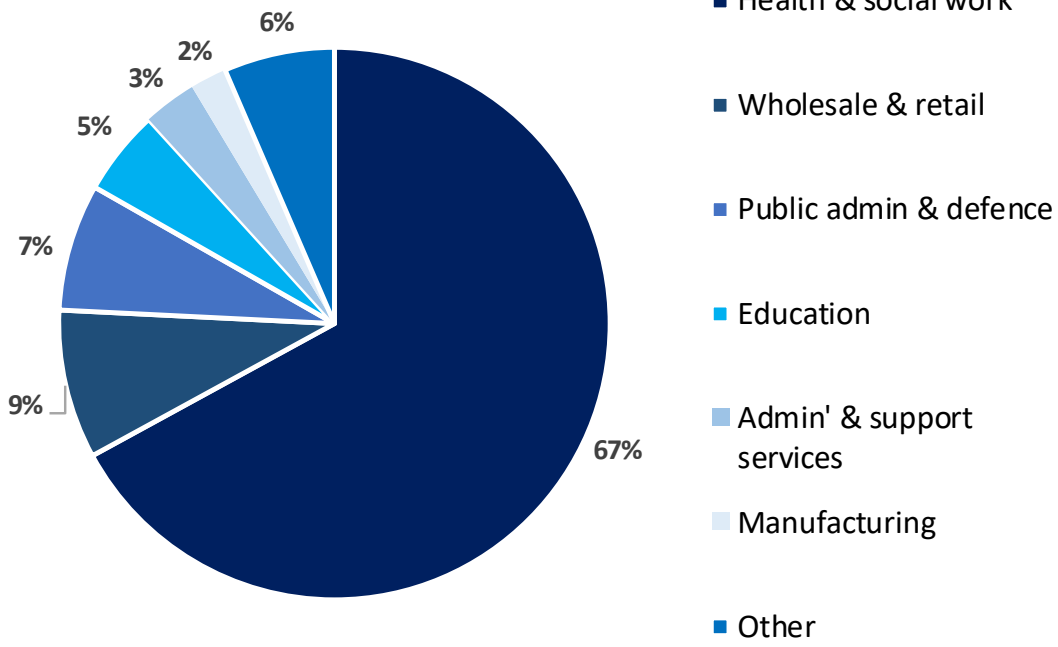


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Wholesale & retail, Professional scientific & technical, Mining, Other service activities, Mining, Manufacturing, Information & communication, Construction, Admin' & support, Restaurants and hotels, Transport & storage, Agriculture, Arts & entertainment, Finance & insurance, Real estate, Electricity & gas, People employed by households and Water supply & waste.*

***Note**: Figures are based on a 4-quarter rolling average*

Medical related subjects - Sector mix (NQF level 6+), NI (2020)



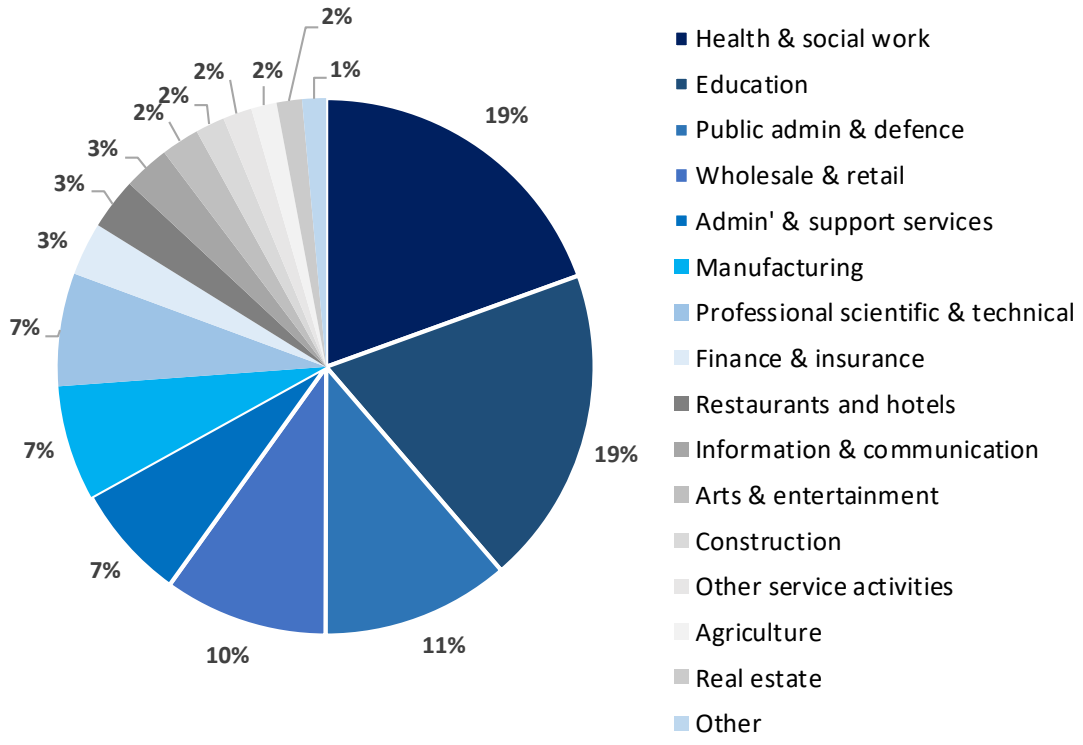
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Professional, scientific & technical, Restaurants & hotels, Other service activities, Real estate, Construction, Information & communication, Finance & insurance, Transport & storage, Agriculture, Arts & entertainment, Water supply & waste, Electricity & gas, People employed by households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (2)

Biological sciences - Sector mix (NQF level 6+), NI (2020)

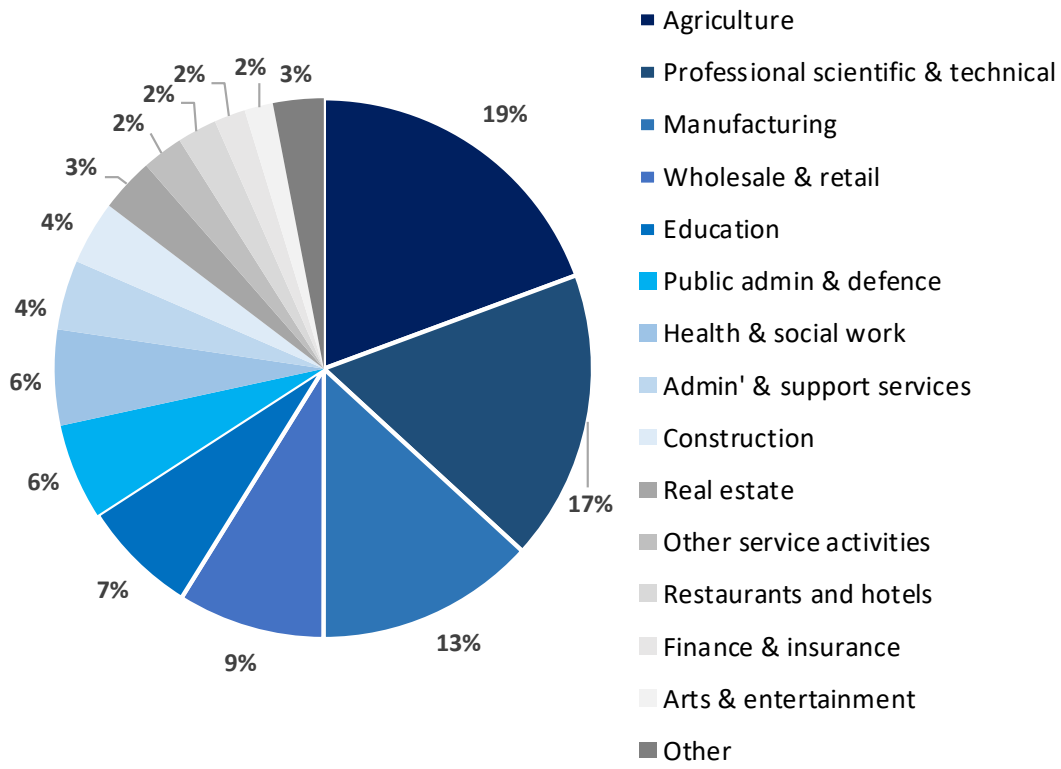


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Transport & Storage, Water supply & waste, Mining, Electricity & gas and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Agricultural sciences - Sector mix (NQF level 6+), NI (2020)



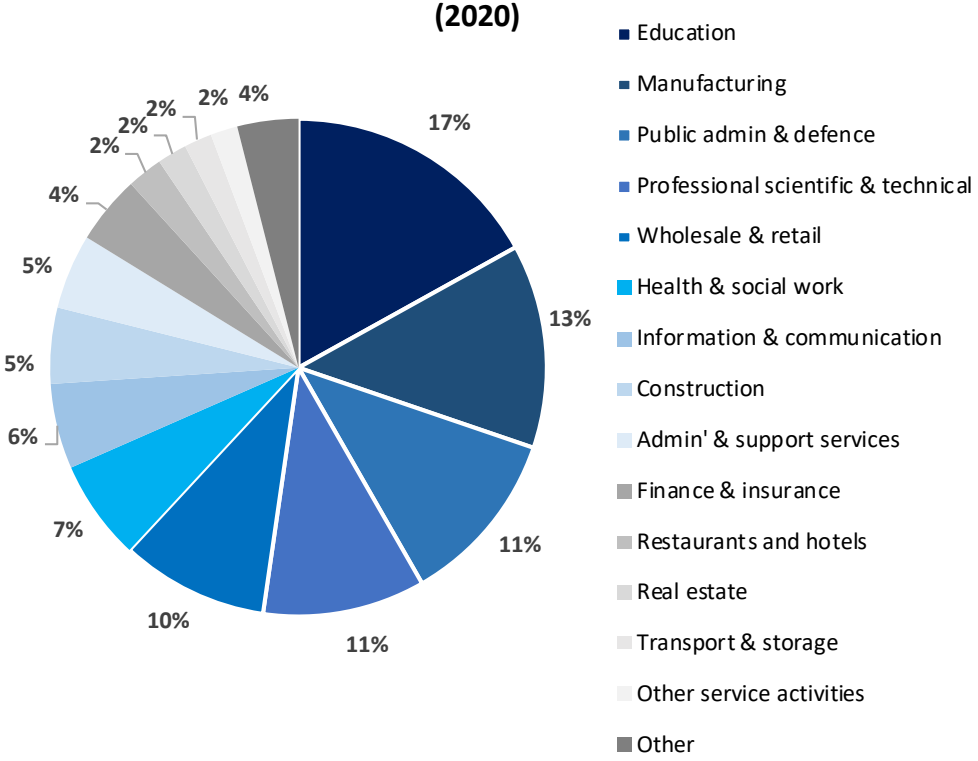
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Transport & storage, Information & communications, Water supply & waste, Electricity & gas, People employed by households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (3)

Physical/Environmental sciences - Sector mix (NQF level 6+), NI (2020)

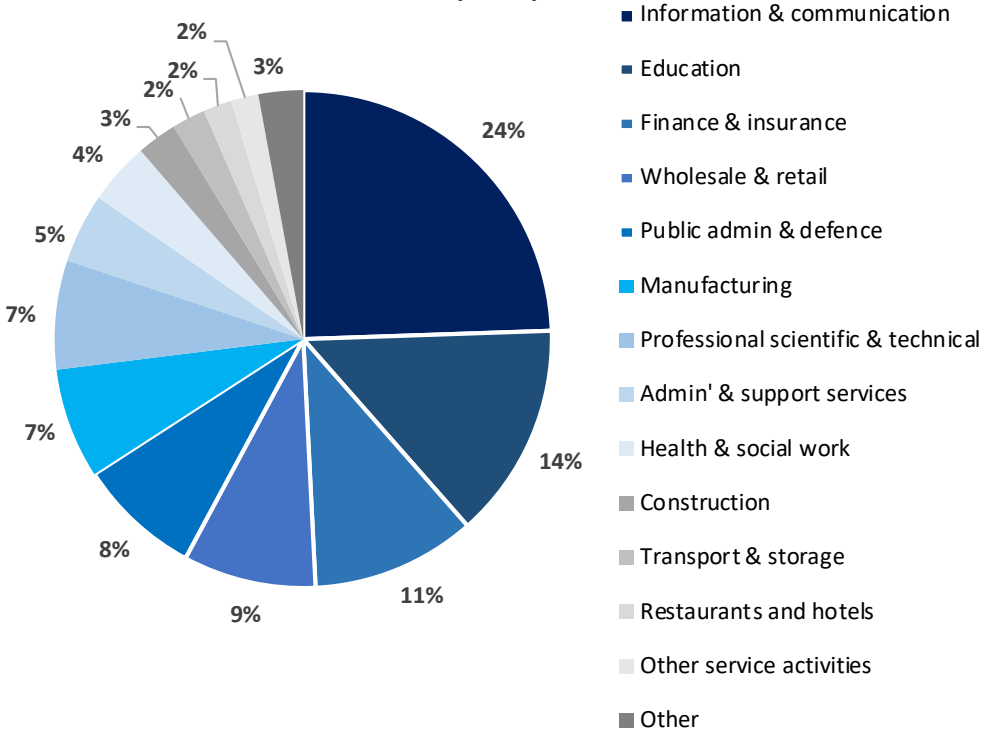


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Agriculture, Water supply & waste, Arts & entertainment, Mining, Electricity & gas and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Mathematical sciences and computing - Sector mix (NQF level 6+), NI (2020)



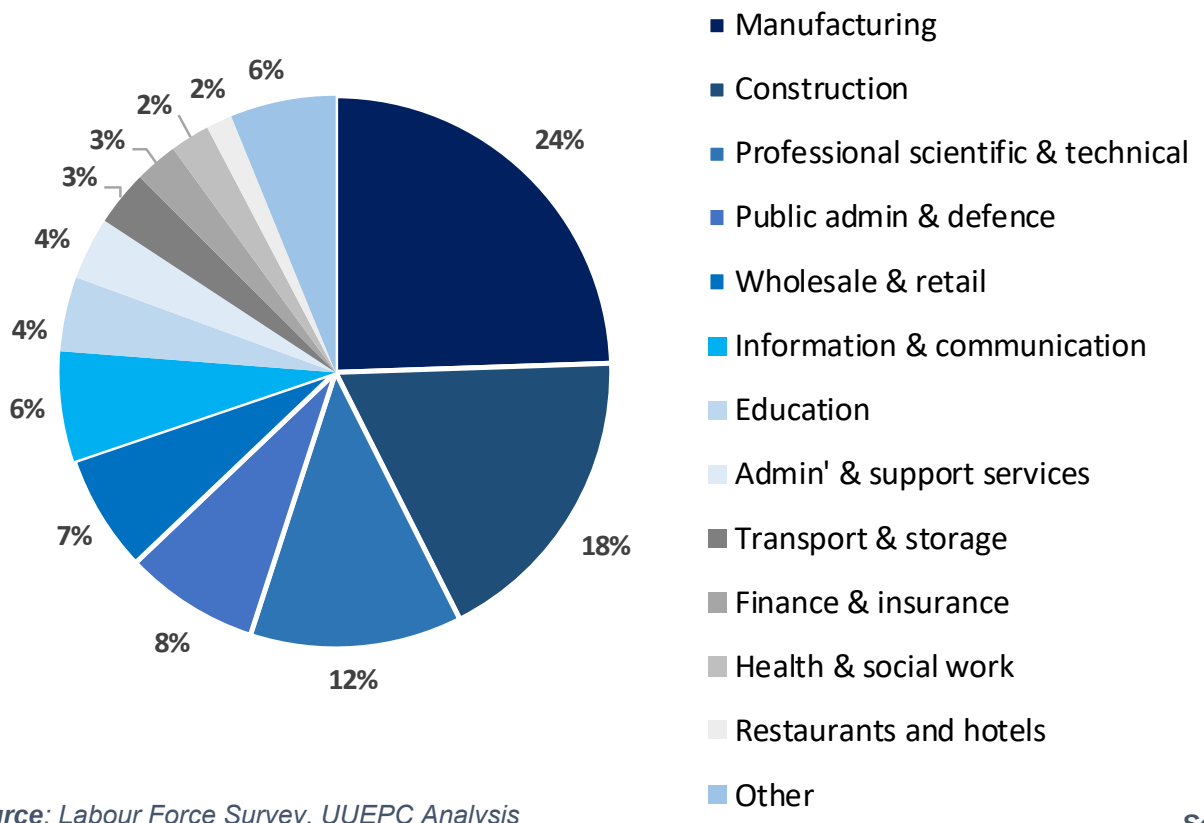
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Real estate, Arts & entertainment, Agriculture, Electricity & gas, Water supply & waste, Mining and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (4)

Engineering - Sector mix (NQF level 6+), NI (2020)

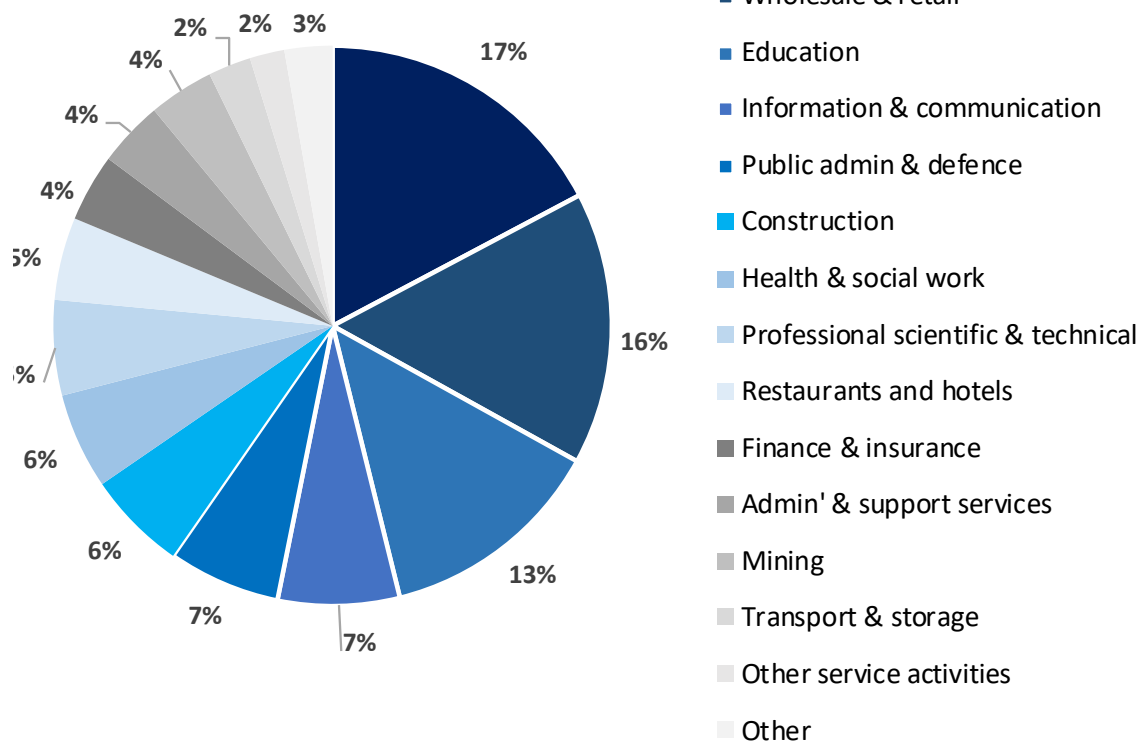


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Other services activities, Real estate, Mining, Electricity & gas, Water supply & waste, Agriculture, Arts & entertainment and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Technology - Sector mix (NQF level 6+), NI (2020)



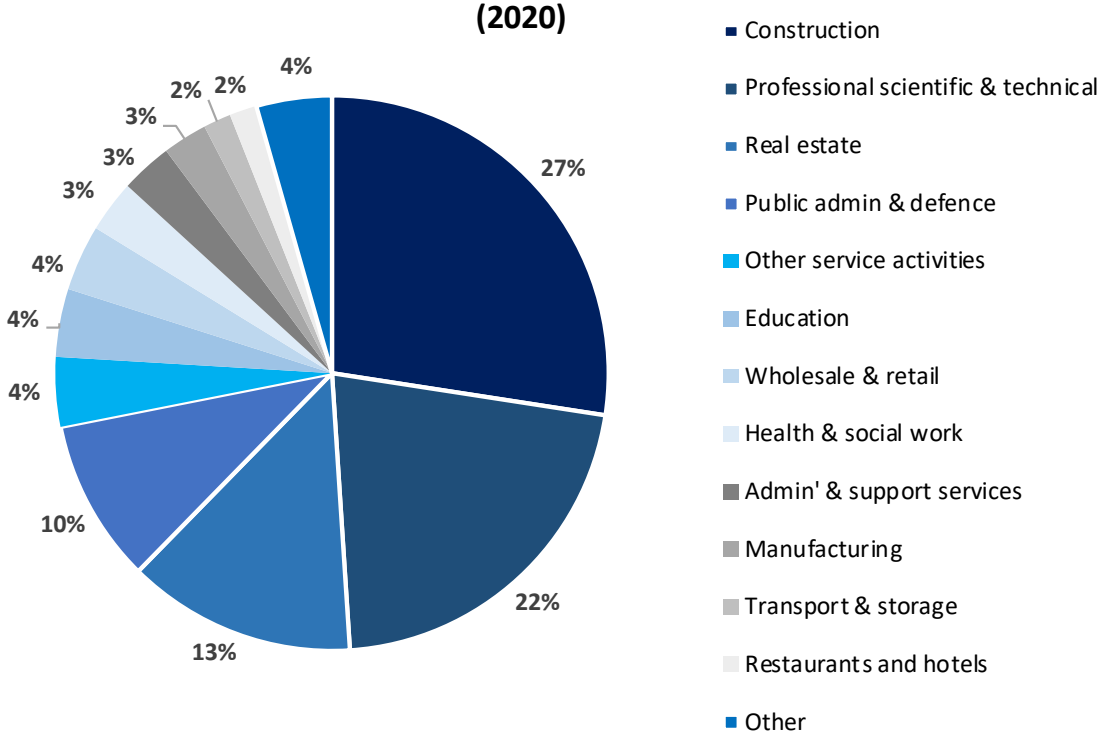
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Real estate, Arts & entertainment, Electricity & gas, Water supply & waste, Agriculture, and People employed by households*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (5)

Architecture and related studies - Sector mix (NQF level 6+), NI (2020)

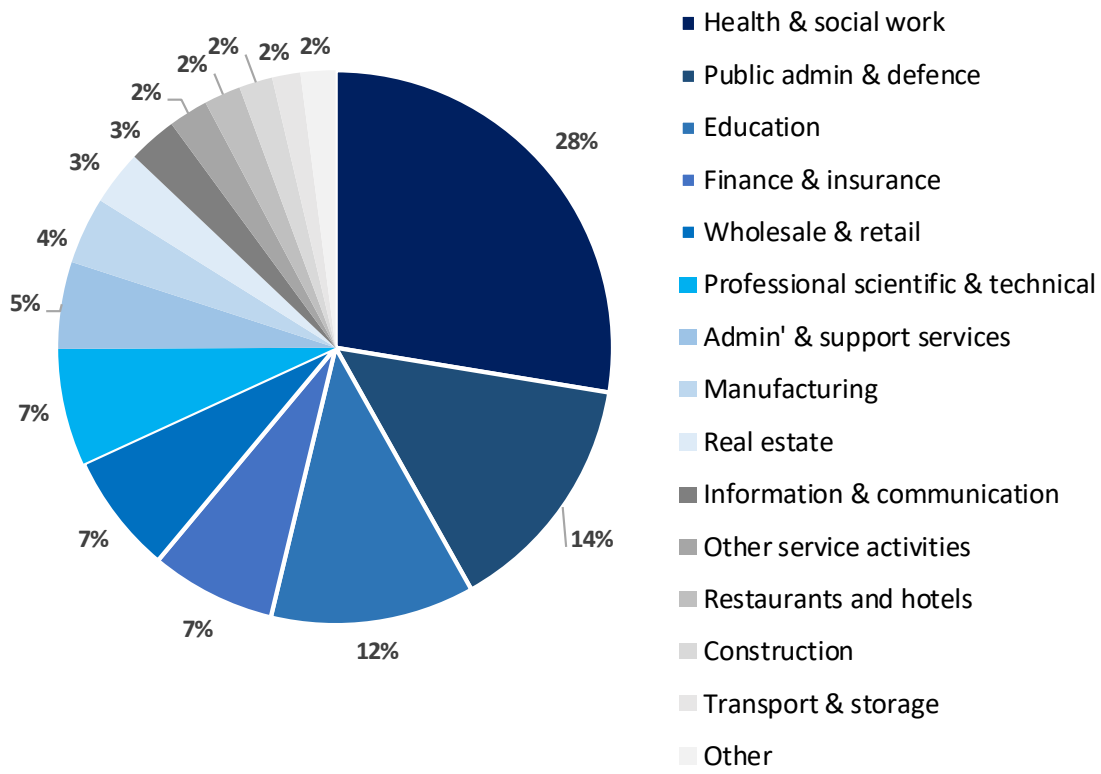


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Finance & insurance, Information & communication, Arts & entertainment, Agriculture, Electricity & gas, Water supply & waste, Mining and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Social studies - Sector mix (NQF level 6+), NI (2020)



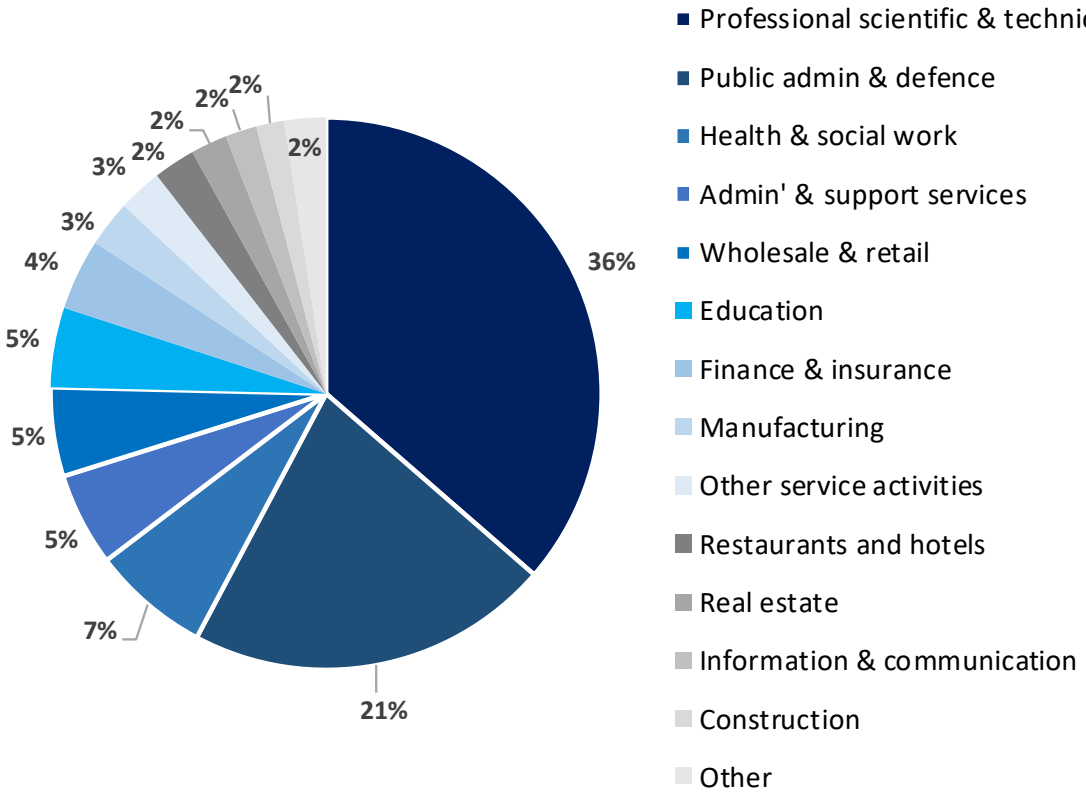
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Arts & entertainment, Agriculture, Water supply & waste, Electricity & gas, People employed by households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (6)

Law - Sector mix (NQF level 6+), NI (2020)

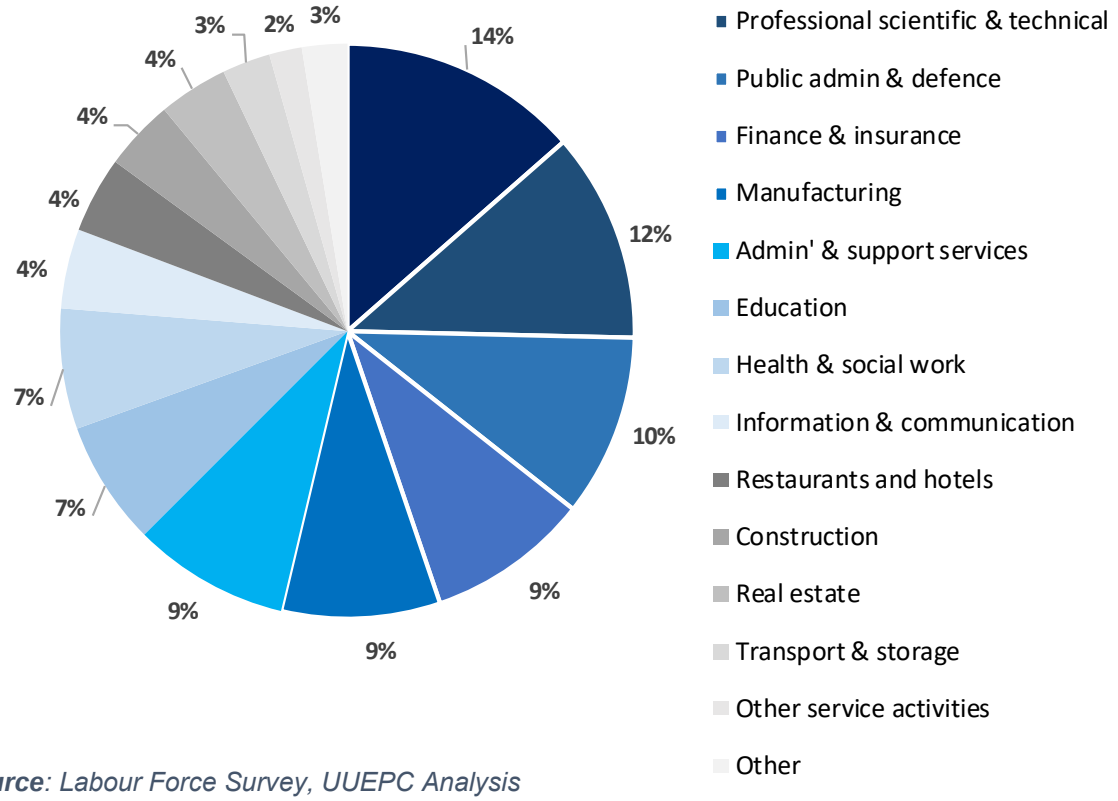


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Transport & storage, Arts & entertainment, Agriculture, Electricity & gas, Water supply & waste, People employed by households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Business and financial studies - Sector mix (NQF level 6+), NI (2020)



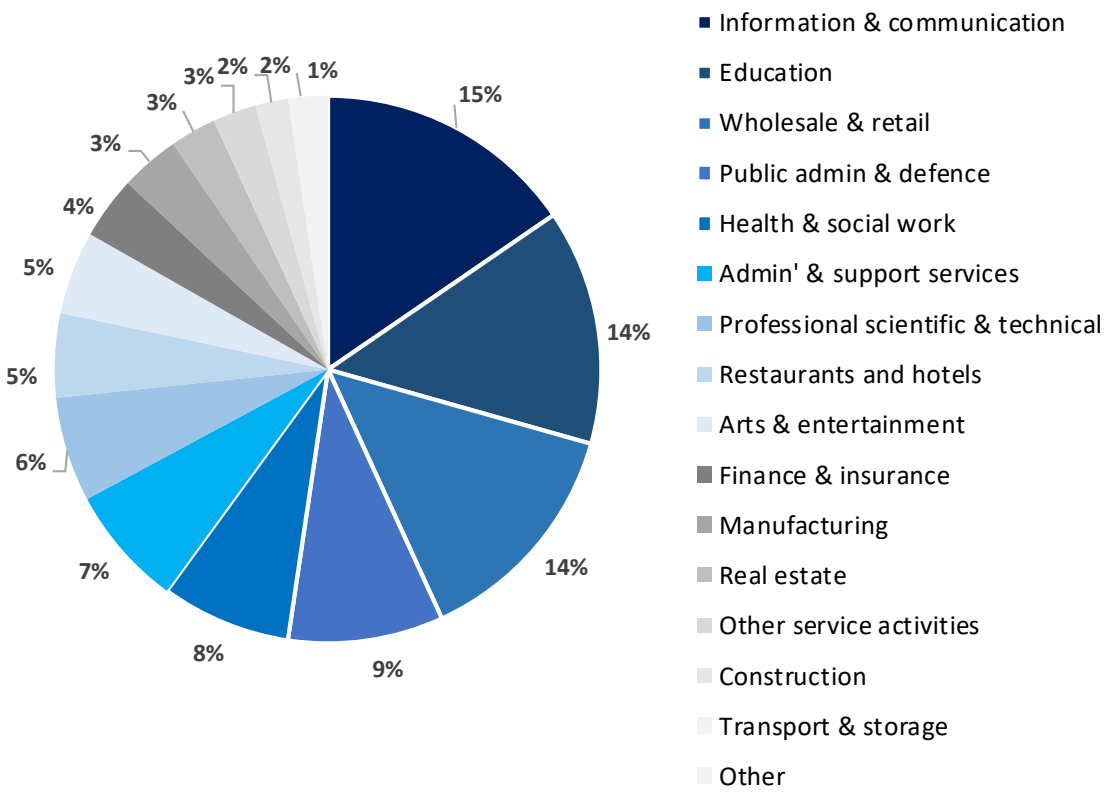
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Arts & entertainment, Agriculture, Electricity & gas, Mining, Water supply & waste and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (7)

Mass communications and documentation - Sector mix (NQF level 6+), NI (2020)

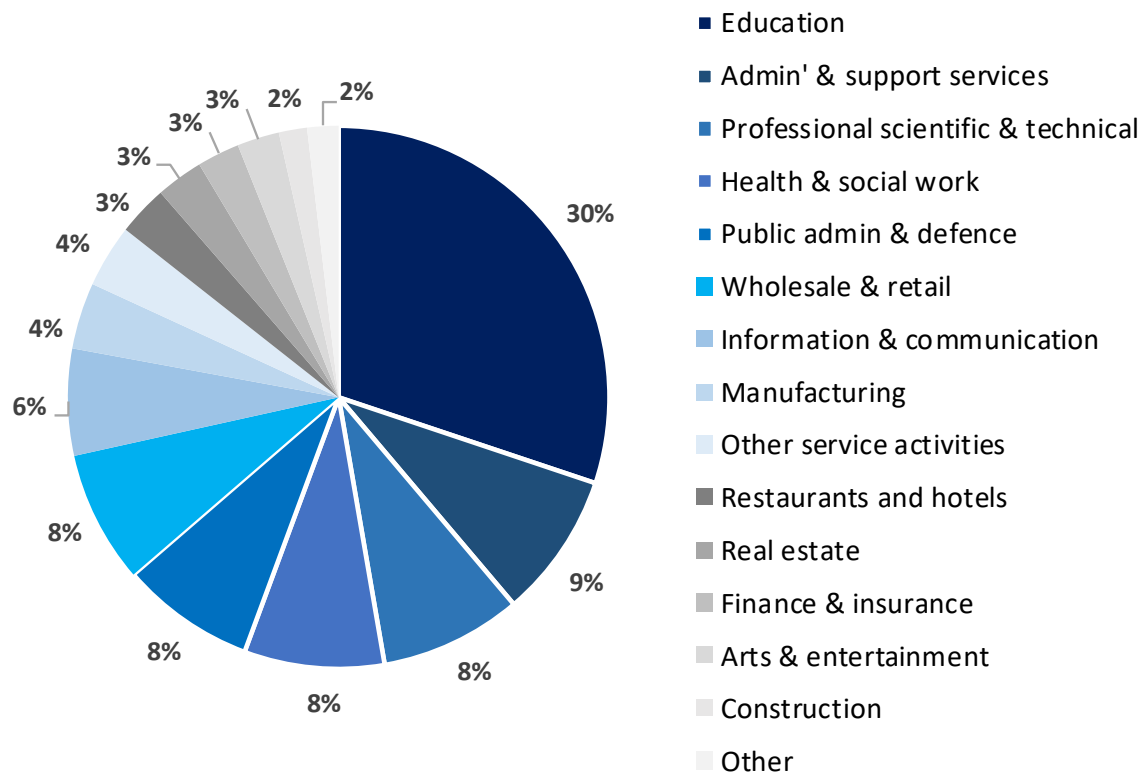


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Agriculture, Electricity & gas, Water supply & waste, People employed by households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Linguistics, English, Celtic and Ancient - Sector mix (NQF level 6+), NI (2020)



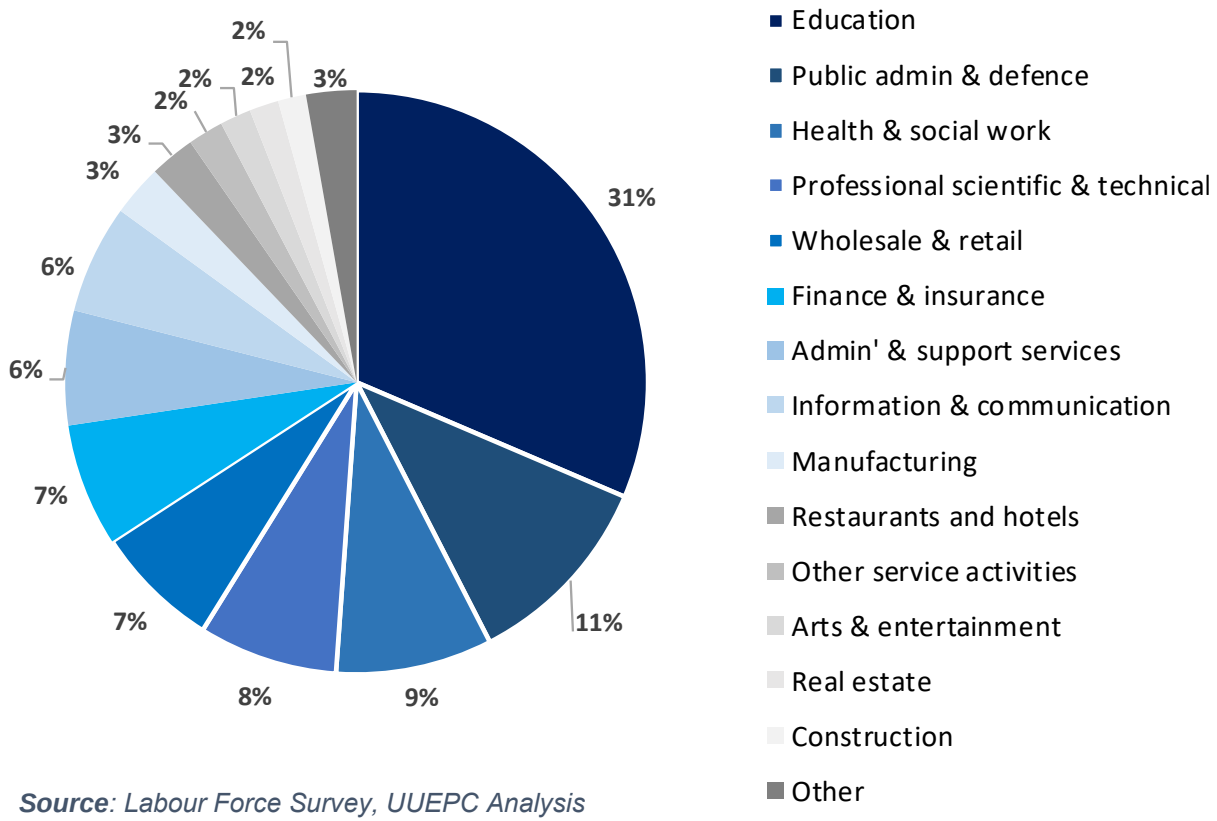
***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Agriculture, Transport & storage, Water supply & waste, Electricity & gas, People employed by Households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Sector mix by subject studied (NQF level 6+) – stock (8)

European Languages - Sector mix (NQF level 6+), NI (2020)

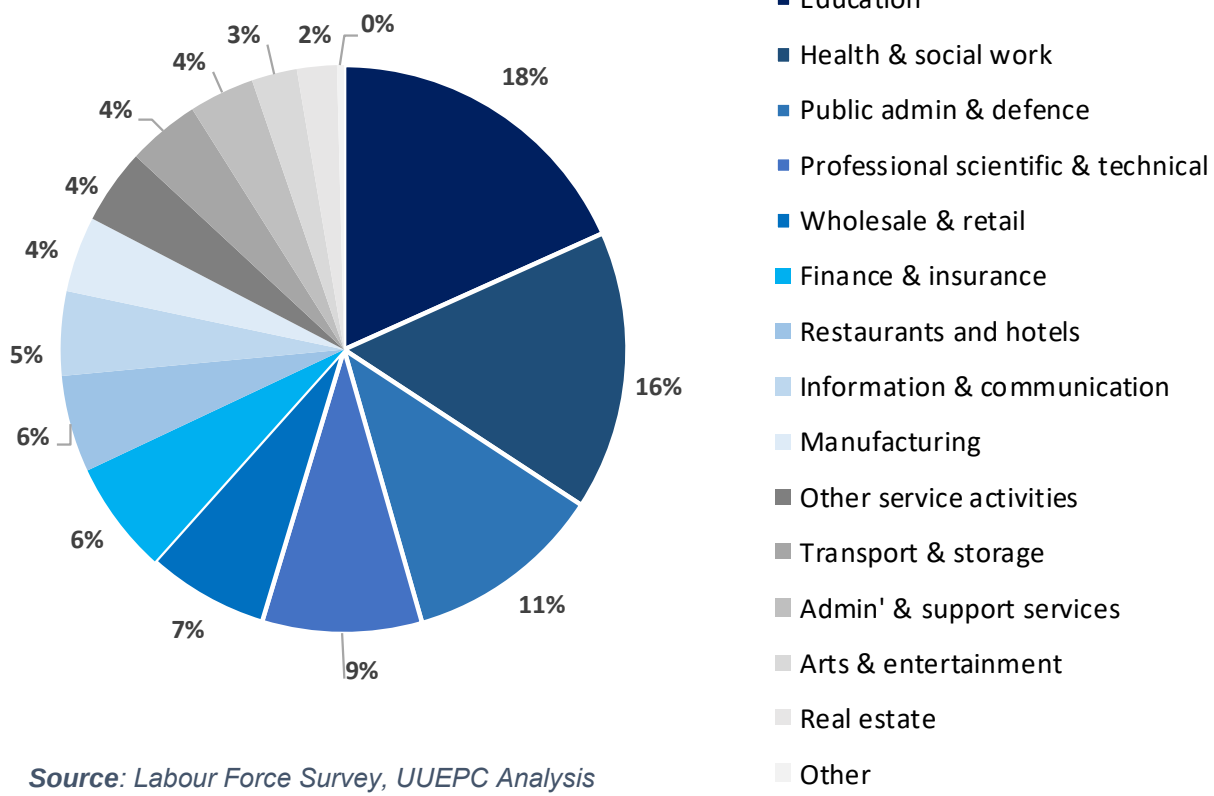


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Agriculture, Transport & storage, Water supply & waste, Electricity & gas, People employed by Households and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

Eastern, Asiatic, African, American and Australasian Languages and Literature - Sector mix (NQF level 6+), NI (2020)

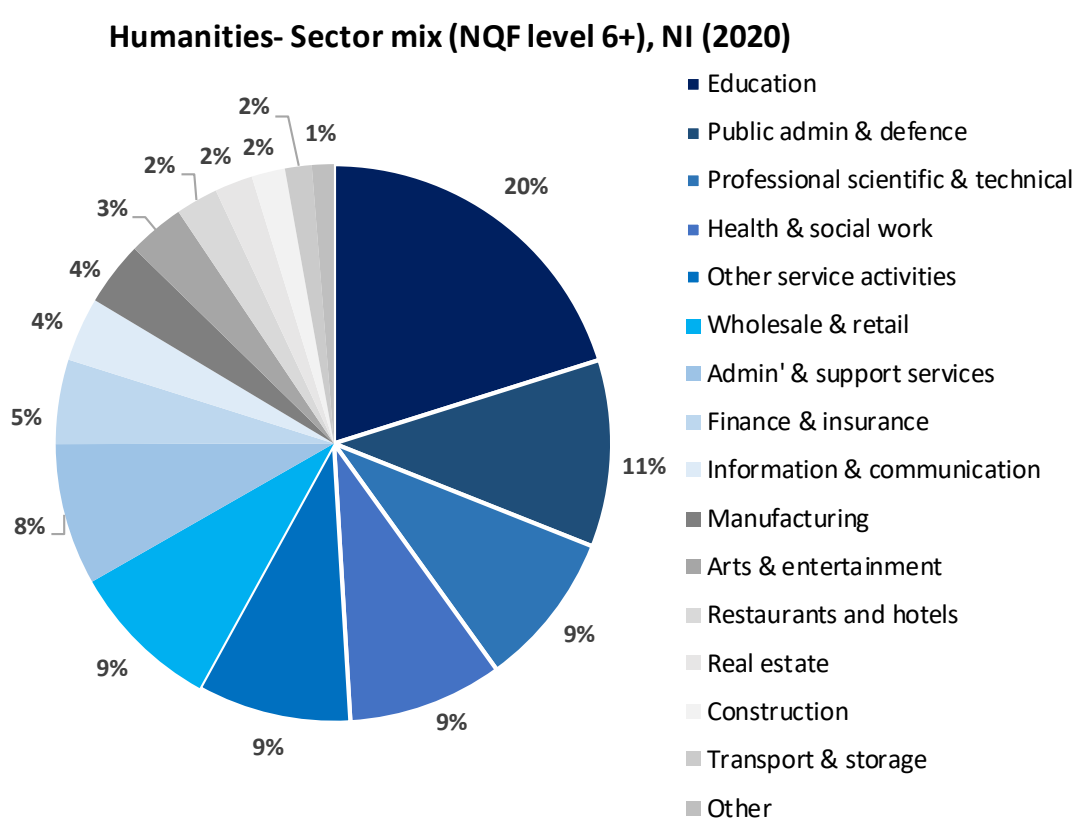


***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Agriculture, Electricity & gas, Water supply & waste, Mining and People employed by households.*

***Note**: Figures are based on a 4-quarter rolling average*

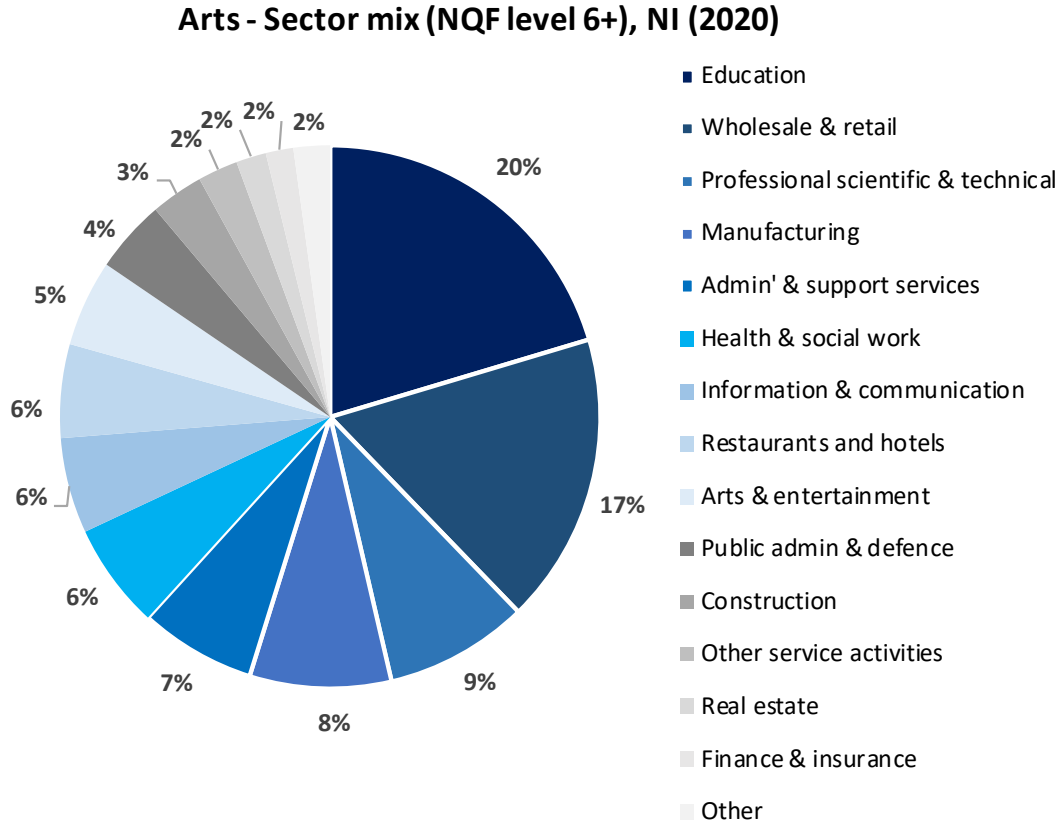
Sector mix by subject studied (NQF level 6+) – stock (9)



Source: Labour Force Survey, UUEPC Analysis

Note: Other includes; Agriculture, Electricity & gas, Water supply & waste, Mining and People employed by households.

