

# Monitoring Ireland's Skills Supply **2019**



# Monitoring Ireland's Skills Supply 2019

A report compiled by the Skills and Labour Market Research Unit in SOLAS on behalf of the National Skills Council

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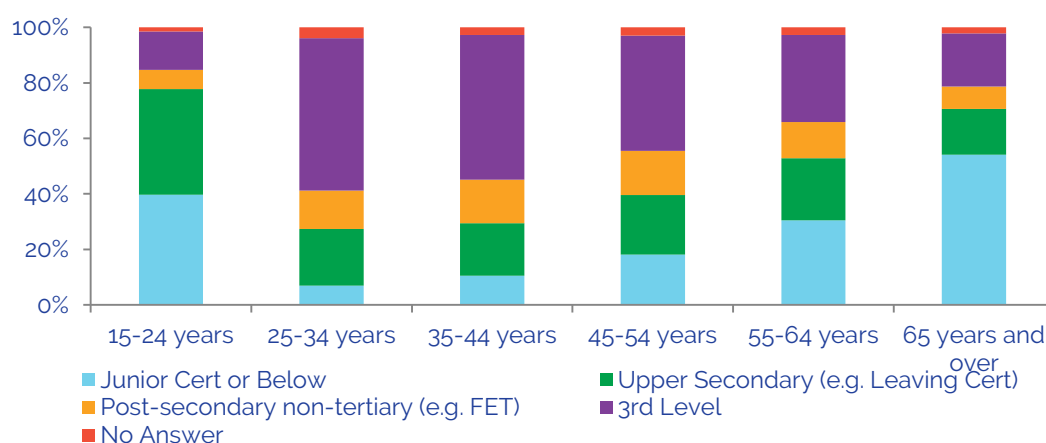
## Executive Summary

### Skills profile of the population by education attainment level

#### Highest level of education attained by age group

**In general, the older the population, the greater the share is of persons with lower education attainment.** The exception is for the youngest age cohort where the majority of persons have yet to complete full-time education.

Figure E1 Population (15+) by age group and education level, Q3 2018

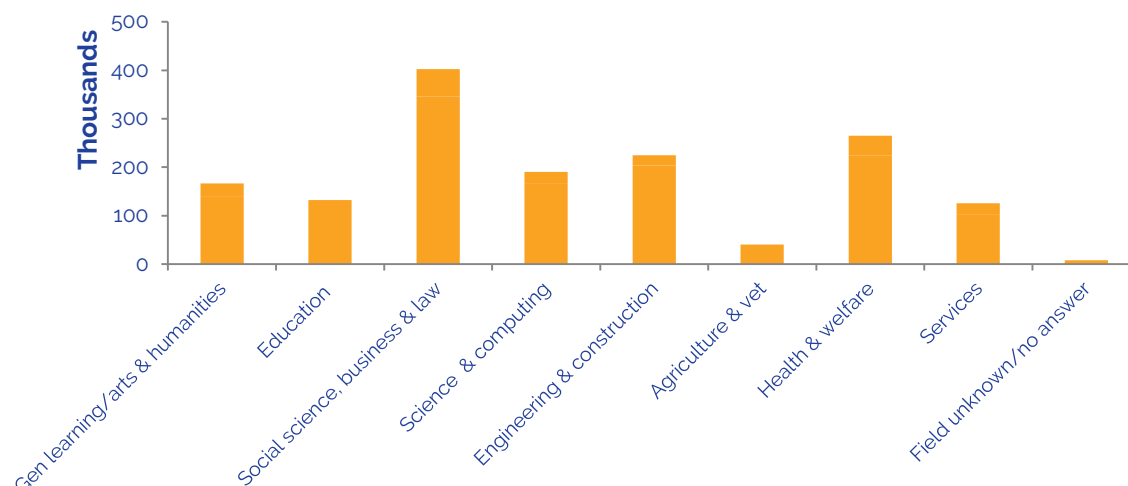


Source: SLMRU analysis of CSO (LFS) data

#### Population with at least post-secondary non-tertiary education by field of learning

- Of the almost 2.6 million persons aged 25-64 years in Ireland in quarter 3 2018, 61% held either post-secondary non-tertiary (e.g. FET) or third level qualifications
- **STEM qualification holders** (science, computing, engineering, manufacturing and construction) combined accounted for 414,800 persons
- **Social science, business and law qualification holders** accounted for a further quarter with 402,100 persons

Figure E2 Post-secondary non-tertiary & 3<sup>rd</sup> level graduates field of learning, Q3 2018



Source: SLMRU analysis of CSO (LFS) data

## FET and third level awards by field and level

Table E1 provides a summary of further education and training (FET) and third level awards by field of learning and level in 2017. Overall, there were over 114,500 awards made to learners completing programmes in the FET and third level sectors. In terms of fields of learning, social science, business and law had the highest number of awards, making up more than a quarter of all awards made in 2017. Level 8 awards (honours degrees) had the highest number of awards, although this was not consistent across all fields of learning.

Table E1. FET and 3<sup>rd</sup> level awards by field and NFQ level, 2017 (2018 for non-QQI FET)

	Further Education & Training					Higher Education					Total
	Level 1-3	Level 4	Level 5	Level 6	Non-QQI FET	Level 6	Level 7	Level 8*	Level 9/10	QQI-HE	
<b>General learning</b>	2,492	236	0	0	155	169	22	0	38	0	3,112
<b>Education</b>	0	0	9	45	0	1,169	169	2,063	3,059	914	7,428
<b>Arts &amp; humanities</b>	588	815	1,920	551	50	419	893	6,000	1,879	239	13,354
<b>Social science, business &amp; law</b>	196	542	4,550	537	246	2,155	2,110	8,464	8,080	2,828	29,708
<b>Science &amp; computing</b>	0	2	932	212	1,448	462	1,450	5,053	2,927	1,103	13,584
<b>Eng. Manuf. &amp; const.</b>	3	6	441	1,527	1,067	1,126	1,669	2,934	1,423	57	10,253
<b>Agriculture &amp; vet</b>	0	195	3,292	451	0	40	360	568	120	0	5,026
<b>Health &amp; welfare</b>	0	17	9,172	2,083	0	1,176	1,448	6,103	3,684	678	24,361
<b>Services</b>	0	243	2,417	503	1,213	717	1,193	999	373	32	7,690
<b>Total by level</b>	3,279	2,056	22,733	5,909	4,179	7,433	9,314	32,184	21,583	5,851**	114,521

Source: HEA, QQI (FET & selected HE major awards), SOLAS/ETBI (PLSS)

\*It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NQF are included with other postgraduate qualifications at level 9.  
 \*\*Note that QQI-HE data contains a number of awards in the 'unclassified' field of learning. Based on the award title, the SLMRU has re-categorised most of these awards among relevant fields (mostly computing). Not included in the table above are 23 'unclassified' awards for which it was impossible to assign a field of learning based on the award title.