Note: Figures are based on a 4-quarter rolling average

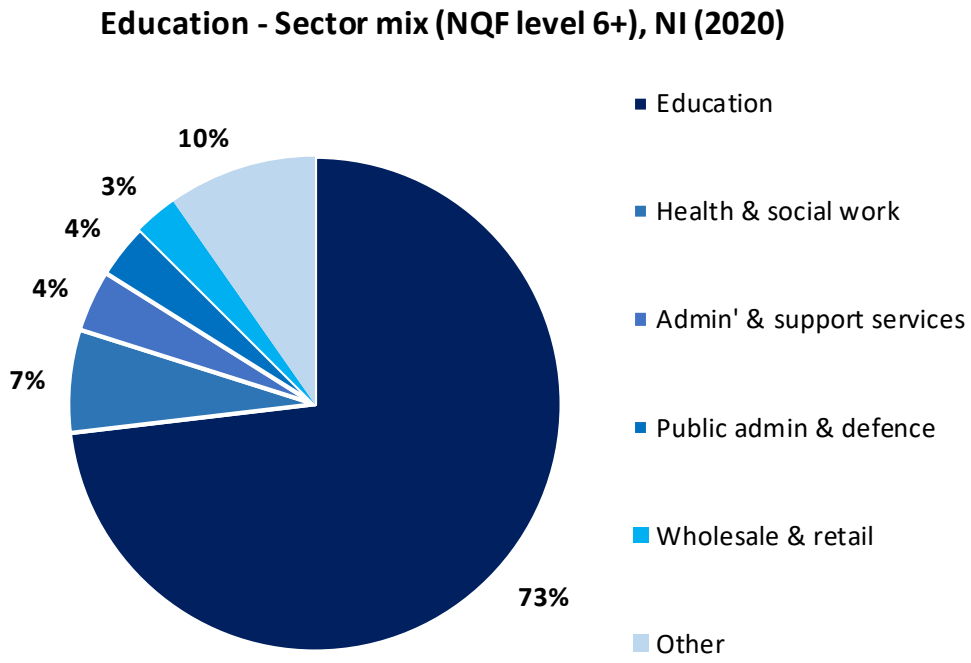


Source: Labour Force Survey, UUEPC Analysis

Note: Other includes; Transport & storage, Agriculture, Electricity & gas, Water supply & waste, People employed by households and Mining.

Note: Figures are based on a 4-quarter rolling average

Sector mix by subject studied (NQF level 6+) – stock (10)



***Source**: Labour Force Survey, UUEPC Analysis*

***Note:** Other includes; Professional scientific and technical, Restaurants and hotels, Other service activities, Manufacturing, Information and Communication, Real estate, Construction, Arts & entertainment, Finance & insurance, Transport & storage, Agriculture, Water supply & waste, People employed by households, Electricity & gas and Mining.*

***Note**: Figures are based on a 4-quarter rolling average*

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Work experience & soft skills

Soft skills compliment hard skills

Employers will need individuals with a combination of both soft skills and hard skills (e.g. specific job-related abilities/qualifications). These two categories of skills compliment one another in the workplace.

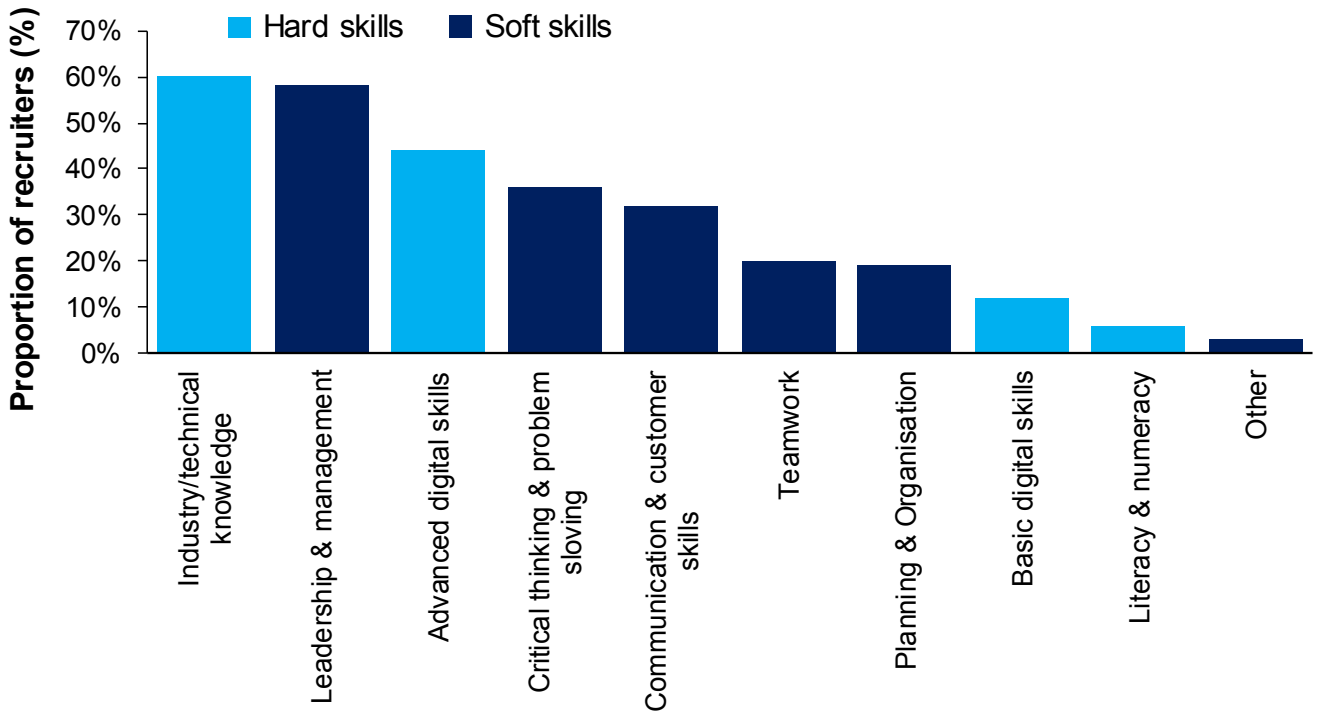
Whilst hard skills are most typically gained through the education system it is important that students are also able to acquire soft skills throughout their educational journey. Therefore, education institutions should continue to integrate the development of soft skills into the curriculum.

Soft skills are often initially built through extracurricular activities and part-time employment, however as students move through their education it is important they are provided with opportunities to gain work experience relevant to their career path.

Given employers report soft skills as lacking among education leavers there is an onus on employers to provide opportunities for young people to gain these skill requirements within their organisations through work experience opportunities.

Covid-19 impacted the labour market with a speed and severity unprecedented in recent history. As the crisis recedes the latest CBI/Birkbeck Education and Skills Survey outlines **businesses face new skills challenges and many jobs have been changed forever. Over two-fifths (44%) of firms expected to increase their need for people with workplace skills not associated with national qualifications** (e.g. negotiation and problem solving). Whilst it is important to note firms are increasing their investment in training to meet these changes, the education system must also adapt.

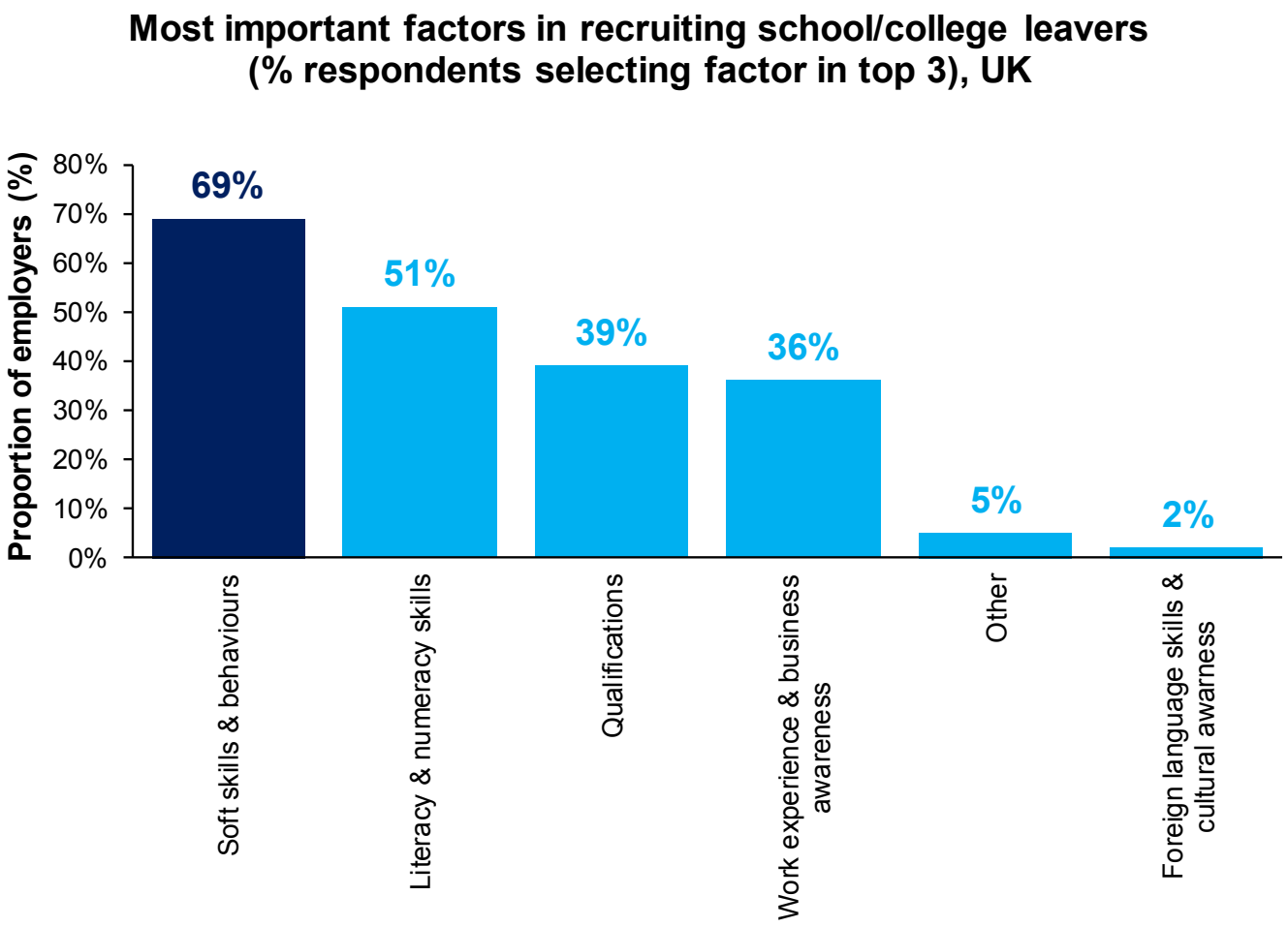
Most important types of skills for development over next 3-5 years, UK



Source: *CBI/Birkbeck Education and Skills Survey*

Source: Indeed, Career Guide

Employers look beyond qualifications (1)

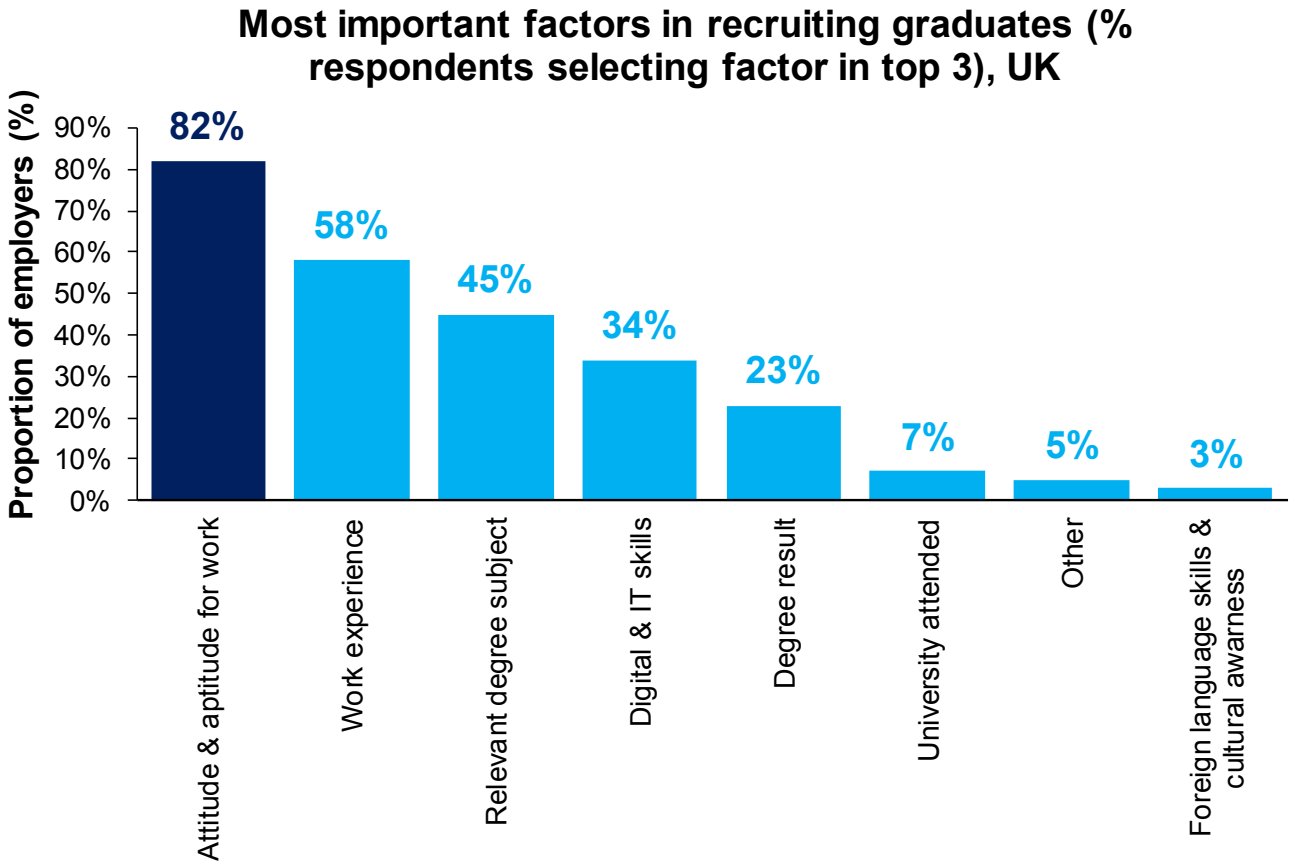


Source: *CBI/Birkbeck Education and Skills Survey*

Businesses consistently report on the significance of soft skills and behaviours (e.g. employability skills, interpersonal skills, problem solving, teamwork, negotiation etc.) when recruiting education leavers.

According to the CBI/Birkbeck Employment and Skills Survey 2021 69% of employers reported soft skills and behaviors among their top three factors looked for when recruiting school and/or college leavers, followed by literacy and numeracy (51%). For academic results/ qualifications obtained, only two-fifths (40%) of employers listed this as one of their top factors looked for when recruiting school and/or college leavers.

Employers look beyond qualifications (2)

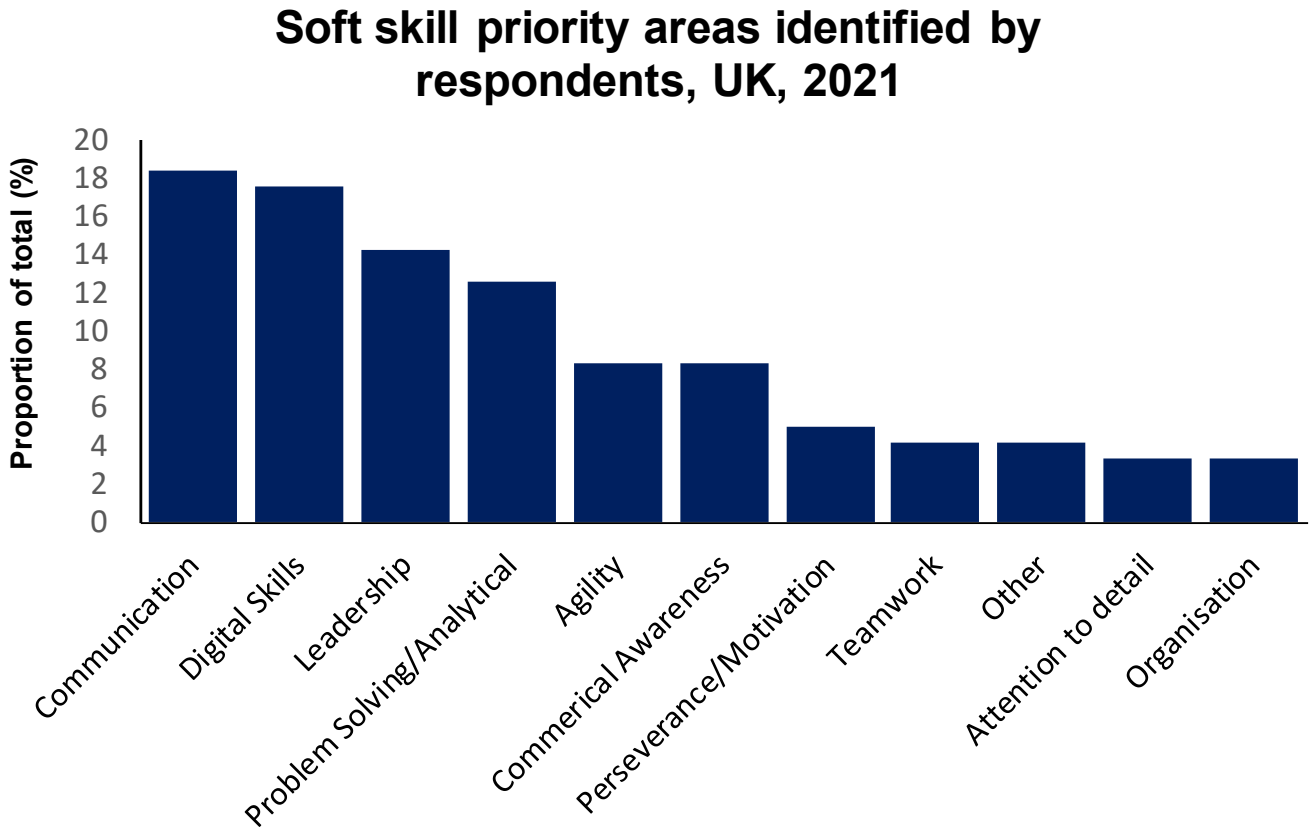


Eight in ten (82%) employers considered an individuals' attitude and aptitude for work as one of the most important factors in the graduate recruitment process. That was followed by 58% stating work experience, 45% a relevant degree subject studied and 34% digital and IT skills.

The result of academic qualifications only forms part of a much broader recruitment process, as less than one-quarter (23%) of employers considered it one of the top three most important factors when recruiting graduates.

Source: *CBI/Birkbeck Education and Skills Survey*

Soft Skill Priority Areas



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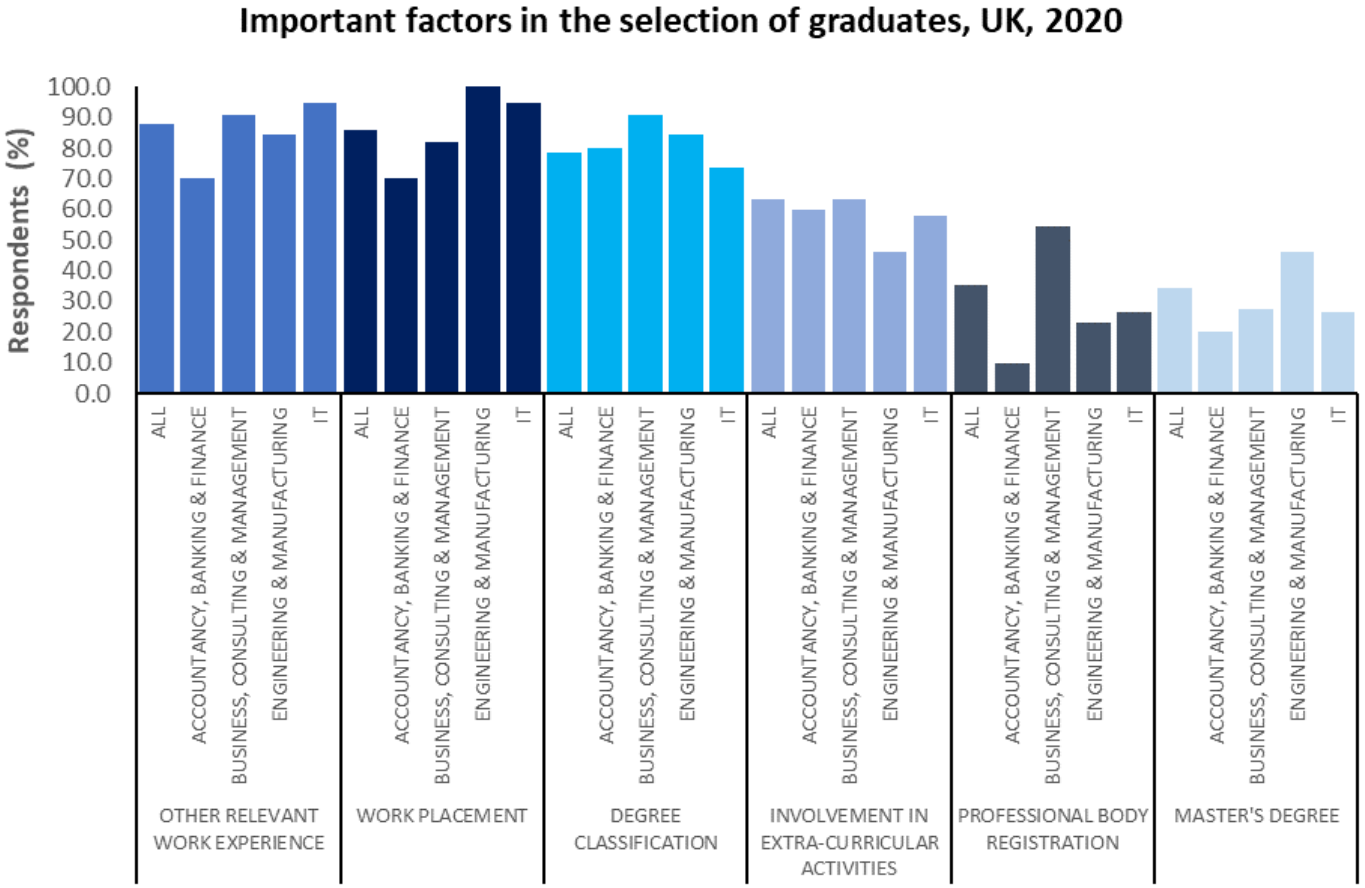
Work experience most important factor in graduate selection

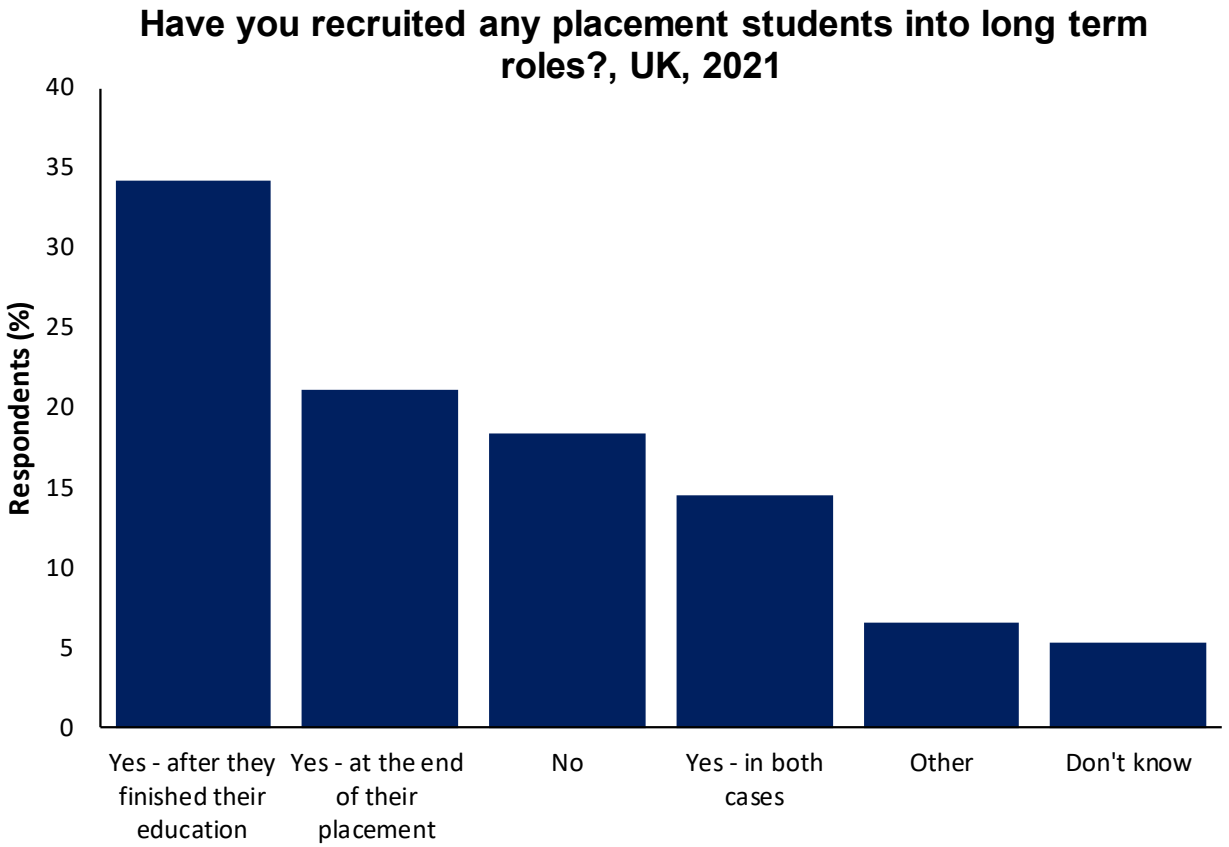


Source: *Ulster University*

Other relevant work experience (88%) and work placement (86%) are the most important factors in the selection of graduates across industry. Work placement is specifically important in the selection of graduates within engineering and manufacturing (100%) and IT (95%).

On average, a graduates degree classification (78%) is less important than other relevant work experience or work placement in the selection of graduates.

Post-placement employment



Source: *Ulster University*

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Soft skills gaps

Skills with the biggest skills gap

1. Understand Role/Structure in the Workplace and Have Realistic Work Expectations
2. Recognise and Deal Constructively with Conflict
3. Accept and Apply Critique and Direction in the Workplace
4. Listen Effectively
5. Communicate Accurately and Concisely
6. Realise the Effect of Decisions
7. Build Professional Relationships
8. Navigate Change and Ambiguity
9. Identify and Analyse Problems
10. Transfer Knowledge from One Situation to Another
11. Ask Good Questions

Top activities employers look for on a CV to demonstrate soft skills

1. Work experience
2. Internship
3. Career or Major-related Student Organisations
4. Volunteerism
5. Research with a Mentor
6. International Travel of Any Kind
7. Sports : Varsity, Club, Intramural
8. Judging or Competitive Events

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***Source**: From Academia to the Workforce: Executive summary*

Top activities employers look for on a CV to demonstrate soft skills

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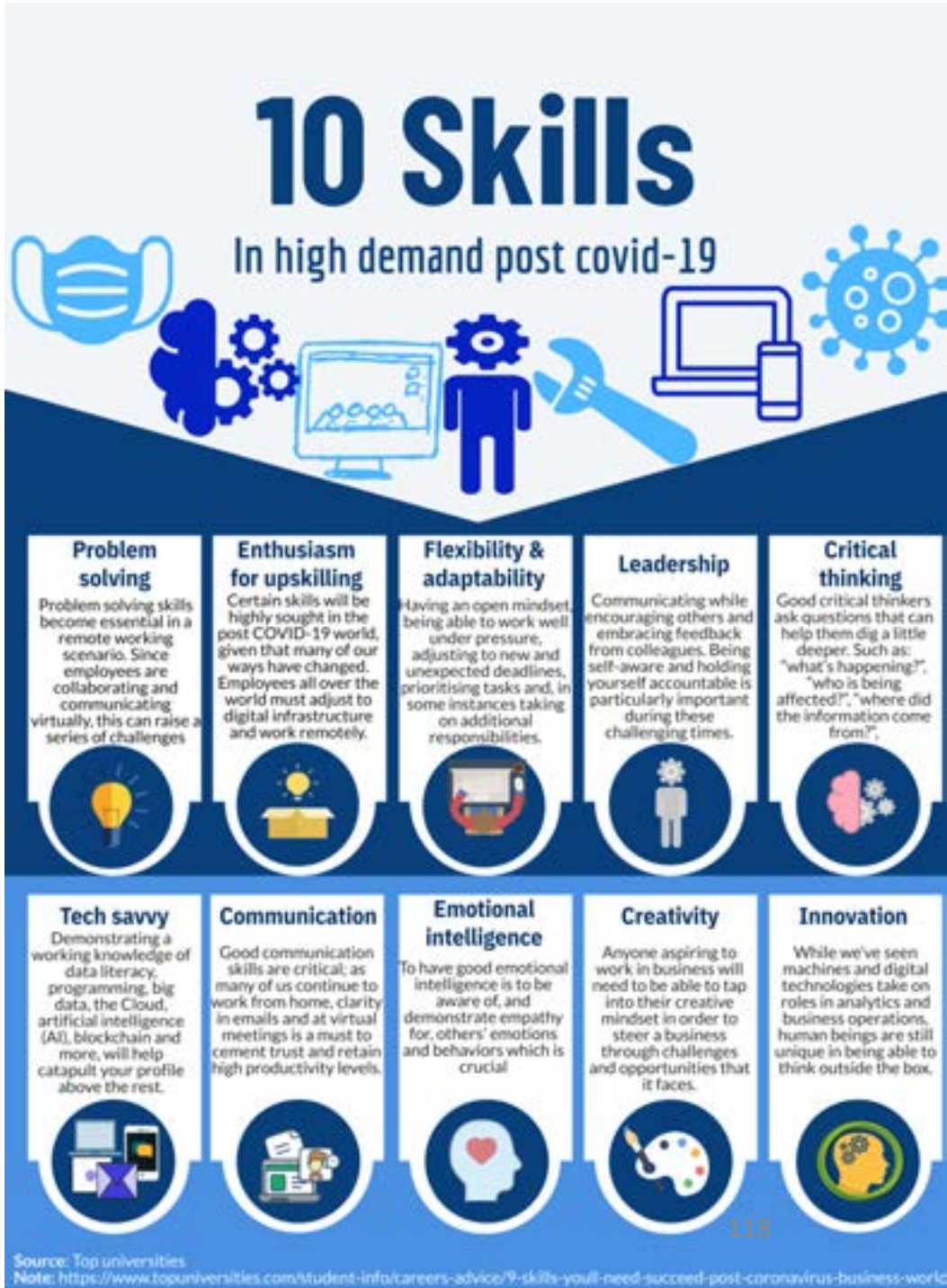
***Source**: From Academia to the Workforce: Executive summary*



Becoming job-ready

A study from the Chartered Management Institute (CMI) conducted between December 2020 and August 2021 found almost **80% of employers believed graduates were not fully equipped with the skills required to be considered "work-ready".**

"They are intelligent, capable, and technically savvy," one employer said, *"but they show up* ***not knowing how to behave and engage professionally in the workplace****."*

From a student's perspective the study found 89% of students would like an 'employability bootcamp' to support them in developing their employability skills. However, many students reported that, as a result of a change in course delivery methods during the pandemic, they had developed important new skills. Further, many believed they had the skills employers required but were unable to evidence these to employers.

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Section 7

Industry Consultations

Economy wide

Supply issues

- Labour shortages are being experienced in every corner of the economy, from low level qualifiers through to high level qualifiers, new hires and experienced hires, service sector through to manufacturing and raw materials.
- Businesses have a strong desire to extend apprenticeship opportunities to all age groups to entice individuals into industries with particular supply issues. In addition, businesses outlined the apprenticeship model must work for all groups within the economy (e.g. micro and SME's).

Soft skills

- Businesses highly value individuals with soft skill qualities (e.g. problem solving, attitude to work etc.) and are increasingly willing to train new hires in specific discipline if the individual has excellent soft skills.

Upskilling

- Upskilling remains a key interest among businesses, but they report concerns relating to resource and finance, specifically in micro and SME's. It was suggested subsidiary funding could considered as a support mechanism in the delivery of upskilling.
- Businesses emphasise lifelong learning is essential for a prosperous future economy. They argued it must be encouraged from a young age through the education system, and for those already in the workplace through business providing learning opportunities.

Digital skills

- Covid-19 pushed many businesses forward in the digital skills arena (e.g. websites, online bookings, social media etc.), many supported by available grants which were suggested to be continued to support the digital development of businesses.
- Businesses recognise digitsation is happening across the economy which is increasing demand for individuals with digital skill sets, ranging from basic digital skills and competencies through to advanced artificial intelligence and machine learning.

Education system

- Businesses comment how they must interact with the education system to co-design curriculum, develop good quality work experience opportunities and provide informed advice on careers across industry.
- Businesses felt careers advice within schools must be independently informed and include available pathways within all divisions of the education system and opportunities across all sectors of the economy. They emphasised this required informing parents and young people.

Agriculture

Supply shortages

- Skills shortages are being felt across the agriculture sector and associated supply chain (e.g. food processing and hospitality). Whilst shortages are more concentrated among low level qualifiers there is a squeeze across the entire qualification spectrum.
- The sector has been particularly impacted by the reduction in migrant labour, most commonly associated with Brexit and more recently the pandemic.
- The increasing educational attainment has meant the sector is seeing fewer NQF level 3 qualifiers entering the industry, which has additional supply implications in the sector.
- The supply shortages have also meant businesses are struggling to do “business as usual” and so, for many expansion is not an option in the current market.

Upskilling

- The traditional nature of the agriculture sector (e.g. inherit family farm) has often meant upskilling and CPD are not commonplace. However, the sector recognises Government schemes are working to encourage uptake in CPD, particularly associated with new technology adoption, green growth and robotics.
- Higher Level Apprenticeships are of interest in the sector but the high concentration of one-to-one time required puts pressure on agriculture businesses to take on such individuals.

Digital skills

- Strategically looking forward the sector recognises it will need to adapt artificial intelligence, automation, robotics and embrace the green growth agenda. Therefore, the sector outlined the curriculum must adapt to include these provisions, industry must attract individuals with these new skill sets and businesses must upskill the current workforce.
- Overall the sector highlighted there is a lack of digital skills on the agriculture side linked to the traditional lower levels of academic attainment and this often hampers the adoption of new technologies.

Construction

Supply shortages

- Demand is exceeding supply across all levels of the qualification spectrum within the industry. The industry stressed as the workforce gets older, the need to attract and retain younger workers will be vital.
- Industry is concerned that the high concentration of self –employment in the industry could be viewed as “insecure” as the legacy of the Financial Crisis remains.
- Labour supply is being hampered by lucrative markets for mid-level skills (e.g. craft trades) in Republic of Ireland and Great Britain enticing many such workers to opportunities in these areas.

Digital skills

- The requirement for digital and sustainability skills has increased profoundly in the sector through the green growth agenda. However, as these skills are in demand right across the economy they are becoming increasingly difficult for the sector to access.
- For industry to expand the sector believes individuals will be required from a broad range of backgrounds beyond the traditional engineering courses, including physical sciences, environmental sciences and ICT.

Education system

- There has been a shift in momentum within the sector, moving towards diversity, sustainability and digital. The sector stressed the education system must keep up with the pace of change.
- Further Education is catering well to the sector through traditional apprenticeships and the foundation degree route. To continue to attract labour, industry outlined it is important there remains a range of entry pathways to the sector as well as a high value placed NQF level 3-5 qualifiers across the economy.
- The increasing desire for young people to remain in education and continually move up the qualification ladder, has long-term supply implications within the construction sector that must be considered by policy makers.
- The sector has taken a much greater approach to the Higher Level Apprenticeships, but it is still relatively small numbers and remains tentative as the high levels of commitment required can be burdensome for business. The sector supports this route opening to all age groups encourages it is viewed equal to academic degree level qualifications.

Manufacturing

Supply shortages

- Businesses are unable to access labour across the qualification spectrum (i.e. entry level, mid-level and degree level), pushing out lead-times for product and hampering growth potential.

Education system / Careers Advice

- Young people are being encouraged to remain in the education system, which results in shortages in the manufacturing industry. The sector emphasised there are career pathways for entry level and mid level qualifiers that must be more widely promoted to young people and valued by society in a similar fashion to degree level qualifications.
- The sector values good quality work experience for young people to build industry relations, interests and an understanding of the working world encouraging the education system to focus on this for careers advice.

Digital skills

- The digital skill needs are growing within industry across a range of levels as automation is increasingly adopted, and so representatives encouraged these skills to be included in any industry related related curriculum.

Upskilling

- The sector outlined the need for lifelong learning to be encouraged from a young age, if the workforce is to respond to changing economic requirements over the longer term. Specifically, accredited upskilling would form a vital strategy in the retention of workers going forward but is often hampered by the cost of the apprenticeship levy.

Restaurants & Hotels

Supply issues

- The pandemic and Brexit have accelerated pre-existing supply issues. Businesses are struggling to attract and retain staff across all levels of qualification and skill. The perception of reduced job security resulting from long-term closures during the pandemic, alongside Brexit significantly reducing the ability to access migrant labour has resulted in business closures, reduced opening times or fewer events for many businesses.

Education system

- The sector recognises the school system is eager to keep young people in education and move them onto the next level of qualification, however there are consequences of this for the broader economy that need addressed.
- Beyond the school system the apprenticeship route from Further Education is the preferred choice for the sector and Higher Education is providing a good supply of graduates.
- Respondents outlined careers advice across all levels of the education system must consider the vast array of opportunities in the sector and move away from traditional view of “low pay” and “low skill”.

Higher Level Apprenticeships

- The pathway for Higher Level Apprenticeships exists in industry but awareness and understanding needs more work. In addition the high proportion of micro and SME business, means this route is often not viable due to training commitment pressures.
- Industry believes if they are to convert parents and young people on Higher Level Apprenticeships as an alternative route to Higher Education they must be held in the same regard as an academic degree and open to all ages.

Non-employed

- The industry struggles to reach the non-employed groups, organisations are running events but getting low level attendance meaning this group has not been a particularly successful labour pool.

Upskilling

- Accreditation is an issue for upskilling in the sector, as options are typically linked to Further Education. Often workers are heavily qualified and heavily skilled but not accredited. A more flexible approach to upskilling, including short, sharp courses is encouraged by the sector.

Digital skills & sustainability

- The pandemic pushed digital skills up the agenda in many businesses, but the industry must continue to push on. The demand for sustainability and green growth within the sector will require business adoption and attraction of new talent to the sector.

Information & Communication

Supply issues

- A shortage of labour has long been a feature in the information and communication sector, but it has been exacerbated in recent years: new firms continue to set up in Northern Ireland creating displacement and wider implications; Brexit has indirectly reduced the labour supply as other parts of UK with higher proportions of EU labour are now competing in much smaller labour pool; and Covid has meant a small but increasing proportion of workers are able to work for Dublin/London based firms remotely.
- The squeeze on labour is being particularly felt at the experienced hires level, as opposed to emerging graduate.

Higher Level Apprenticeships

- This form of recruitment is considered expensive as it requires a significant volume of labour input (i.e. training and support) without the individuals being 'billable' to clients. The tendency is to hire from degree level or foundation degree, with a strong desire for those who have completed a placement or work experience opportunity.

Upskilling

- Industry requirements continually evolve and so upskilling and lifelong learning form a key part of typical jobs within the sector. However, this training is not necessarily linked to accredited qualifications.

Soft skills

- These are considered essential skills for industry (e.g. collaboration, knowledge share, attention to detail etc.) and are considered highly important in the recruitment process.

Careers Advice

- Government campaigns (e.g. Bring IT on) are supported by industry, however it needs recognised there are four key influencers for advising young people (i.e. young people themselves, parents, teachers, employers) and each require their own strategy to ensure they are well informed on the opportunities that exist across the industry.

Transport

Supply shortages

- Reliance on migrant labour has resulted in widespread shortages of HGV drivers in the wake of both Brexit and the pandemic.
- The education system does not provide a direct pipeline of workers for industry, rather family ties, wider social circles or increasingly "workhouse to wheels" programmes recruit to the industry.
- The supply can be increased but it will take time to train and test new workers, as well as diversify the industry away from the traditional high male concentrations.
- Post-Brexit the industry increasingly requires individuals with customs and trade agreement knowledge, which could form part of a broader Further Education or Higher Education course.

Digital skills

- The sector is focused on "just in time" logistics which is highly digitised, but currently only requires a small proportion of individuals within a business to be competent within. The bigger challenges will come over the next two decades as autonomous vehicles are introduced to the market as this will require a higher proportion of workers with digital skills.

Government and business

- Representatives highlighted support for Government schemes reaching out to help industry (e.g. HGV training schemes), but suggested a central point or place for businesses and individuals to view available support would be beneficial as there are a range of opportunities from Councils and Department(s).

Life and Health Sciences

Supply shortages

- The increased digitisation of industry is causing supply shortages as competition for individuals with high level digital skills (e.g. computing) is increasing across many sectors in the economy.

Mid-level skills

- The industry has a high manufacturing requirement that is well suited to mid-level technical skills. However, as these qualification levels are experiencing a squeeze across the broad economy the life and health science sector is struggling to attract and access these individuals.

Non-employed

- There are roles for the non-employed throughout the sector, but they may require a “pivot” in skill sets to work within the industry. The life and health sciences industry outlined a need to break down barriers to entice these individuals as they are needed in the sector.

Narrow STEM undersupply

- Life and Health Science representatives believe more is required on attracting young people to study narrow STEM subjects, specifically young girls. They recognise these are considered “hard” subjects but encourage the message should change to subjects that can “change the world” and address the “green growth” agenda in order to attract more young people.

Upskilling / Work placement

- The sector identified continuous learning opportunities and training courses should be made available online, as done in many cases during the pandemic as upskilling forms a huge part of business development and expansion.
- Representatives outlined the need for work placement and work experience opportunities to be spliced with learning from a young age as the benefits of such experiences are seen throughout industry. However, policy must be cognisant that some businesses may need support to accommodate such opportunities.

Social care

Supply shortages

- The sector is struggling to attract and retain workers, across the qualification spectrum (i.e. social carer's through to social workers) and more support is required for workers (e.g. training, working patterns) to retain and attract a higher volume of labour.
- The shortage of low qualified workers across the economy is disrupting the usual flow of available labour to the sector. Although the reduction in migrant labour is not thought to have had a direct impact on the sector, it has indirectly as other sectors begin to compete for a much lower pool of available labour.

Education system

- There is no entry level qualification required for the sector, however it is being considered as a method of retention, as it would bring a level of investment from the workers perspective. The sector believes there should be accredited career pathways within the sector to attract workers straight from the education system. Further, the range of complex dimensions and opportunities within the sector could be better promoted to encourage new entrants.
- The sector is very interested in the role of Higher Level Apprenticeships, but the uptake has been very slow, having little to no impact on the sector.

Upskilling

- The high proportion of not-for-profit organisations within the sector means more often margins to not allow for upskilling. Therefore, any available training would need to be accredited, accessible and flexible around working patterns.

Non-employed

- The sector is aware there are many non-employed that would like to work but are denied their potential due to caring or other commitments. The sector is working closely with the non-employed population to encourage them into the workforce with a programme of support.

Creative Arts and Design

Supply shortages

- The industry has experienced significant growth over the past decade, and it will remain vital to both attract and importantly retain talent to support that growth over the decade.
- The pandemic has negatively impacted the perception of the sector, particularly due to long-term closures, pushing people away from a career in the arts. In addition, Brexit had made it more difficult to secure talent from elsewhere.

Education system / Careers Advice

- Industry representatives believe careers advisers should be aware of the broad range of roles available within the industry and the "portfolio" style career paths, both should be promoted throughout the education system as viable choices for young people.
- The Higher Level Apprenticeship route is of interest within the sector, but often micro businesses are unable to avail in the absence of HR Departments, the seasonal nature of work and/or available staff for the high concentration of training required.
- As the industry grows and adapts Higher Education courses must must also to ensure graduates are well-equipped for workplace. It is recognised students are being somewhat prepared through successful work placements, but it is not enough on its own.

Upskilling

- The sector is continually delivering "on the job" training and "knowledge sharing". However, this does not translate to accredited qualifications, as there are not many opportunities for such accreditation and where there are businesses struggle to fund them.

Digital skills

- The requirement for digital skills is increasing across the sector, and it is increasingly competitive to access these individuals as they are in high demand across a range of sectors. The creative arts and design sector outlined how it must promote itself as a keen employer of individuals with high level digital skills.

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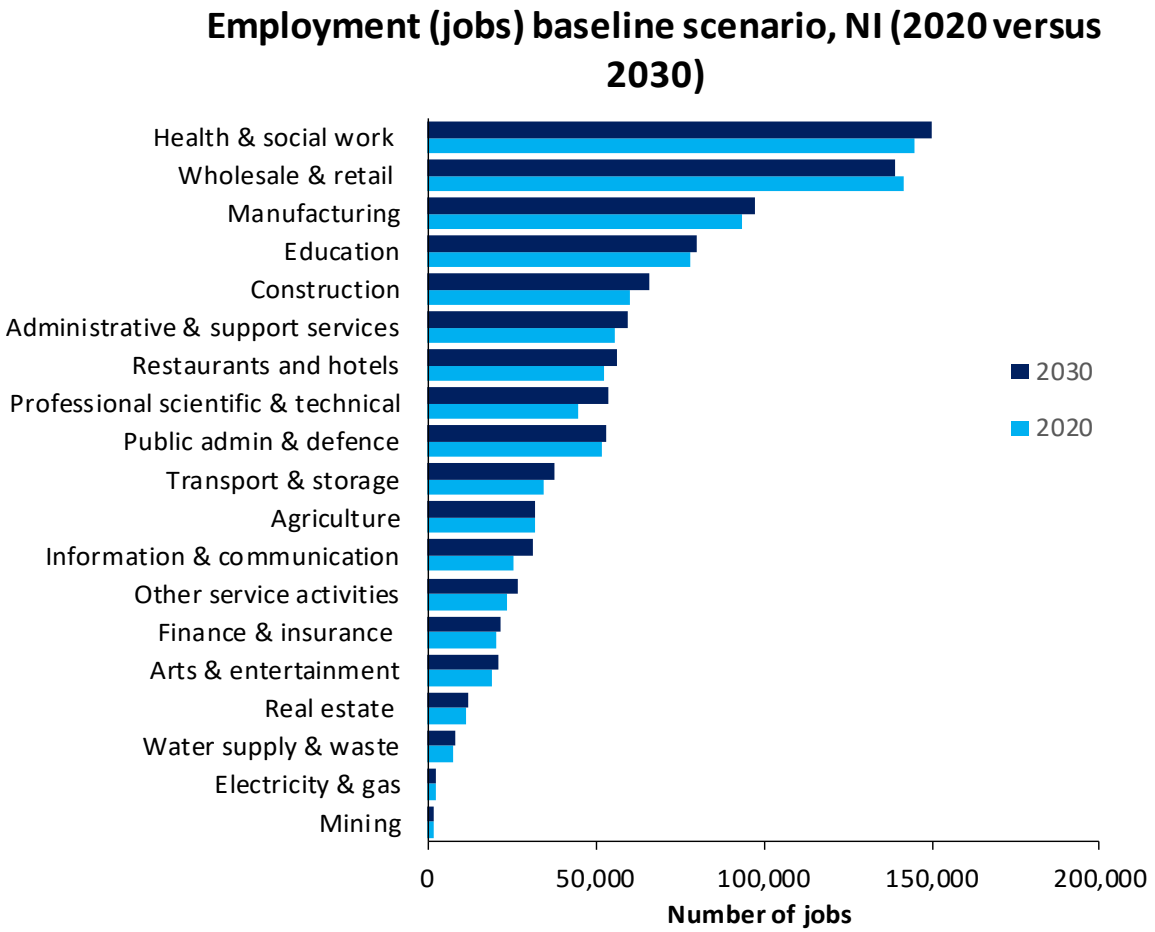
Annex

Annex A1 - Baseline Scenario

Employment forecast under baseline scenario



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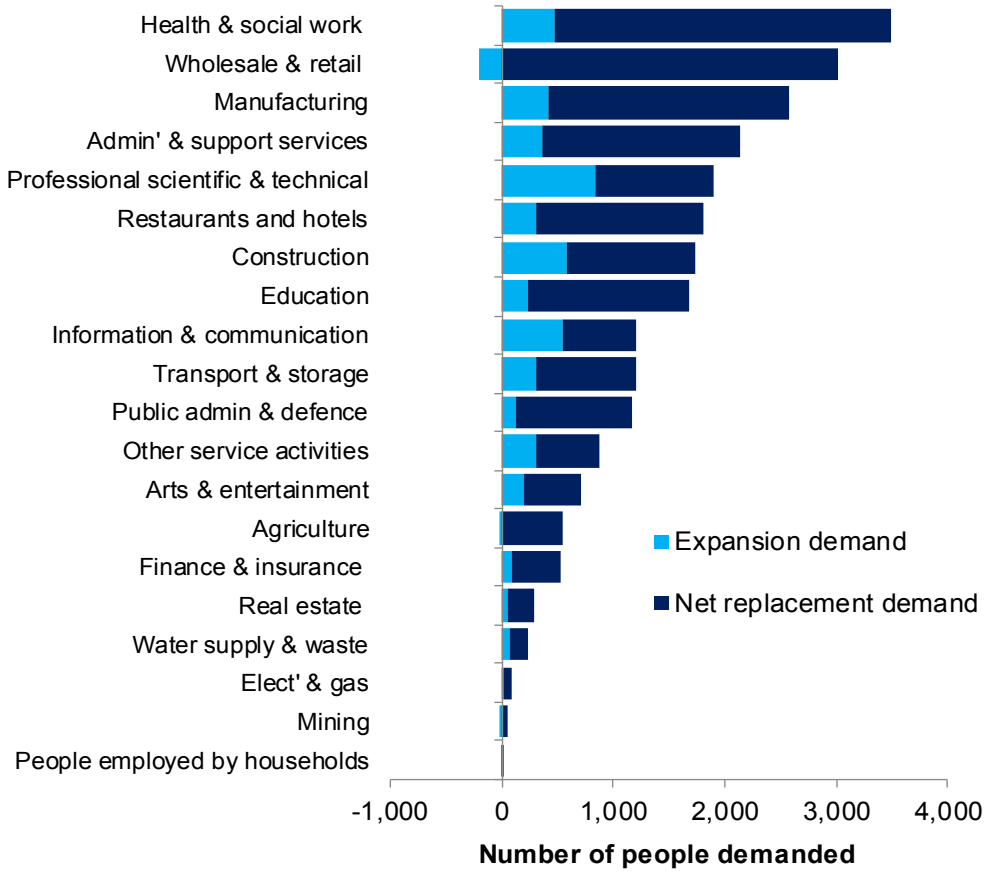
Source: *UUEPC*

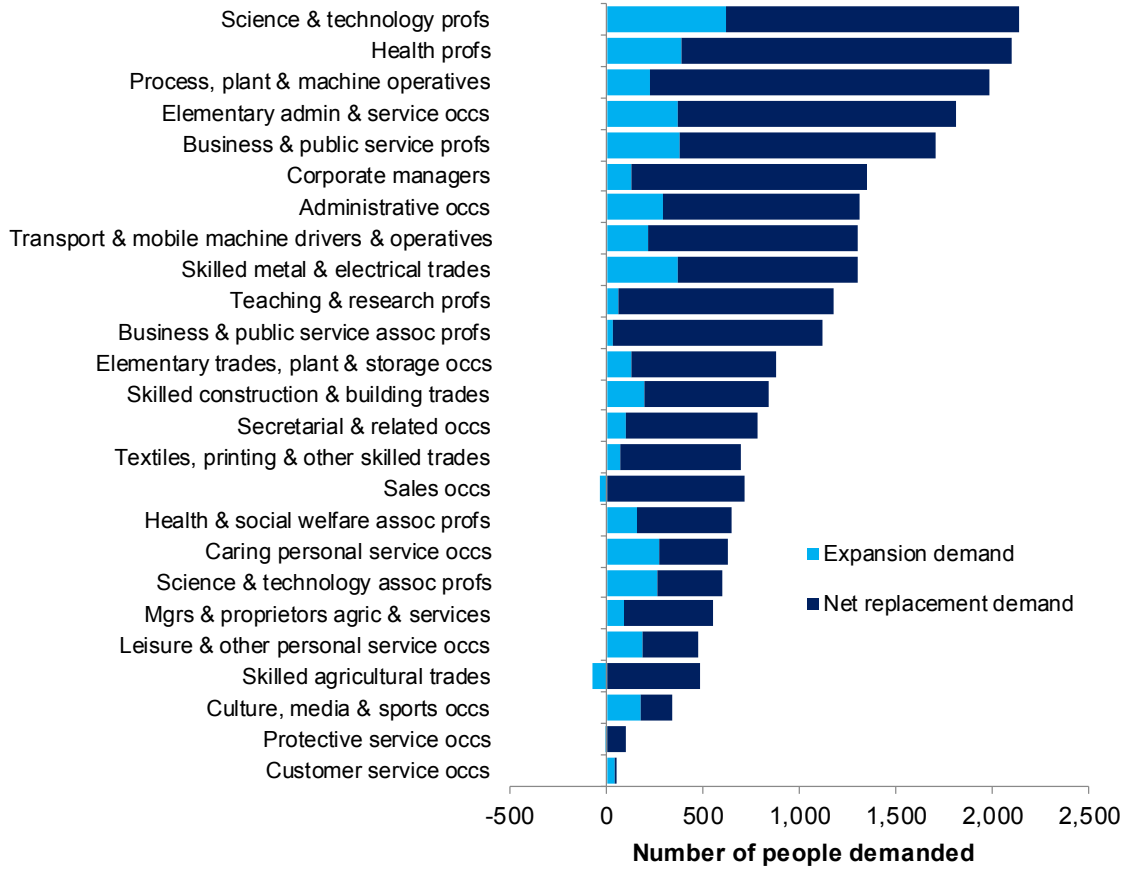
Net requirement by sector and occupation

Average annual net requirement from education and migration by sector (1-digit), NI (2020-2030)



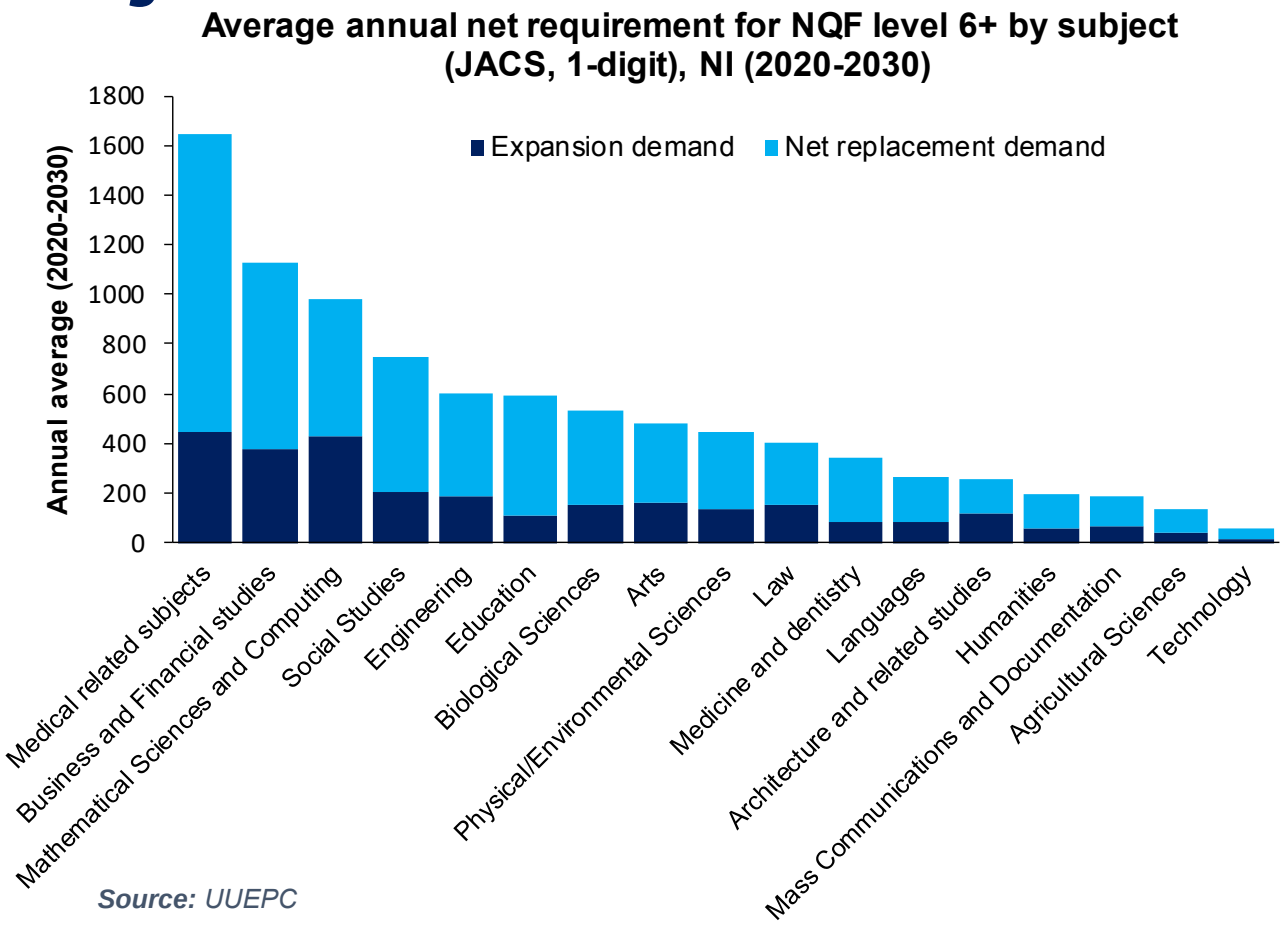
Source: UUEPC

Average annual net requirement from education and migration by occupation (2-digit), NI (2020-2030)



Source: UUEPC

Net requirement by degree subject



Source: *UUEPC*

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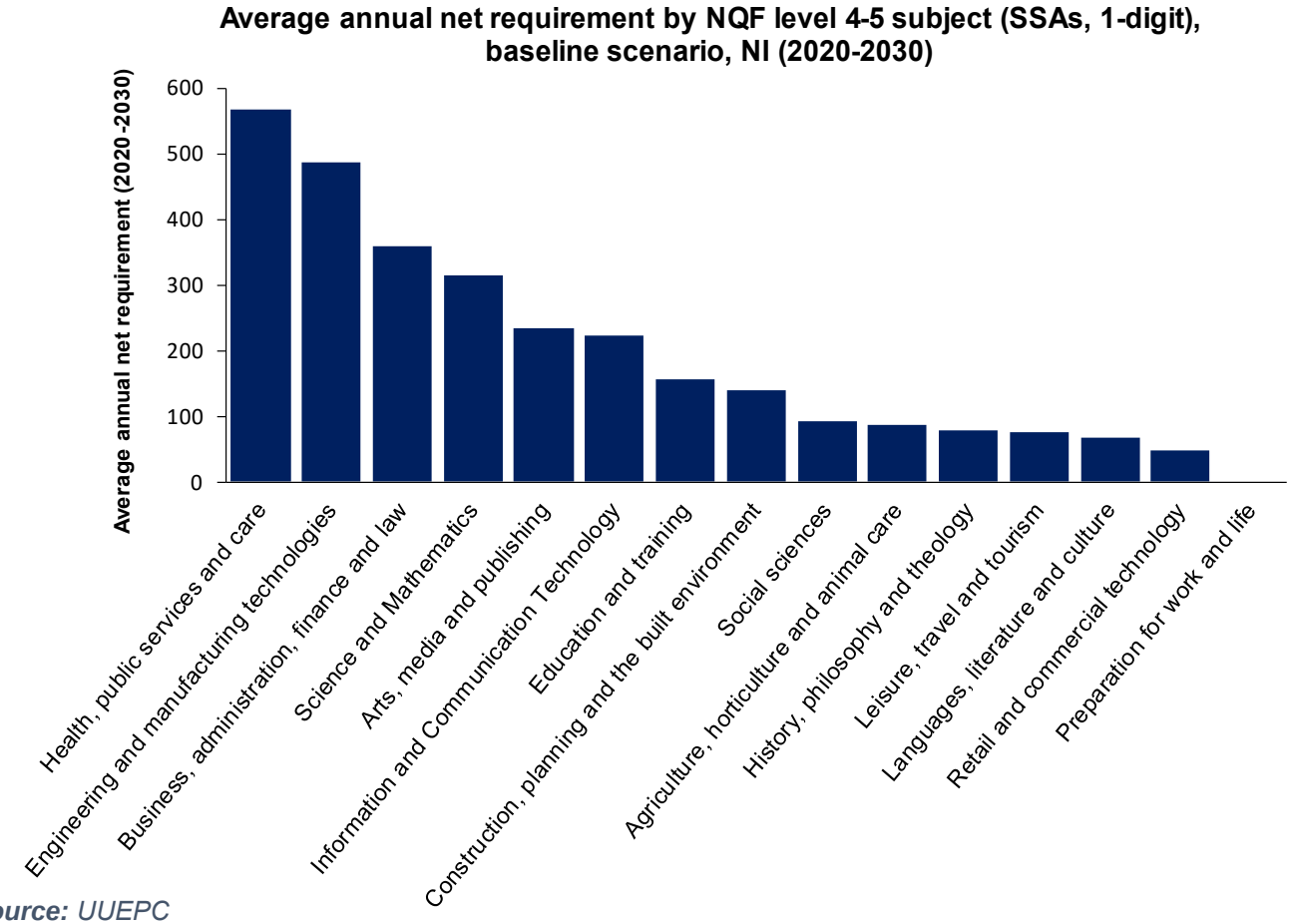
Net requirement by sub-degree subject



Source: *UUEPC*

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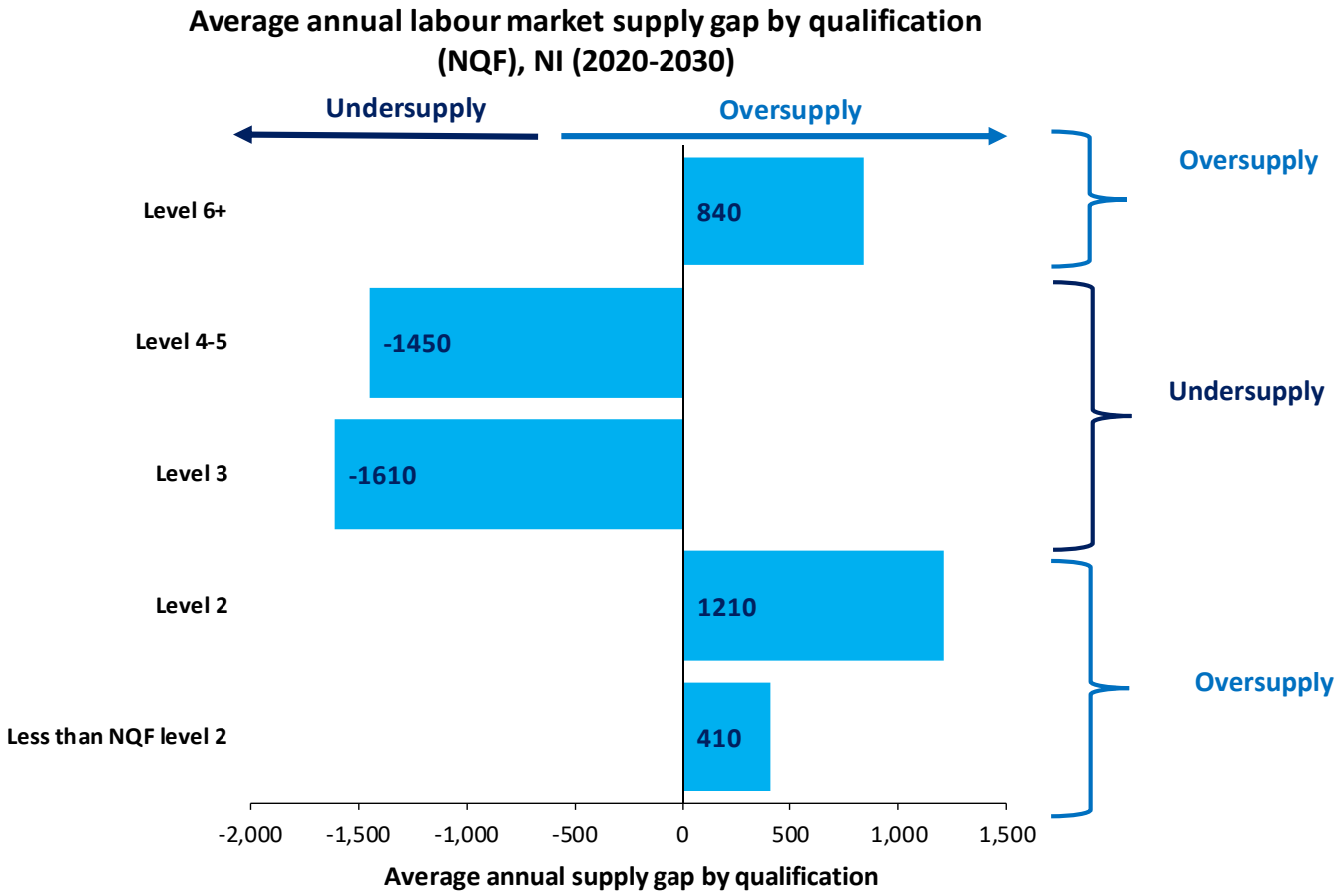
Supply gap by NQF level

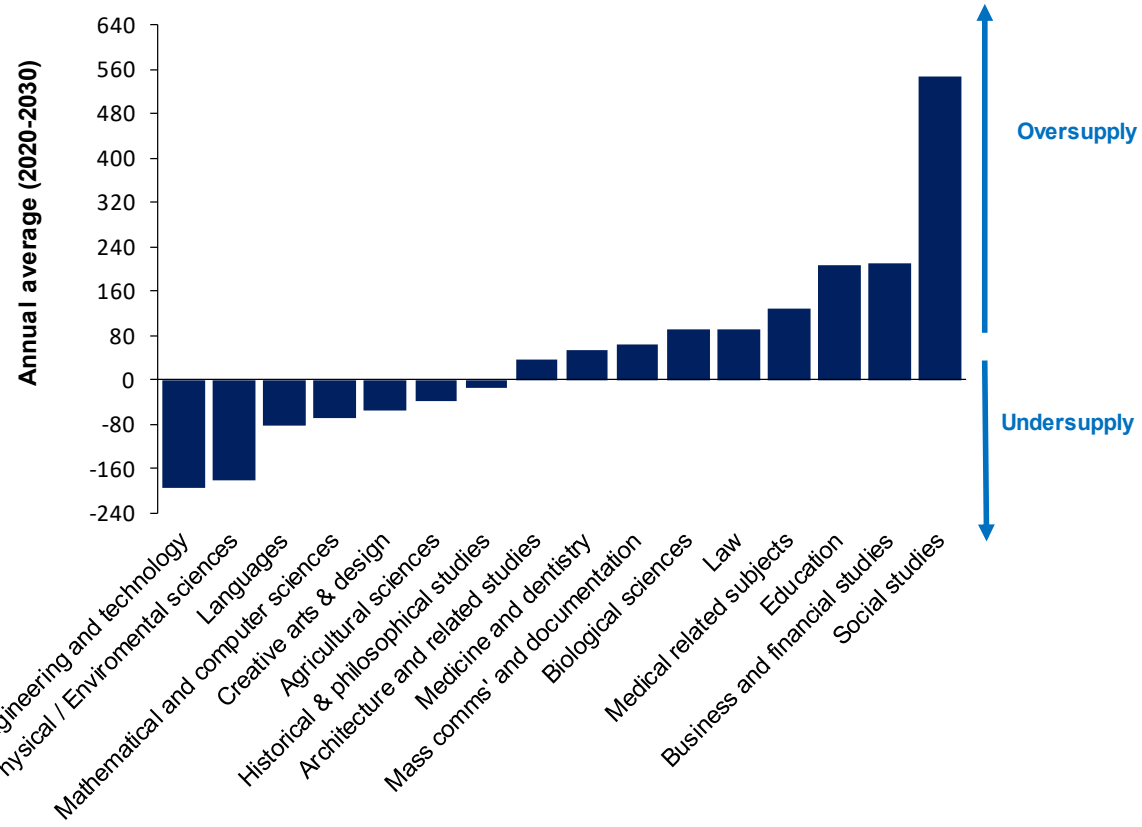


Source: *UUEPC*

Note: *The supply gaps in the above chart have been calculated based on 'effective supply'. This takes account of migration patterns amongst qualifiers at NI institutions and NI domiciled qualifiers qualifying from GB institutions, in addition to labour force participation. A supply adjustment is then applied to subtract tertiary qualifiers who require additional skills development to effectively fulfil the requirements of tertiary level employment. This group are not included in the above chart.*

Supply gap by degree subject

Annual average effective supply gap by NQF level 6+ subject (JACS, 1-digit), NI (2020-2030)



Source: *HESA, UUEPC analysis*

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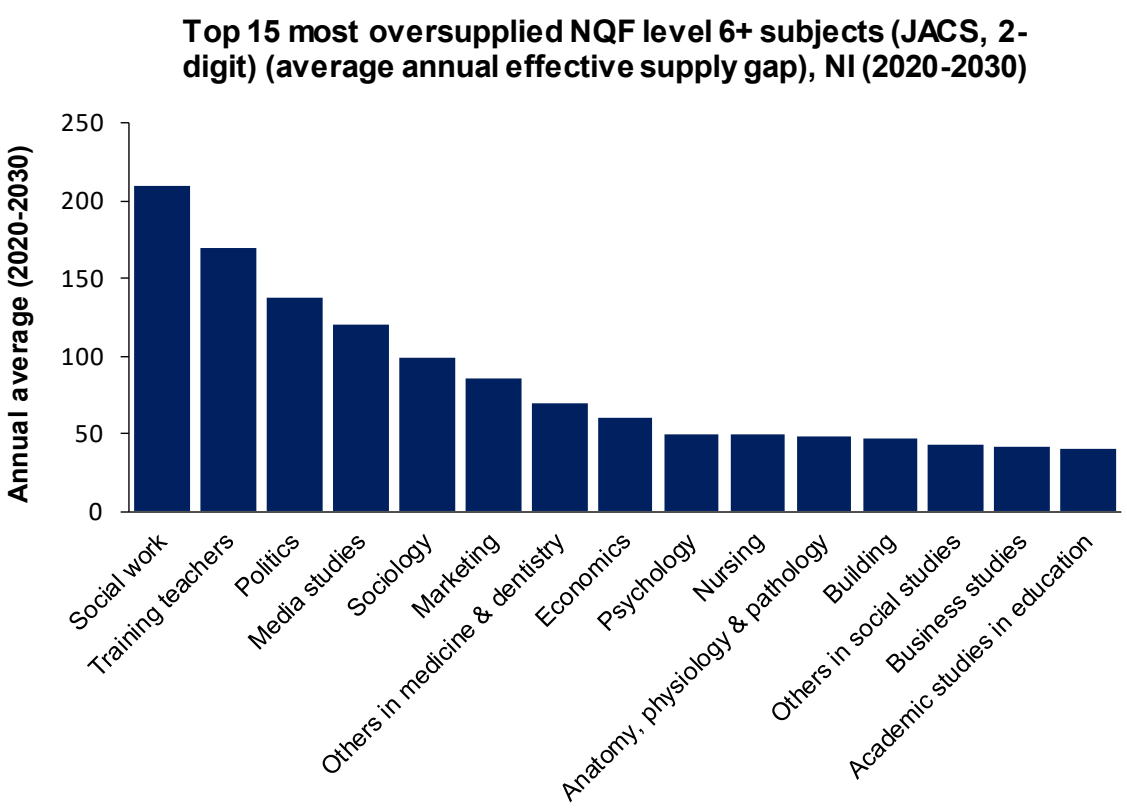
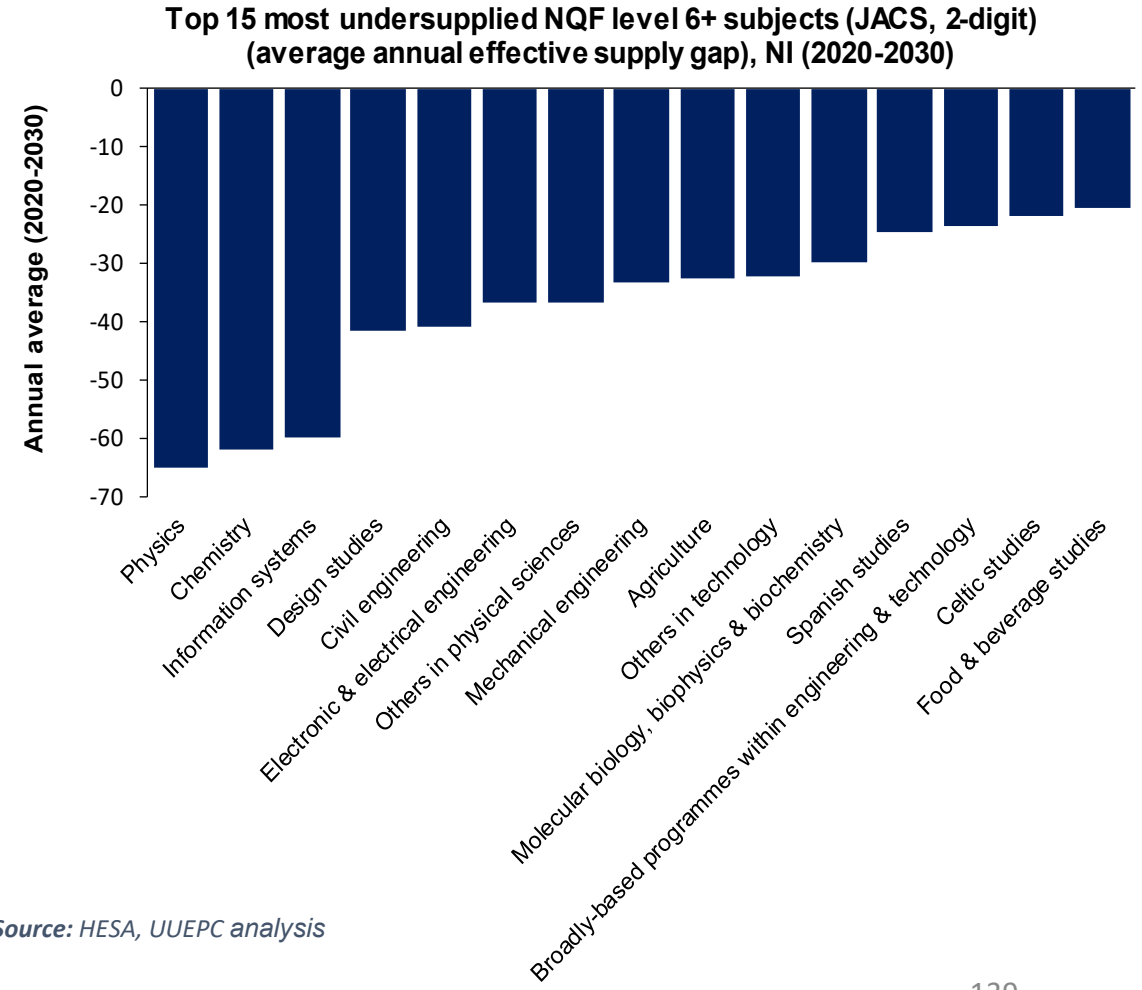
Supply gap by degree subject

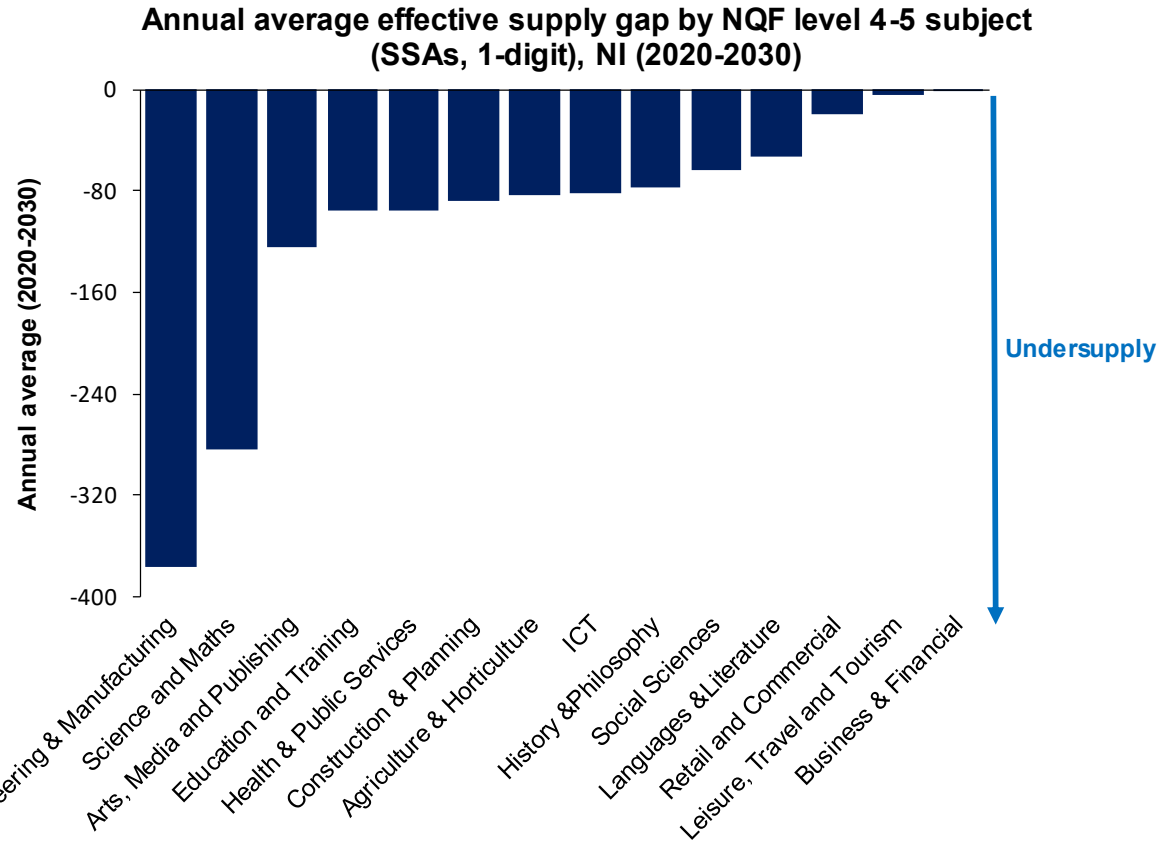


Source: HESA, UUEPC analysis



Source: HESA, UUEPC analysis

Supply gap by sub-degree subject



Source: *UUEPC*

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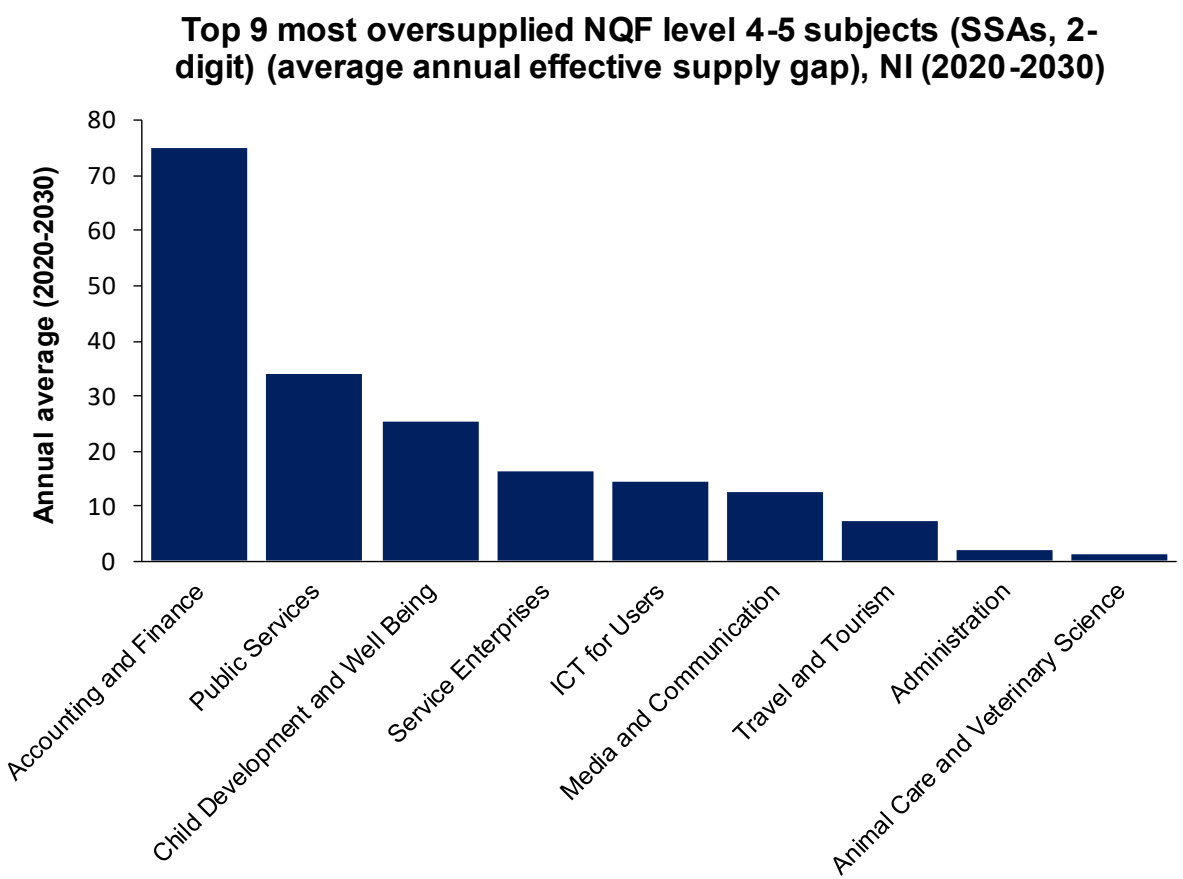
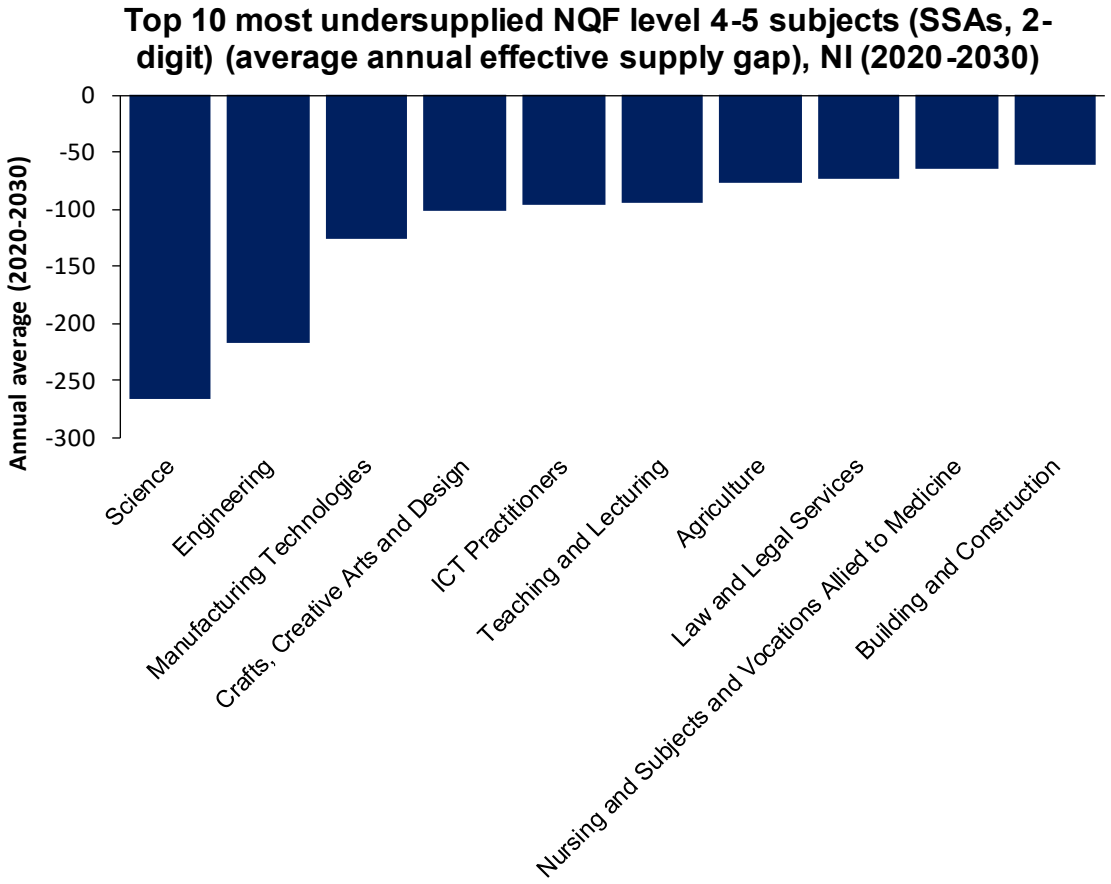
Supply gap by sub-degree subject



Source: *UUEPC*

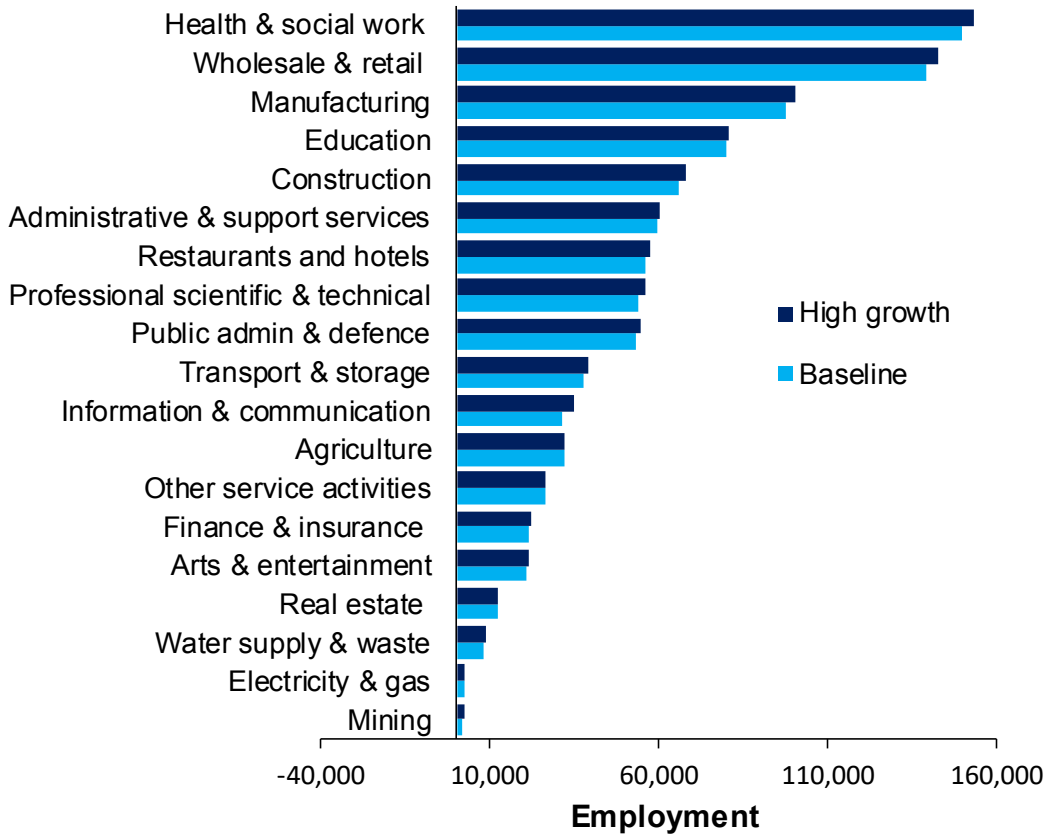


Source: *UUEPC*

Annex A2 - Baseline versus high growth scenario

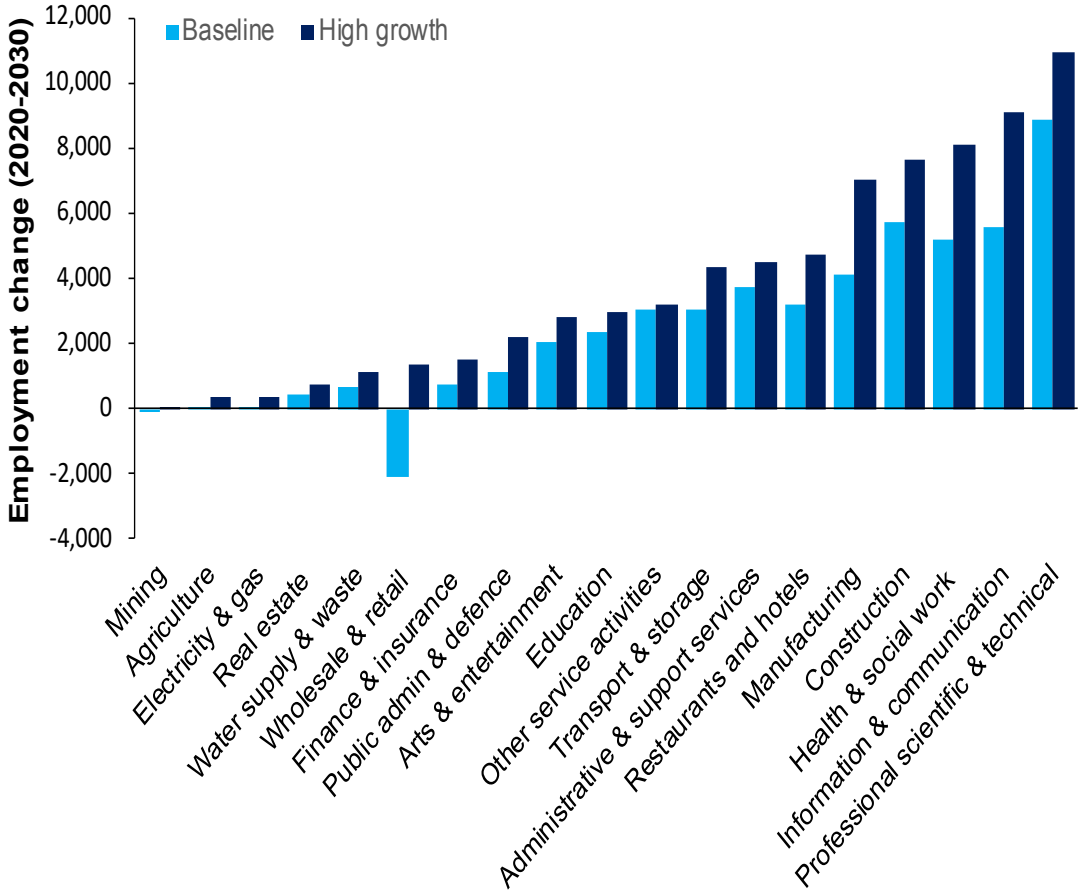
High growth versus baseline

Employment (jobs) by sector (1-digit), high growth scenario versus baseline scenario, NI (2030)



Source: UUEPC

Employment change (jobs) high growth scenario versus baseline scenario, NI (2020-2030)



Source: UUEPC

Components of demand (baseline vs high growth)

Demand category	Baseline (2020-2030)	High growth (2020-2030)
(A) Gross demand	80,610	84,690
(B) Expansion demand	4,620	7,040
(C) Replacement demand	75,990	77,650
(D) Filled from within the existing labour market	55,640	56,030
(E) Net replacement demand	20,350	21,620
(F) Net requirement from education and migration	**24,970**	**28,660**

Source: *UUEPC*

Relationship between rows: *A=B+C, E=C-D, F=E+B*

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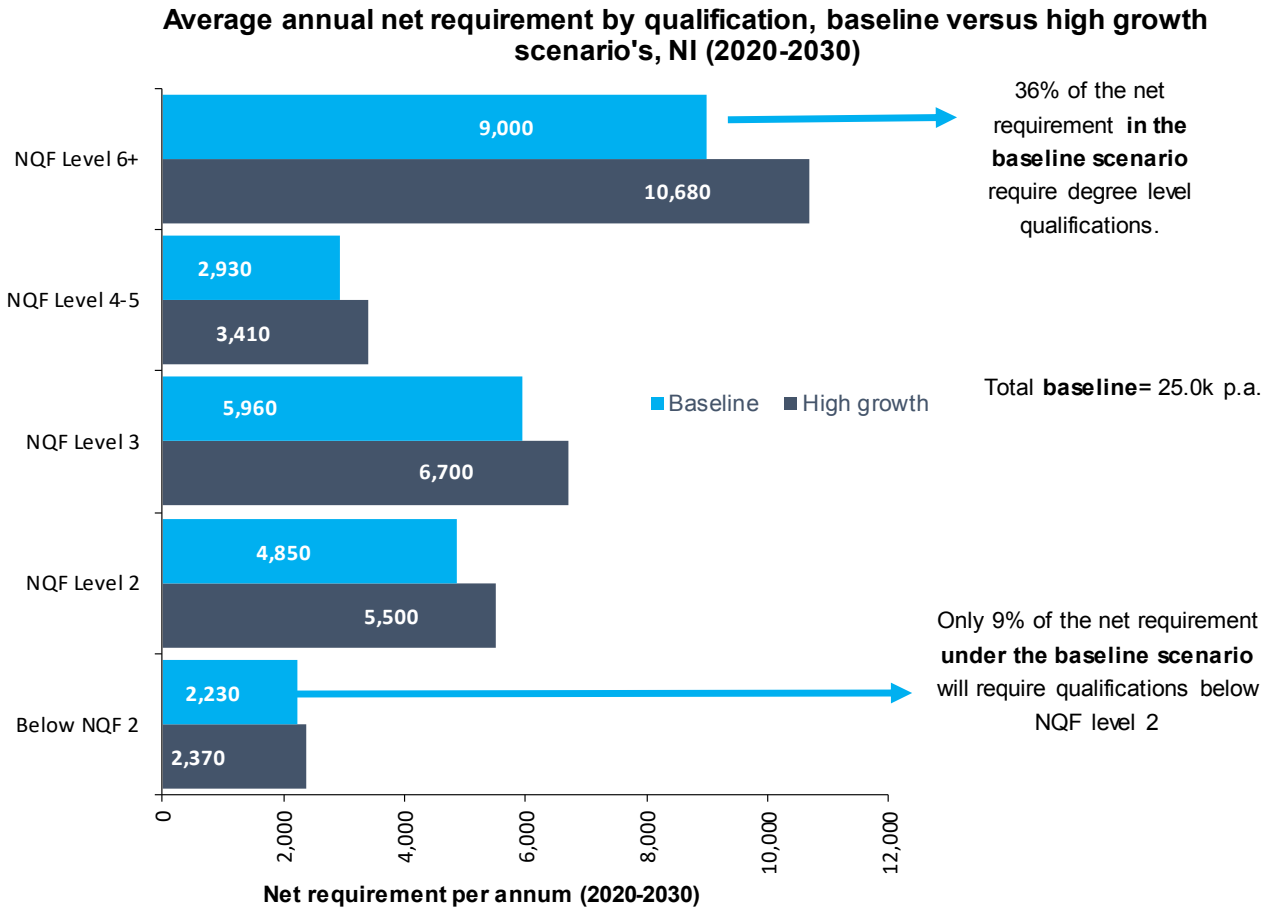
Supply gap by NQF level



36% of the net requirement **in the baseline scenario** require degree level qualifications.

Total **baseline=** 25.0k p.a.