# Skills Overview

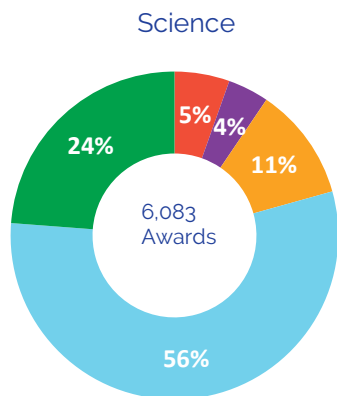
## Key points

- Compared to other EU countries, Ireland has a high share of 3<sup>rd</sup> level graduates in **both science and computing** – for computing, Ireland had one of the highest shares, second only to Finland.
- At 91%, the labour force participation rate for people with **engineering, manufacturing & construction qualifications** is amongst the highest across all fields of learning (only agriculture and vet qualification holders have a higher rate).
- Almost a fifth of 3<sup>rd</sup> level **social science, business and law** qualification holders in employment work in administrative occupations - occupations for which it could be argued a 3<sup>rd</sup> level qualification is not required.
- Although the total number of Irish-domiciled graduates from UK higher education institutions has declined in recent years, the decline for those studying **health** related subjects is less sharp than other fields.
- The share of third level services graduate in employment who work in high skilled occupations is the smallest for **services** compared to all other fields of learning; this is in part due to the fact that many **services** graduates train to work as chefs, which are classified as skilled trades rather than professionals or associate professionals
- More than three quarters of adults who hold qualifications in the **education** field of learning are female (compared to a 53% share across all fields of learning).
- Although the numbers involved are small, the labour force participation rate for adults with **agriculture/vet** qualifications is the highest across all fields of learning (92% compared to the national average of 86%).

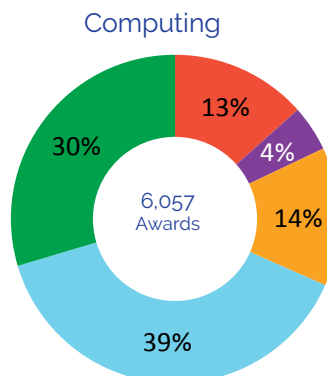


# Science and Computing

## FET & 3<sup>rd</sup> Level Awards, 2017



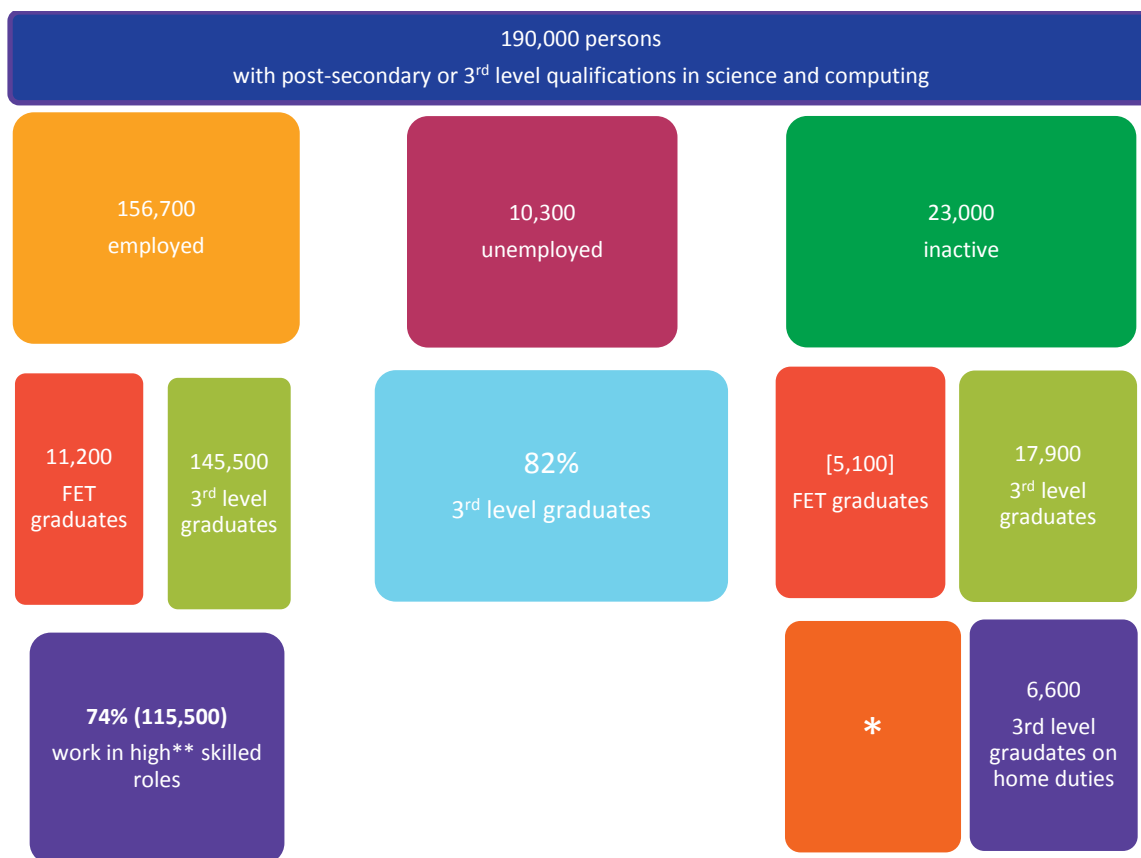
■ FET (levels 5 & 6)    ■ Level 6 (HE)  
■ Level 7                    ■ Level 8  
■ Level 9/10