Only 9% of the net requirement **under the baseline scenario** will require qualifications below NQF level 2

Source: *UUEPC*

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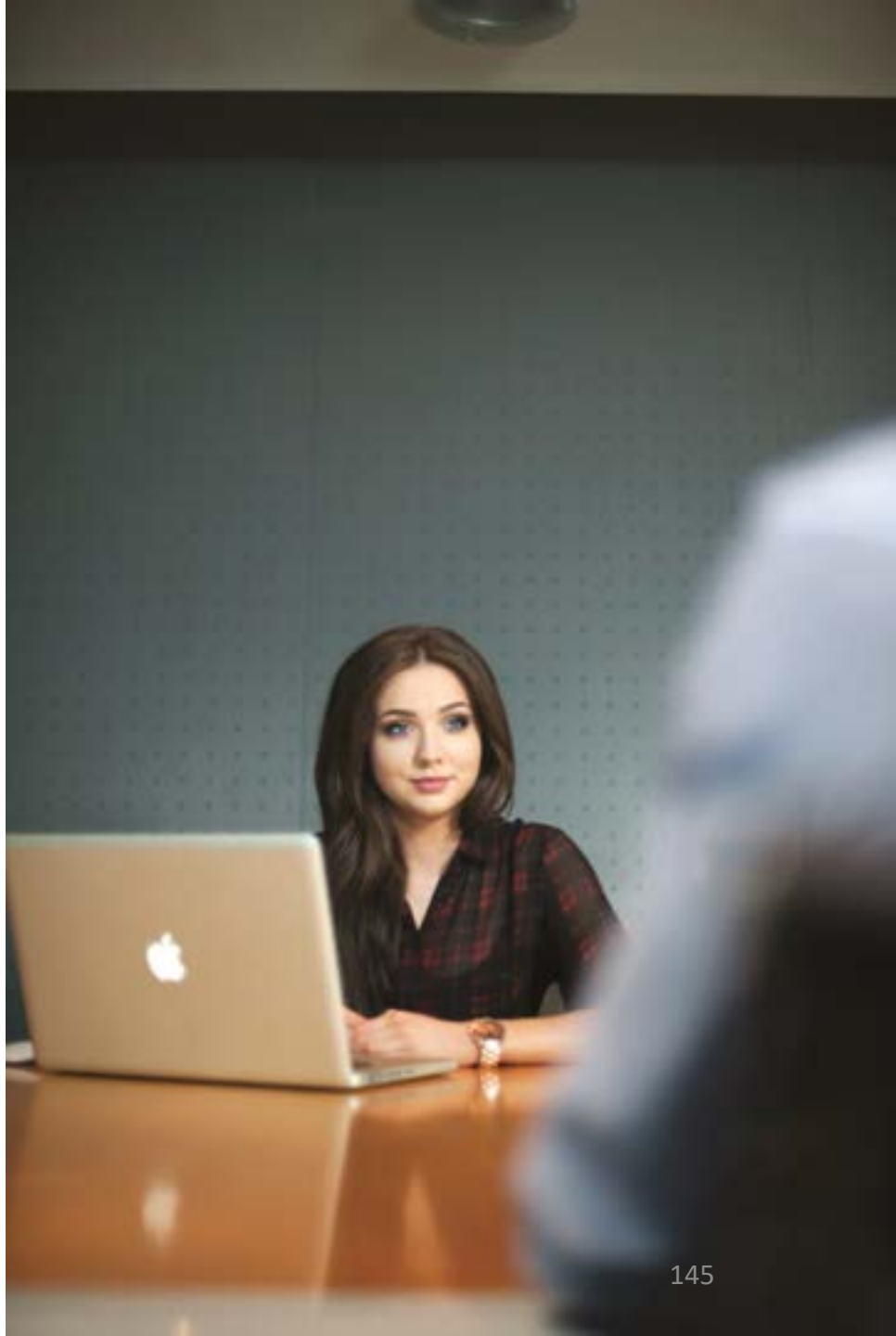
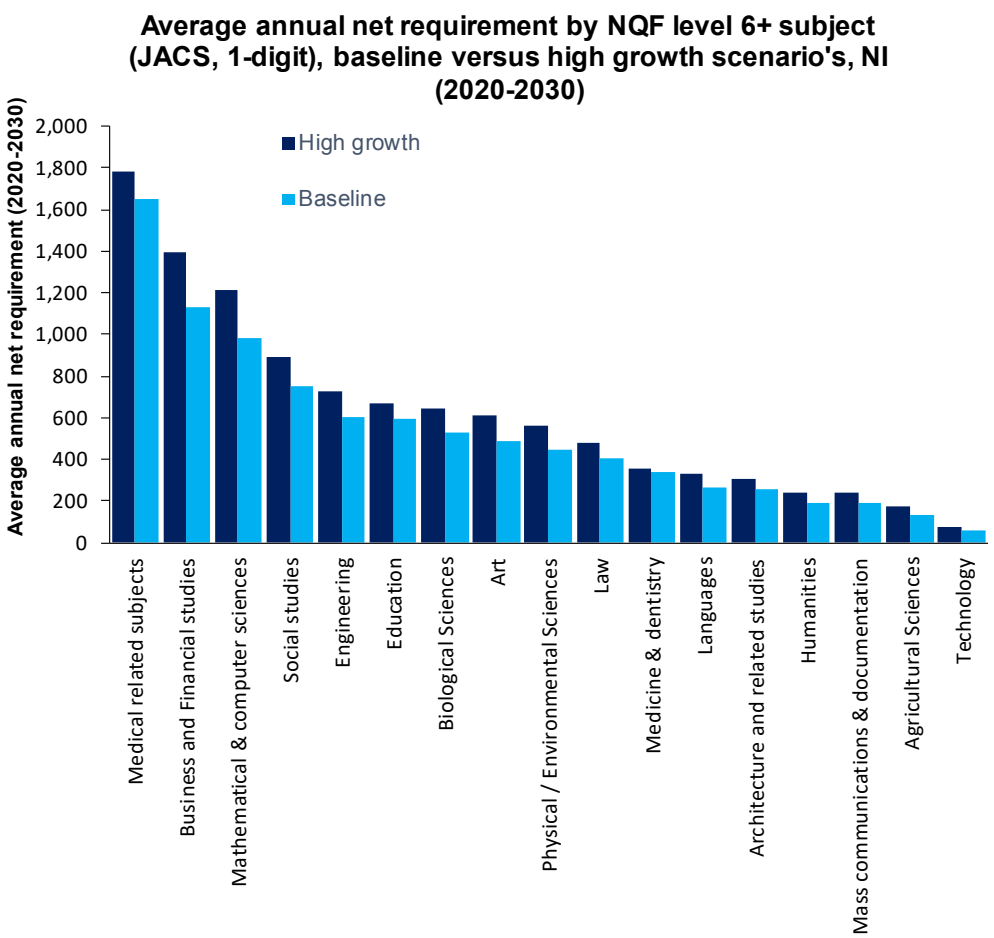
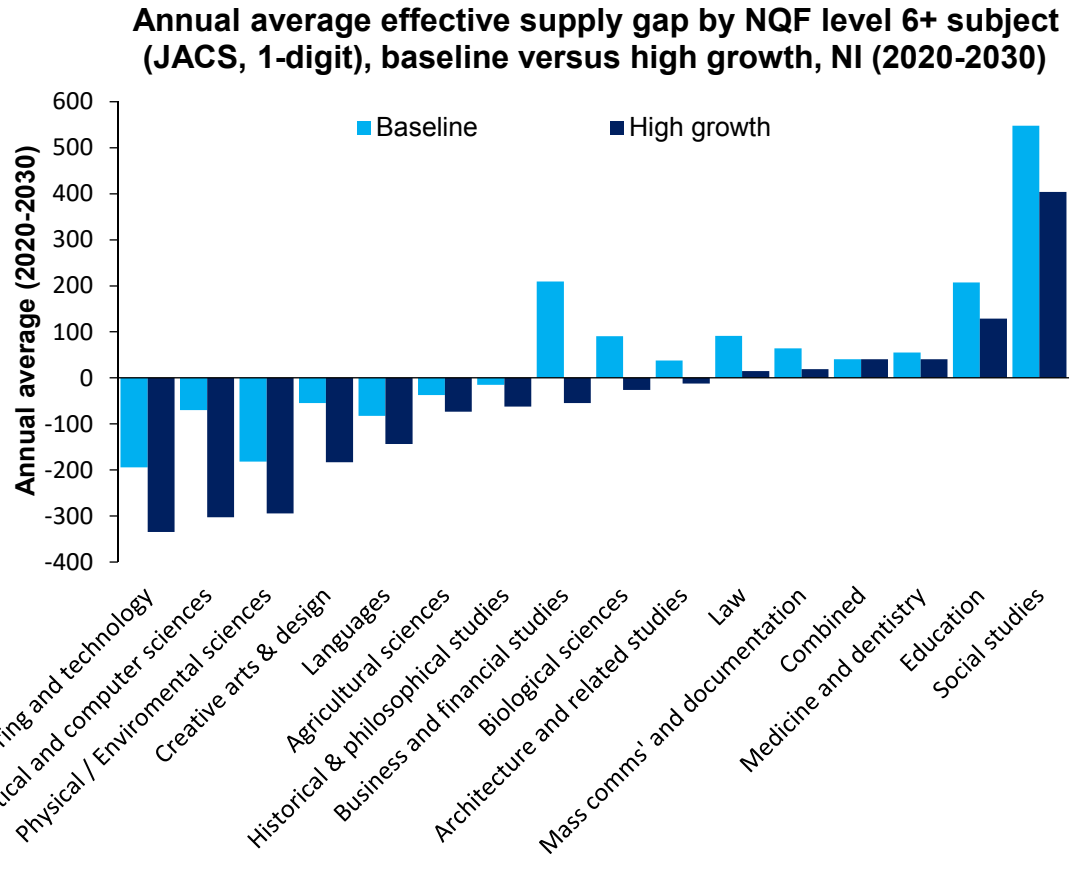


Net requirement and supply gap by degree subject

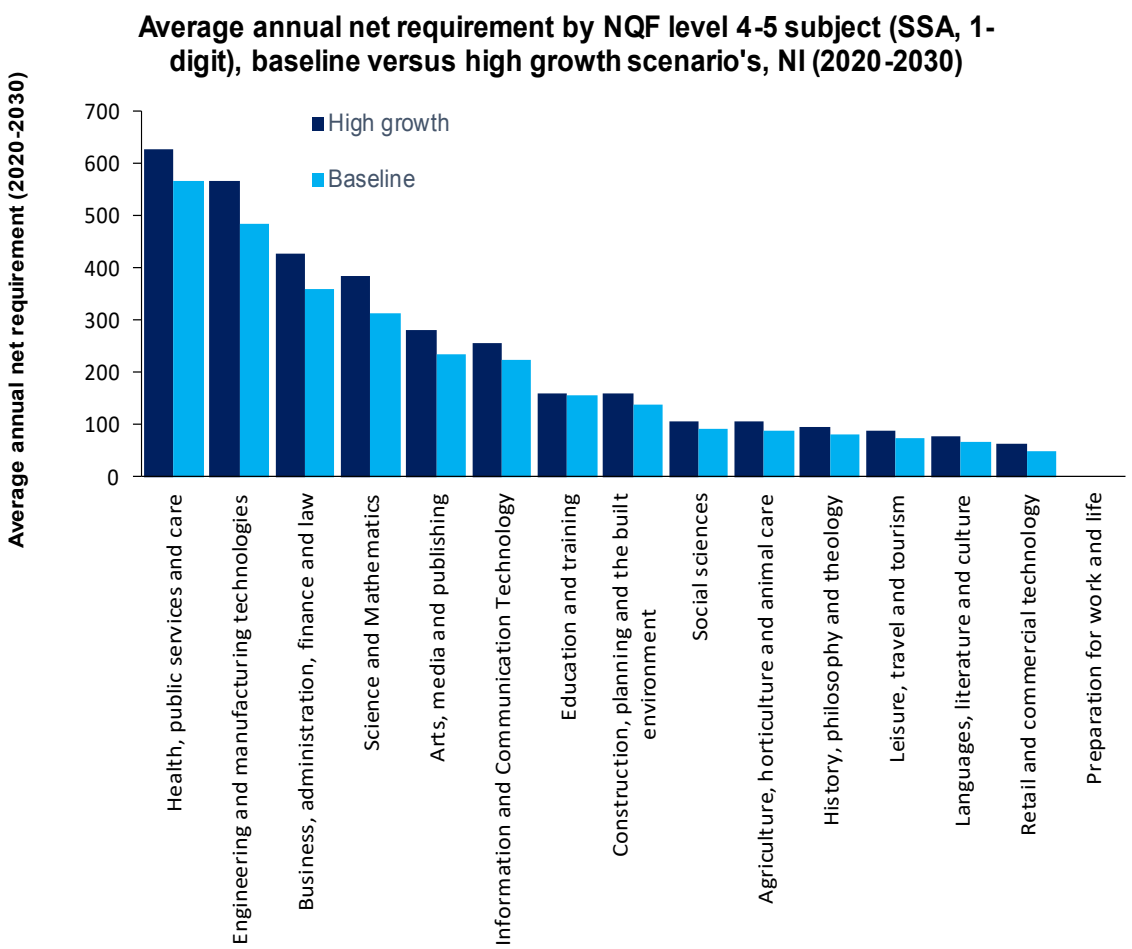


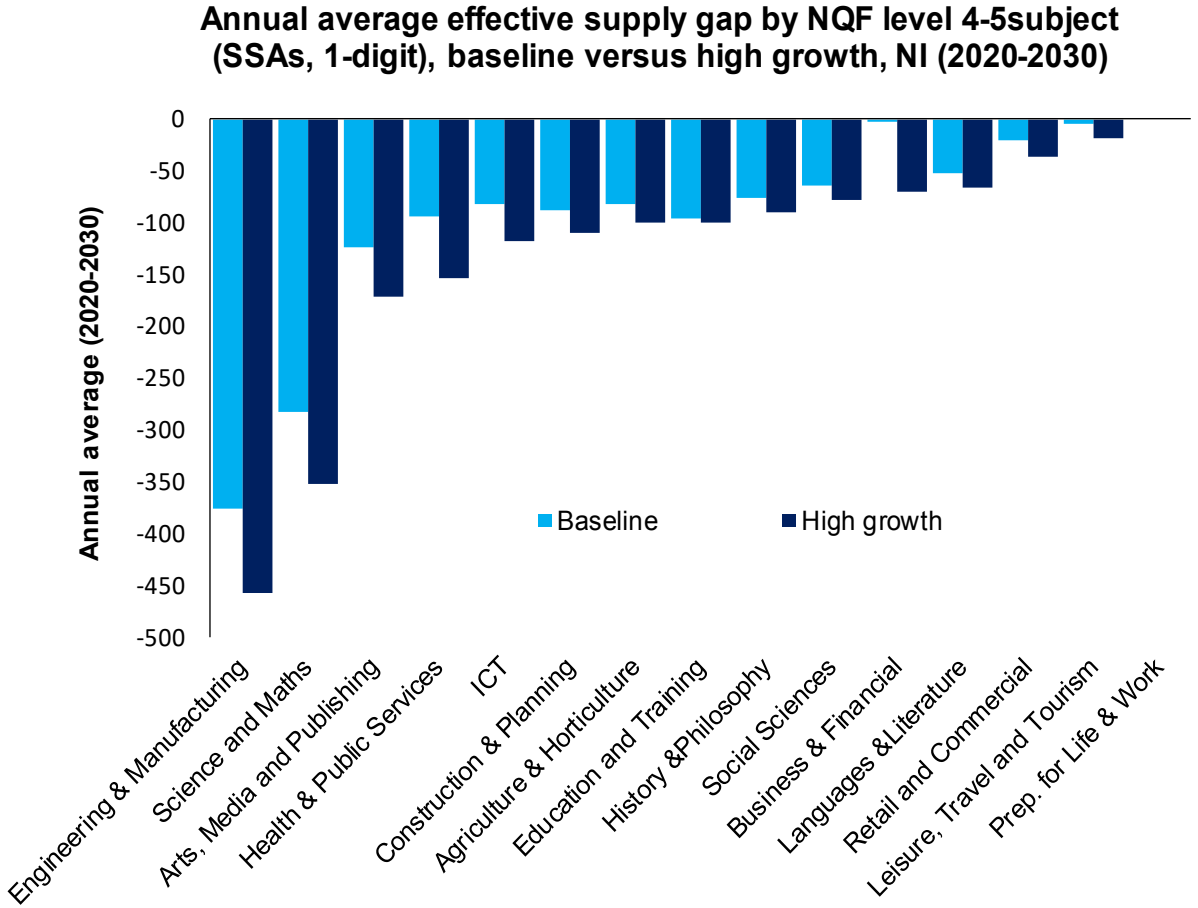
Source: UUEPC



Source: UUEPC

Net requirement and supply gap by sub-degree subject





Source: *UUEPC*

Source: *UUEPC*

Annex A3 – 2019 versus 2021 publication

Differences between publications

Industry	Baseline		
	2018-2028	2020-2030	Difference
Agriculture	-1,110	10	1,120
Mining	-30	-10	20
Manufacturing	5,480	4,080	-1,400
Electricity & gas	-80	80	160
Water supply & waste	180	630	450
Construction	3,910	5,740	1,830
Wholesale & retail	560	-2,100	-2,660
Transport & storage	1,020	3,020	2,000
Restaurants and hotels	3,190	3,220	30
Information & communication	4,430	5,600	1,170
Finance & insurance	730	770	40
Real estate	-90	410	500
Professional scientific & technical	5,470	8,840	3,370
Administrative & support services	5,130	3,750	-1,380
Public admin & defence	-900	1,090	1,990
Education	1,270	2,320	1,050
Health & social work	6,550	5,160	-1,390
Arts & entertainment	1,600	2,030	430
Other service activities	1,830	3,070	1,240
Total	**39,140**	**47,710**	**8,570**

Source: *UUEPC*

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Differences between publications

Industry	High growth		
	2018-2028	2020-2030	Difference
Agriculture	-250	360	610
Mining	-30	70	100
Manufacturing	10,430	7,030	-3,400
Electricity & gas	100	360	260
Water supply & waste	350	1,090	740
Construction	6,630	7,640	1,010
Wholesale & retail	2,410	1,330	-1,080
Transport & storage	2,010	4,360	2,350
Restaurants and hotels	6,660	4,730	-1,930
Information & communication	11,360	9,090	-2,270
Finance & insurance	4,350	1,510	-2,840
Real estate	260	730	470
Professional scientific & technical	11,780	10,910	-870
Administrative & support services	8,230	4,490	-3,740
Public admin & defence	590	2,200	1,610
Education	3,290	2,960	-330
Health & social work	11,320	8,130	-3,190
Arts & entertainment	3,080	2,840	-240
Other service activities	2,820	3,220	400
Total	**85,390**	**73,050**	**-12,340**

Source: *UUEPC*

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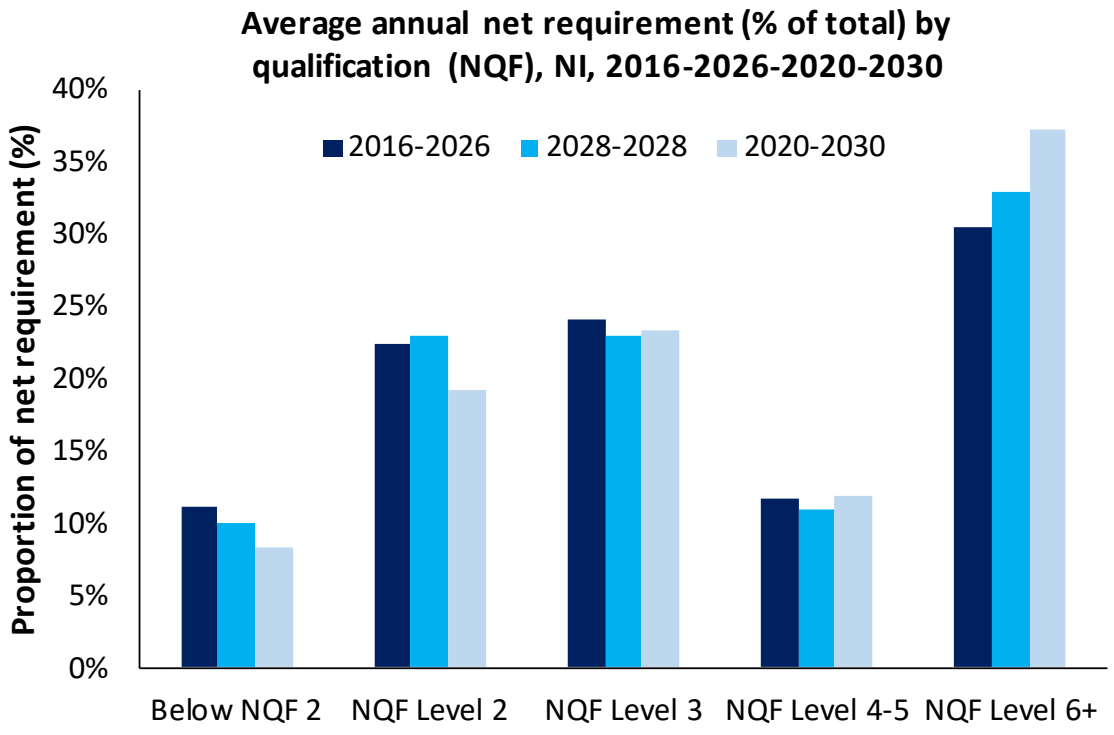
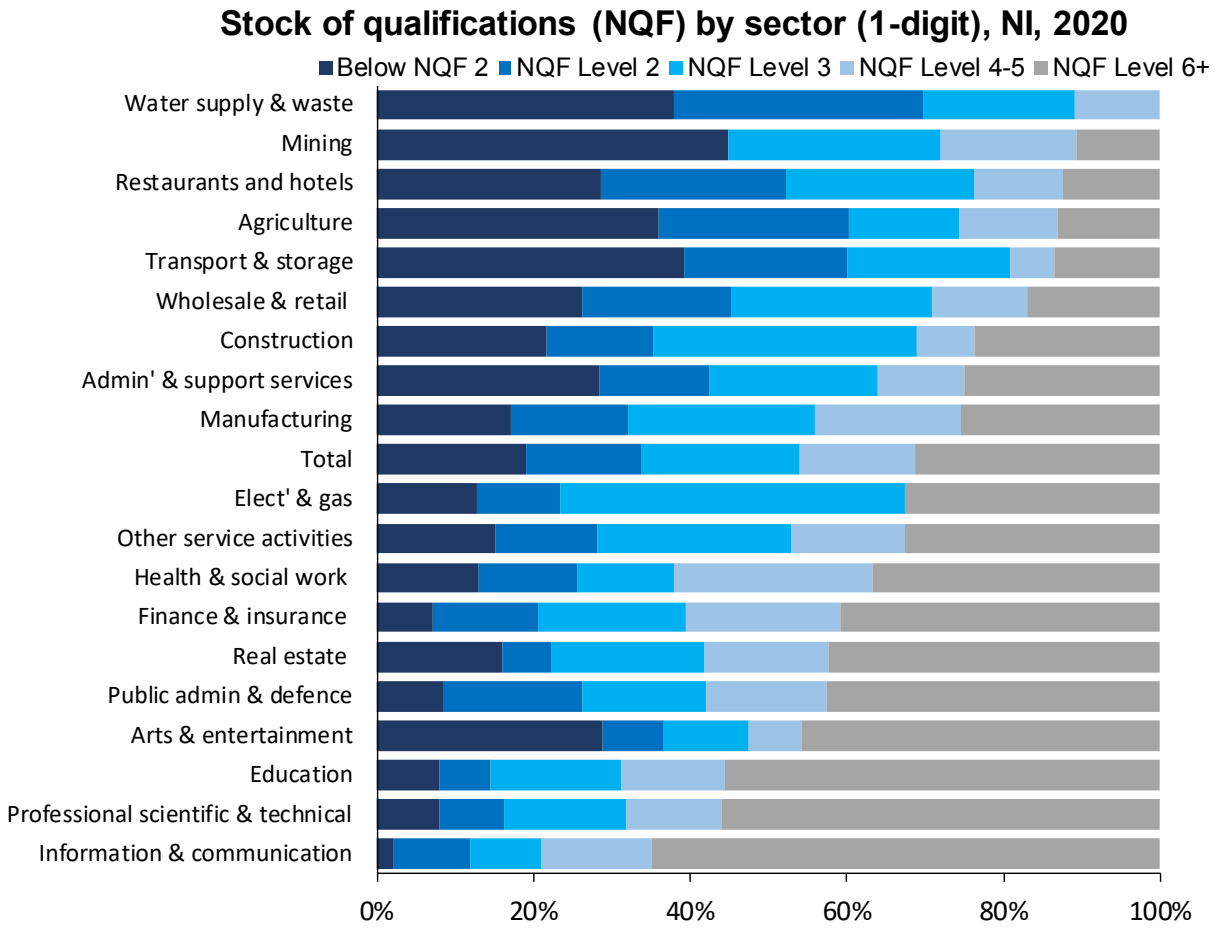
Proportion of net requirement for higher level qualifiers increasing



Source: *UUEPC*

Annex B1 – current skills mix by sector

Current skills mix by sector



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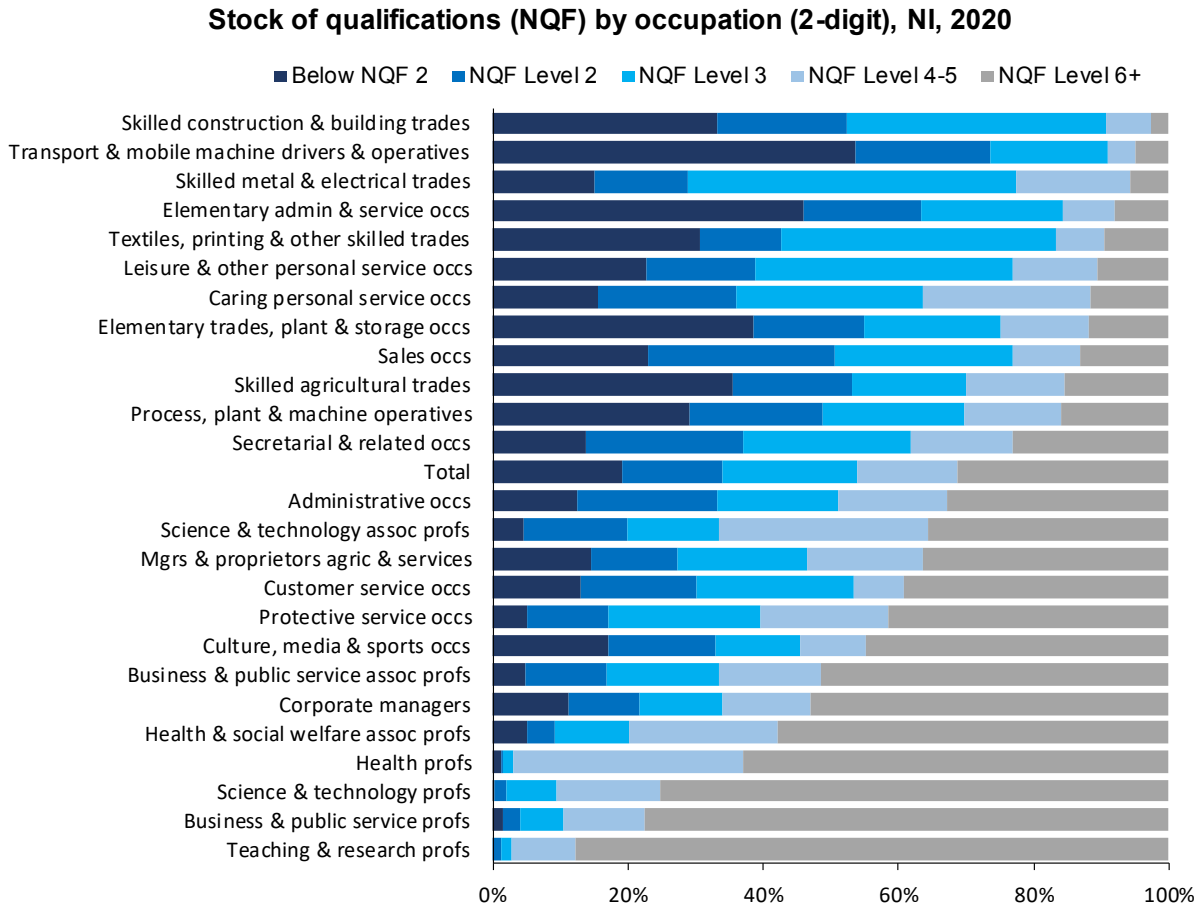
Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Current skills mix by occupation



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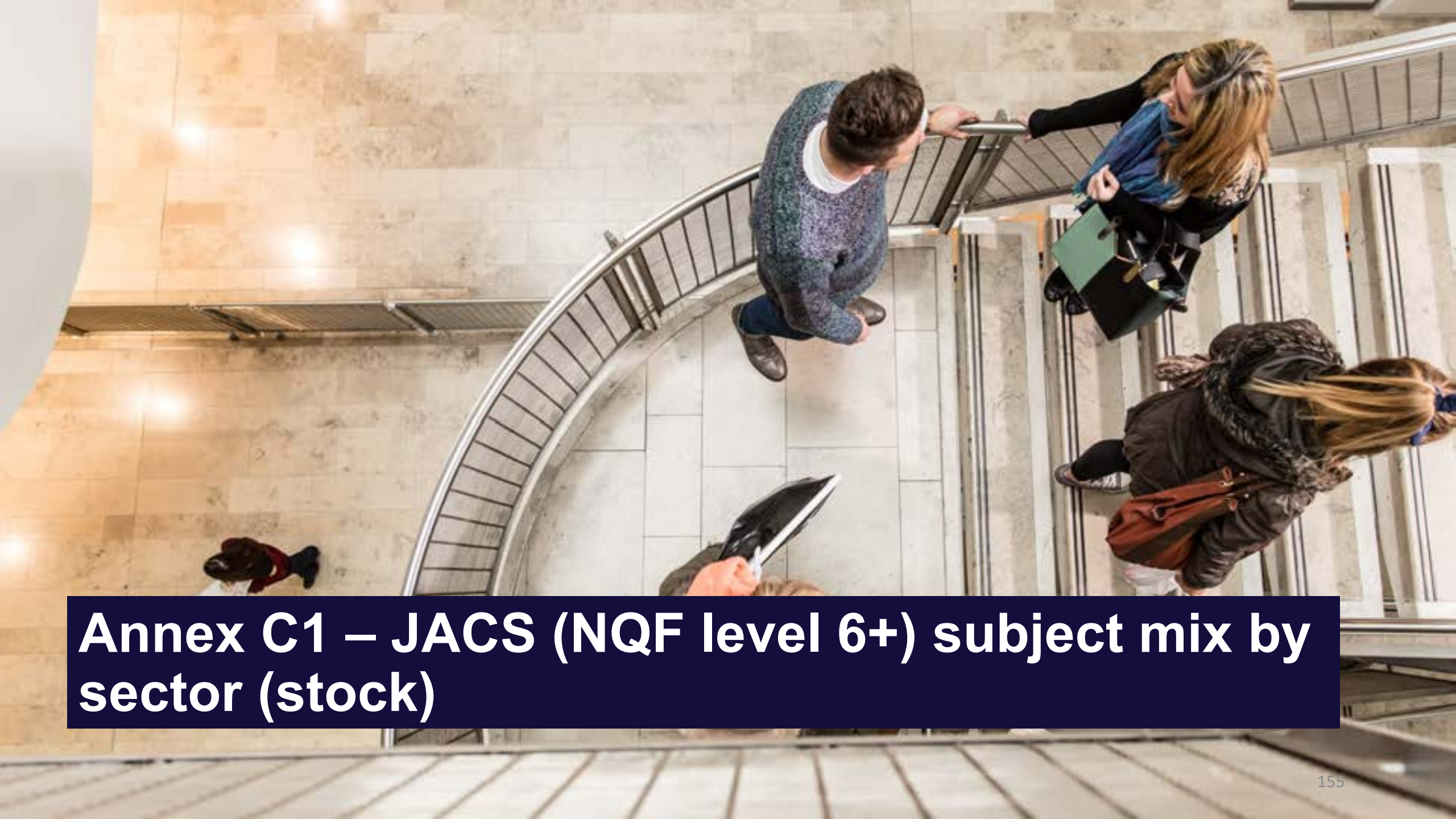
Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*



Annex C1 – JACS (NQF level 6+) subject mix by sector (stock)

Subject mix (stock) by sector

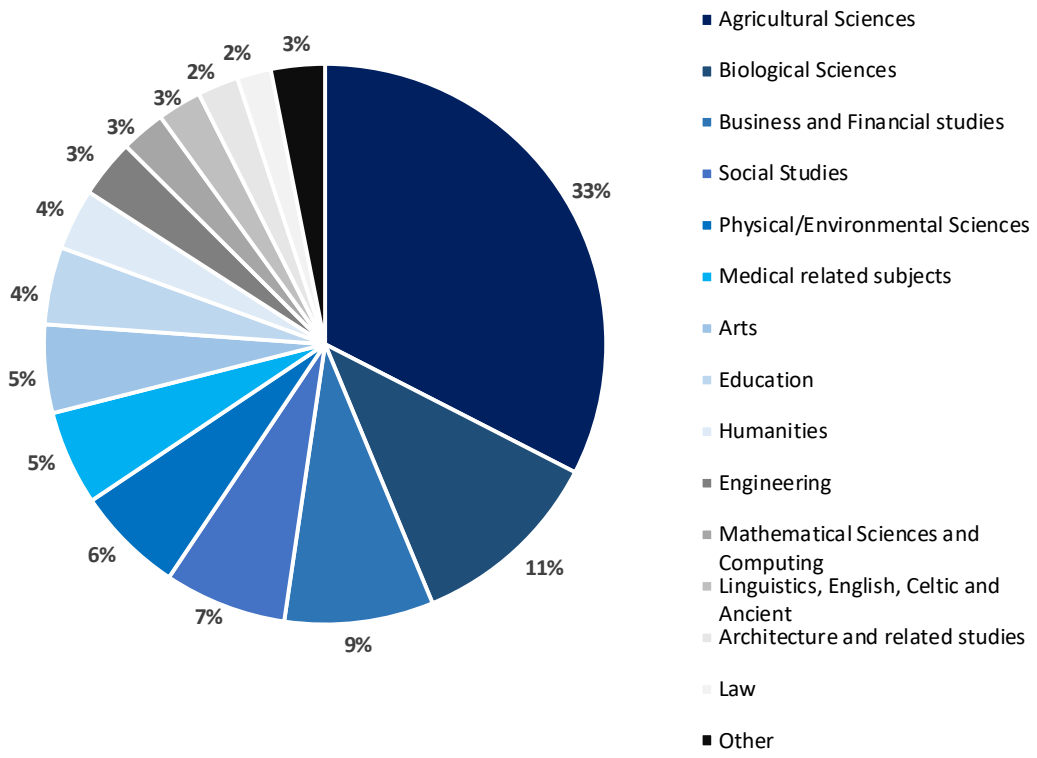
The following charts provide an overview of the mix of subjects studied at NQF level 6+ (or equivalent) recruited into each sector (1-digit). This mix is used to inform the demand for NQF level 6+ subjects across the economy.

It is evident there is a strong link between some degree subjects and industry sectors. For example, medical related subjects is the largest degree subject within the health and social work sector, agricultural sciences is the largest degree subject within the agriculture sector and education is the largest degree subject in the education sector etc.

However, there are some degree subjects that are highly represented among a number of sectors. For example, business and finance degrees account for a significant proportion of wholesale and retail, transport and storage, finance and insurance, real estate sector etc. This pattern creates a high demand for skills acquired within these degree subjects across the economy.

Degree subject mix by sector (1)

Agriculture - subject mix (NQF level 6+), NI (2020)

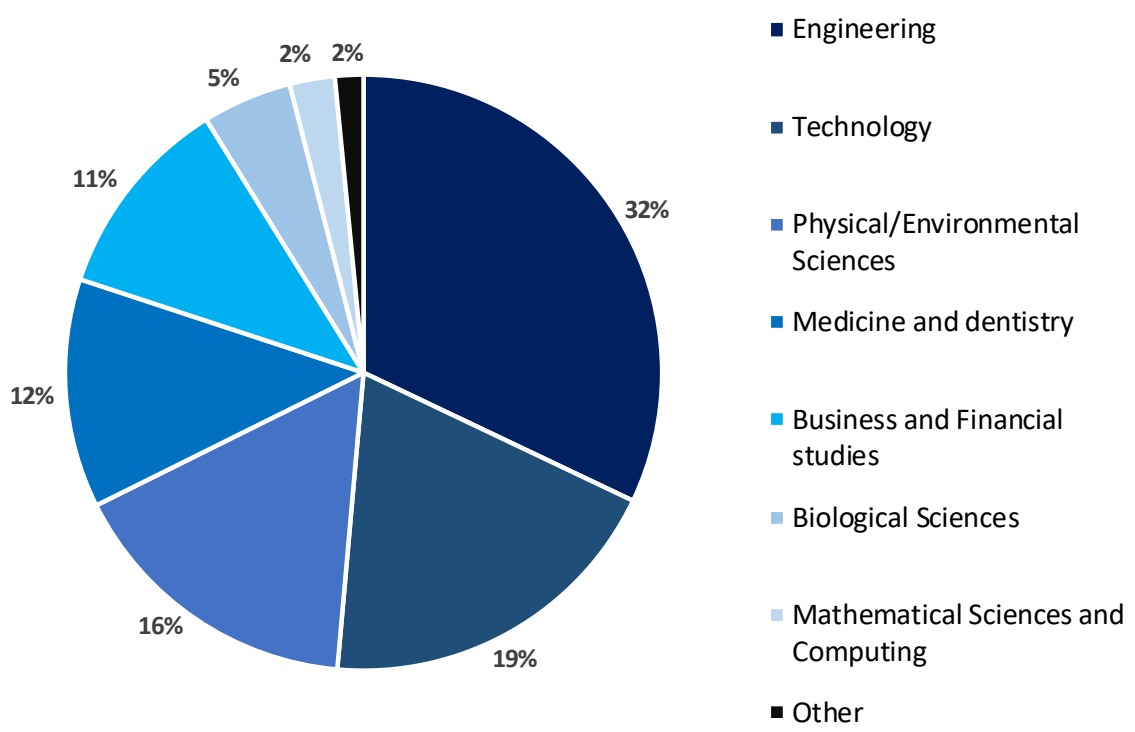


Note: *Other includes; European languages, Mass communications and documentation, Medicine and dentistry, Technology and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Mining - subject mix (NQF level 6+), NI (2020)



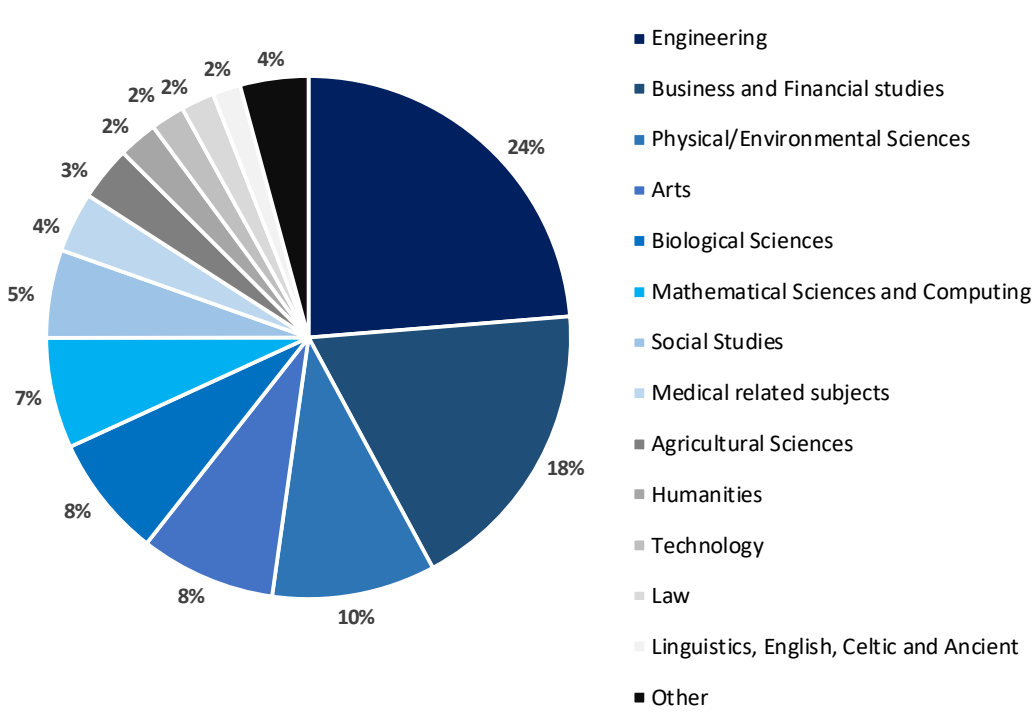
Note: *Other includes, Humanities, Social Studies, Law, Education, Linguistics, English, Celtic and Ancient, Architecture and related studies, Medical related subjects, Arts, European languages, Agricultural Sciences and Mass communications and documentation.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (2)

Manufacturing - subject mix (NQF level 6+), NI (2020)

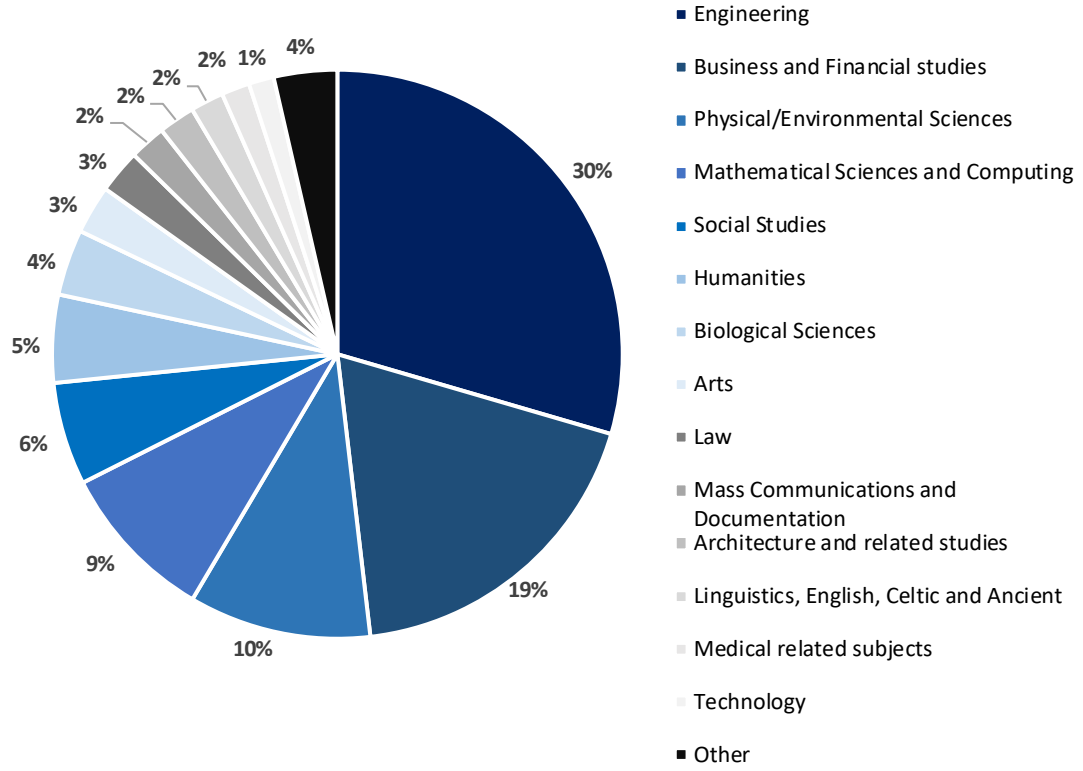


Note: *Other includes, Education, Mass communications and documentation, Architecture and related studies, European Languages, Medicine and dentistry and Eastern, Asiatic, African American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Electricity and gas - subject mix (NQF level 6+), NI (2020)



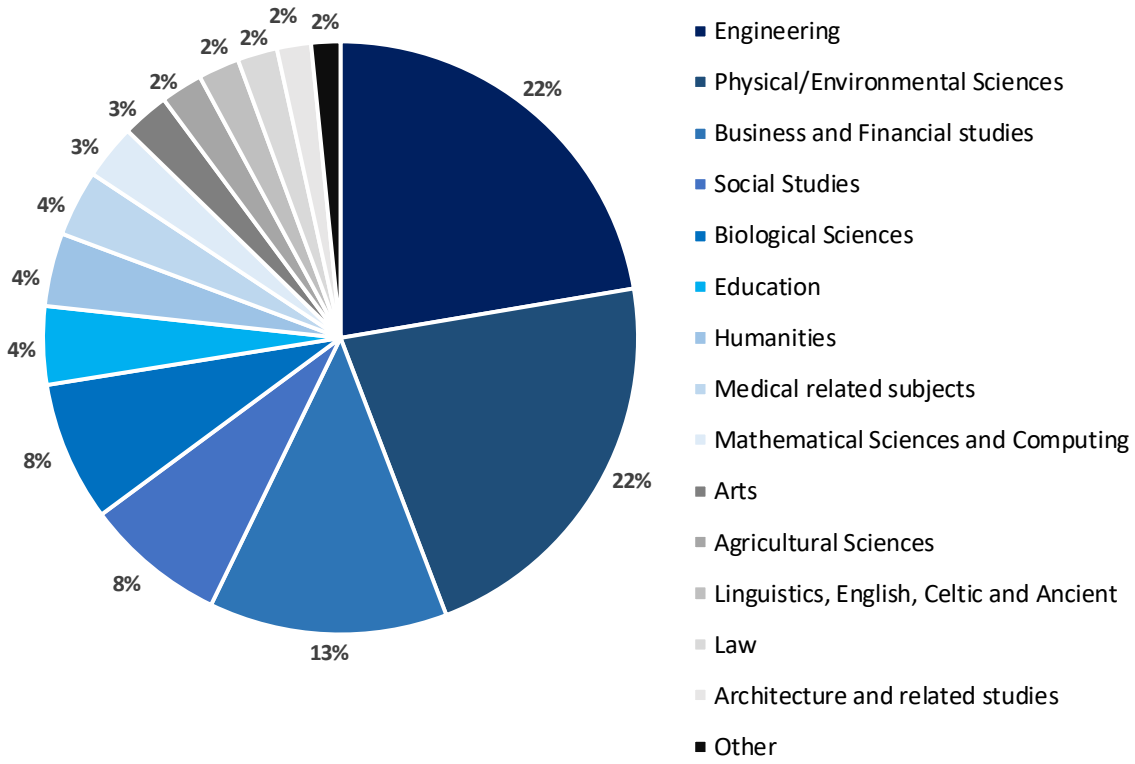
Note: *Other includes; Technology, Education , Agricultural Sciences, European Languages and Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (3)

Water supply and waste - subject mix (NQF level 6+), NI (2020)

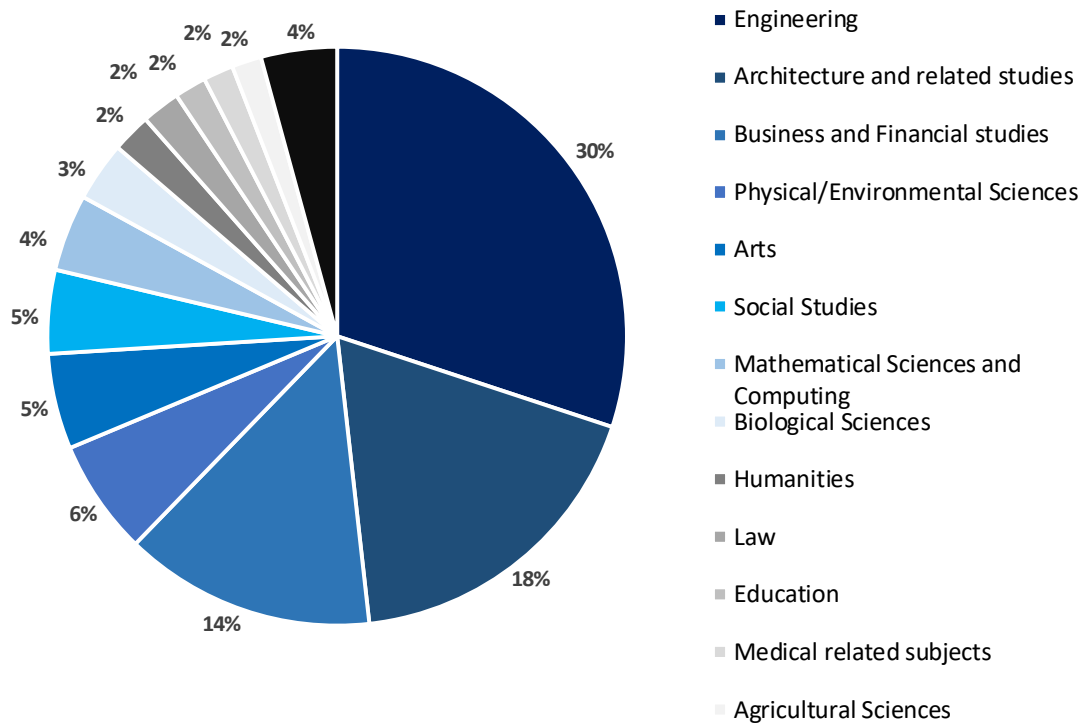


Note: *Other includes; Technology, Mass communications and documentation, European languages, Eastern, Asiatic, African, American and Australasian Languages and Literature, Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Construction subject mix (NQF level 6+), NI (2020)



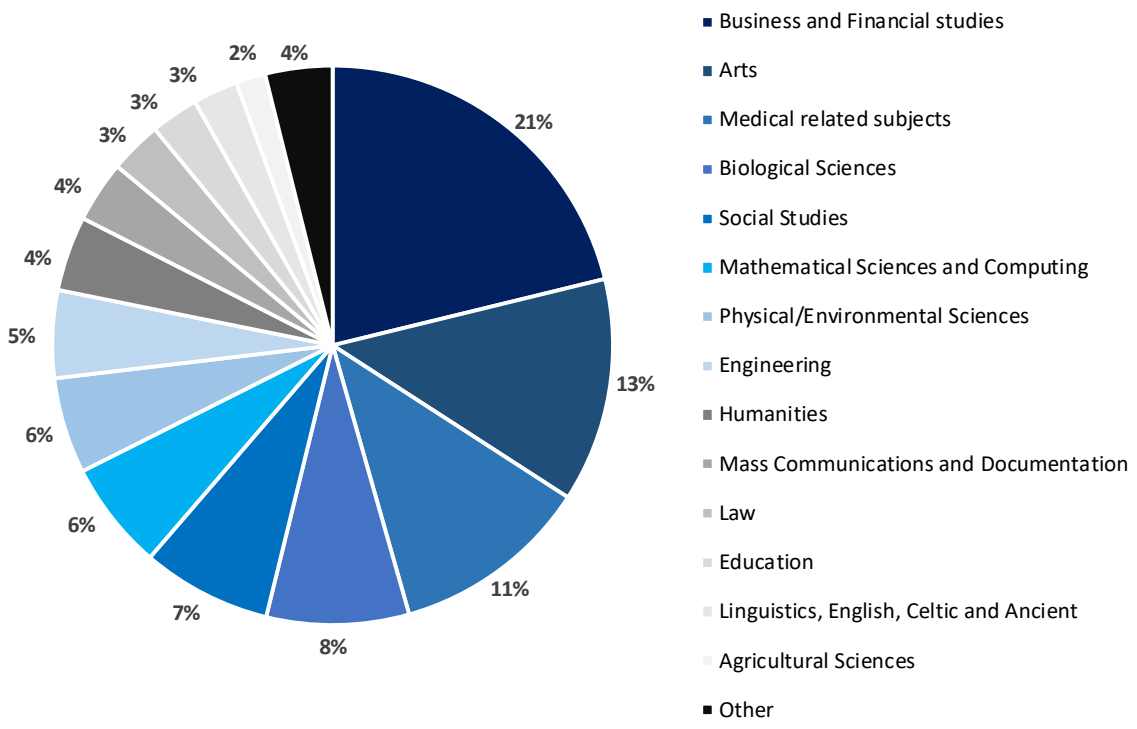
Note: *Other includes; Linguistics, English, Celtic and Ancient, Technology, Mass communications and documentation, European Languages, Medicine and dentistry and Eastern, Asiatic, African, American, and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (4)

Wholesale and retail - subject mix (NQF level 6+), NI (2020)

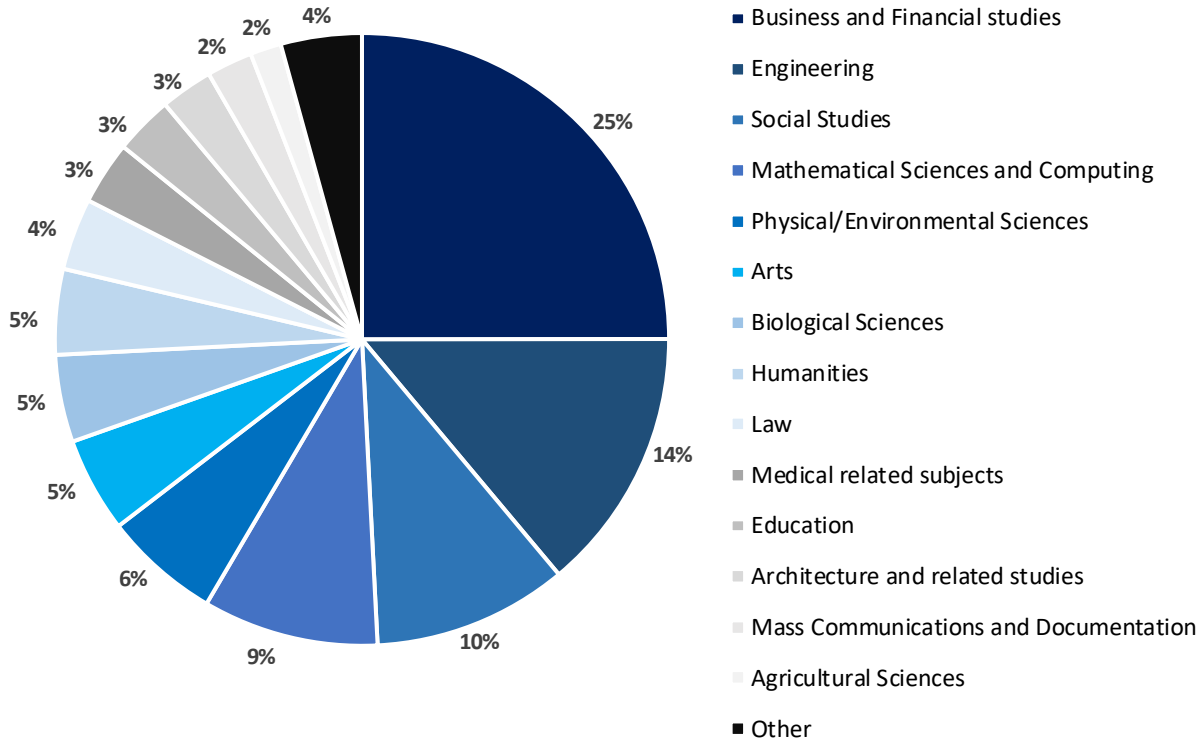


Note: *Other includes; Technology, Architecture and related studies, European Languages, Medicine and dentistry and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Transport and storage- subject mix (NQF level 6+), NI (2020)



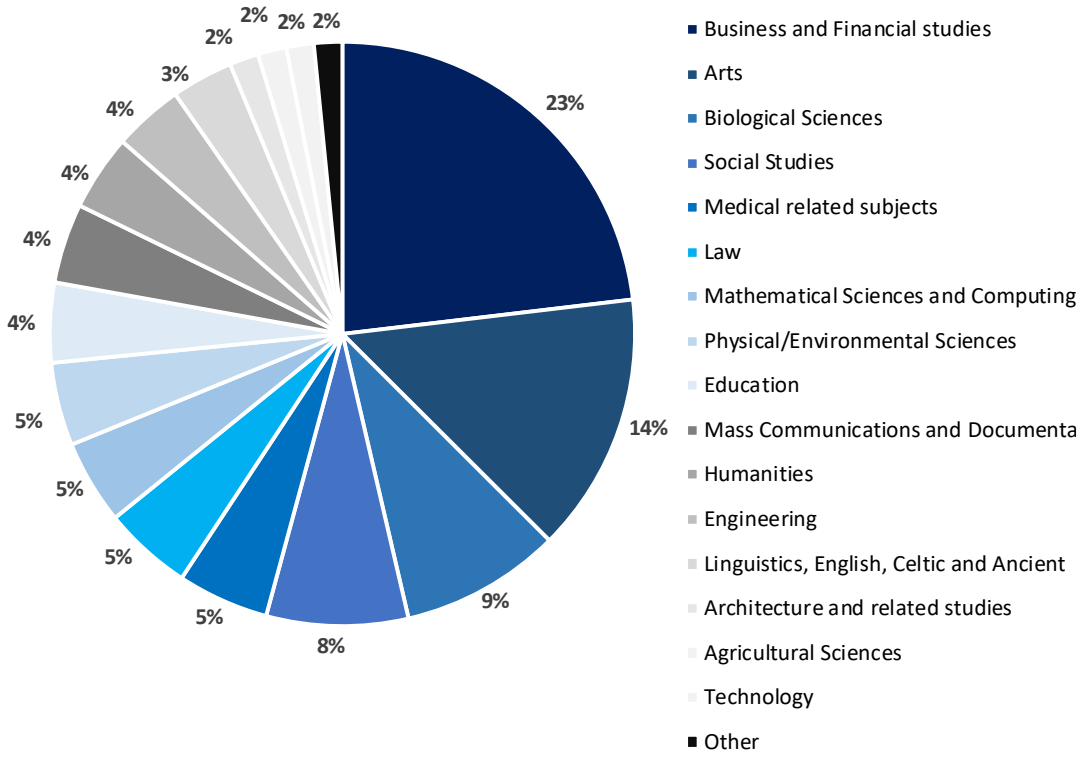
Note: *Other includes; Linguistics, English, Celtic and Ancient, Technology, European Languages, Eastern, Asiatic, African, American, and Australasian Languages and Literature and Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*

Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (5)

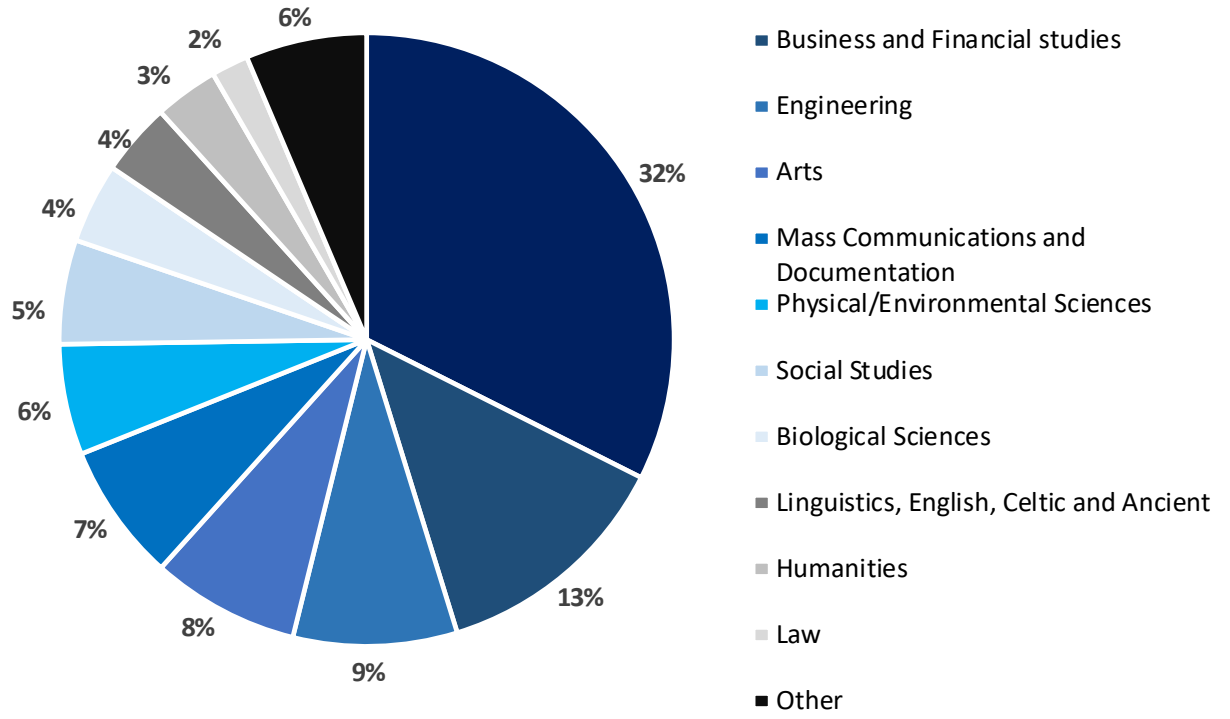
Restaurants and hotels - subject mix (NQF level 6+), NI (2020)



Note: *Other includes; European Languages, Eastern, Asiatic, African, American and Australasian Languages and Linguistics and Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Information and communication, subject mix, (NQF level 6+), NI (2020)

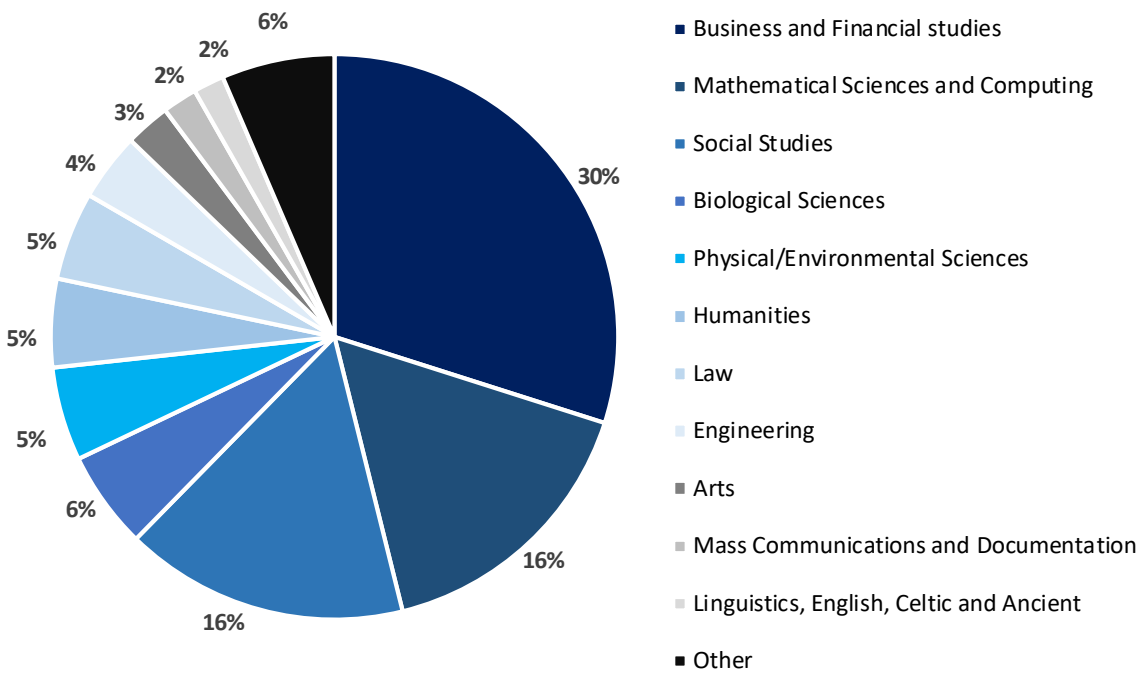


Note: *Other includes; Education, Medical related subjects, Technology, European Languages, Architecture and related studies, Agricultural Sciences, Medicine and dentistry and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (6)

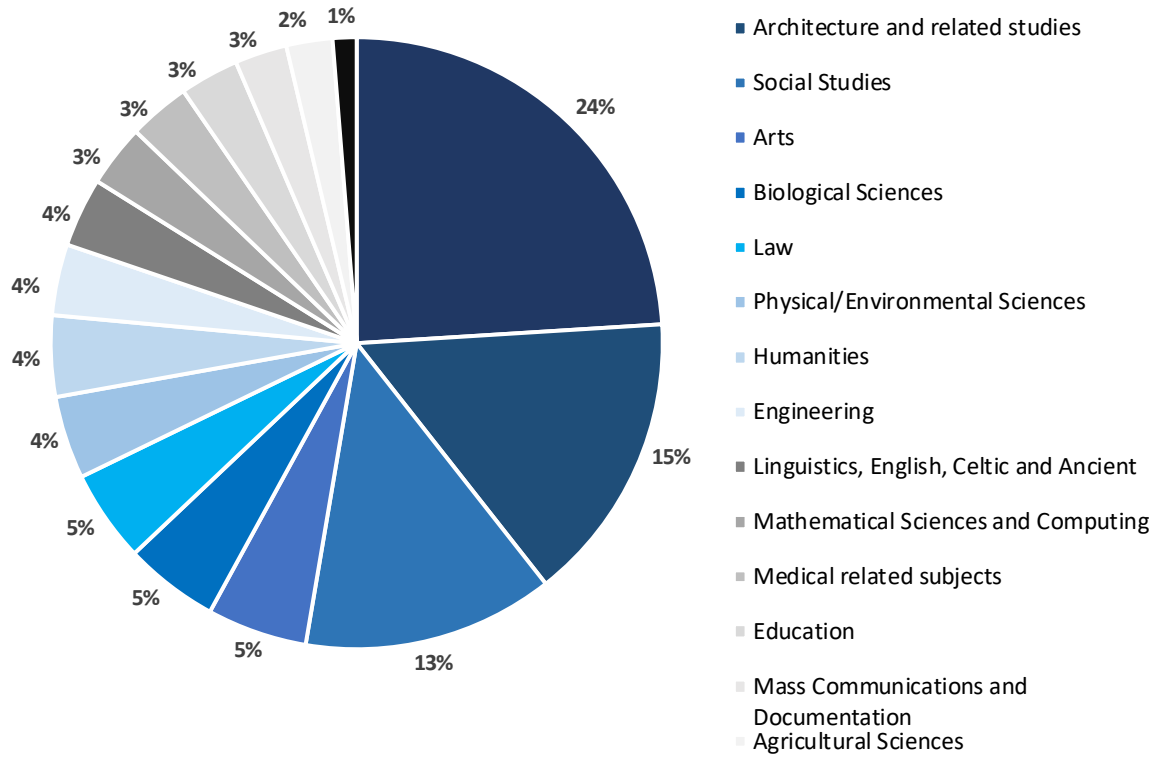
Finance and insurance , subject mix, (NQF level 6+), NI (2020)



Note: *Other includes; European Languages, Medical related subjects, Education, Architecture and related studies, Technology, Agricultural Sciences, Eastern, Asiatic, African, American and Australasian Languages and Literature, Medicine and Dentistry.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Real estate, subject mix, (NQF level 6+), NI (2020)

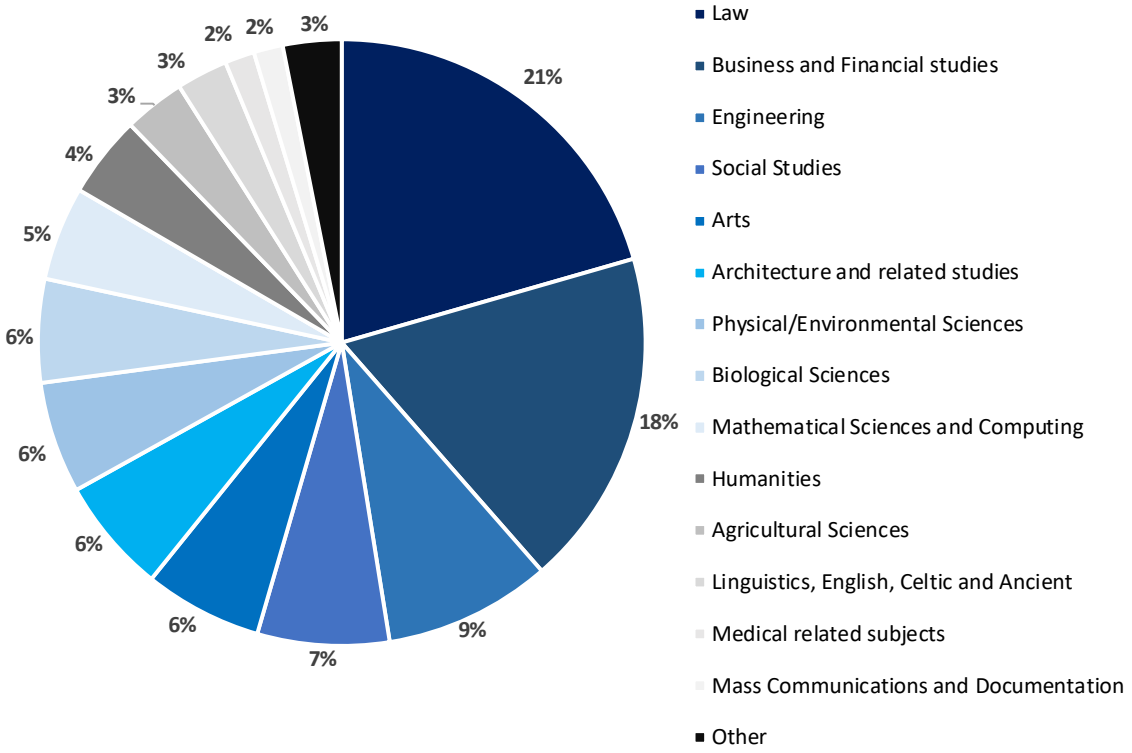


Note: *Other includes; European Languages, Technology, Eastern, Asiatic, African, American and Australasian Languages and Literature and Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (7)

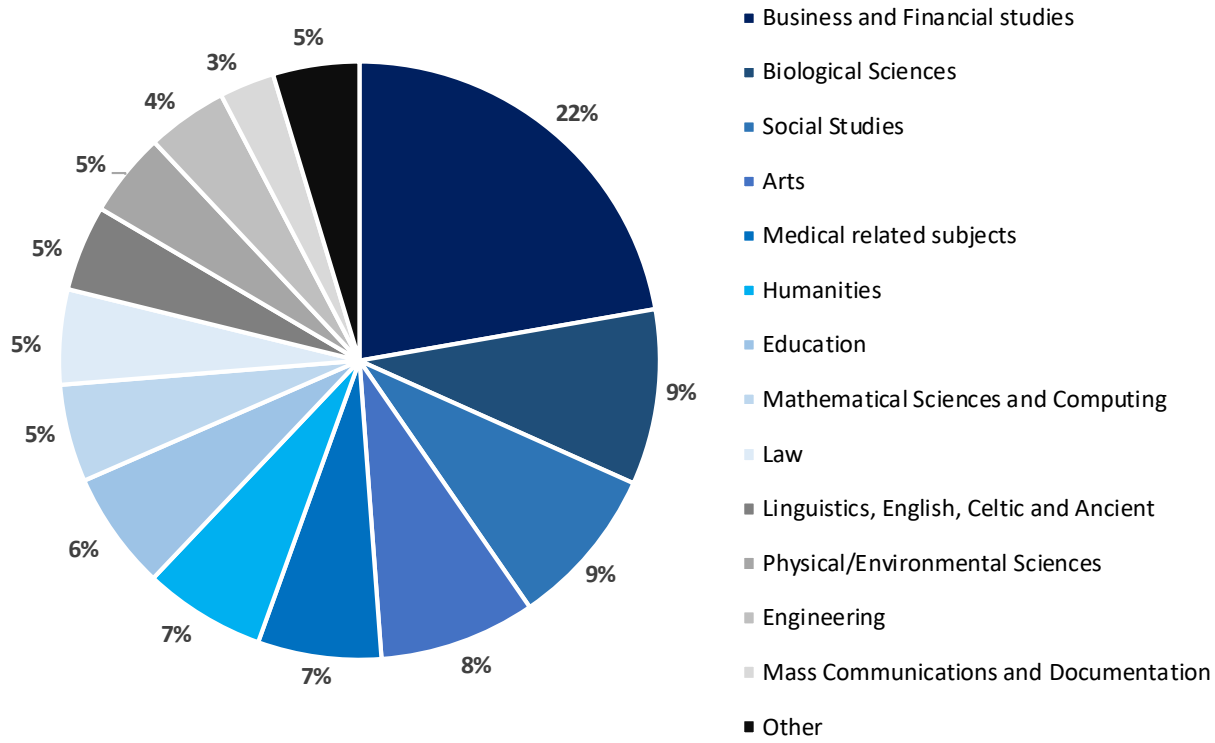
Professional scientific and technical - subject mix, (NQF level 6+), NI (2020)



Note: *Other includes; Education, European Languages, Technology, Medicine and Dentistry, Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Administration and support- subject mix, (NQF level 6+), NI (2020)

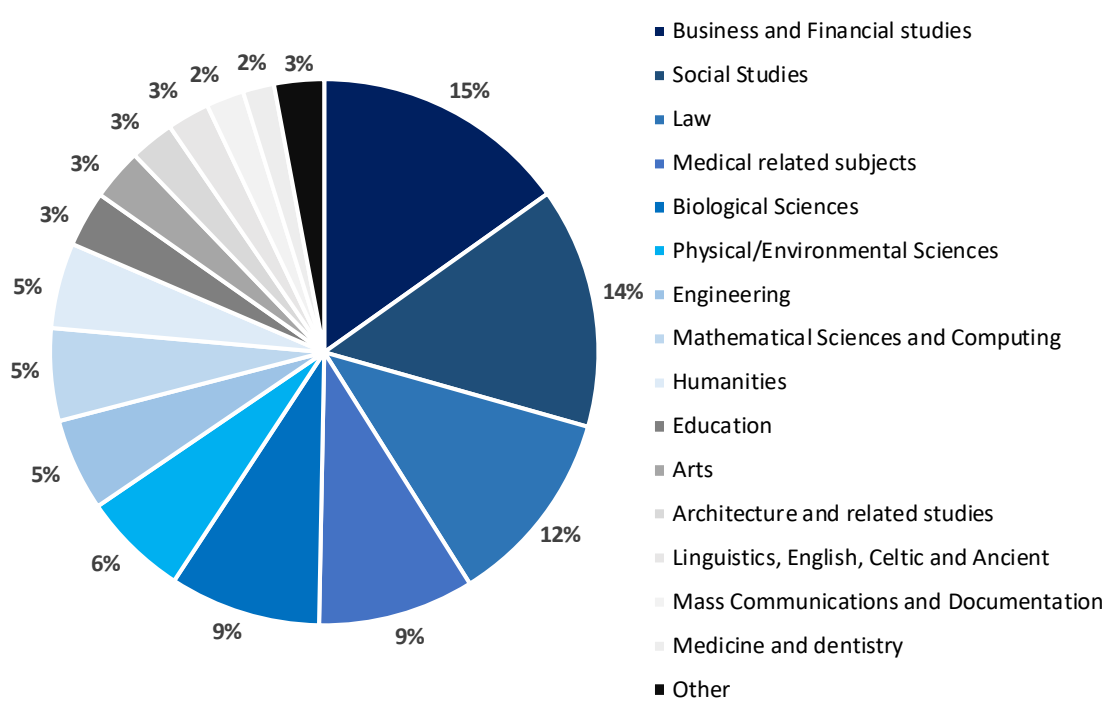


Note: *Other includes; Architecture and related studies, Agricultural Sciences, European Languages, Technology, Medicine and dentistry and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (8)

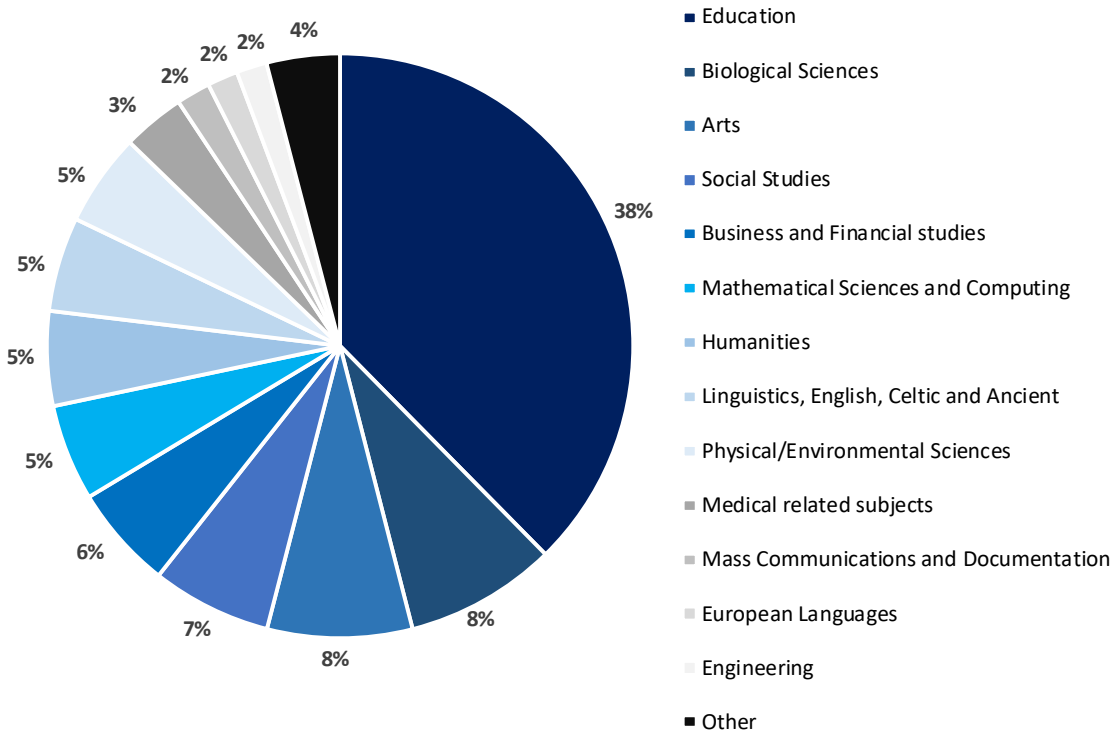
Public admin and defence - subject mix, (NQF level 6+), NI (2020)



Note: *Other includes; European Languages, Agricultural Sciences, Technology, Eastern, Asiatic, African, American, and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Education- subject mix, (NQF level 6+), NI (2020)

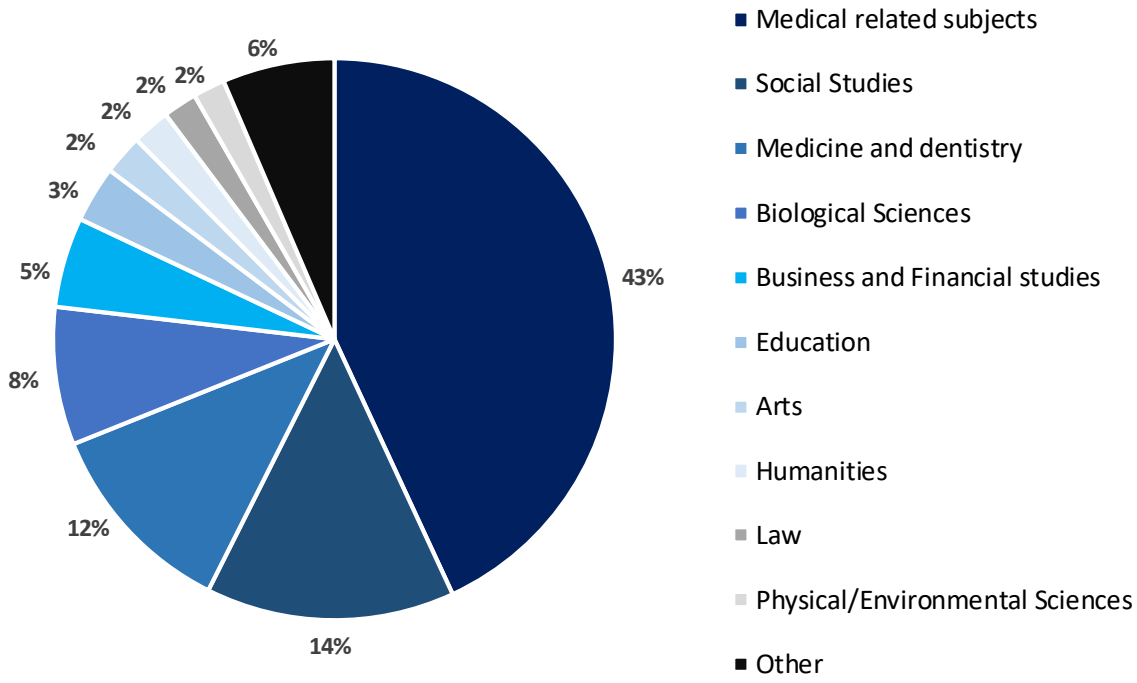


Note: *Other includes; Law, Agricultural Sciences, Technology, Architecture and related studies, Medicine and dentistry and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (9)

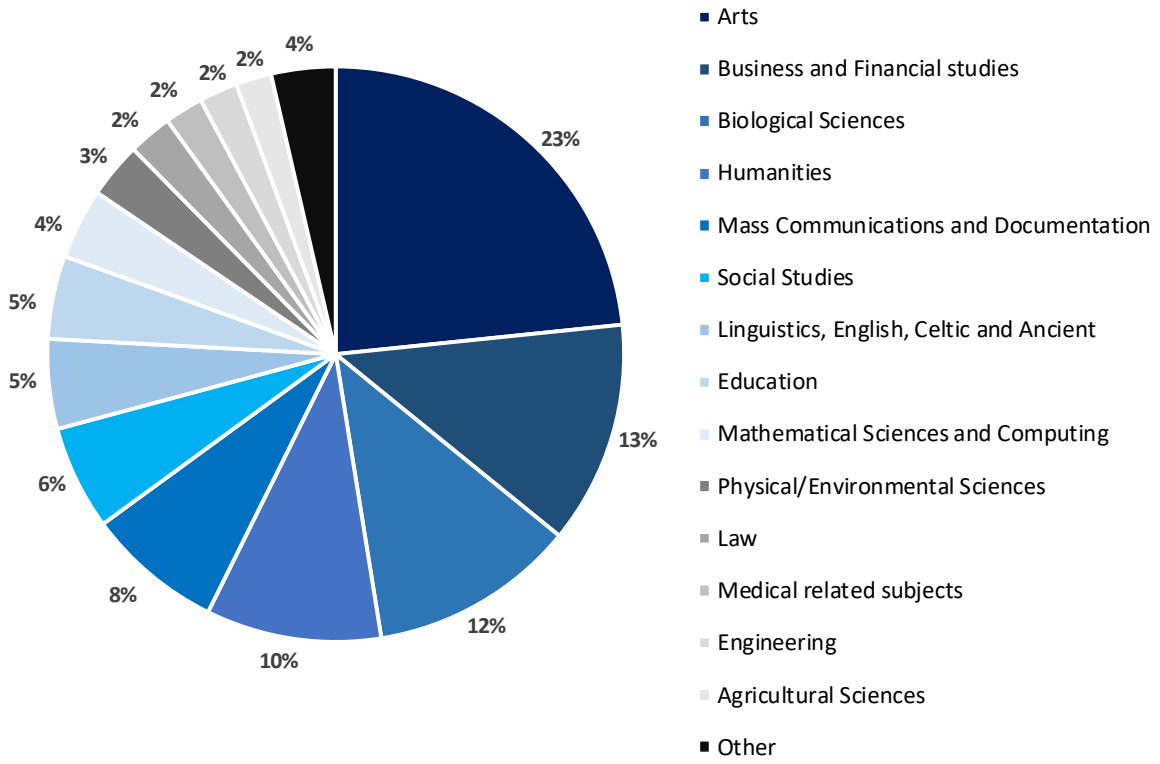
Health and social work - subject mix, (NQF level 6+), NI (2020)



Note: *Other includes; Mathematical sciences and computing, Linguistics, English, Celtic, and Ancient, Mass communications and documentation, Engineering, Agricultural Sciences, European Languages, Architecture and related studies, Technology and Eastern, Asiatic, African, American and Australasian Languages and Literature.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

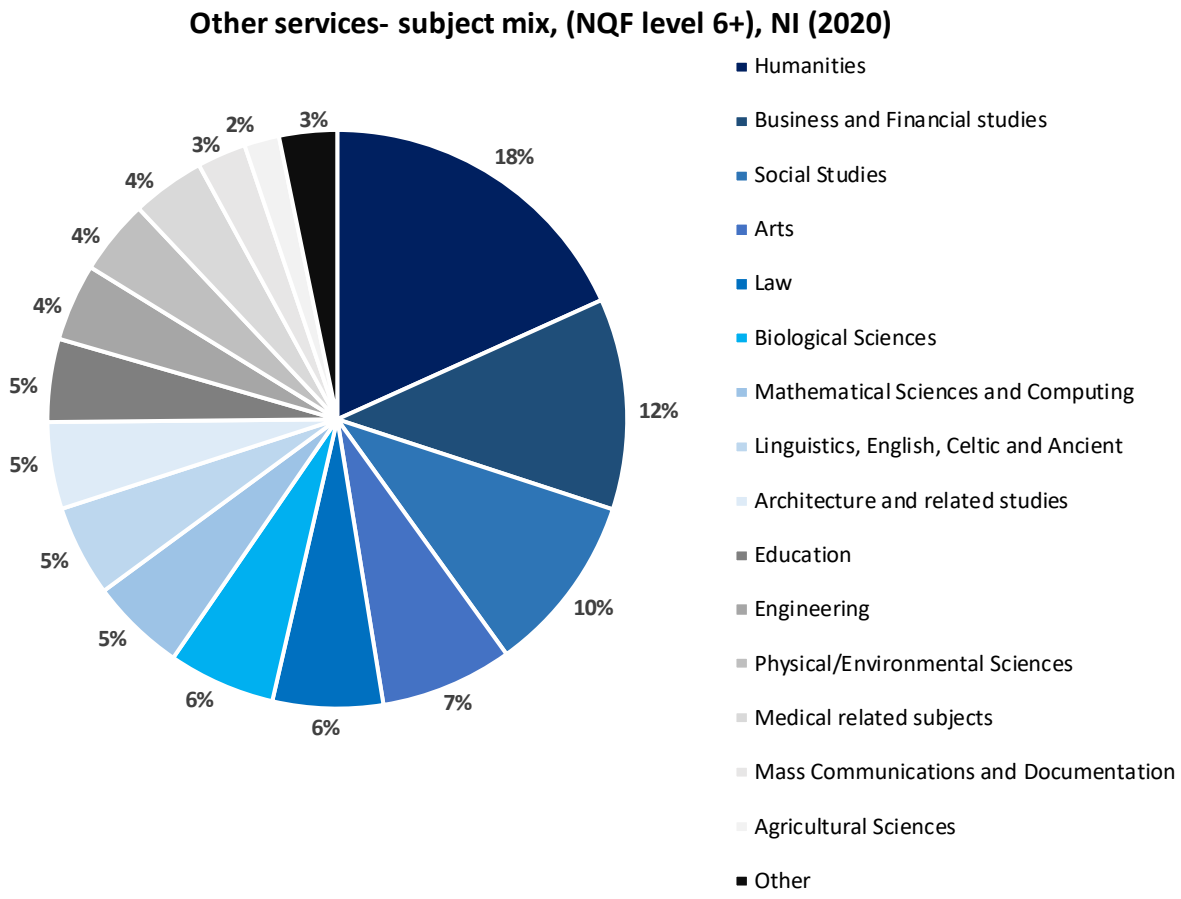
Arts and entertainment - subject mix, (NQF level 6+), NI (2020)



Note: *Other includes; Architecture and related subjects, European Languages, Technology, Eastern, Asiatic, African, American and Australasian Languages and Literature and Medicine and dentistry.*

Source: *Labour Force Survey, UUEPC analysis*
Note*: Figures are based on a 4-quarter rolling average*

Degree subject mix by sector (10)



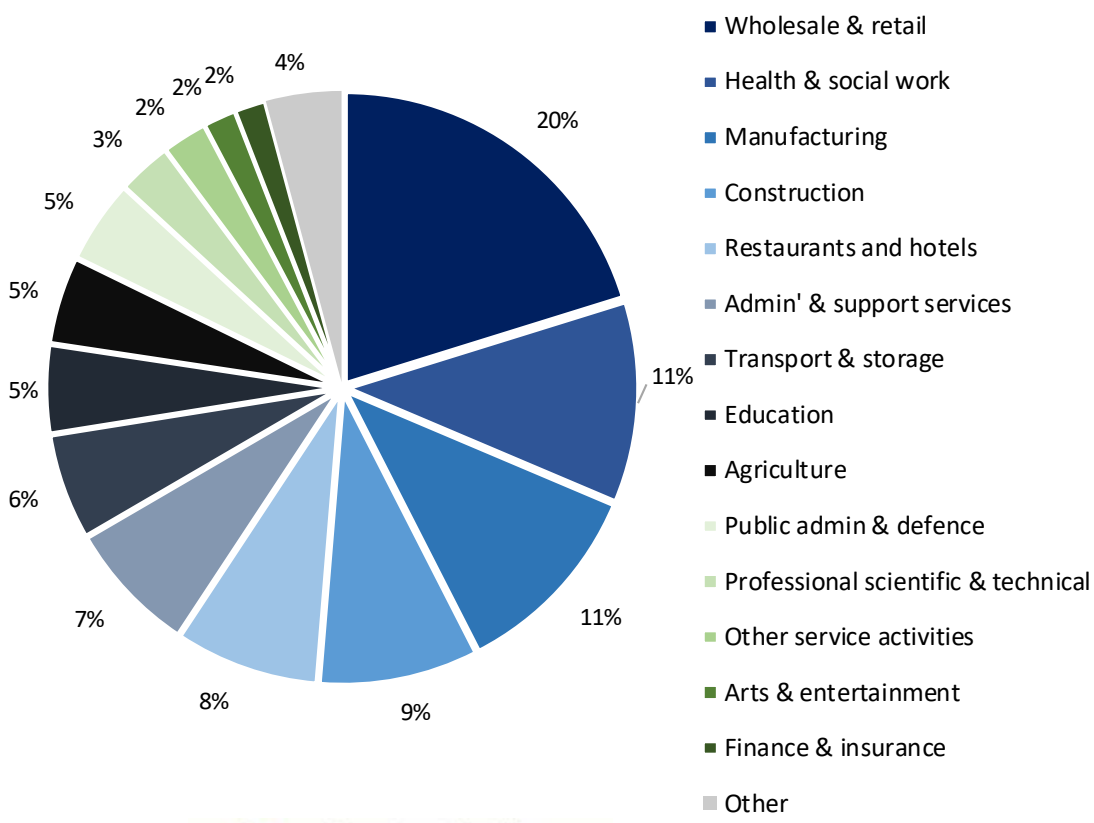
***Note**: Other includes; Medicine and dentistry, European Languages, Technology, Eastern, Asiatic, African, American and Australasian Languages and Literature.*

***Source:** Labour Force Survey, UUEPC analysis*
***Note**: Figures are based on a 4-quarter rolling average*

Annex D1 – NQF level 3 and below demand side outputs (high growth)

Stock of NQF level 3 and below in the labour market

Highest qualification NQF level 3 or below by sector (1-digit), NI (2020)



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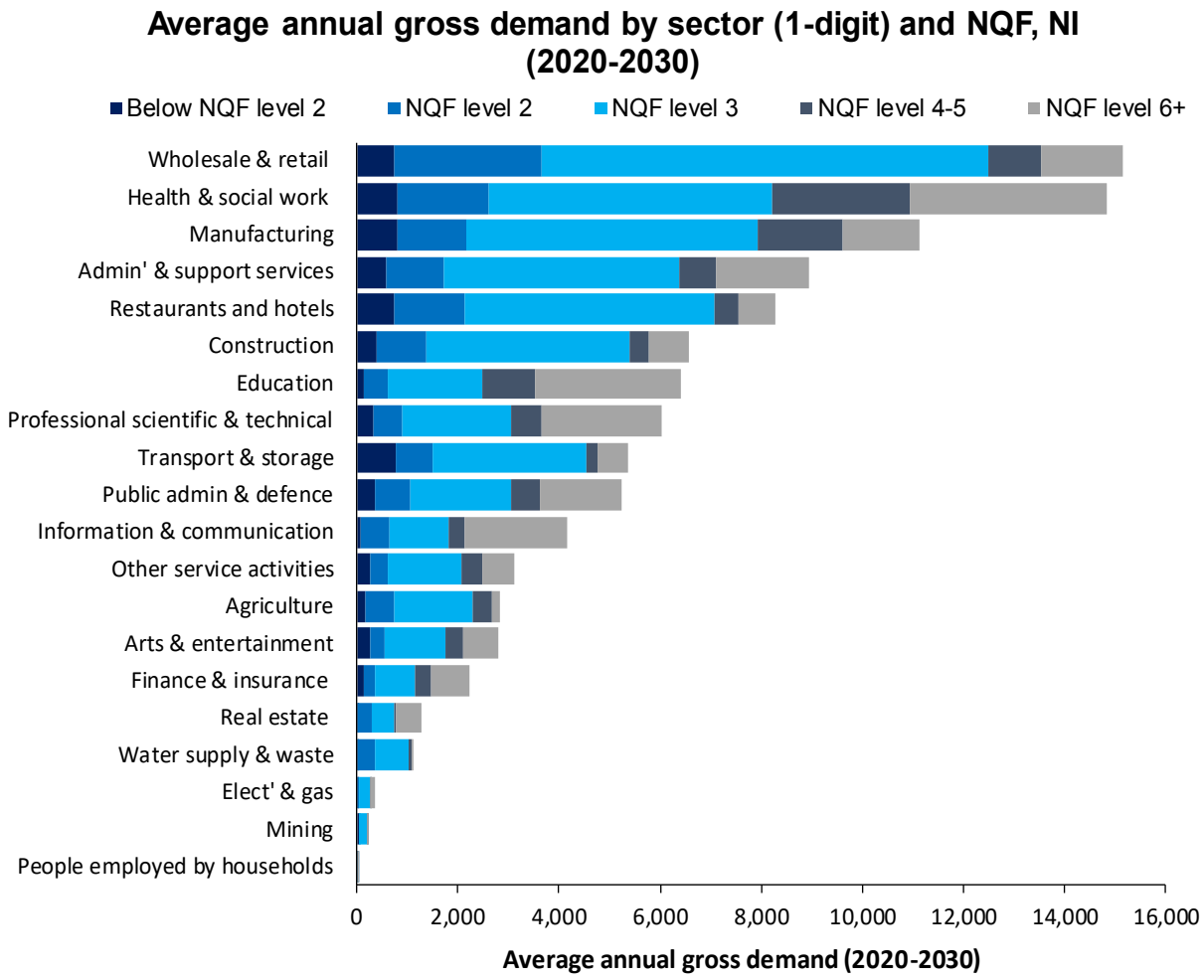
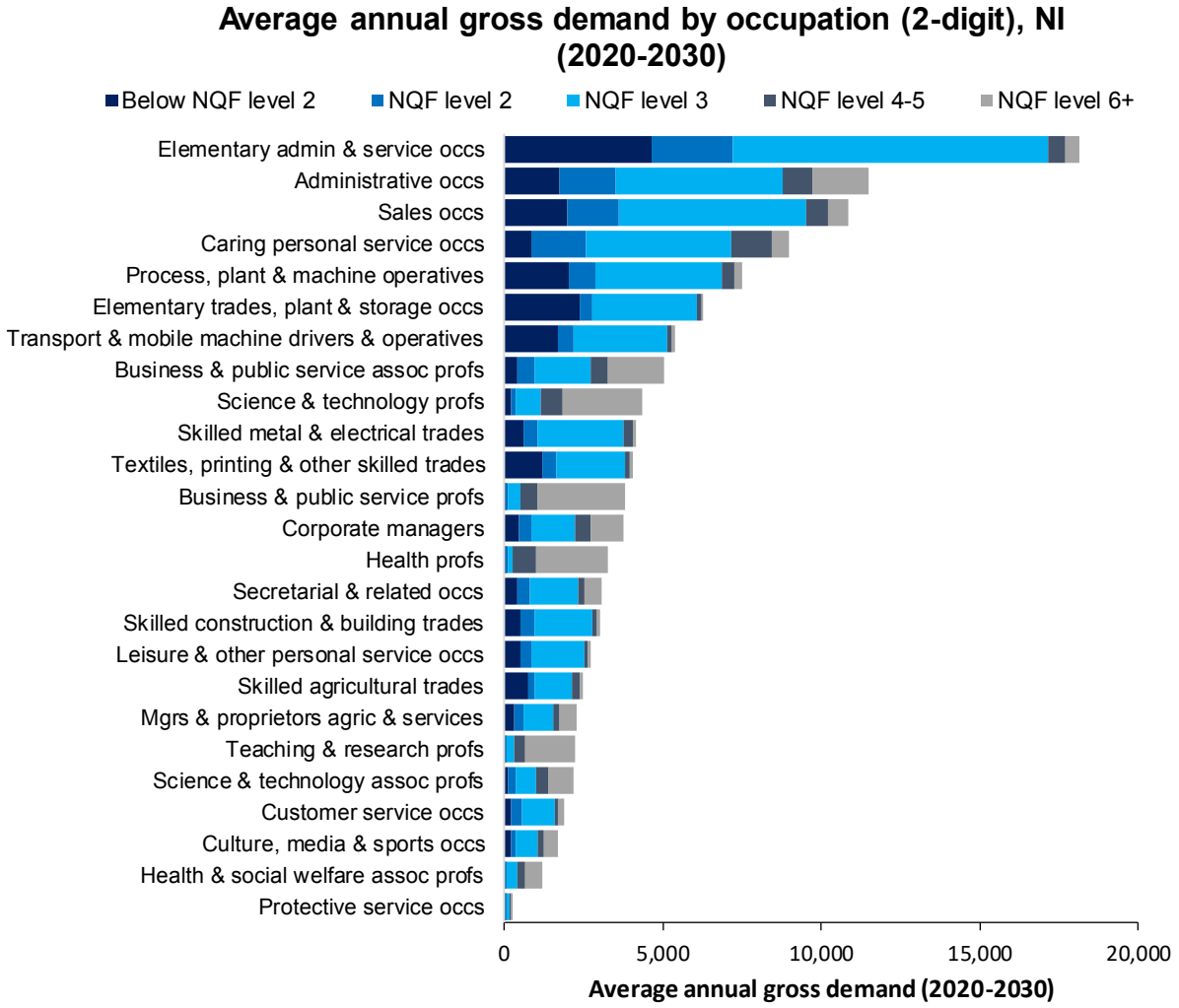
Source: *UUEPC*