■ FET (levels 5 & 6)    ■ Level 6 (HE)  
■ Level 7                    ■ Level 8  
■ Level 9/10

Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with science & computing qualifications, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

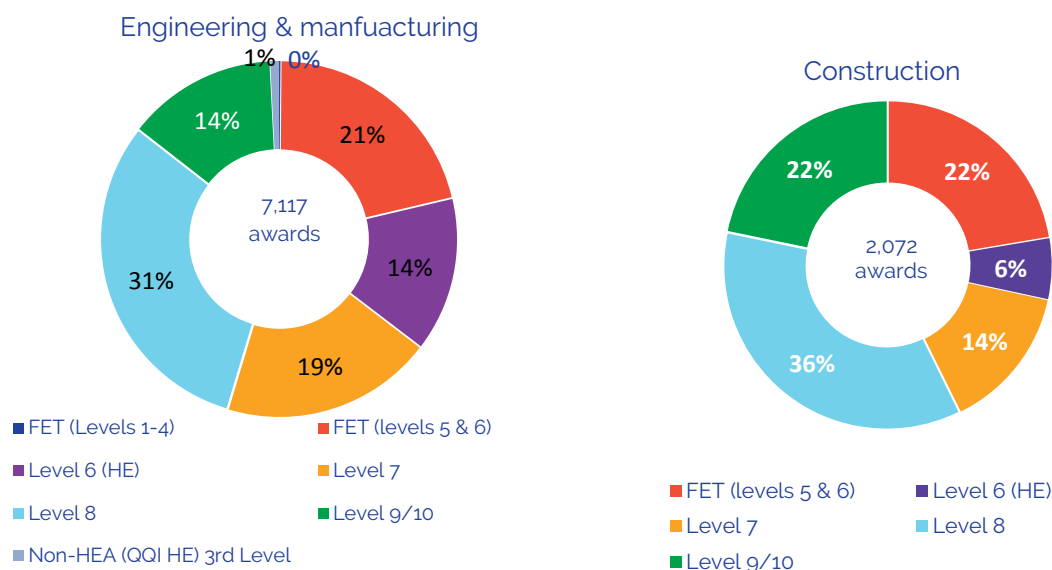
\* Data is too small to report;

[ ] Data in square brackets is small and should be treated with caution.

\*\* High skilled roles are comprised of managerial, professional and associate professional occupations

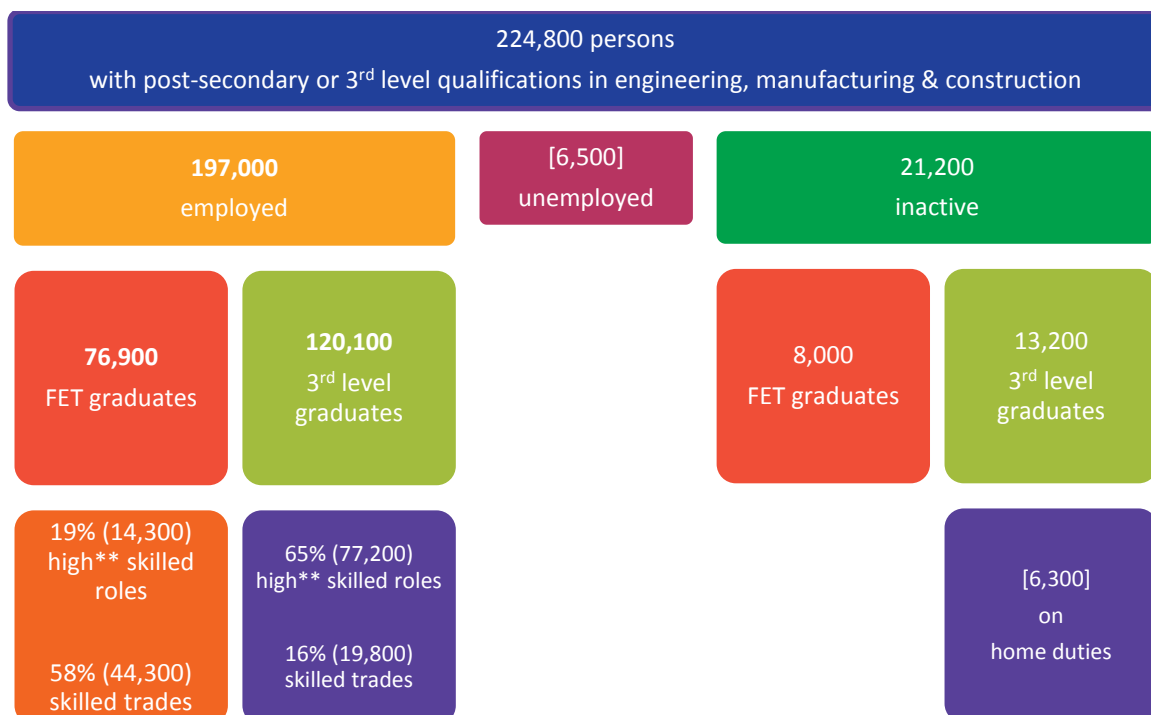
# Engineering, manufacturing and construction

## FET & 3<sup>rd</sup> Level Awards, 2017



Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with engineering, manufacturing & construction qualifications, Q3 2018