Gross demand by sector and occupation

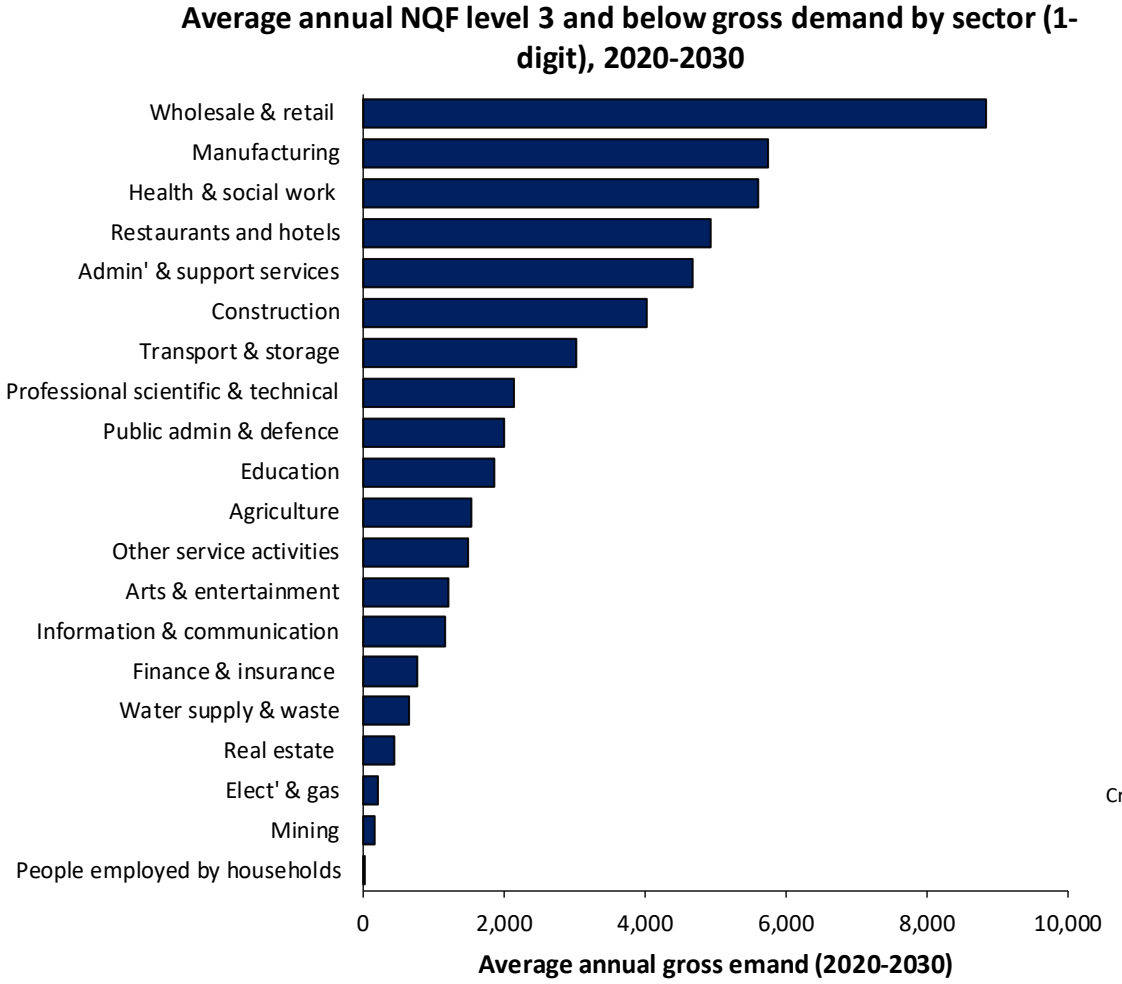


Source: *UUEPC*

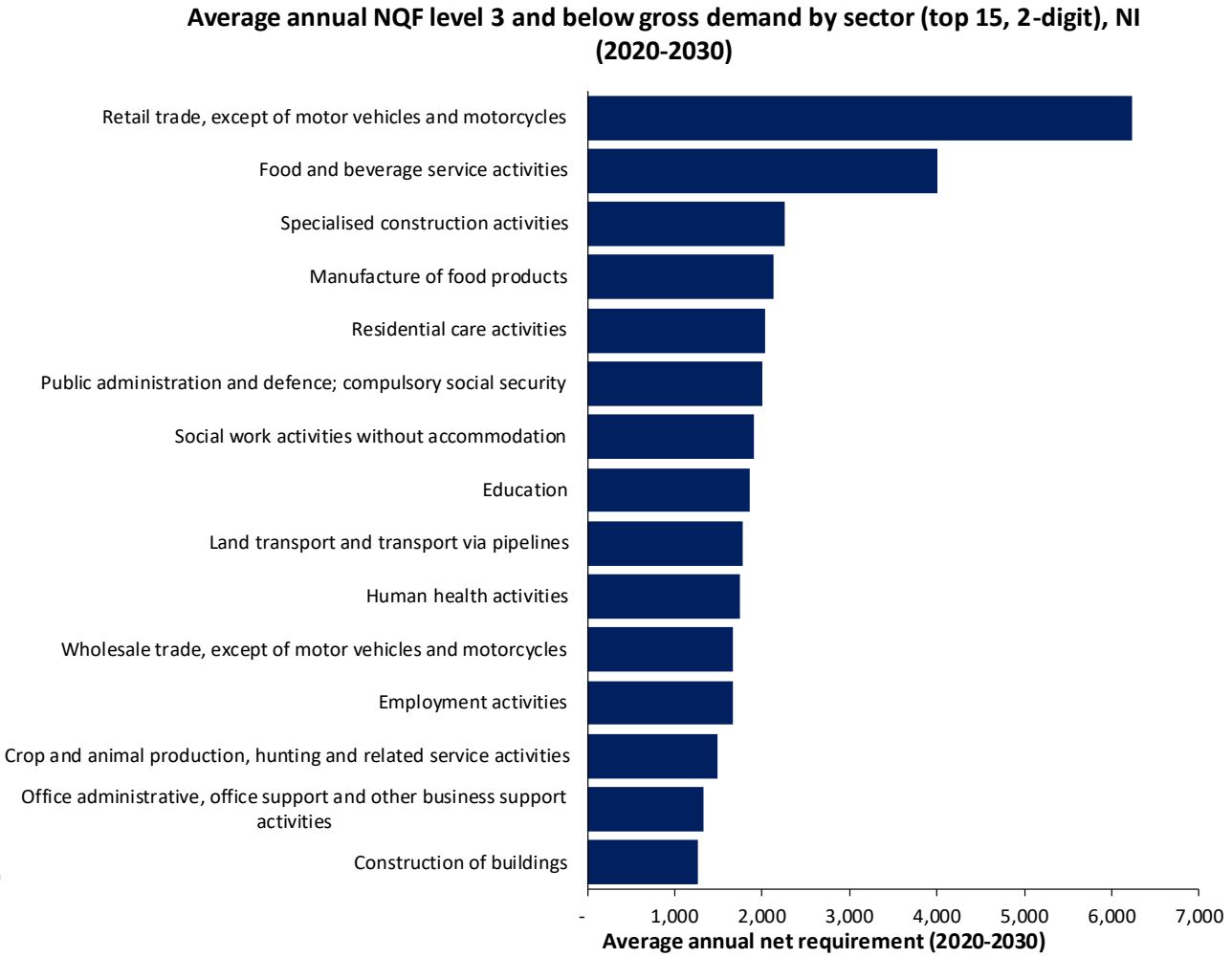


Source: *UUEPC*

Gross demand (NQF level 3 and below) by sector



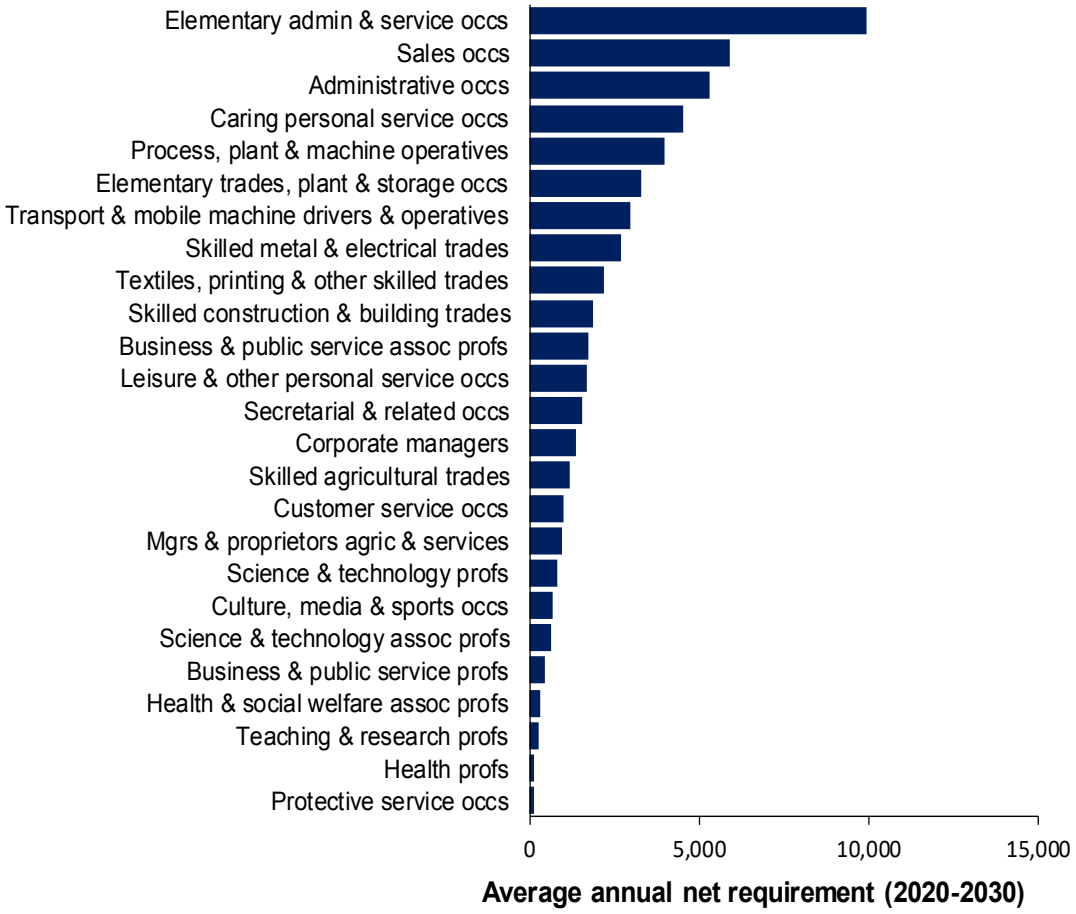
Source: *UUEPC*



Source: *UUEPC*

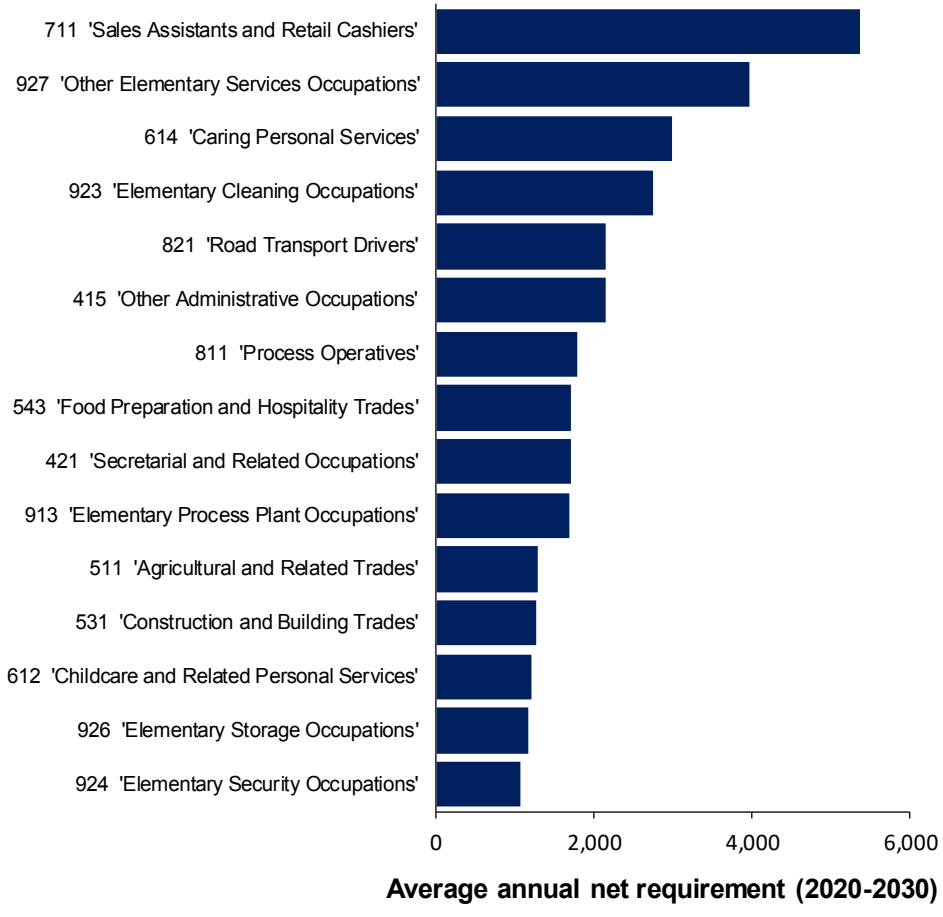
Gross demand (NQF level 3 and below) by occupation

Average annual NQF level 3 and below gross demand by occupation (2-digit), NI (2020-2030)



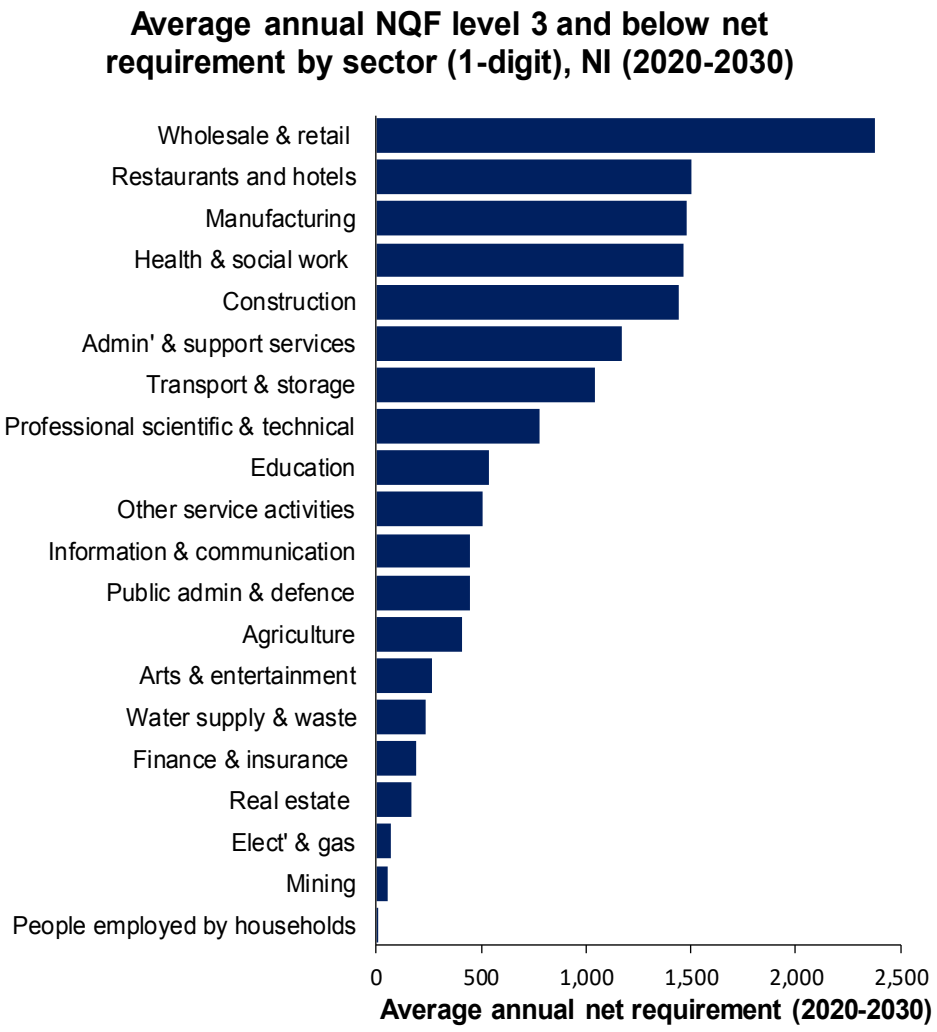
Source: UUEPC

Average annual NQF level 3 and below gross demand by occupation (top 15, 3-digit), NI (2020-2030)

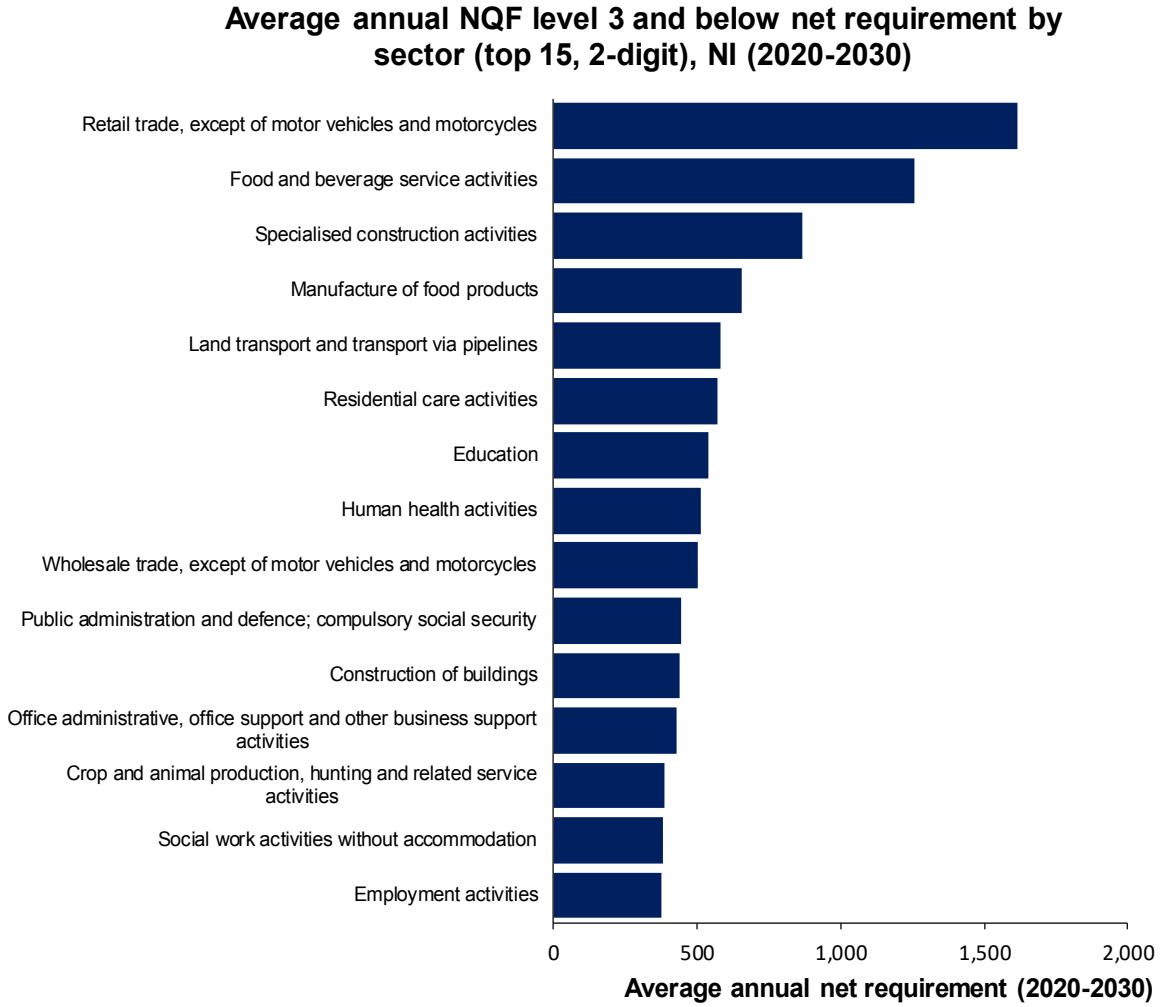


Source: UUEPC

Net requirement (NQF level 3 and below) by sector

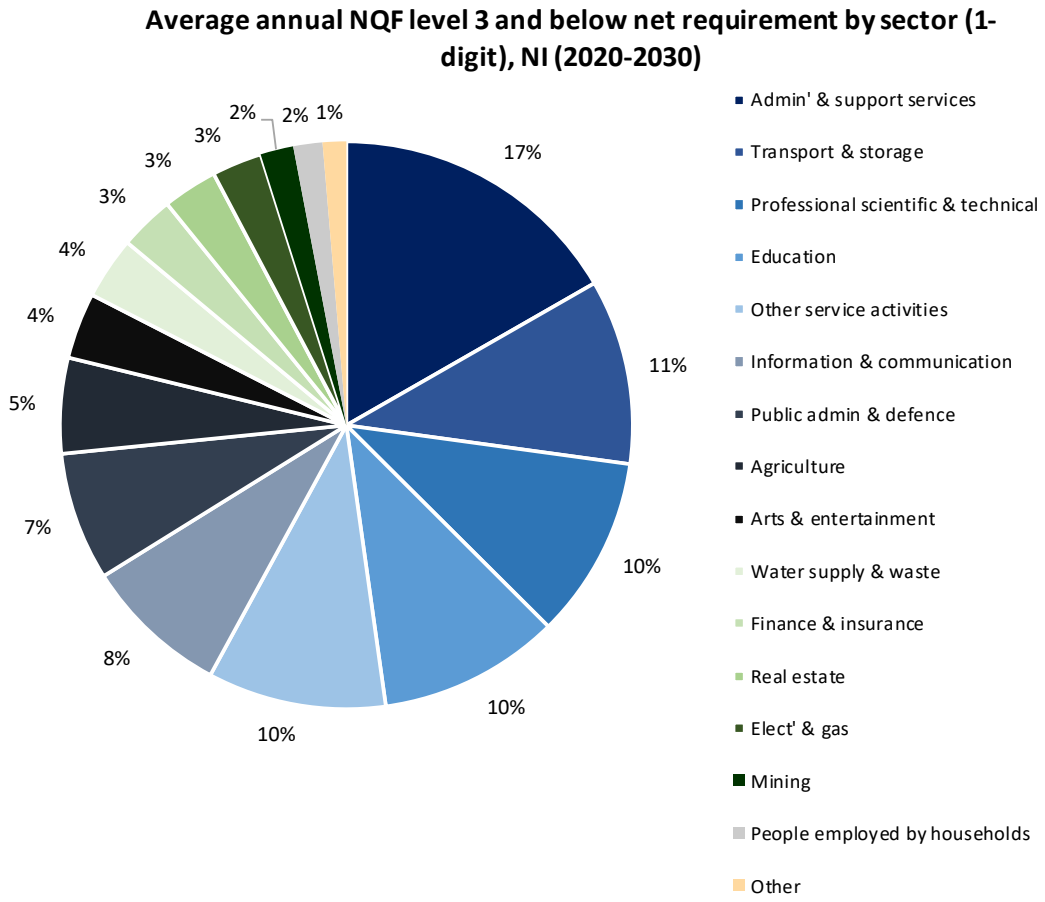


Source: UUEPC



Source: UUEPC

Net requirement (NQF level 3 and below) by sector



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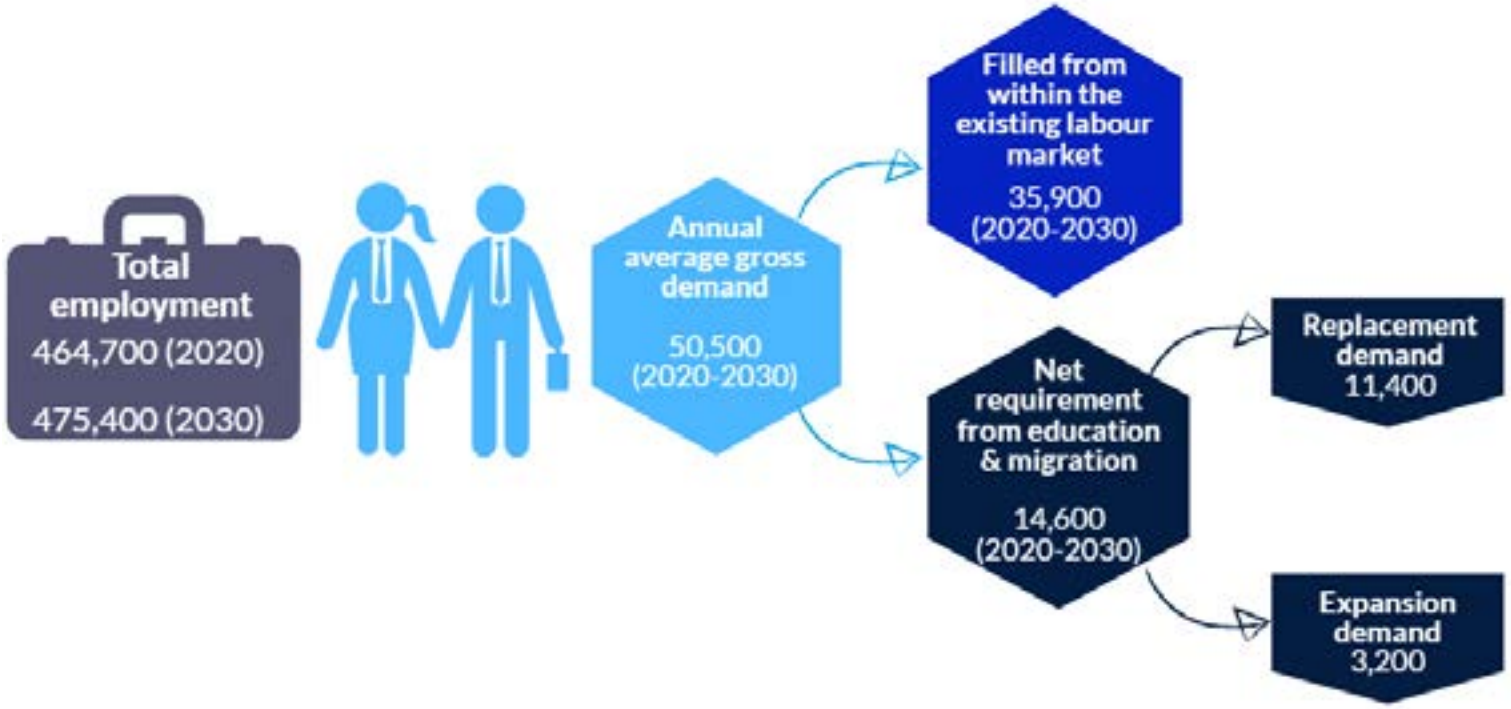
Source: *UUEPC*

Demand side concepts NQF level 3 and below



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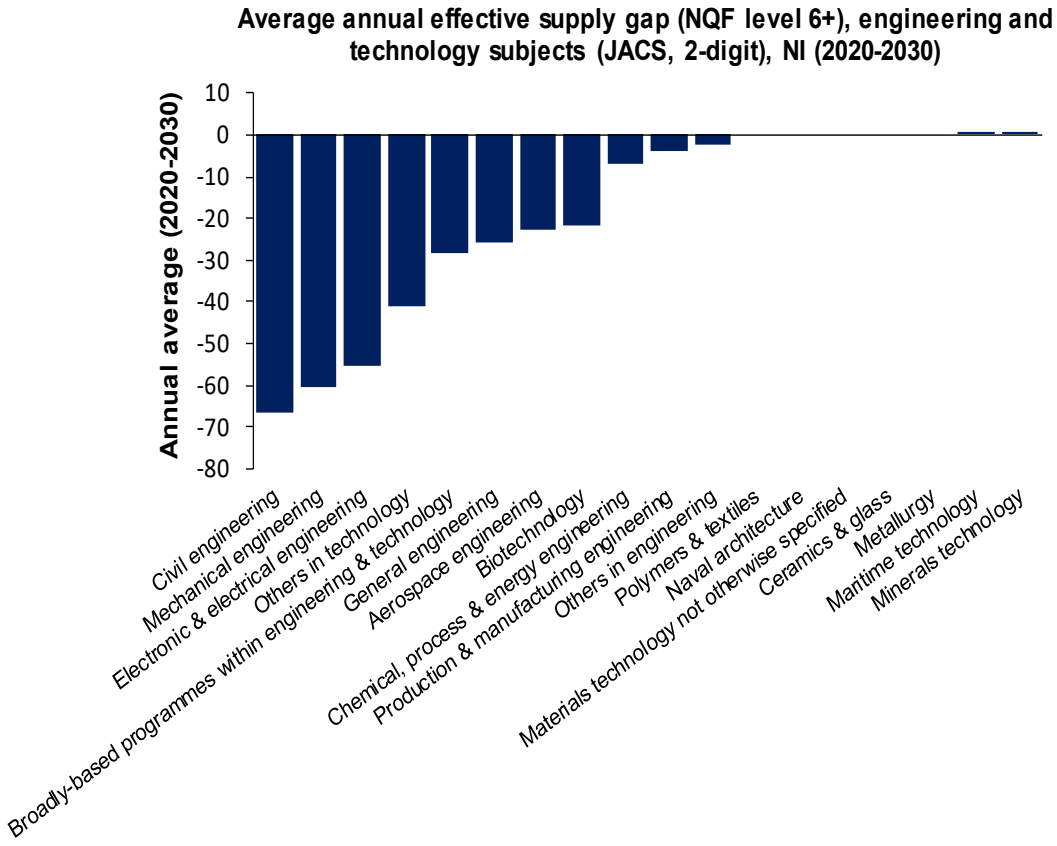
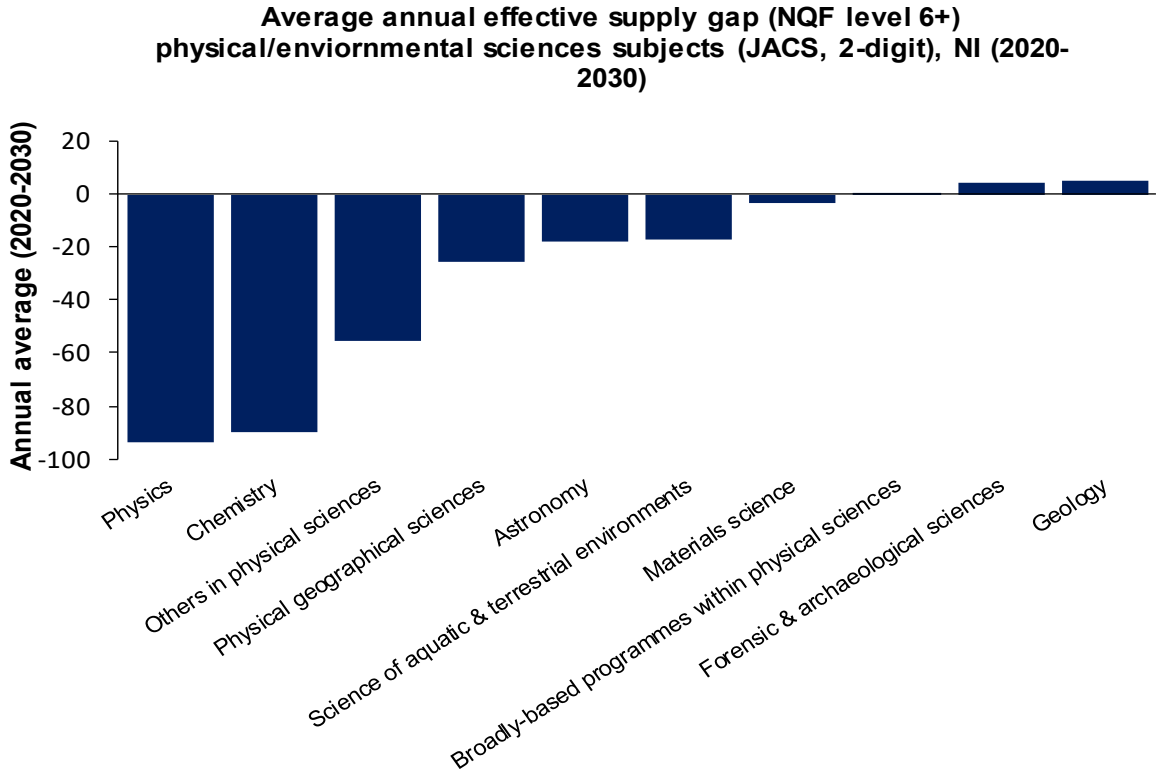
Annex E1 - Supply gap by NQF level 6+ - detailed subjects (high growth)

Supply gap by degree subject (1)

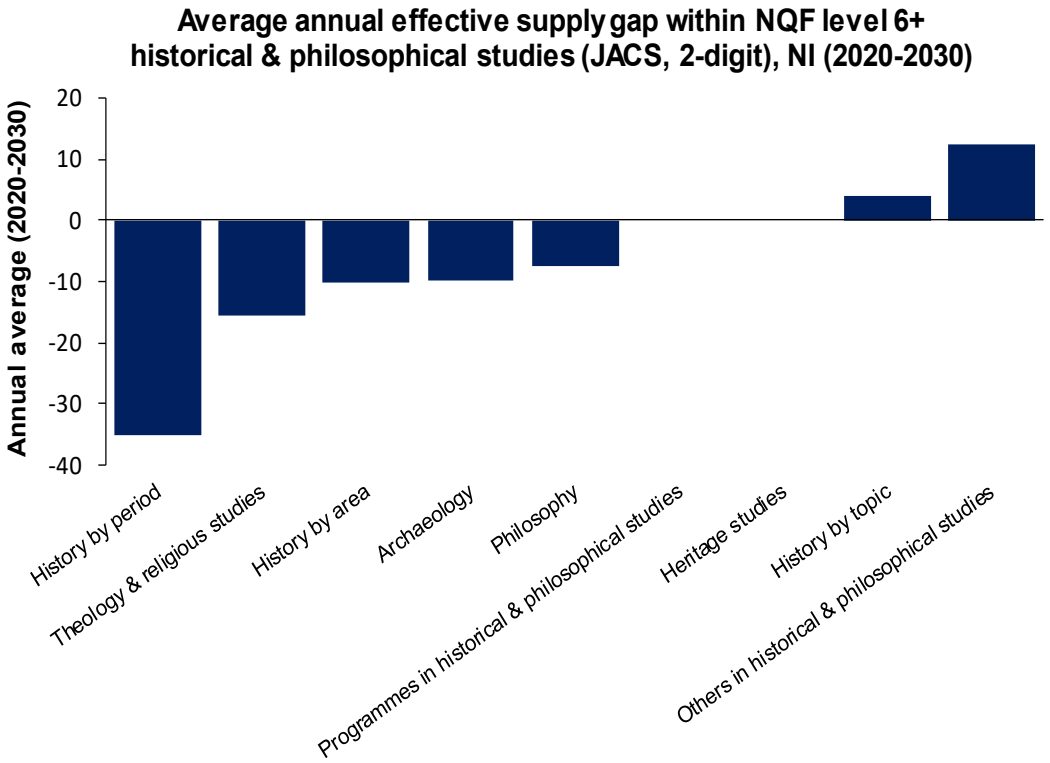


Source: *DfE, UUEPC analysis*

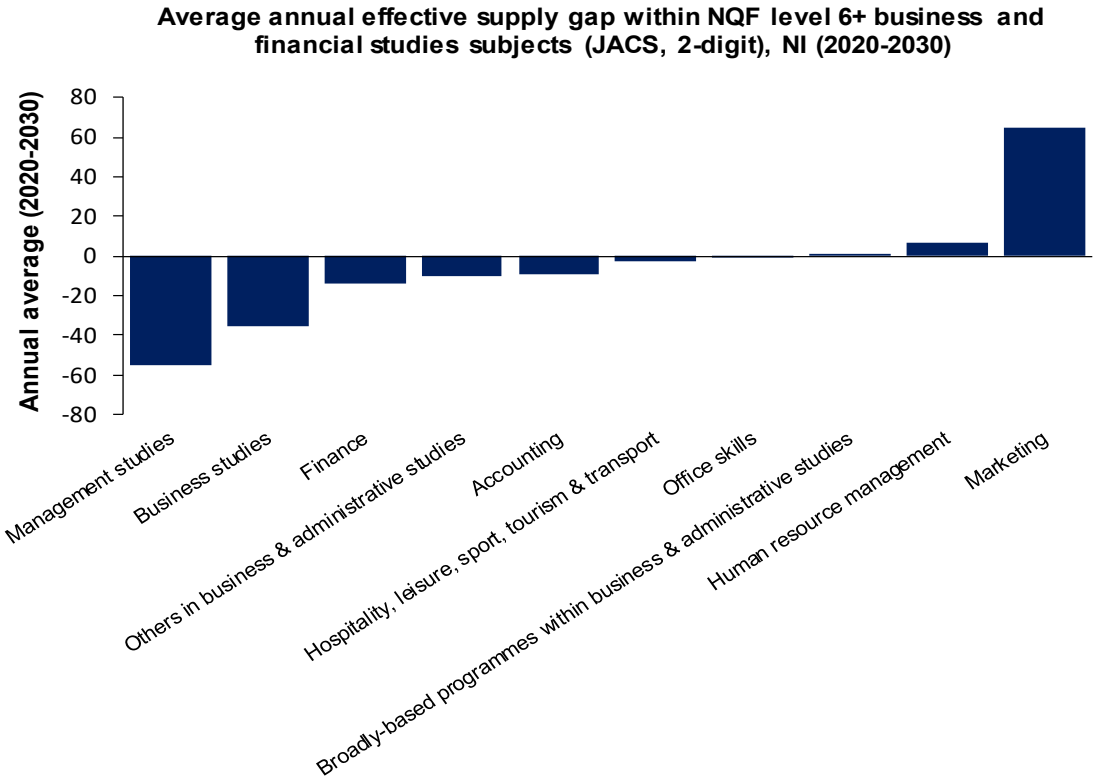


Source: *DfE, UUEPC analysis*

Supply gap by degree subject (2)



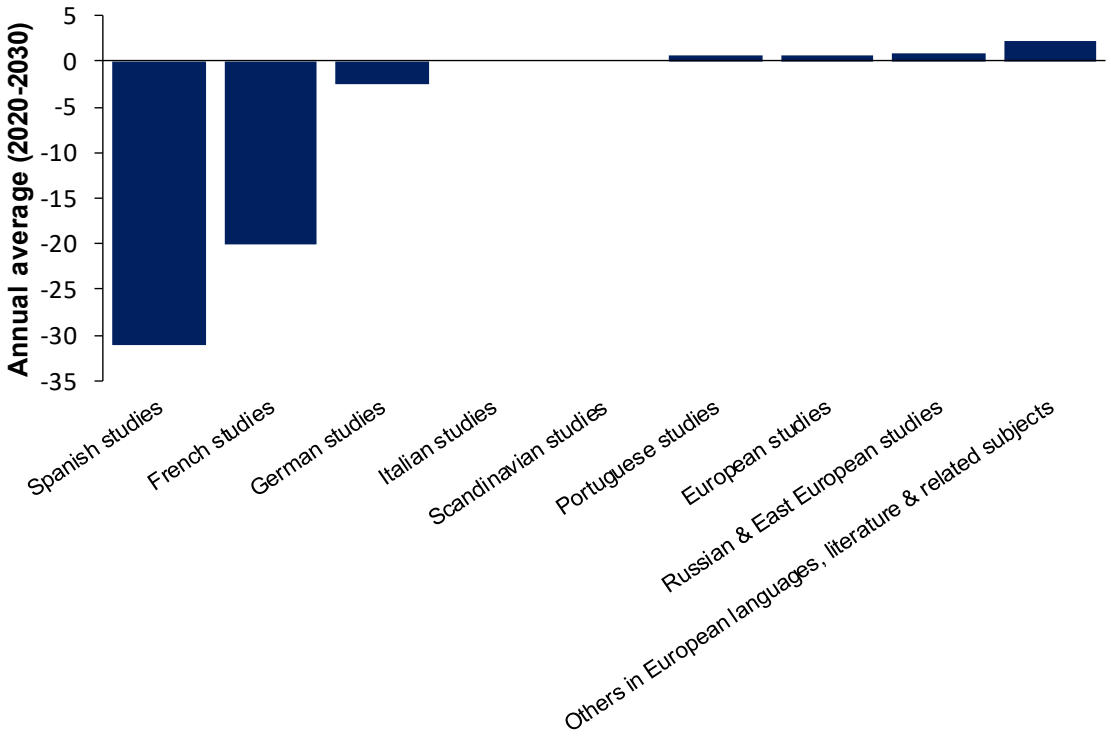
Source: DfE, UUEPC analysis



Source: DfE, UUEPC analysis

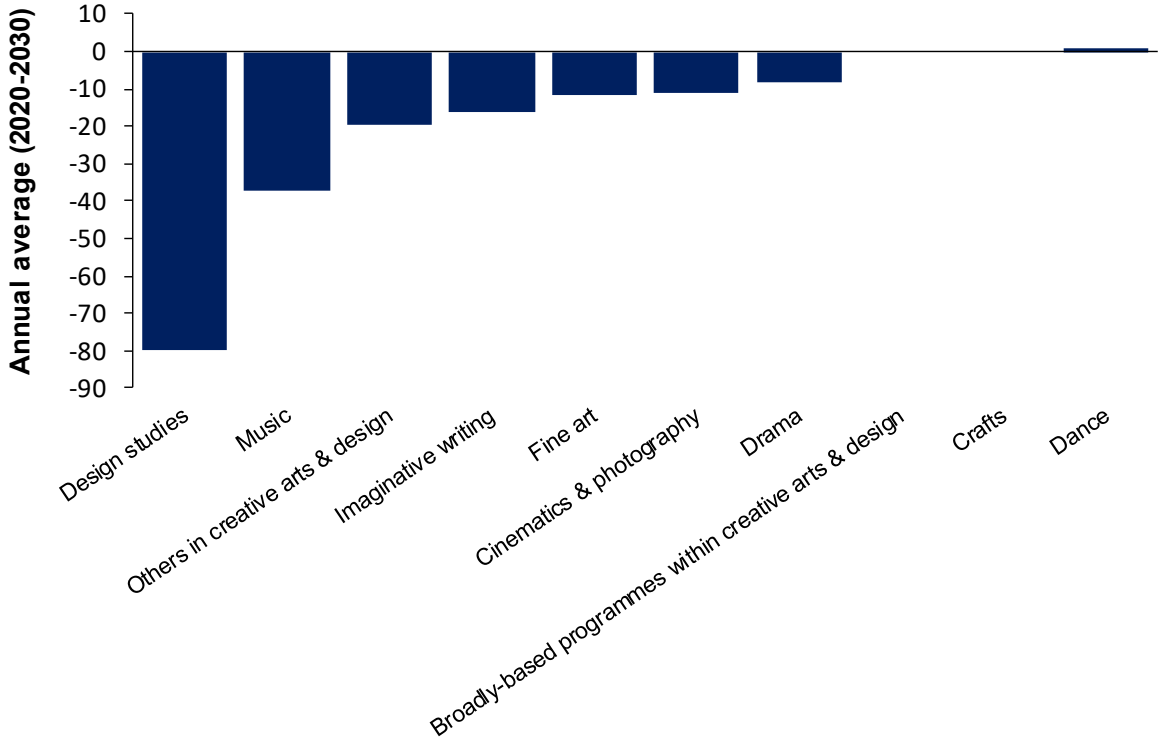
Supply gap by degree subject (3)

Average annual effective supply gap NQF level 6+ within languages subjects (JACS, 2-digit), NI (2020-2030)



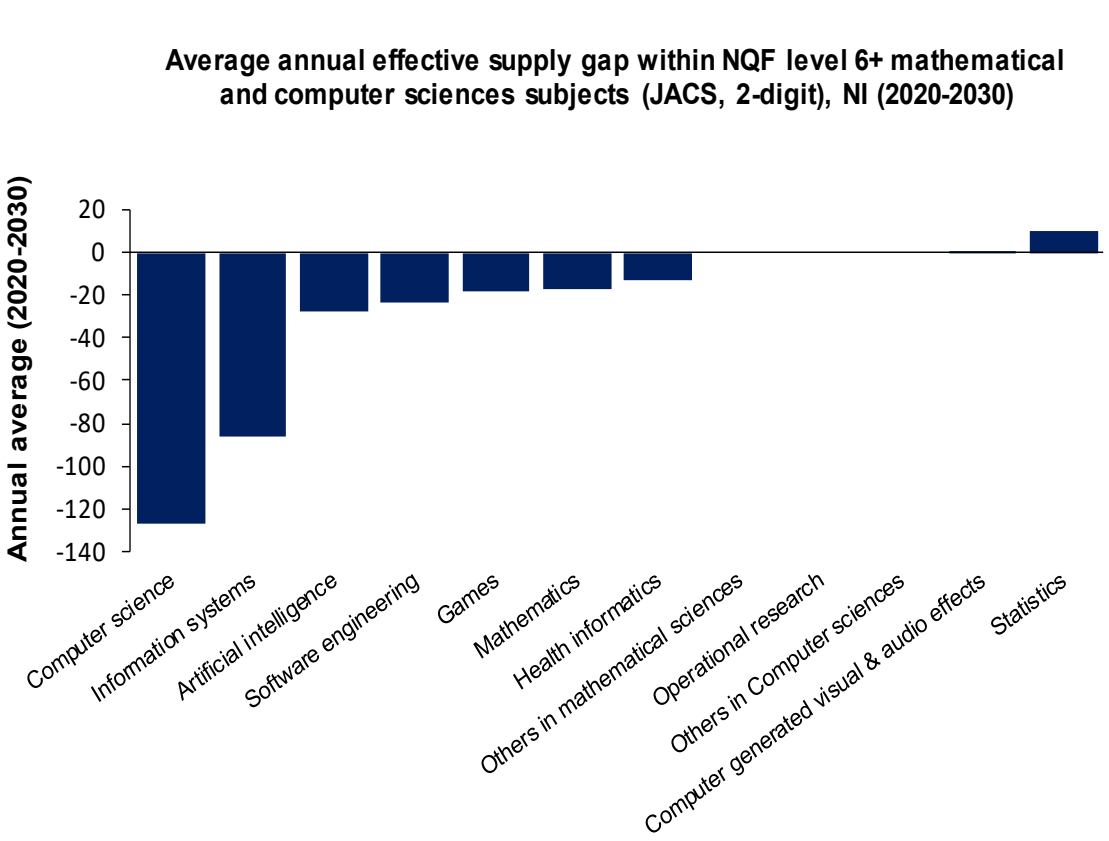
Source: *DfE, UUEPC analysis*

Average annual effective supply gap within NQF level 6+ creative arts & design subjects (JACS, 2-digit), NI (2020-2030)

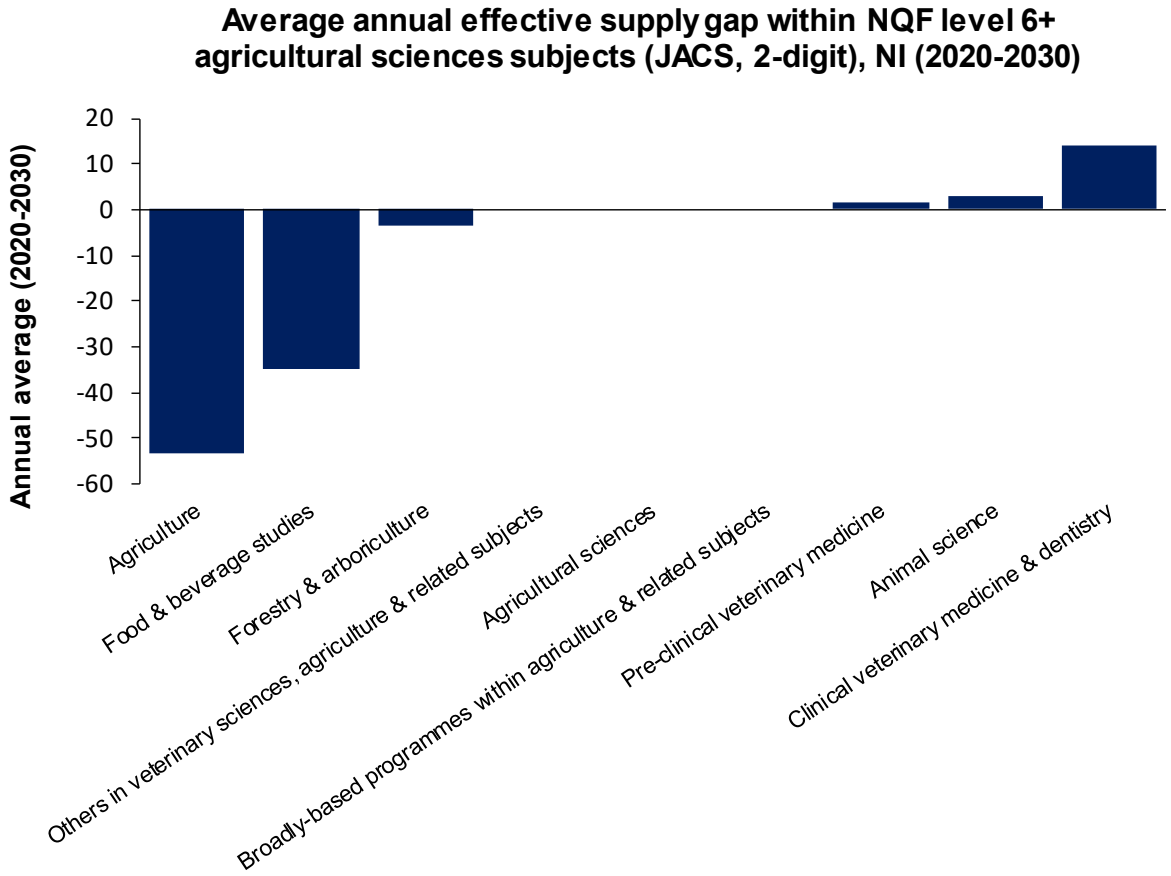


Source: *DfE, UUEPC analysis*

Supply gap by degree subject (4)

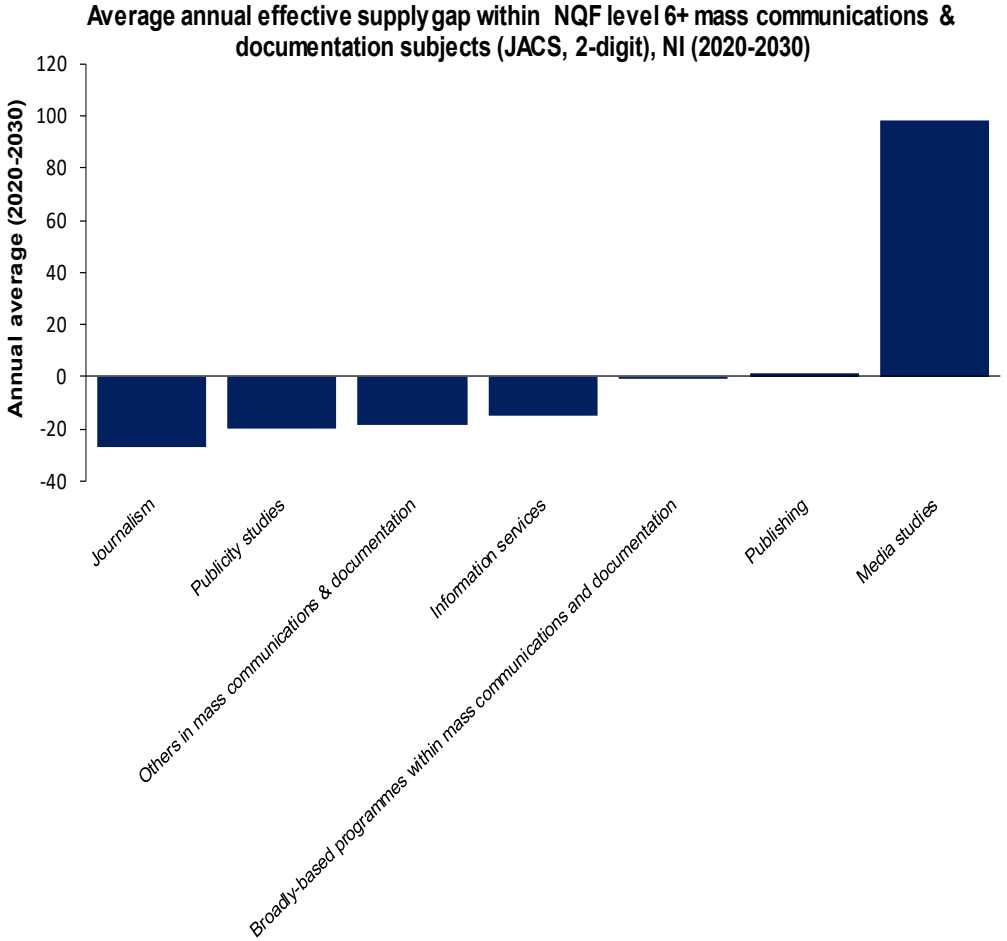


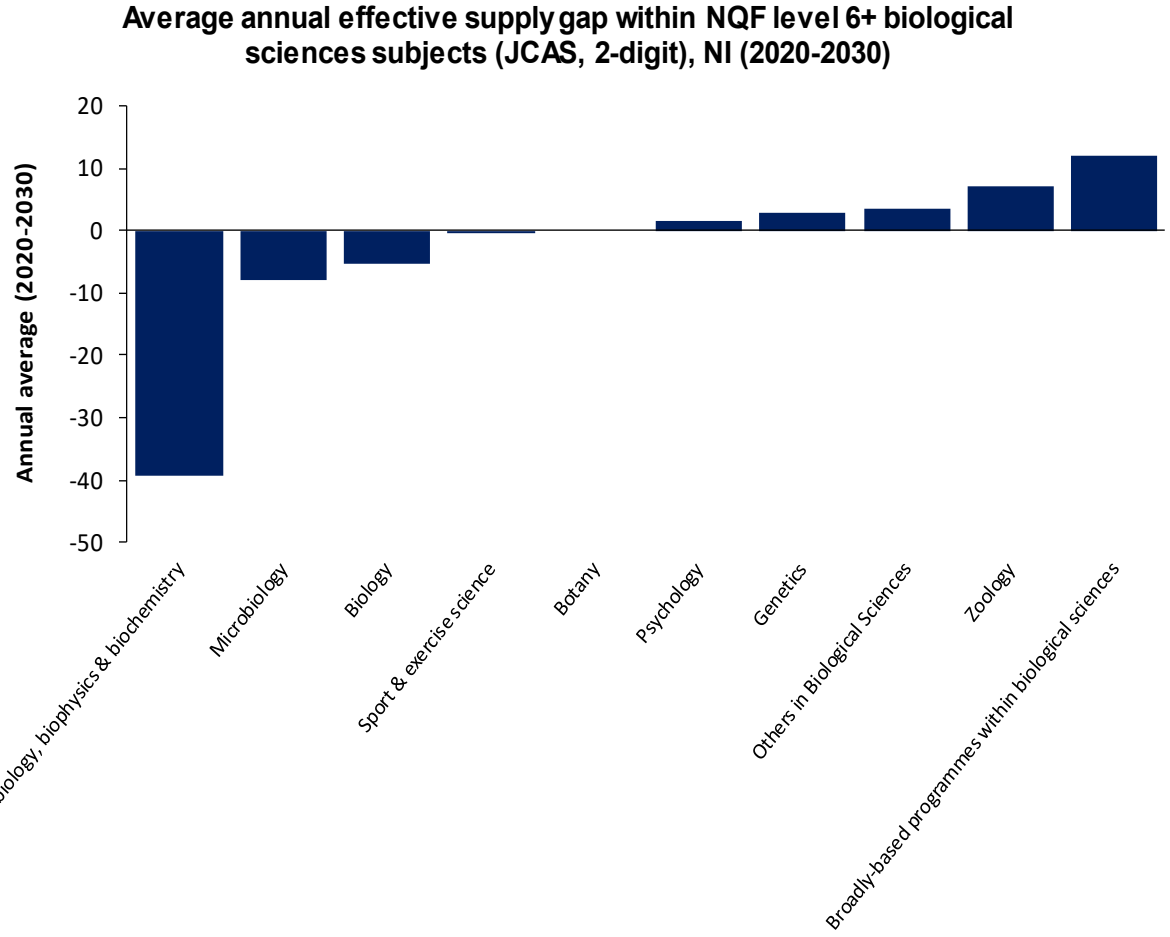
Source: *DfE, UUEPC analysis*



Source: *DfE, UUEPC analysis*

Supply gap by degree subject (5)

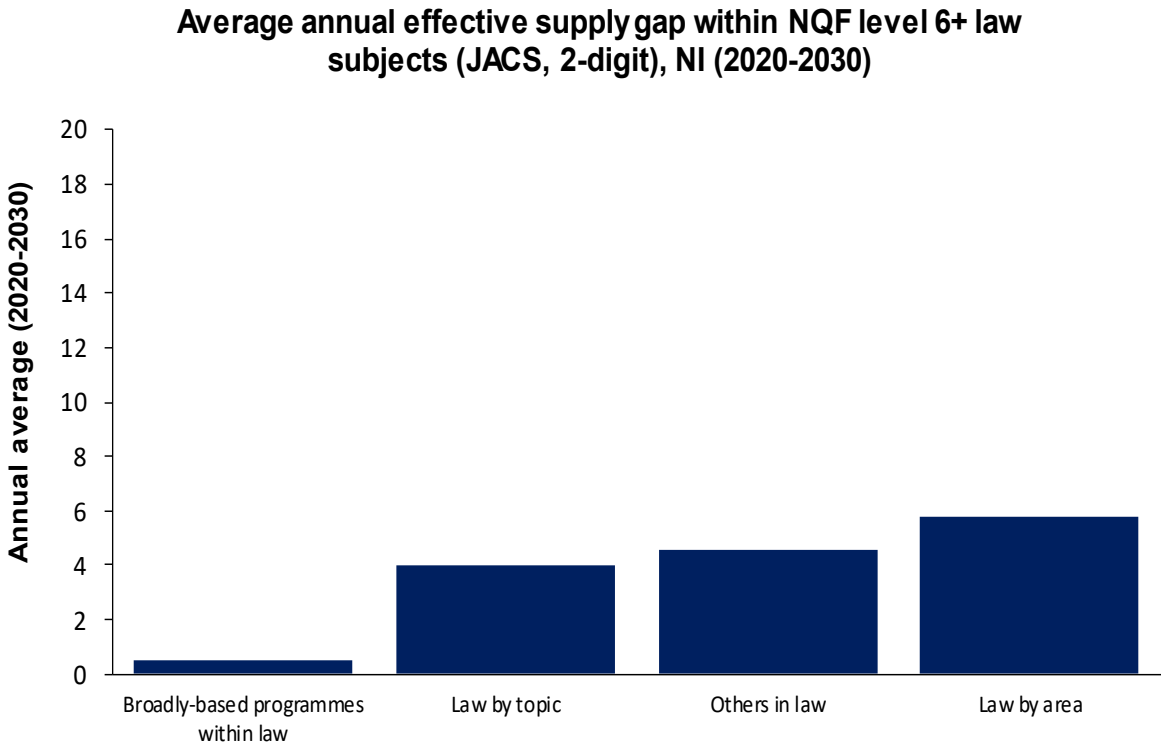




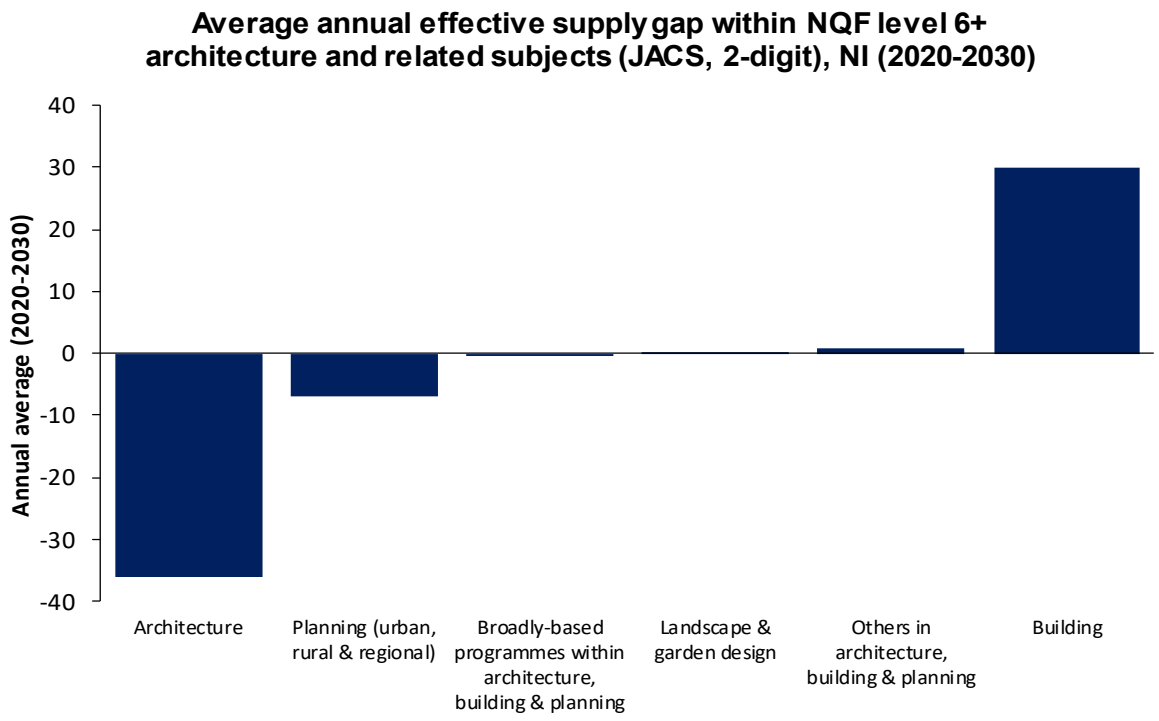
Source: *DfE, UUEPC analysis*

Source: *DfE, UUEPC analysis*

Supply gap by degree subject (6)

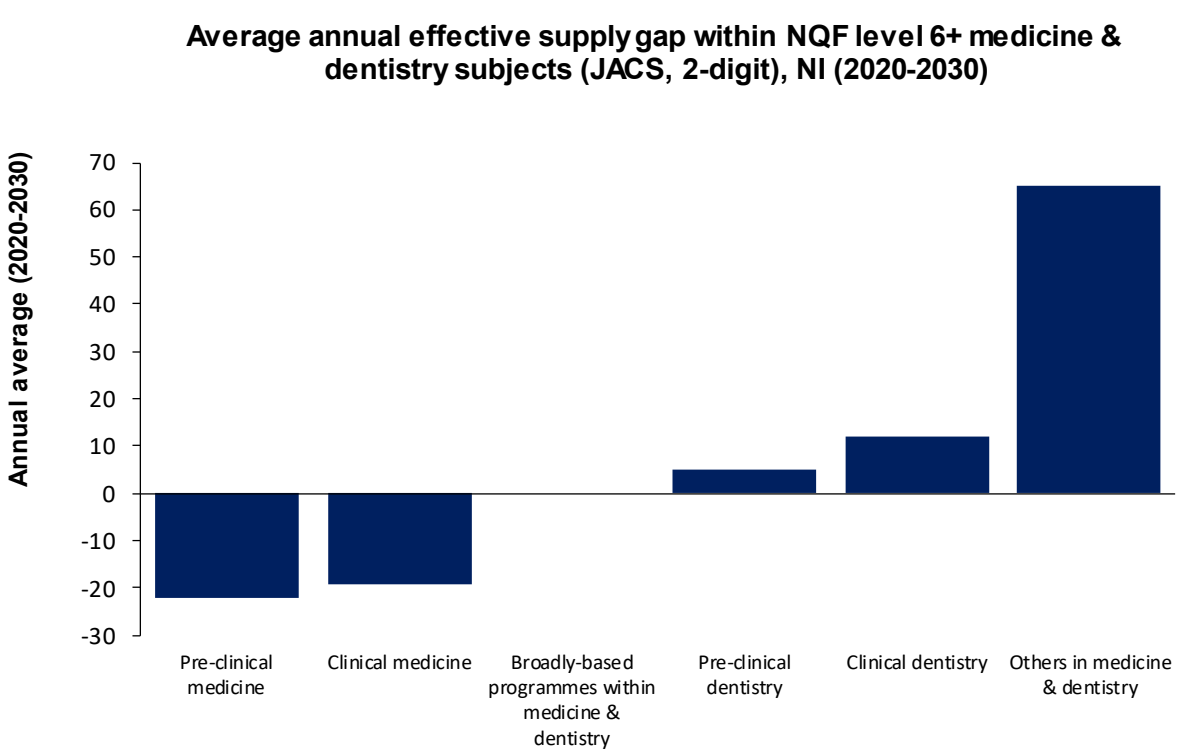


Source: *DfE, UUEPC analysis*

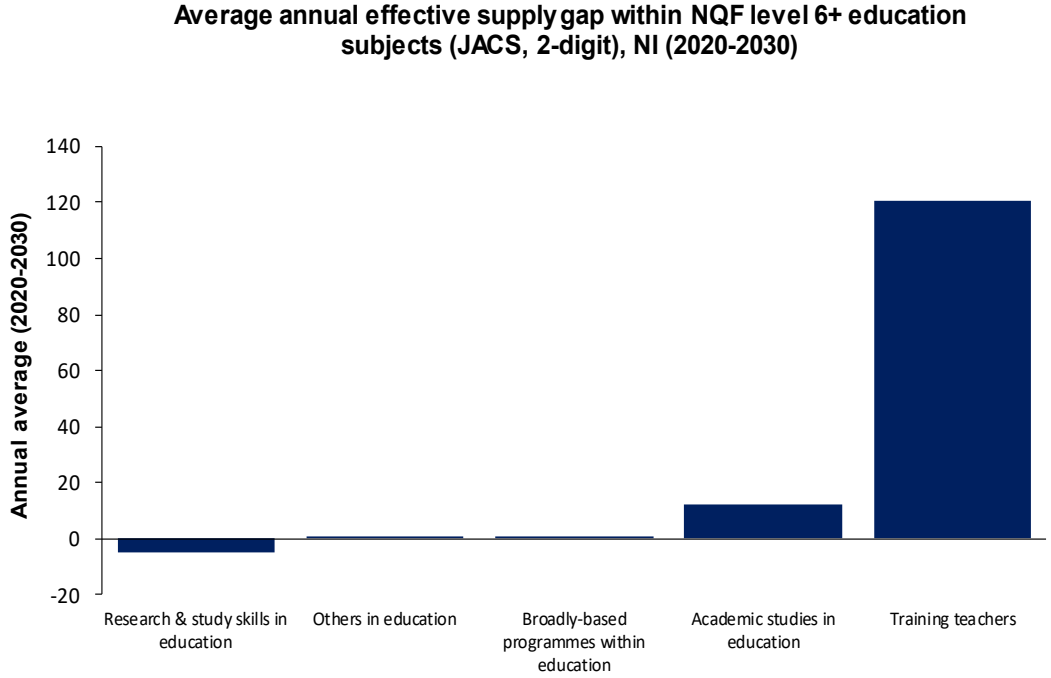


Source: *DfE, UUEPC analysis*

Supply gap by degree subject (7)

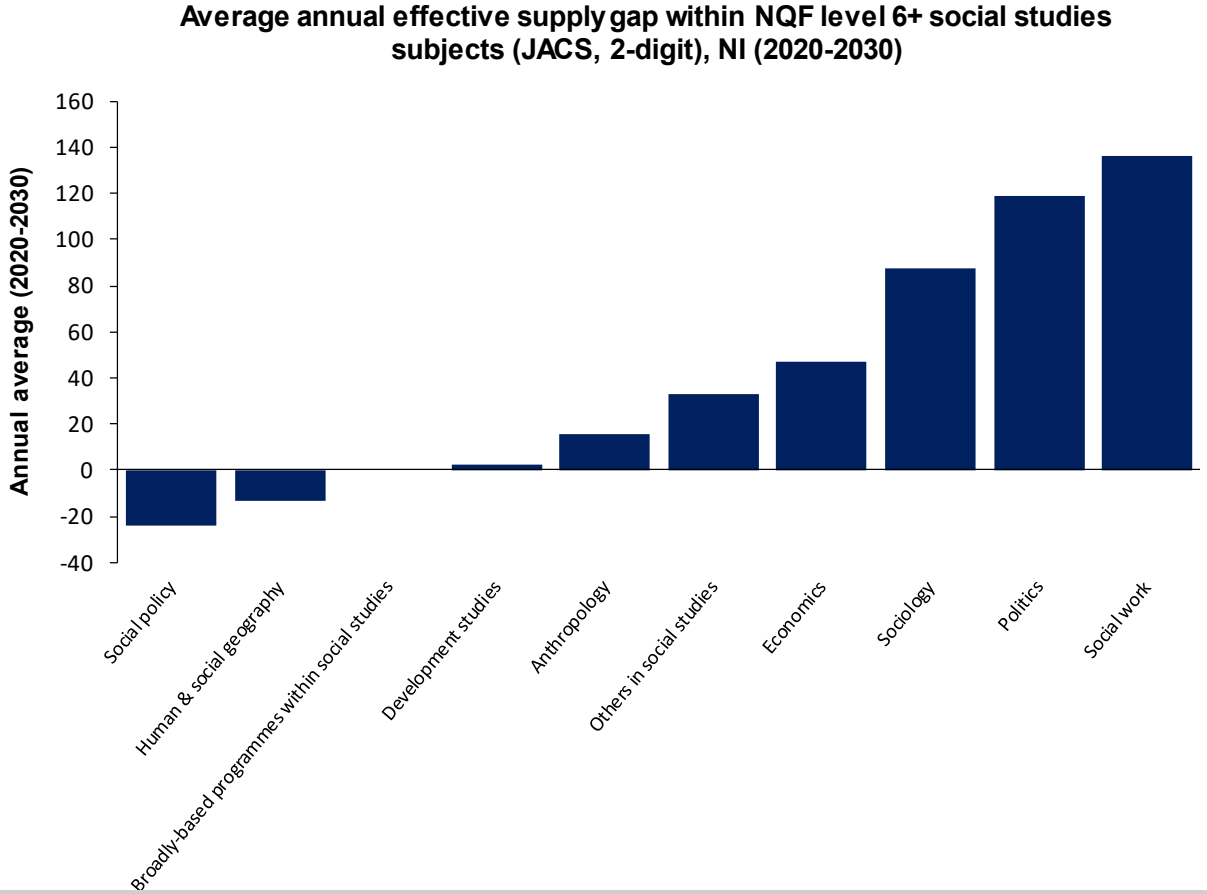


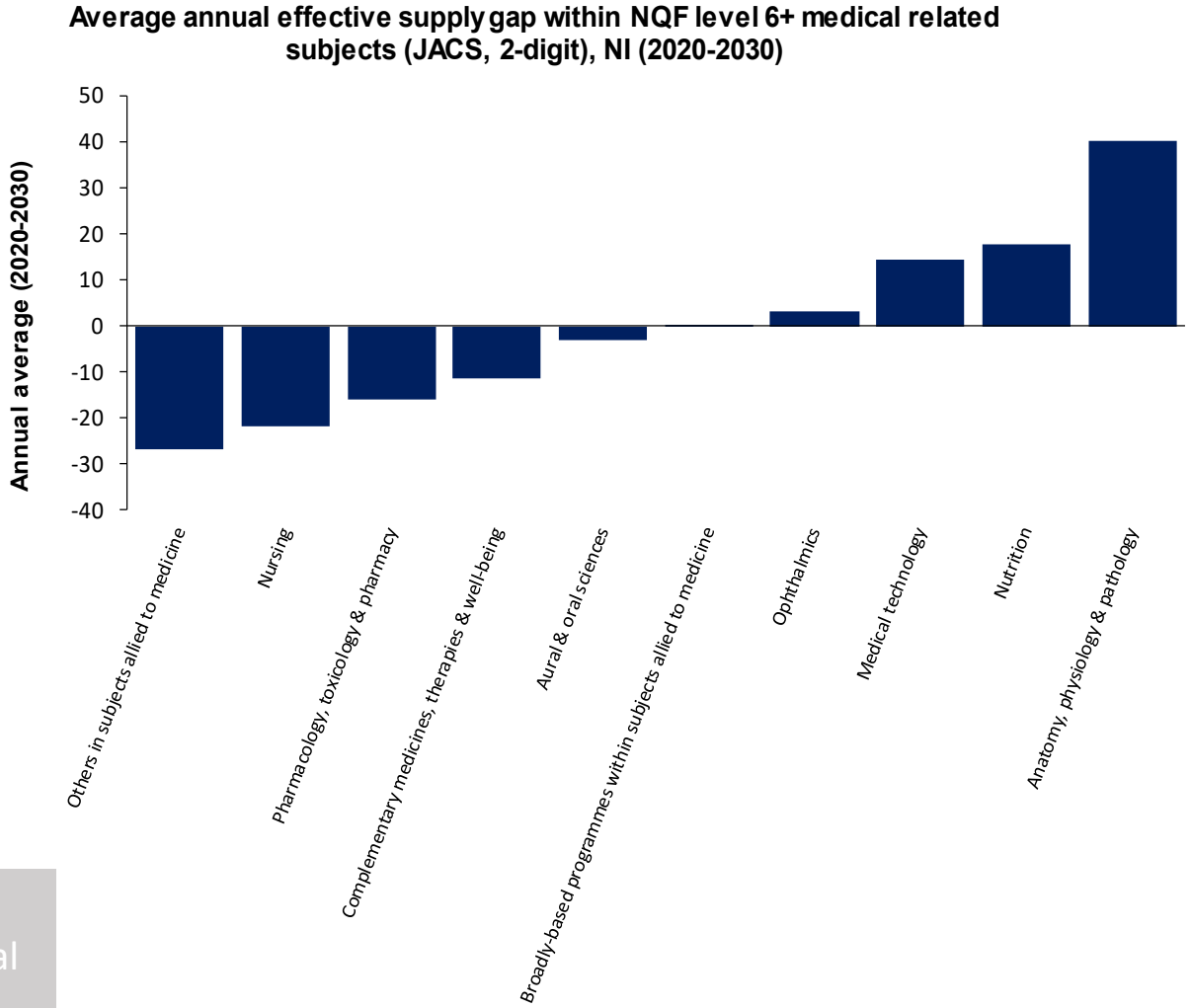
Source: *DfE, UUEPC analysis*



Source: *DfE, UUEPC analysis*

Supply gap by degree subject (8)



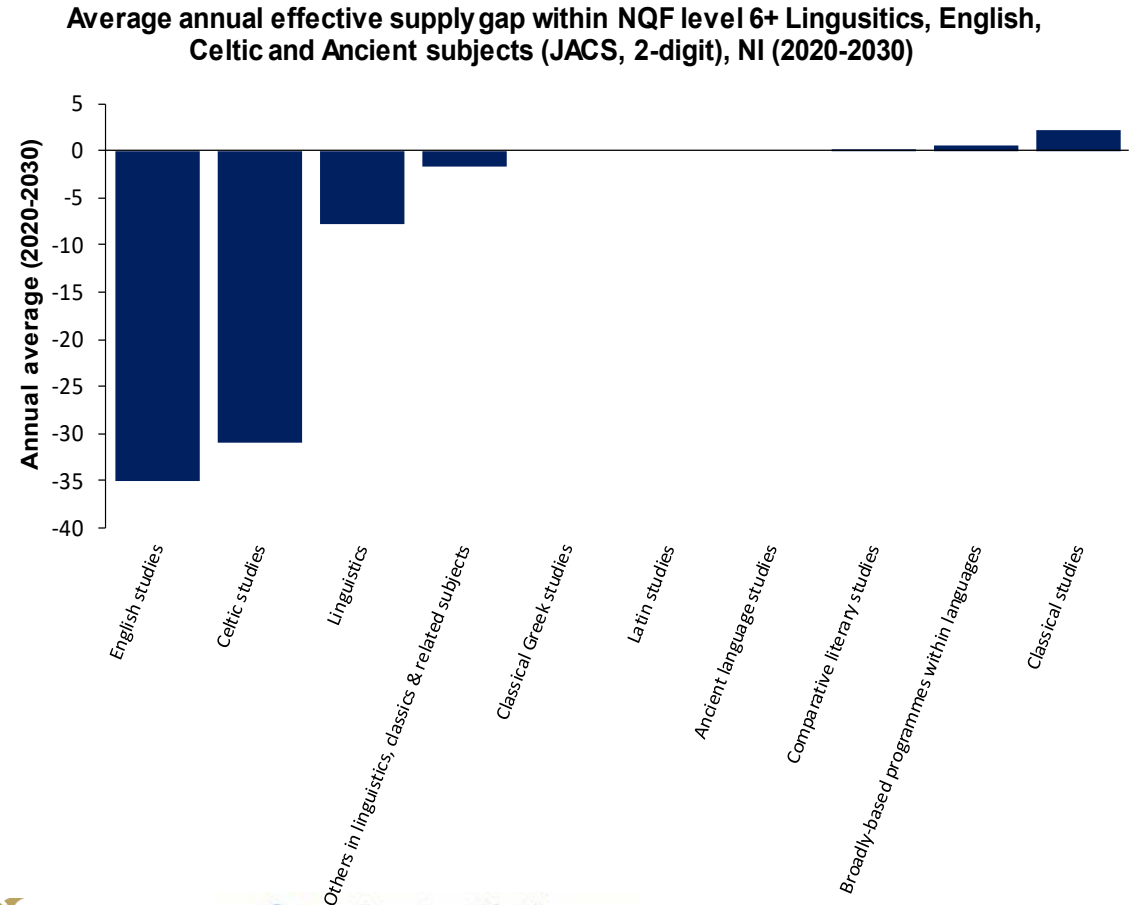


The social work category includes health and welfare; childcare; youth work; community work; careers guidance; probation/after-care; and social work not elsewhere classified.

Source: *DfE, UUEPC analysis*

Source: *DfE, UUEPC analysis*

Supply gap by degree subject (9)



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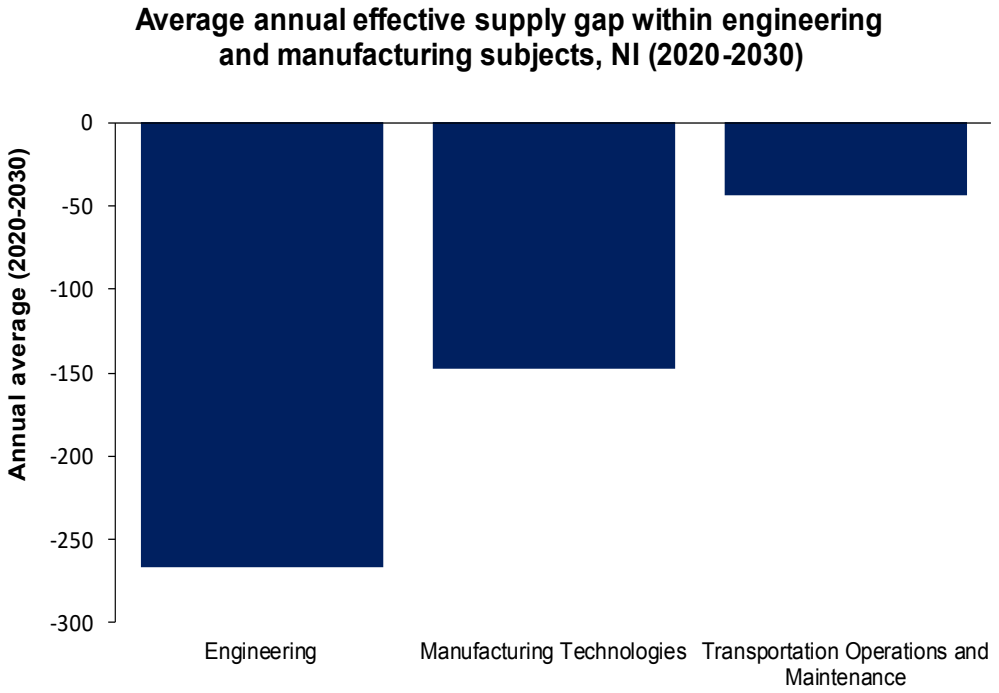
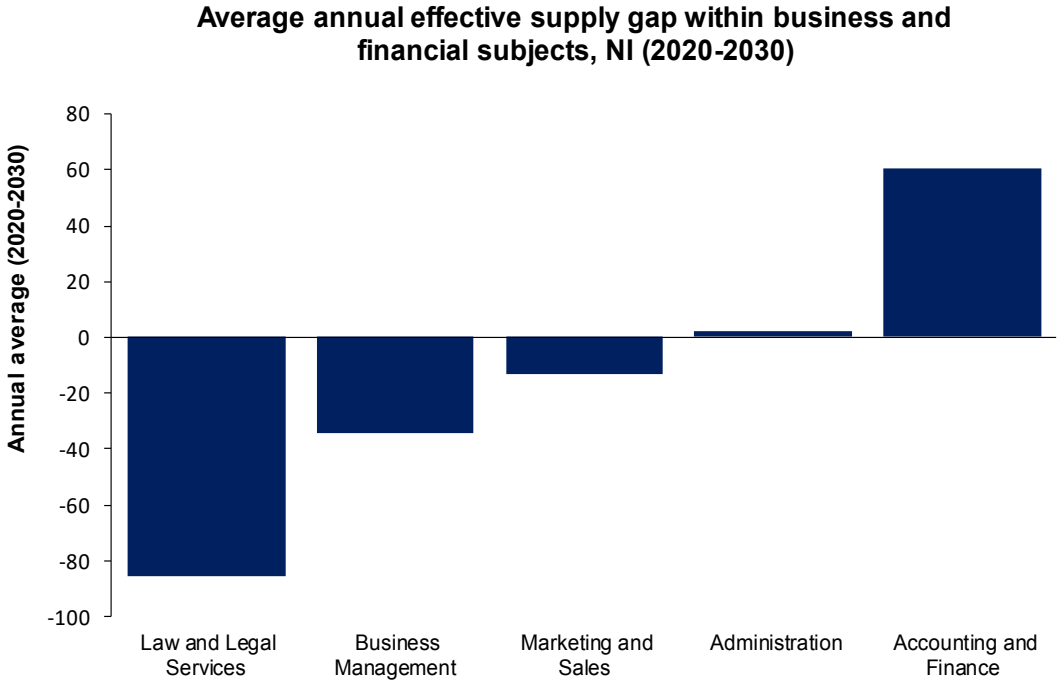
Source: *DfE, UUEPC analysis*

Annex E2 - Supply gap by NQF level 4-5 - detailed subjects (high growth)

Supply gap by sub-degree subject (1)

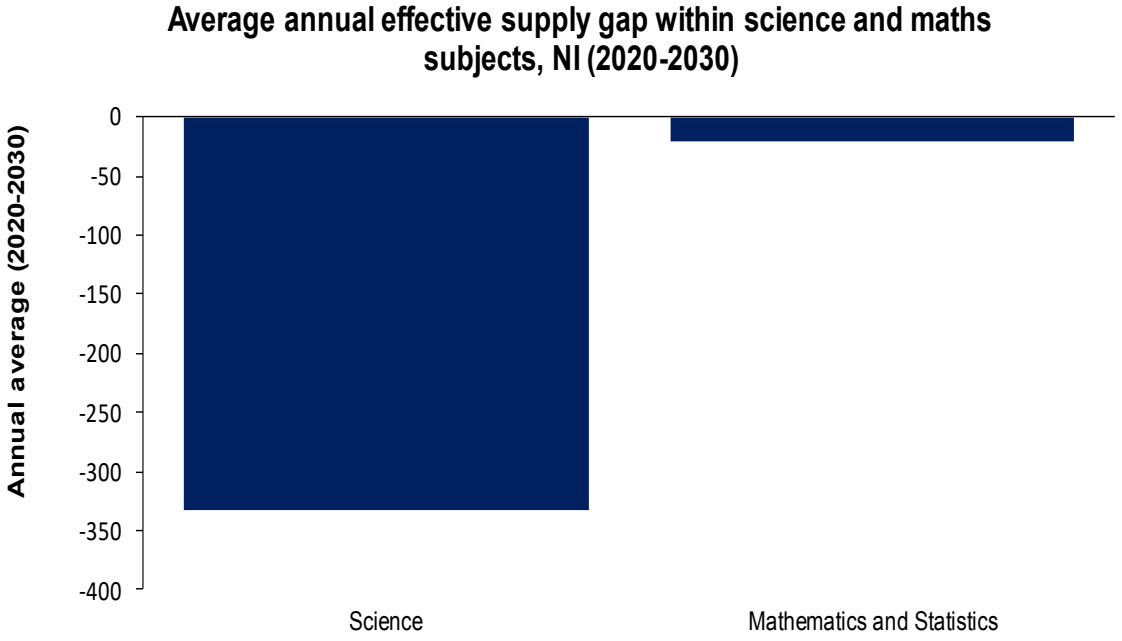


Source: *DfE, UUEPC analysis*

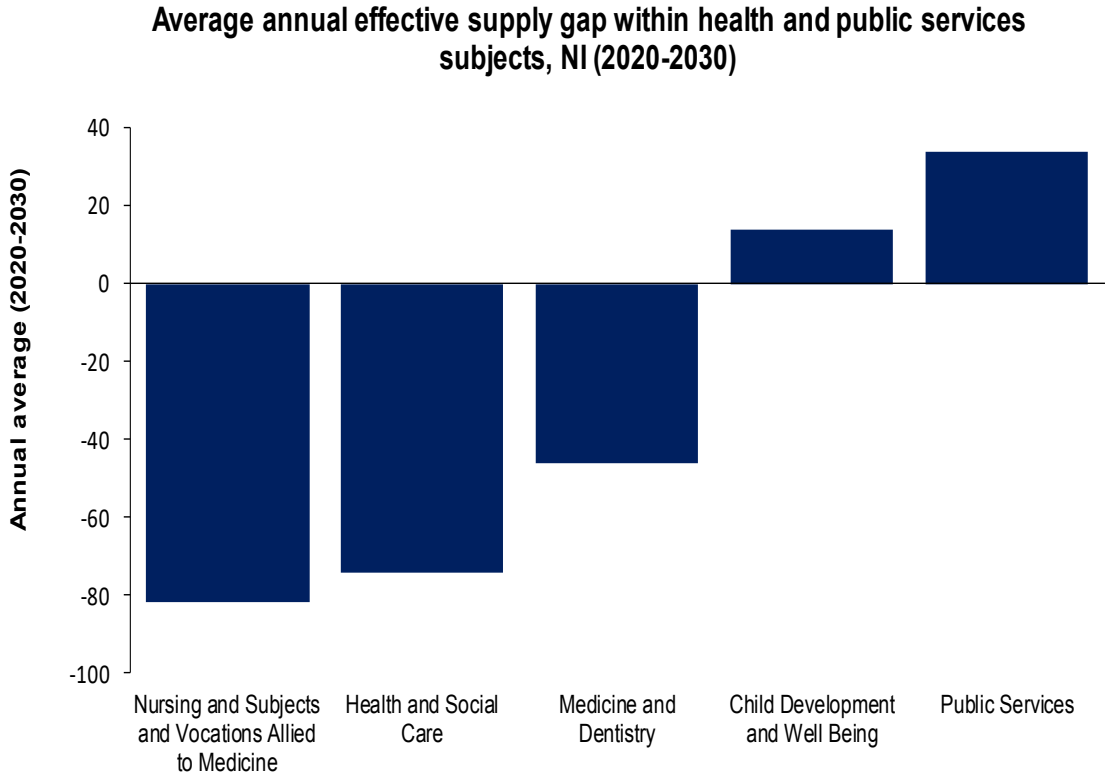


Source: *DfE, UUEPC analysis*

Supply gap by sub-degree subject (2)

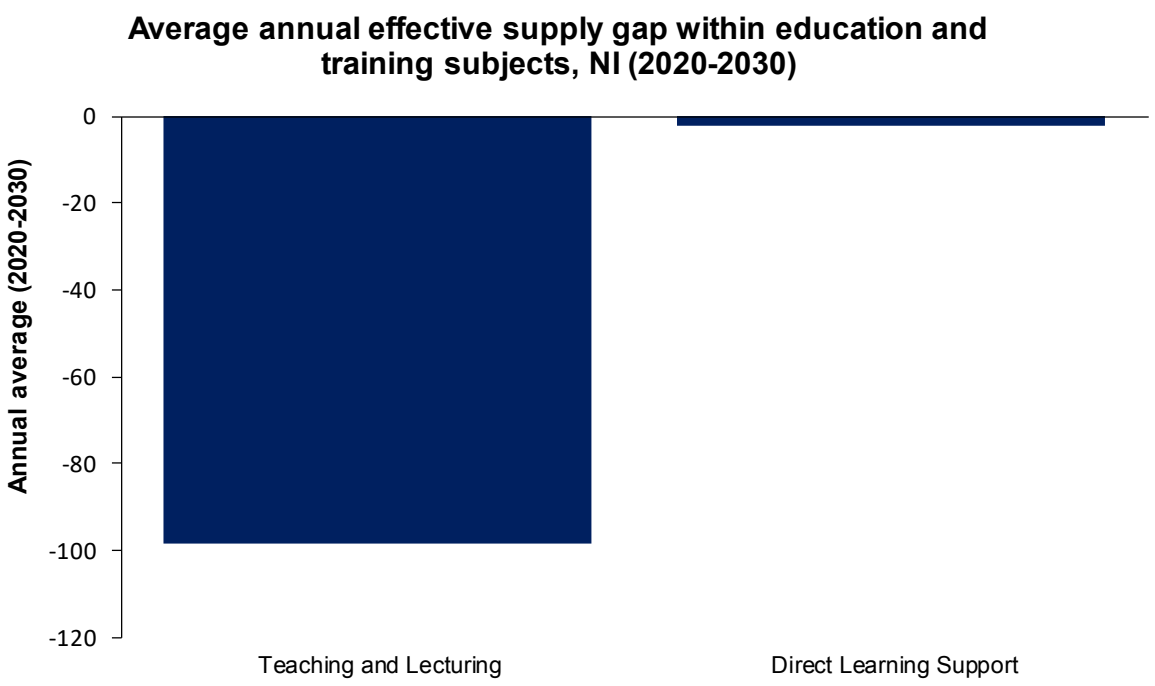


Source: DfE, UUEPC analysis

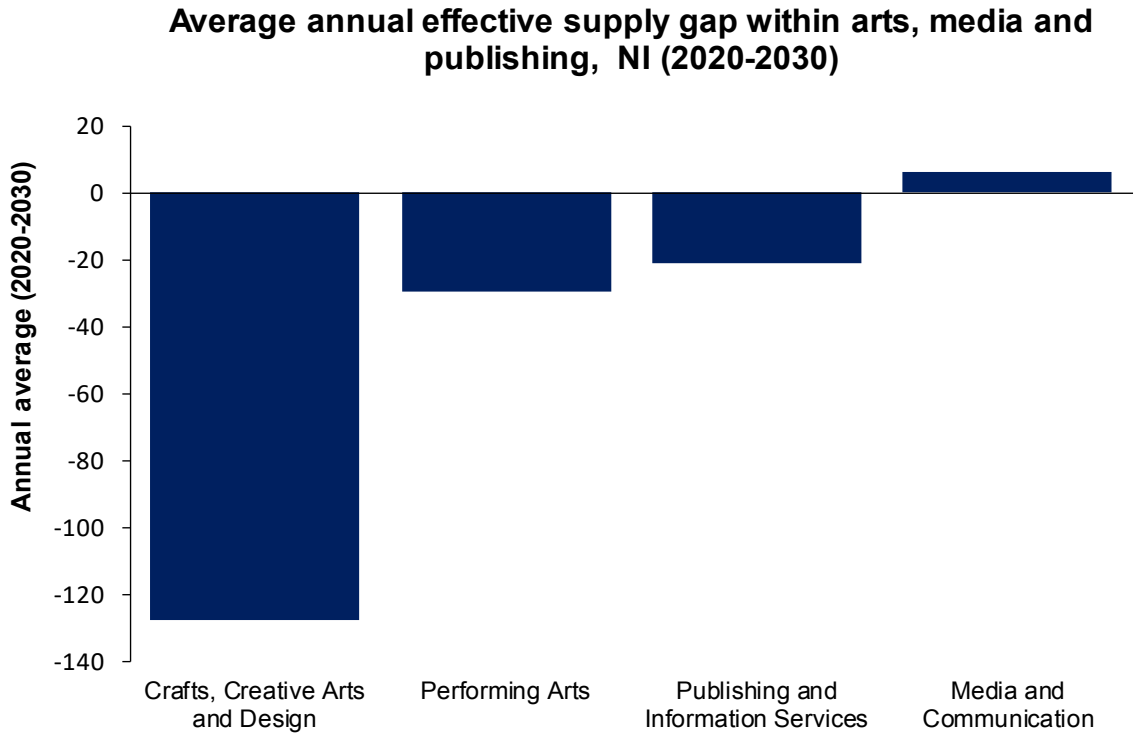


Source: DfE, UUEPC analysis

Supply gap by sub-degree subject (3)

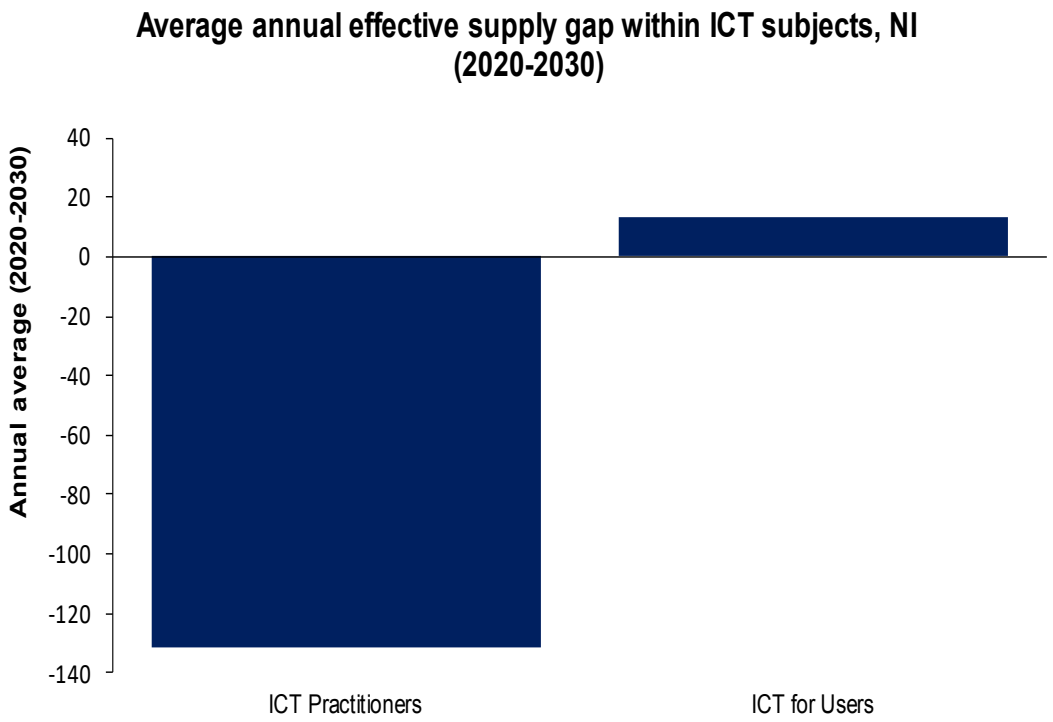


Source: DfE, UUEPC analysis

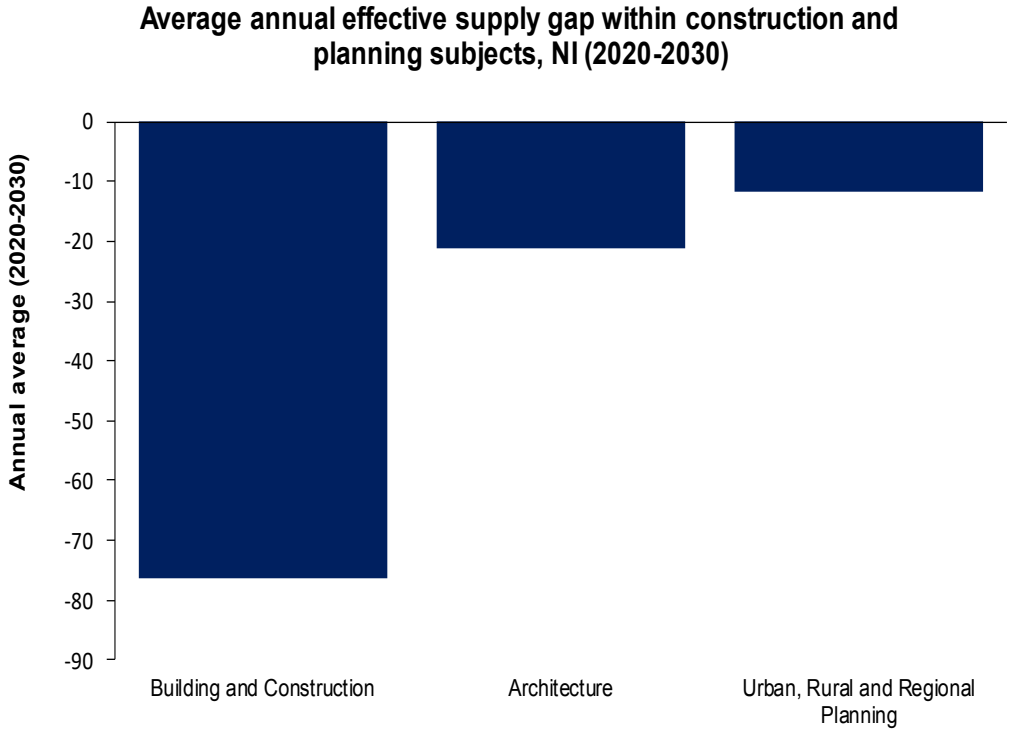


Source: DfE, UUEPC analysis

Supply gap by sub-degree subject (4)

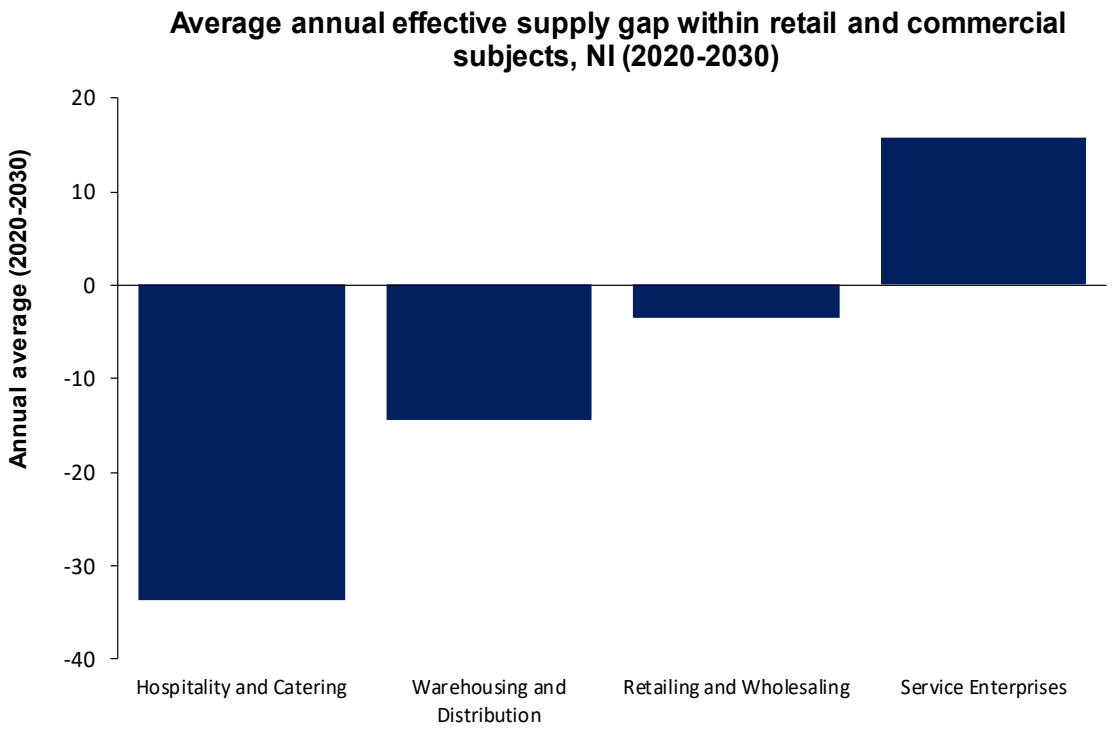


Source: DfE, UUEPC analysis

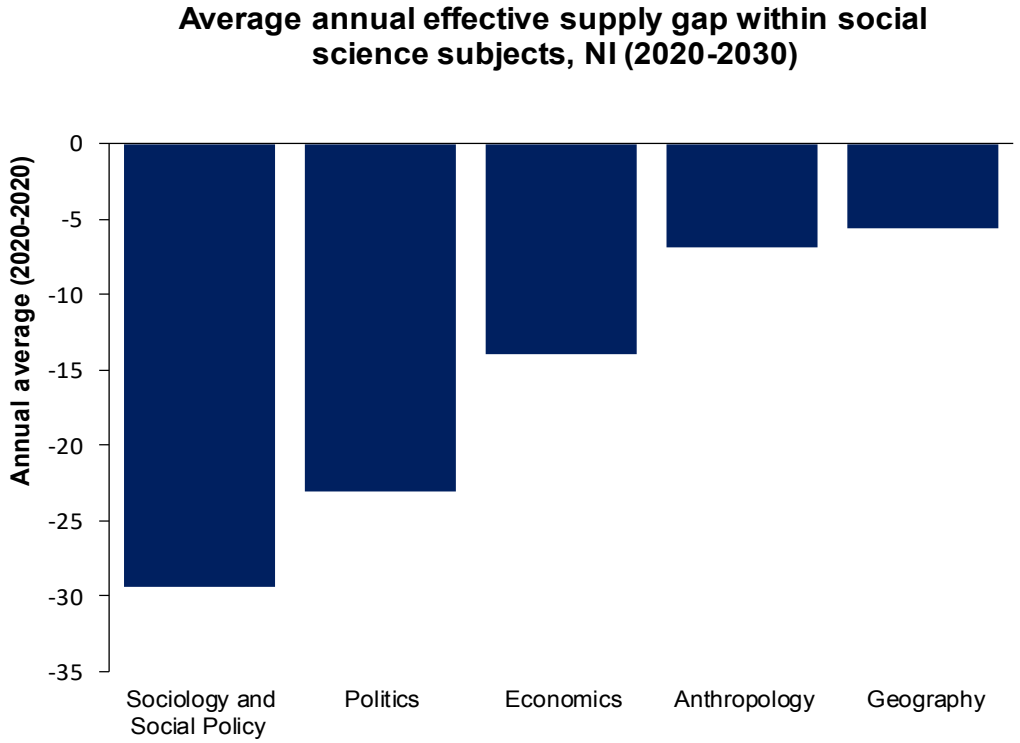


Source: DfE, UUEPC analysis

Supply gap by sub-degree subject (5)

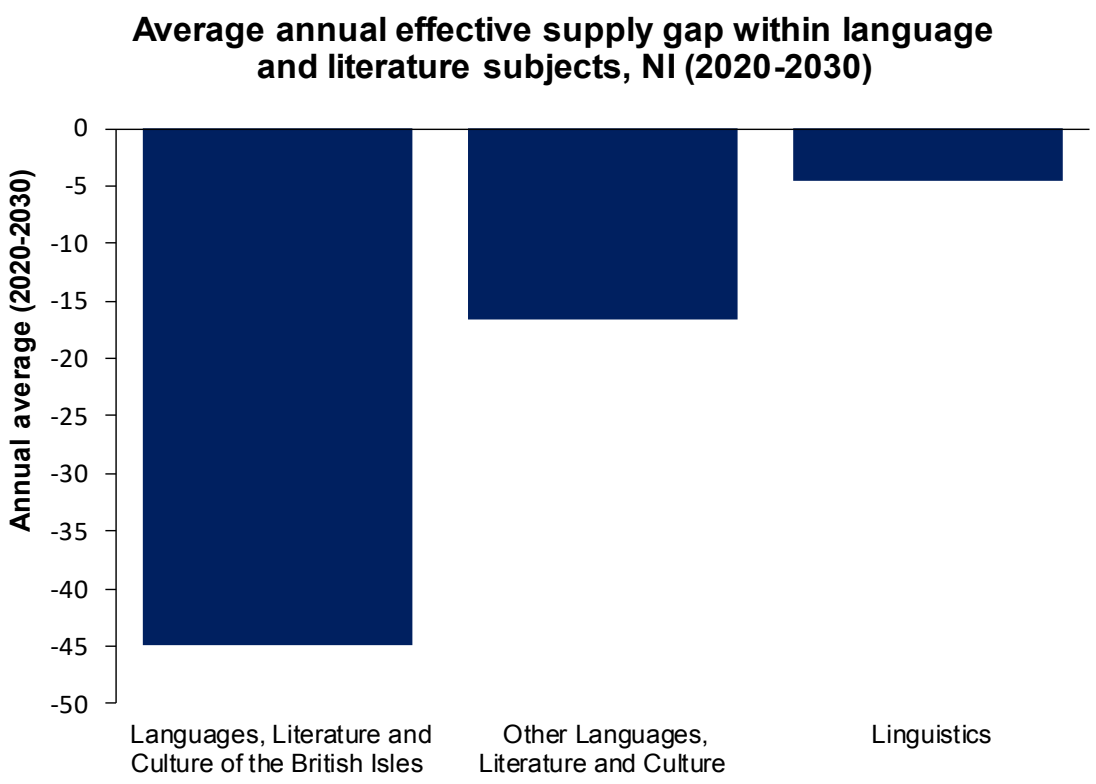


Source: DfE, UUEPC analysis

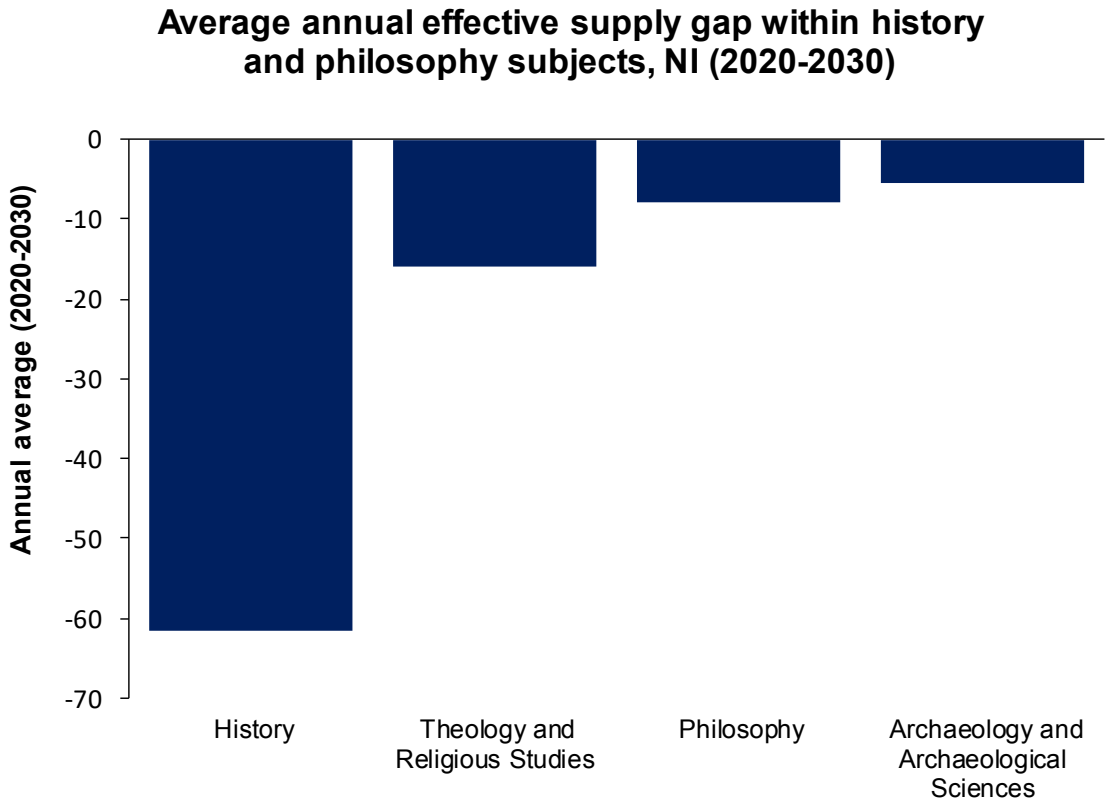


Source: DfE, UUEPC analysis

Supply gap by sub-degree subject (6)