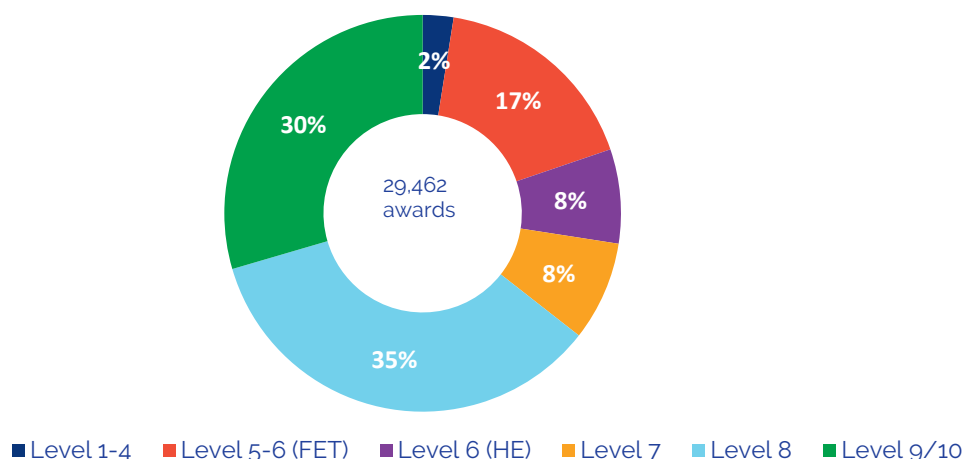
Source: SLMRU analysis of CSO (Labour Force Survey) data

Numbers in brackets [...] are small and should be treated with caution

\*\*High skilled roles are comprised of managerial, professional (e.g. mechanical engineer) and associate professional (e.g. building engineering technician) occupations

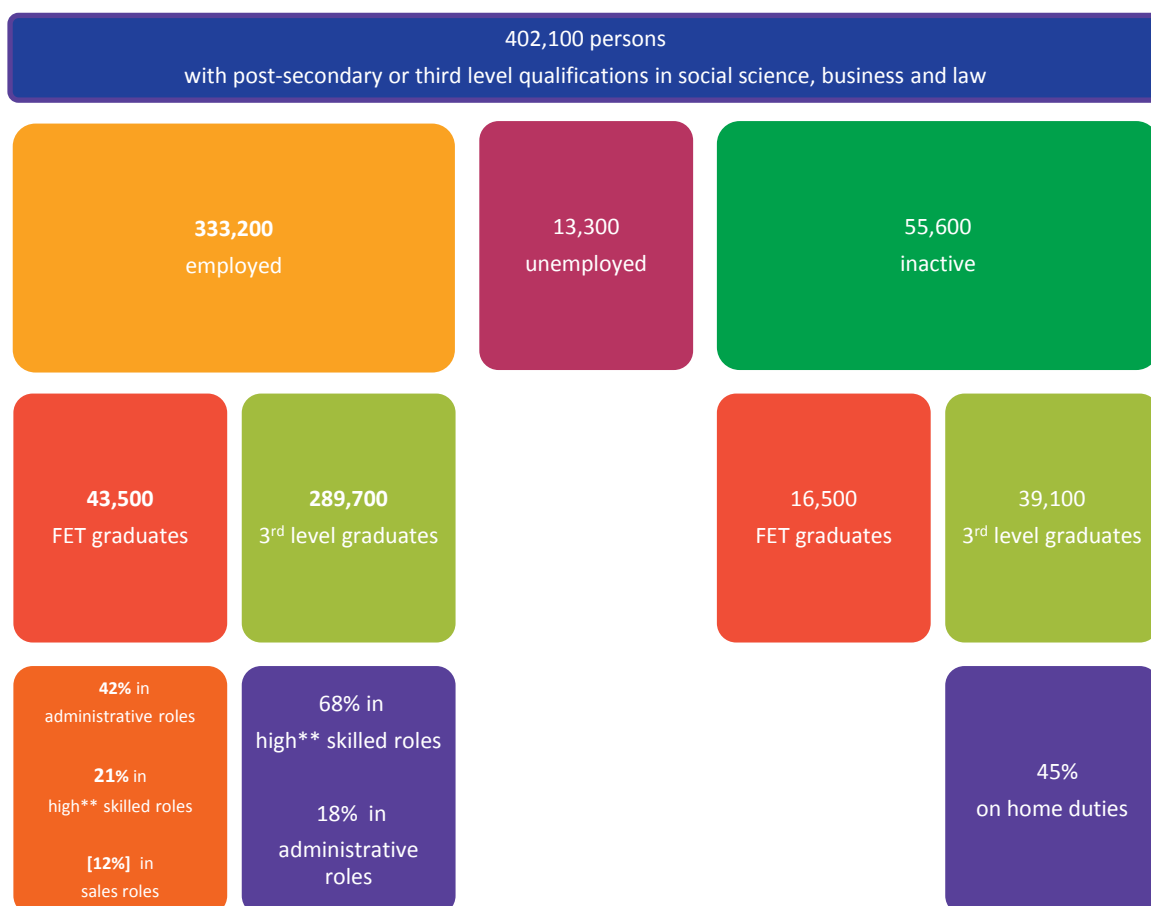
# Social science, business and law

## FET & 3<sup>rd</sup> Level Awards, 2017



Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with social science, business & law qualifications, Q3 2018



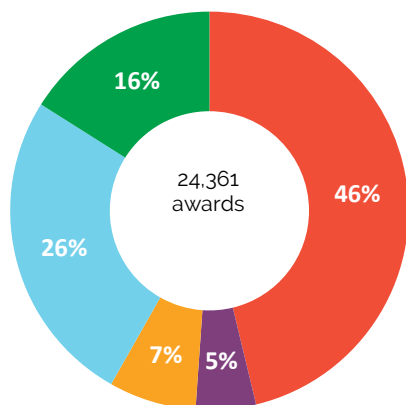
Source: SLMRU analysis of CSO (Labour Force Survey) data

[..] Data in square brackets is small and should be treated with caution.

\*\*High skilled roles comprise those working as managers, professionals (e.g. accountants) or associate professionals (accounting technicians)

# Health and welfare

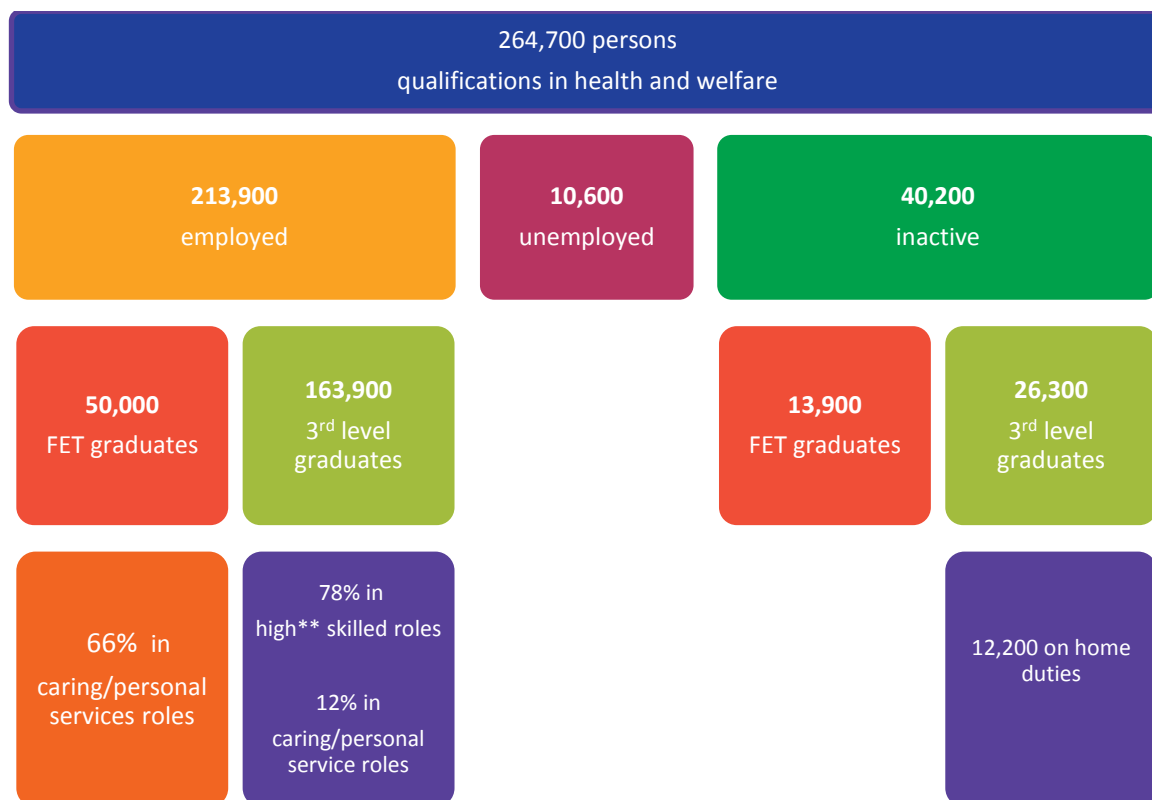
## FET & 3<sup>rd</sup> Level Awards, 2017



■ Level 5 & 6 (FET) ■ Level 6 (HE) ■ Level 7 ■ Level 8 ■ Level 9\*/10

Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with health & welfare qualifications, quarter 3 2018

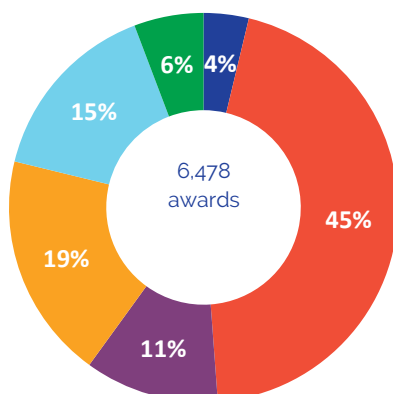


Source: SLMRU analysis of CSO (Labour Force Survey) data

\*\*High skilled roles comprise those working as managers, professionals or associate professionals

# Services

## FET & 3<sup>rd</sup> Level Awards, 2017



■ Level 1-4 (FET) ■ Level 5-6 (FET) ■ Level 6 (HE) ■ Level 7 ■ Level 8 ■ Level 9/10

Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with services qualifications, quarter 3 2018

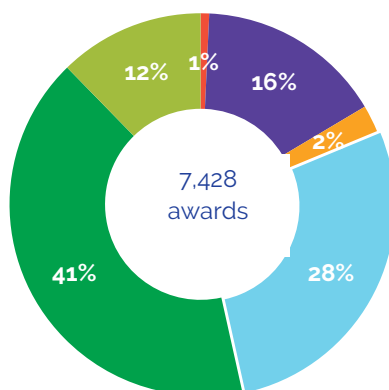


Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report; \*\* High skilled roles are comprised of managerial (e.g. hotel manager), professional and associate professional occupations