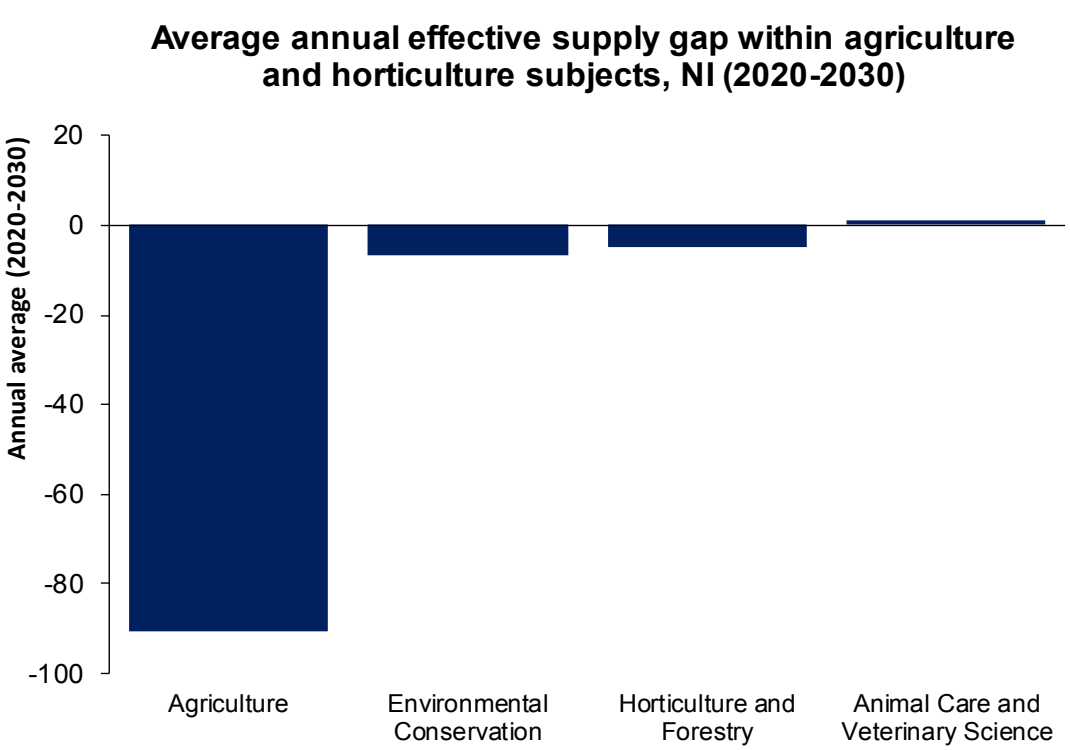


Source: DfE, UUEPC analysis

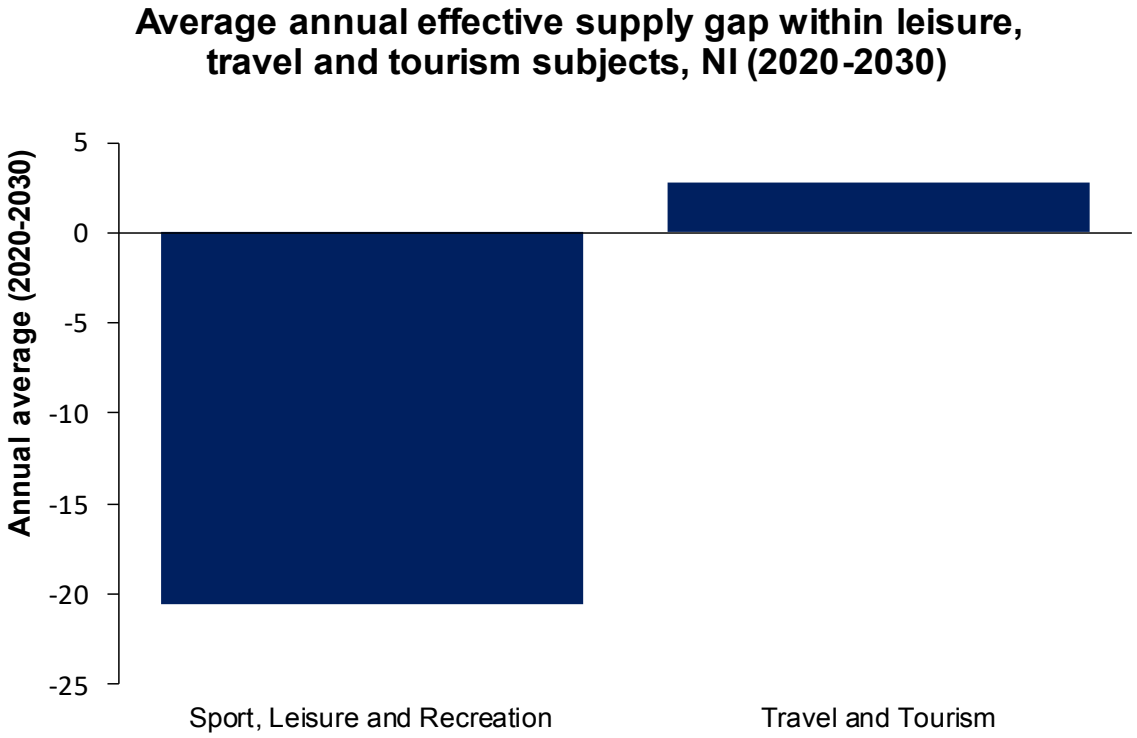


Source: DfE, UUEPC analysis

Supply gap by sub-degree subject (7)



Source: DfE, UUEPC analysis



Source: DfE, UUEPC analysis

Annex F1: 10x strategy priority clusters (high growth)

10X SKILLS STRATEGY

10X PRIORITY CLUSTERS

- DIGITAL, ICT AND CREATIVE INDUSTRIES (E.G. CYBER SECURITY)
- FIN-TECH / FINANCIAL SERVICES
- ADVANCED MANUFACTURING AND ENGINEERING (E.G. COMPOSITES)
- AGRI-TECH
- LIFE AND HEALTH SCIENCES (E.G. PERSONALISED MEDICINE)

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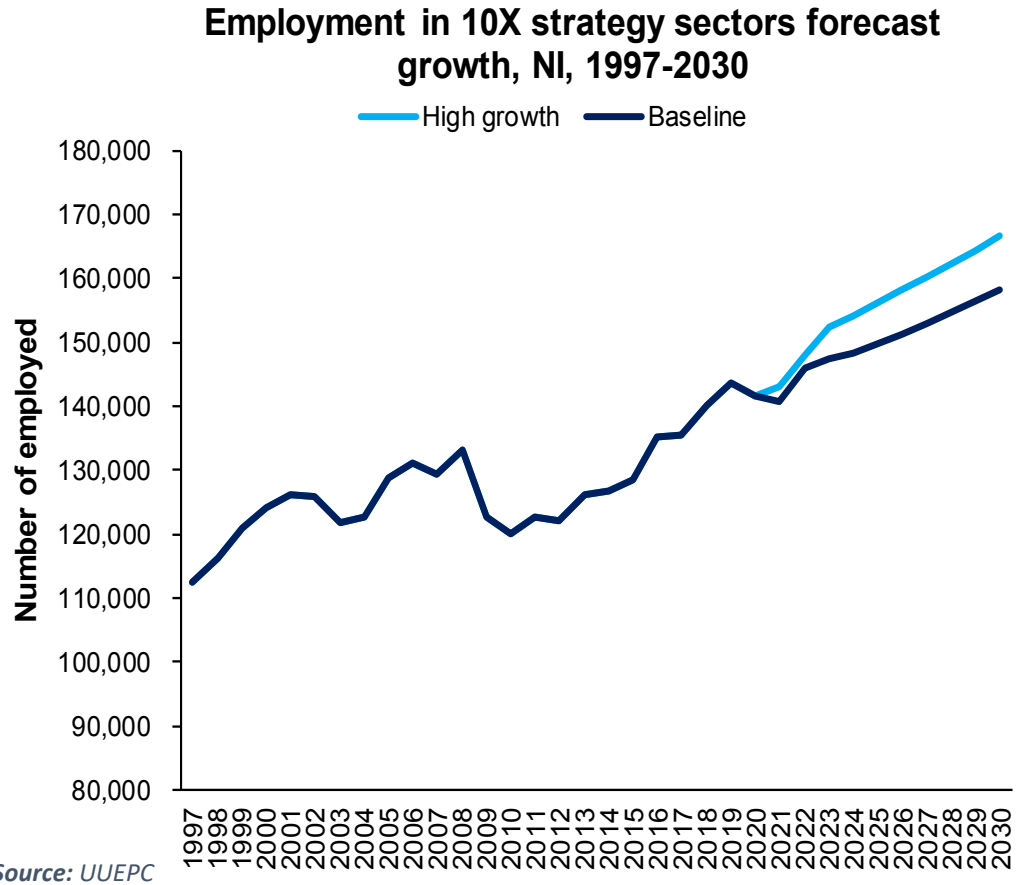
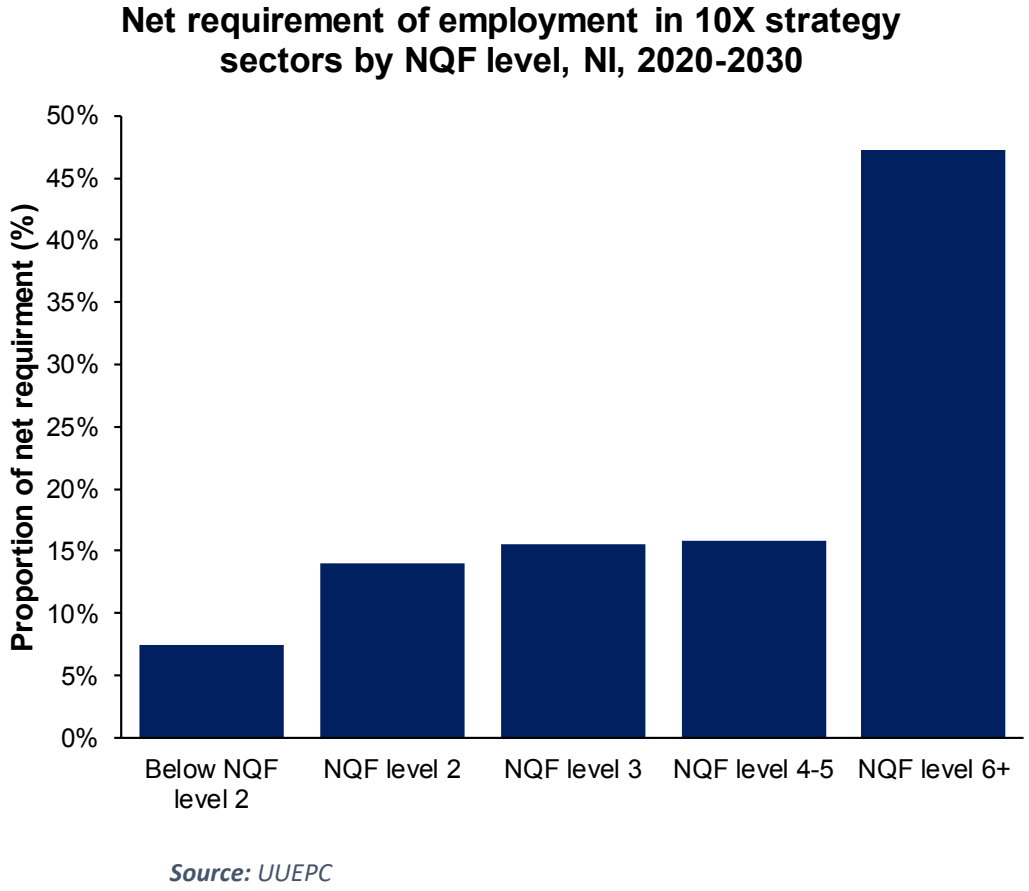
10x priority clusters (1)

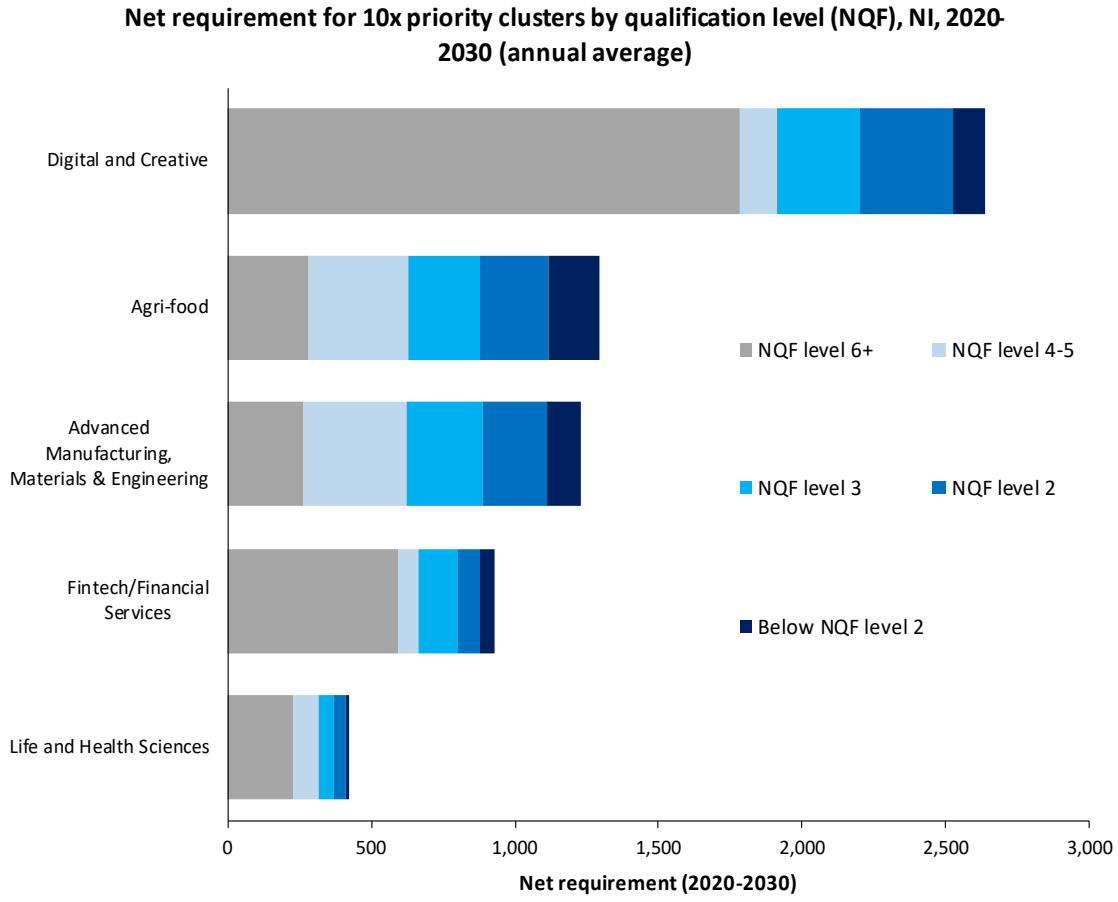


Source: UUEPC

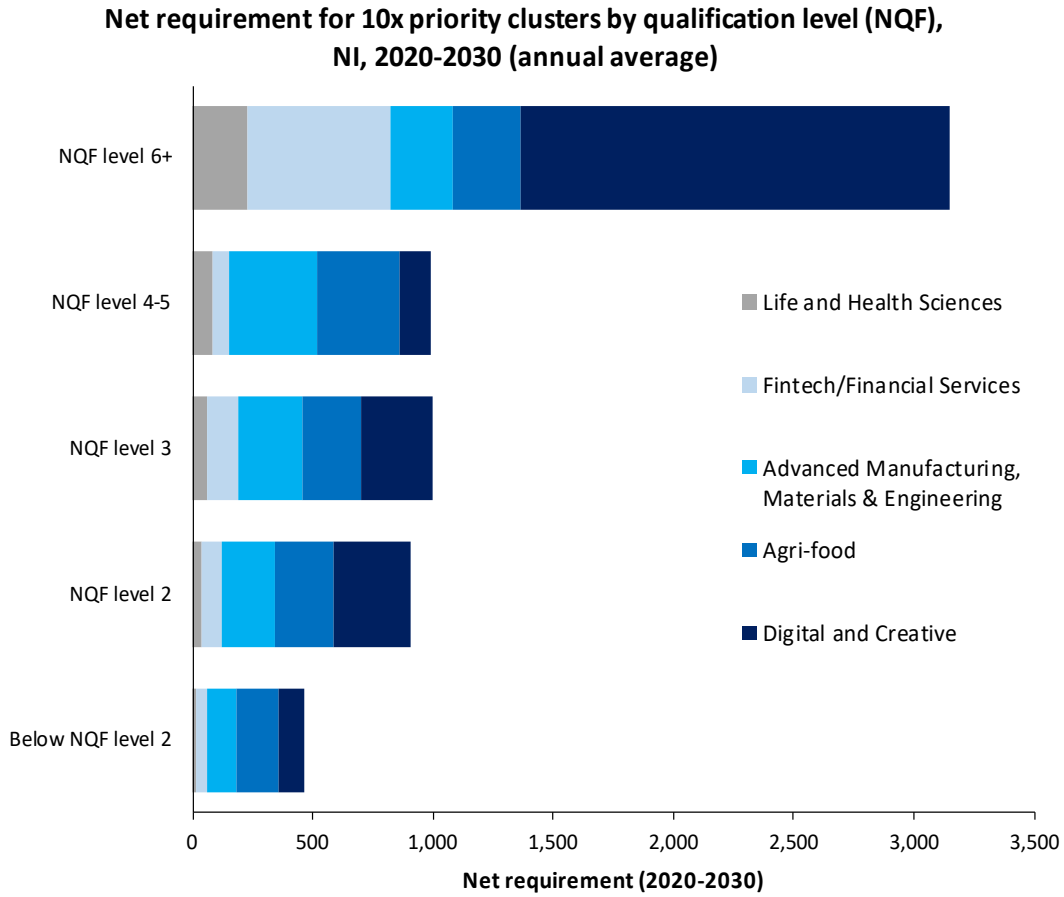


Source: UUEPC

10x priority clusters (2)

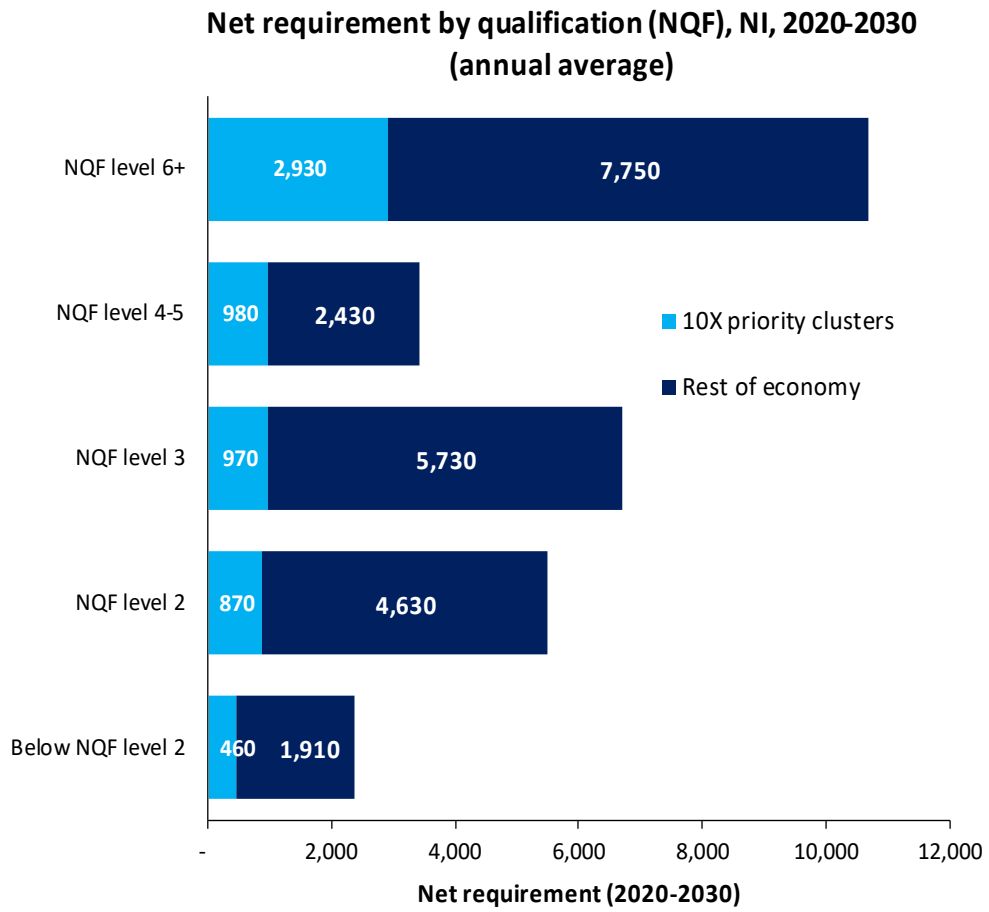


Source: UUEPC



Source: UUEPC

10x priority clusters (3)



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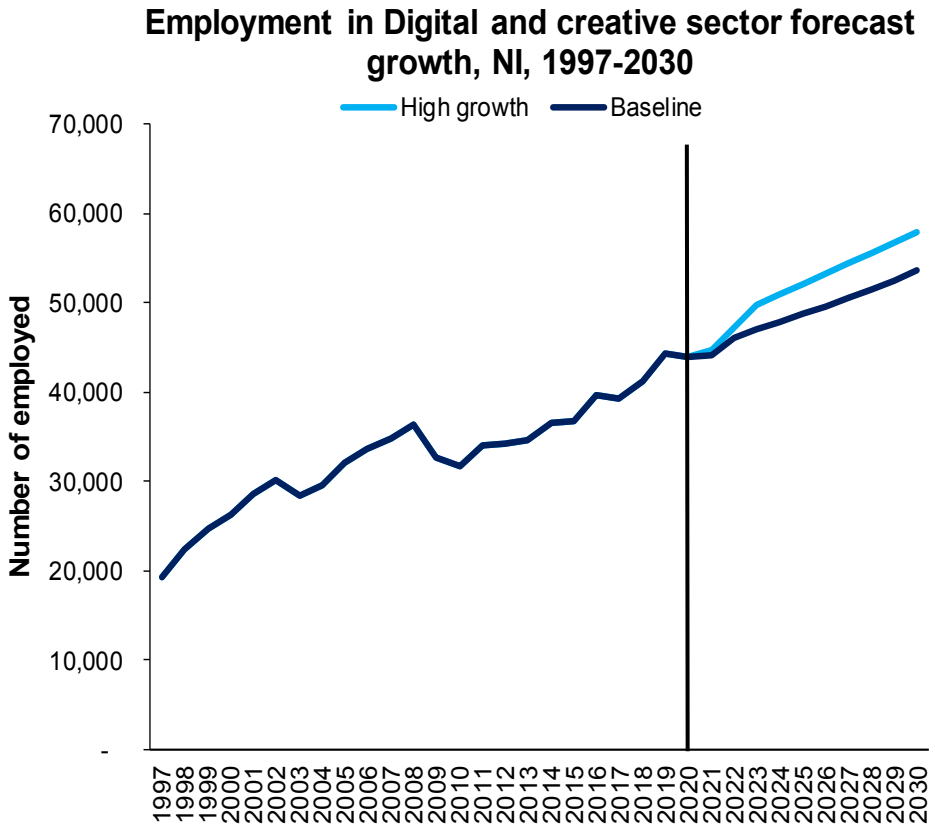
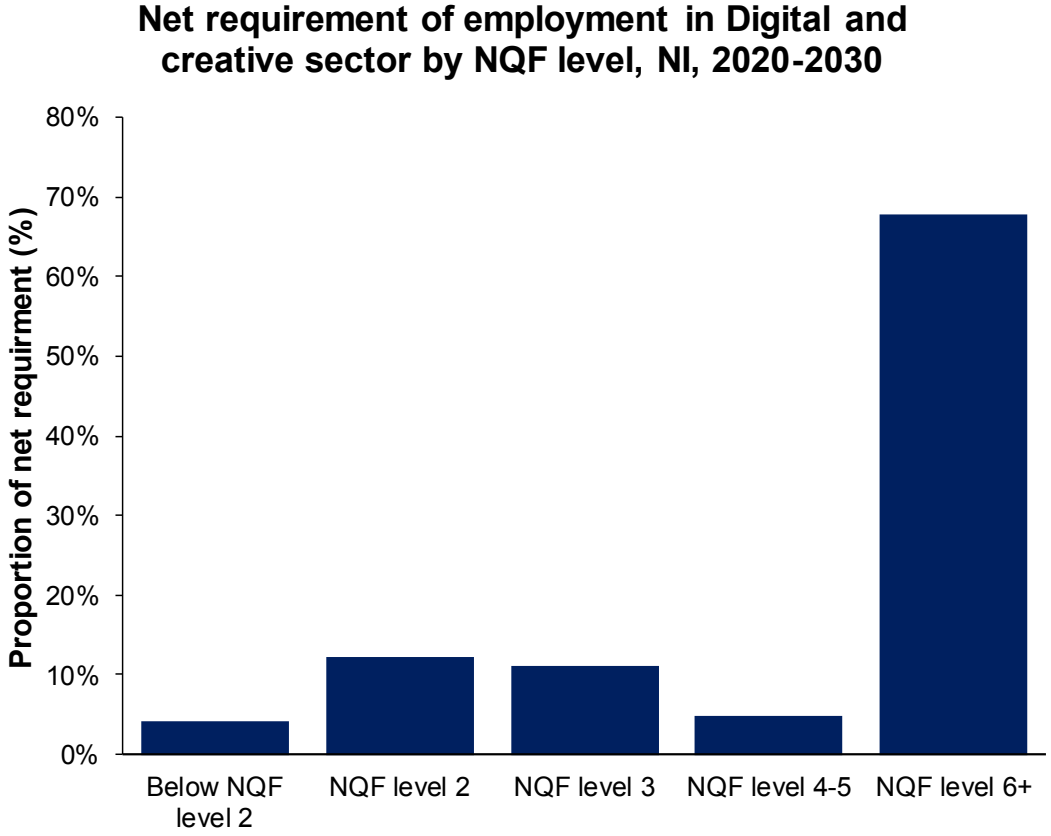
Source: *UUEPC*

Digital, ICT and Creative Industries



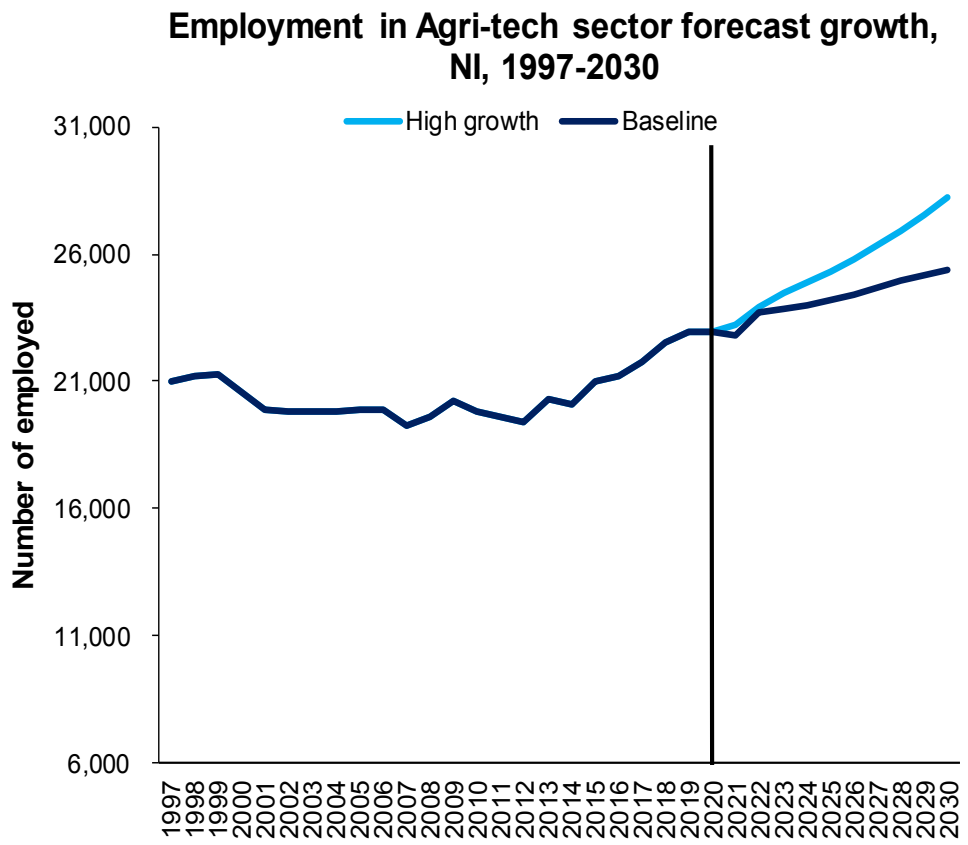
Source: UUEPC



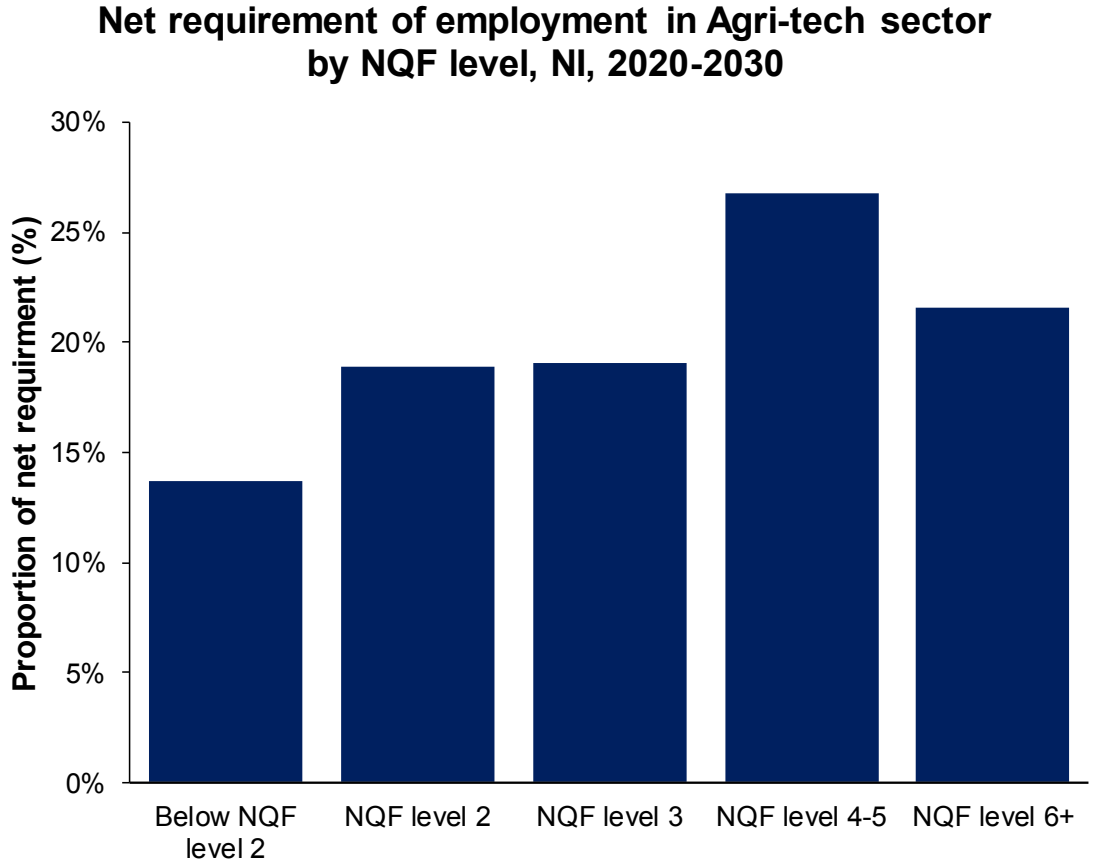
Source: UUEPC

Digital and Creative Industries is defined as the following sectors (SIC, 2-digit): Telecommunications; Computer programming, consultancy and related activities; Information service activities; Publishing activities; Motion picture, video and television programme production, sound recording and music publishing activities; Programming and broadcasting activities; Architectural and engineering activities; technical testing and analysis; Advertising and market research; Other professional, scientific and technical activities; Creative, arts and entertainment activities; Libraries, archives, museums and other cultural activities.

Agri-tech



Source: UUEPC

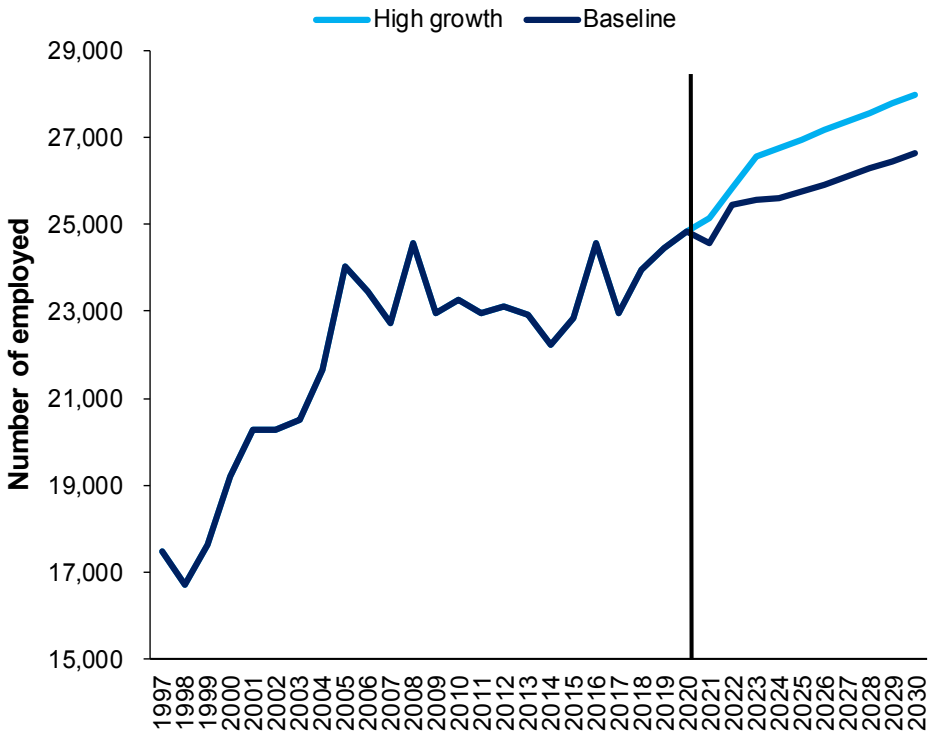


Source: UUEPC

Agri-tech is defined as the following sectors (SIC, 2-digit): Manufacture of food products; and Manufacture of beverages and tobacco products.

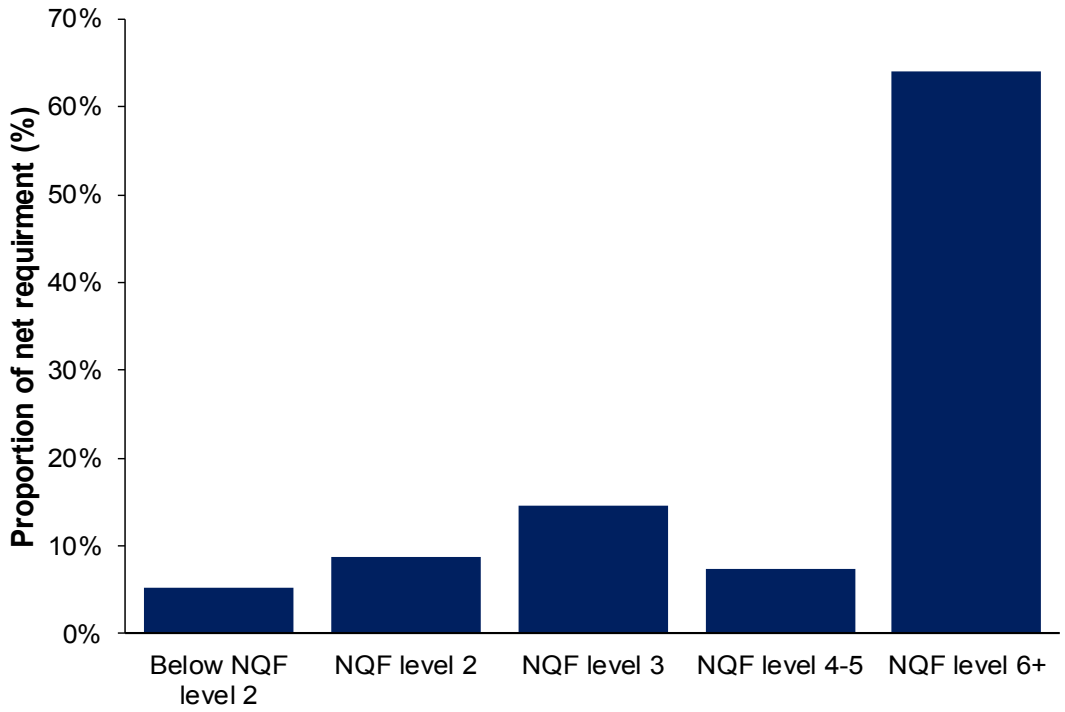
Fintech / Financial Services

Employment in Fintech/Financial Services sector forecast growth, NI, 1997-2030



Source: UUEPC

Net requirement of employment in in Fintech/Financial Services sector by NQF level, NI, 2020-2030

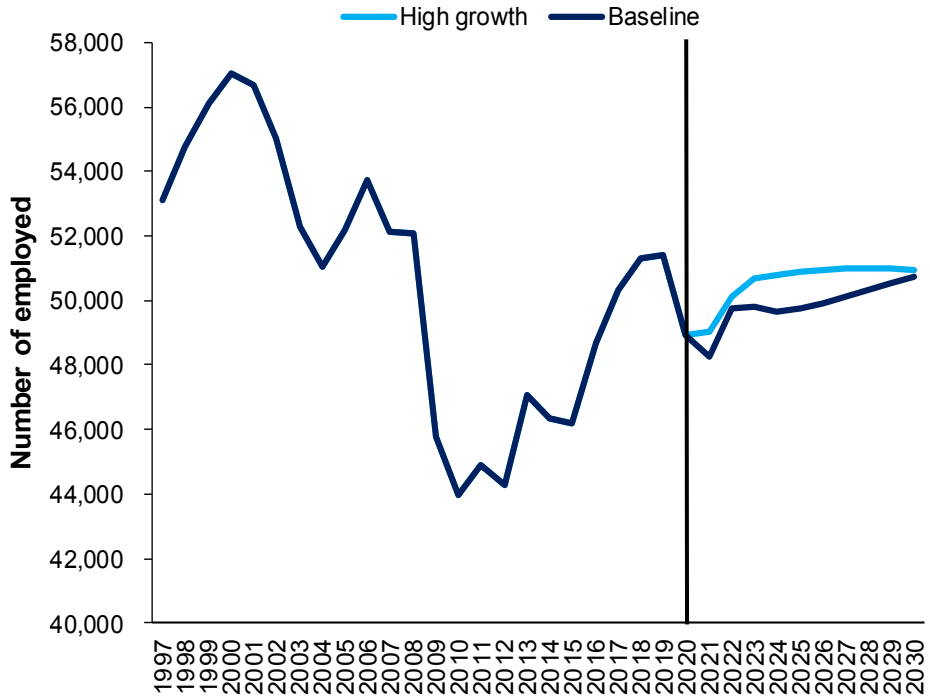


Source: UUEPC

Fintech/ Financial Services is defined as the following sectors (SIC, 2-digit): Financial service activities, except insurance and pension funding; Insurance, reinsurance and pension funding, except compulsory social security; and activities auxiliary to financial services and insurance activities. Plus 20% of the following Tech sectors: Telecommunications; Computer programming, consultancy and related activities; and Information service activities.

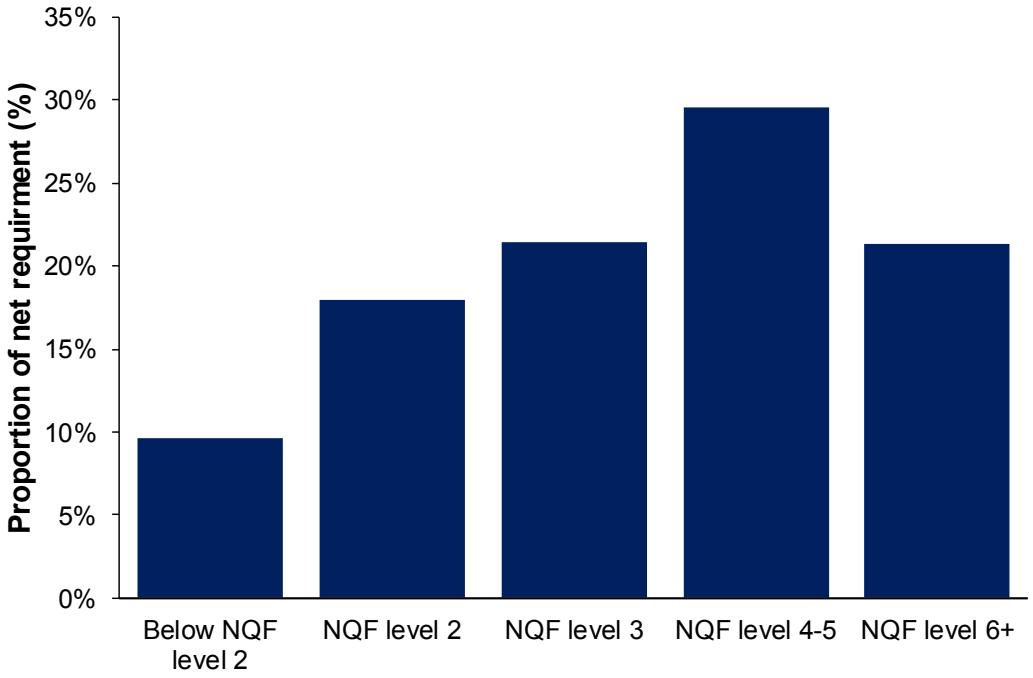
Advanced Manufacturing and Engineering

Employment in Advanced Manufacturing, Materials & Engineering sector forecast growth, NI, 1997-2030



Source: UUEPC

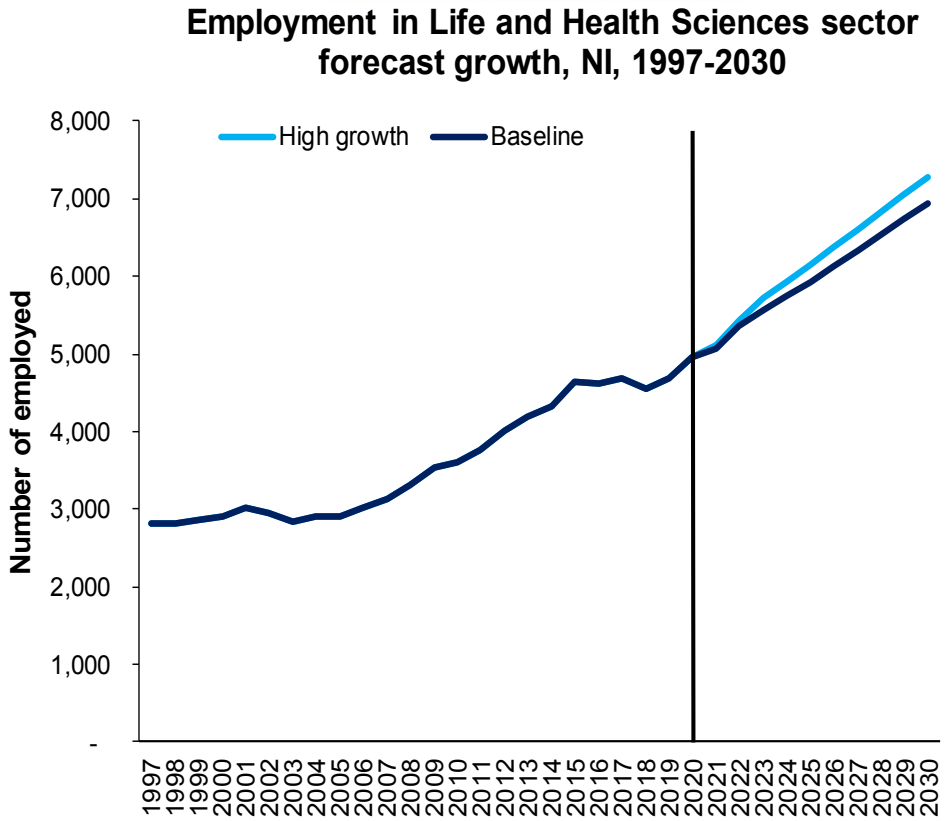
Net requirement of employment in Advanced Manufacturing, Materials & Engineering sector by NQF level, NI, 2020-2030



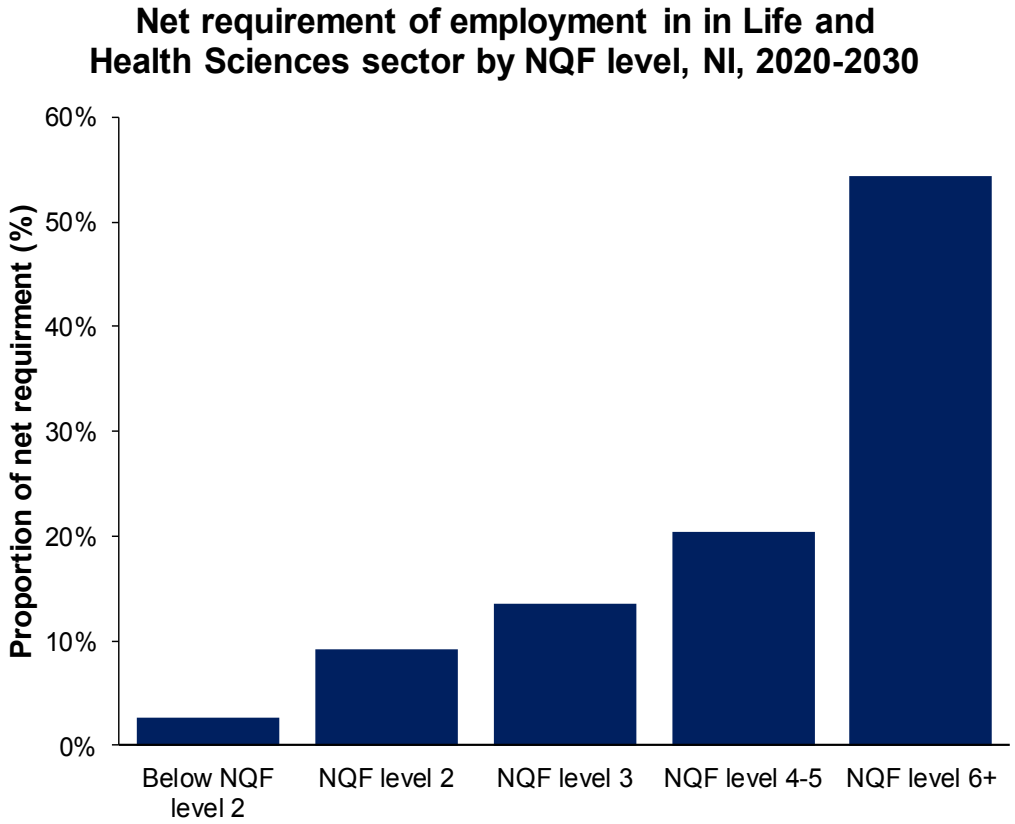
Source: UUEPC

Advanced Manufacturing and Engineering is defined as the following sectors (SIC, 2-digit): Manufacture of chemicals and chemical products; Manufacture of rubber and plastic products; Manufacture of other non-metallic mineral products; Manufacture of fabricated metal products, except machinery and equipment; Manufacture of computer, electronic and optical products; Manufacture of electrical equipment; Manufacture of machinery and equipment n.e.c.; Manufacture of motor vehicles, trailers and semi-trailers; Manufacture of other transport equipment; and Other manufacturing.

Life and Health Sciences



Source: *UUEPC*



Source: *UUEPC*

Life and Health Sciences is defined as the following sectors (SIC, 2-digit): Manufacture of basic pharmaceutical products and pharmaceutical preparations; and Scientific research and development.

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