# Education

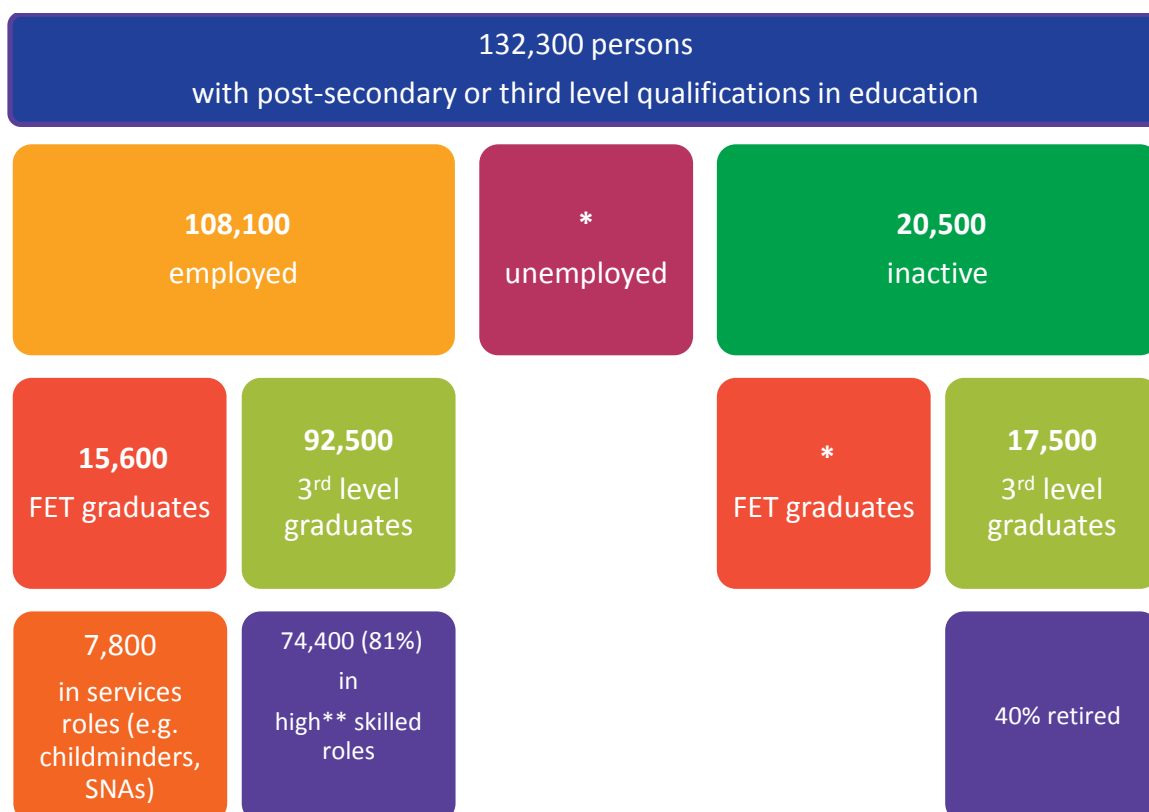
## FET & 3rd Level Awards, 2017



■ Levels 5 & 6 (FET) ■ Level 6 (HE) ■ Level 7 ■ Level 8 ■ Level 9/10 ■ Non-HEA (QQI HE) 3rd Level

Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with education qualifications, quarter 3 2018



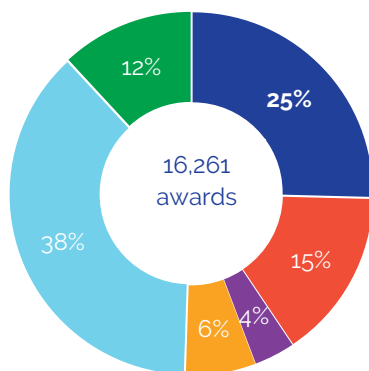
Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report;

\*\* High skilled roles are comprised of managerial, professional and associate professional occupations

# General learning, arts & humanities

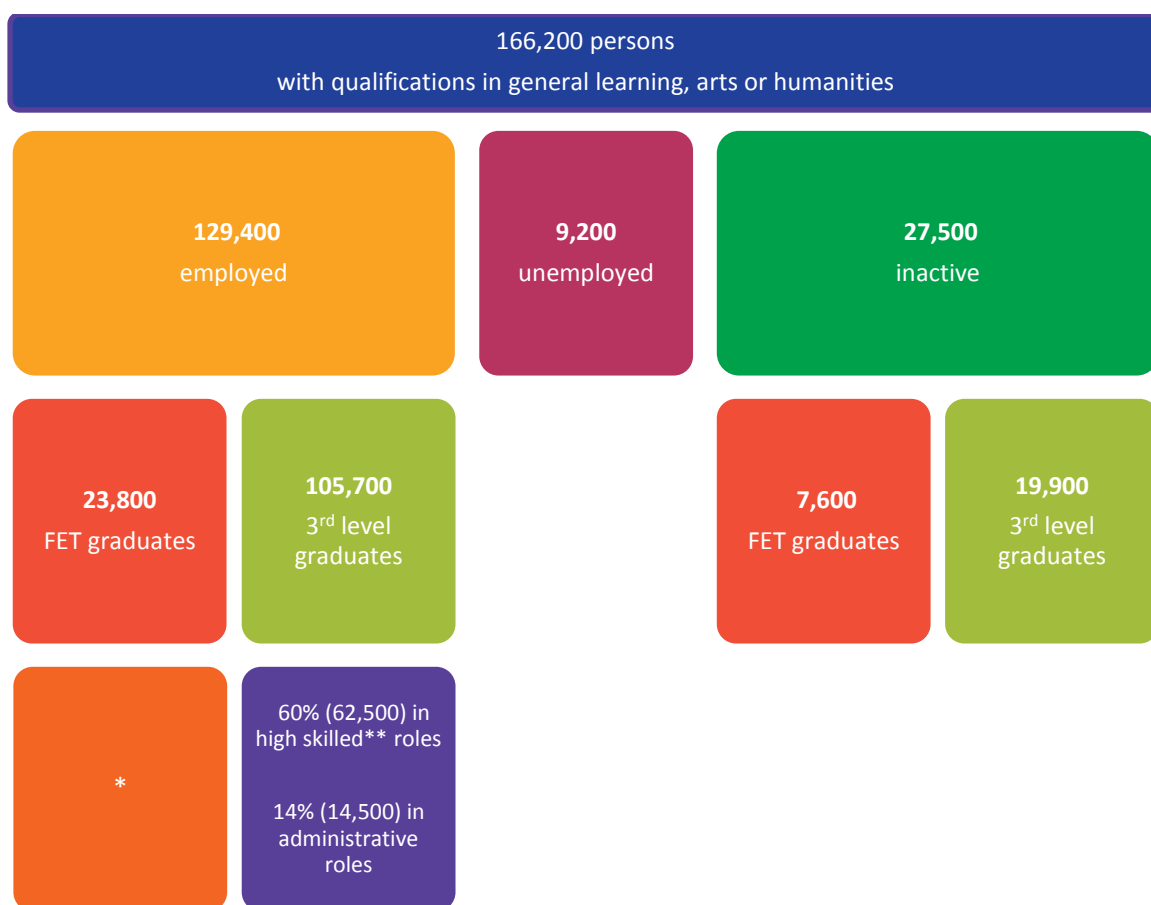
## FET & 3rd Level Awards, 2017



■ Level 1-4 ■ Level 5 & 6 (FET) ■ Level 6 (HE) ■ Level 7 ■ Level 8 ■ Level 9/10

Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with in general learning, arts or humanities qualifications, Q3 2018



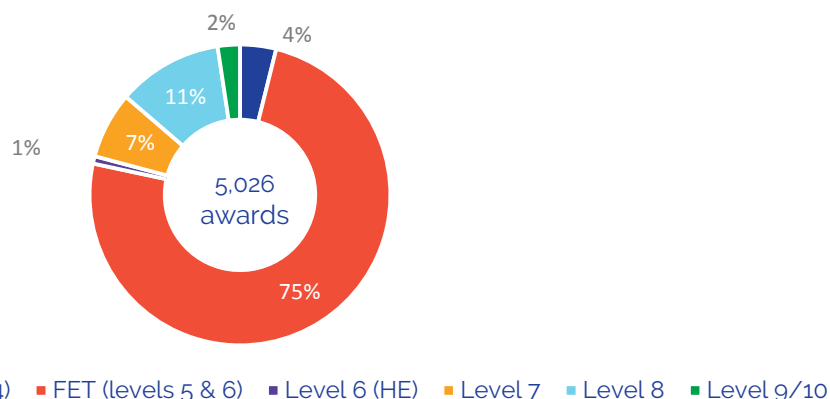
Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

\*High skilled roles comprise those working as managers, professionals or associate professionals

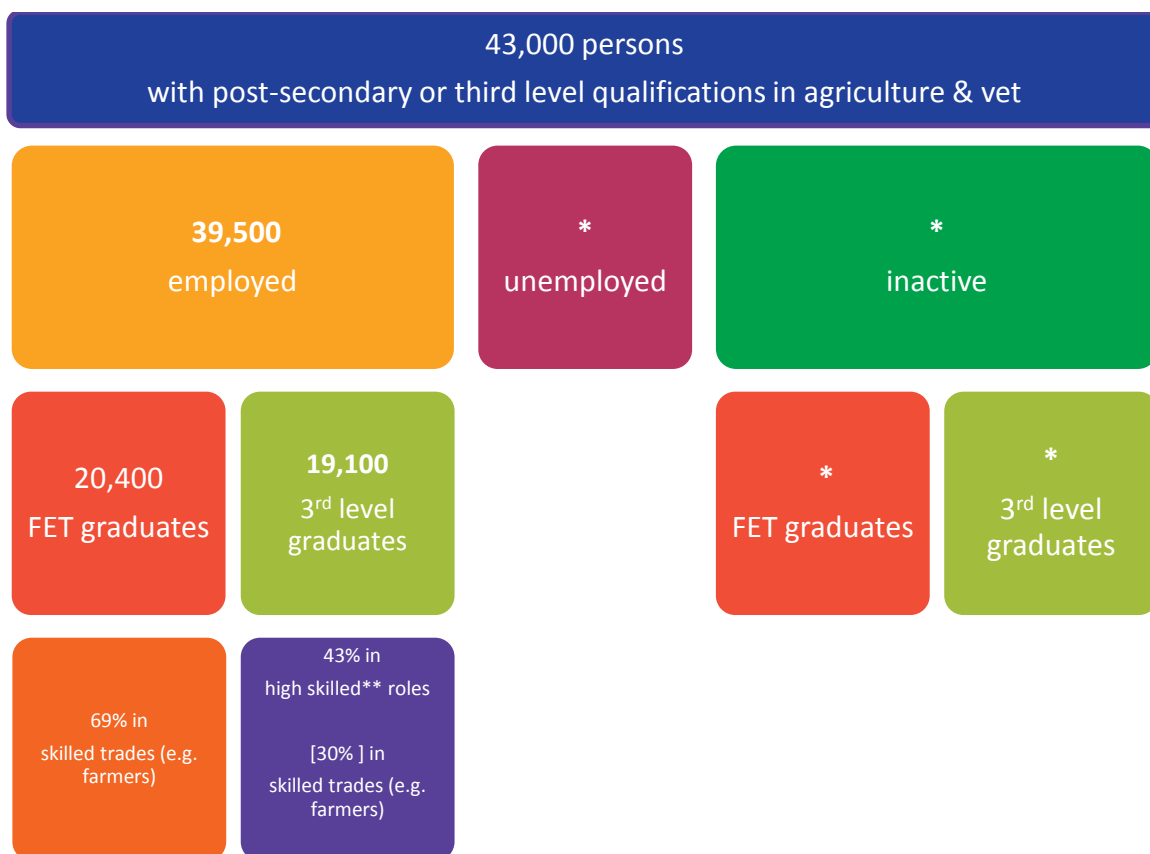
# Agriculture and veterinary

## FET & 3<sup>rd</sup> Level Awards, 2017



Source: HEA & QQI (major awards)

Labour market profile of adults (aged 25-64) with agriculture & vet qualifications, quarter 3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

[.] Data in square brackets is small and should be treated with caution.

\*\* High skilled roles are comprised of managerial, professional and associate professional occupations



# 1. Introduction

*Monitoring Ireland's Skills Supply 2019* is the thirteenth in a series of publications produced by the Skills and Labour Market Research Unit in SOLAS, and the second produced on behalf of the National Skills Council. The aim of this publication is to provide a profile of the existing and potential supply of skills in Ireland in terms of field of education and level. The data covers the current skills of the population and the latest available data on outputs from the education and training system.

Every year, a number of individuals leave the education and training system with qualifications across all levels of the National Framework of Qualifications and in different fields of learning. On completion of their studies, many of these learners may choose to enter the workforce. By examining the number of people emerging with qualifications from the different levels of the education and training system, we can estimate the potential supply of skills in Ireland.

This report also examines data from the CSO's Labour Force Survey (LFS) and outlines the profile of the adult population in terms of skills by level and field of learning.

While it is acknowledged that there are limitations in the data (e.g. not all learners will commence work on completion of their studies, or individuals may work in fields not directly related to their field of study), the analysis in this report is useful in that it outlines the existing and potential pool of skills available to work in different sectors of the economy. The analysis provided here can be used to inform decision making for those involved in government policy, education and training providers, employers, and employer support agencies, such as Enterprise Ireland and IDA.

## 1.1 Education and training awards, levels and field classifications

In this report, education data is classified according to the National Framework of Qualifications (NFQ), International Standard Classification of Education (ISCED) attainment levels and ISCED field of learning, depending on the source of the data.

The NFQ is a system of ten levels used to describe the Irish qualifications system. Each level is based on nationally agreed standards of knowledge, skill and competence and reflects what an individual is expected to know, understand and be able to do following successful completion of a process of learning. Almost all awards made through the state funded sector, and many in the private sector, have been placed on, or are aligned with, the NFQ.

The NFQ is not a classification of education and training programmes. Rather, it describes the awards (and associated learning outcomes) achieved on completion of certain programmes. ISCED attainment levels, on the other hand, are specifically designed to classify education and training *programmes*, taking into consideration various features including programme content, duration, and objectives (e.g. preparation for access to third level or for work in an occupation or a range of occupations etc.).

Data provided by the CSO and Eurostat is reported according to ISCED levels, detailing the highest level of education attained by individuals; in contrast, data from education and training providers is by NFQ level. Table 1.1 lists the main programme types in the Irish education and training system and their corresponding ISCED education attainment levels. The table also details the awards typically made to learners on successful completion of these programmes as well as the NFQ level at which these awards are usually made. It should be noted however that there is considerable overlap between the various categories (e.g. awards at Level 6 on the NFQ span both the FET and higher education system; the Leaving Certificate award is placed across levels 4 and 5 on the NFQ).

Table 1.1 ISCED levels of education, main programmes in Irish education/training, typical awards and NFQ levels

ISCED 2011 Level	Corresponds to:	Typical award	Award NFQ Level
0 Pre-primary education	Early Start and other pre-primary	QQI Certificate	Level 1/2
1 Primary education	Primary education		
2 Lower secondary	2 <sup>nd</sup> level education – Junior Cycle	Junior Certificate	Level 3
3 Upper secondary	2 <sup>nd</sup> level education – Senior Cycle	Leaving Certificate	Level 4
4 Post-secondary non-tertiary	Craft apprenticeship, PLC courses, other FET <sup>1</sup>	QQI Level 5 Certificate	Level 5
		QQI Advanced Certificate	Level 6
5 Short-cycle tertiary education	Third level – higher certificate/university diploma /new post 2016 apprenticeship	Higher Certificate	
6 Bachelor's degree or equivalent	Third level – ordinary & honours bachelor degree/higher diploma/new post-2016 apprenticeship	Ordinary Degree	Level 7
		Honours Bachelor Degree	Level 8
		Higher Diploma <sup>2</sup>	Level 8
7 Master's degree or equivalent	Third level – master's degree and postgraduate certs/diplomas new post -2016 apprenticeship	Postgraduate Diploma Master's degree	Level 9
8 Doctor or equivalent	PhD	PhD	Level 10

Source: Adapted from ISCED 2011 (UNESCO Institute of Statistics)

Fields of education, as reported by the Higher Education Authority, QQI, SOLAS/ETBI, CSO and Eurostat, are classified according to ISCED fields of education and training. The ISCED field of education categorises all education data into one of 11 broad fields (including general learning). For data from Eurostat, the field of education is available only for those individuals with post-secondary non-tertiary education attainment and above; all data from QQI, SOLAS/ETBI and the HEA is categorised by ISCED field.

<sup>1</sup> Some FET programmes (e.g. some specific skills training) also lead to awards at level 3 or 4 on the NFQ.

<sup>2</sup> In this report, awards data from the Higher Education Authority (HEA) which relate to higher diplomas have been grouped with other postgraduate awards at level 9.

In examining the CSO's Labour Force Survey, the number of persons in some fields of learning may be too small to report. For this reason, the SLMRU group some fields of learning as outlined in Table 1.2. In addition, as the number of learners in general learning tends to be relatively small (particularly in higher education), general learning has been grouped with arts & humanities in Chapter 11 of this report.

Table 1.2 ISCED fields of education, terminology used in this report and example awards in the FET and higher education (HE) sectors

ISCED 2011 Level	Abbreviated in this report to:	Example
0 Generic programmes and qualifications	0 General Learning	Level 3 cert. in general learning (FET) Level 4 cert. in employability skills (FET) University cert. in return to learning (HE)
1 Education	1 Education	Level 6 cert. in inclusive education and training (FET) Level 8 BEd (hons) in primary teaching (HE)
2 Arts and humanities	2 Arts & humanities	Level 5 cert. in creative media (FET) Level 8 BA (hons) in fashion design (HE) Level 9 MA in translation studies (HE)
3 Social sciences, journalism and information	3 & 4 Social science, business and law (SSBL)	Level 5 cert. in applied social studies (FET) Level 8 BA (hons) in politics (HE) Level 9 MSc in public policy (HE)
4. Business, administration and law		Level 5 cert. in office administration (FET) Level 6 Higher cert in business studies (HE) Level 9 MSc in Finance (HE)
5. Natural sciences, mathematics and statistics	5 & 6 Science & computing	Level 5 cert. in laboratory techniques (FET)
6. Information & Communication Technologies		Level 5 cert. in computer systems and networks (FET) Level 8 BSc (hons) in computing in games development (HE)
7 Engineering, manufacturing and construction	7 Engineering & construction (Eng. & const.)	Level 6 cert. in craft- electrical (FET) Level 5 cert. in construction technology (FET) Level 7 BEng (ord) in mechatronics (HE) Level 6 Higher Cert science in construction (HE)
8 Agriculture, forestry, fisheries and veterinary	8 Agriculture & vet (Ag & vet)	Level 4 cert. in horticulture (FET) Level 7 BSc (ord) in veterinary nursing (HE) Level 8 BSc(hons) in sustainable agriculture (HE)
9 Health & welfare	9 Health	Level 5 cert. in nursing studies (FET) Level 5 cert. in healthcare support (FET) Level 8 Higher dip. In arts in applied social studies (professional social care) (HE) Level 9 MSc in Nursing (HE)
10 Services	10 Services	Level 5 cert. in hairdressing (FET) Level 6 cert. in professional cookery (FET) Level 5 cert. in sports, recreation & exercise (FET) Level 6 higher cert. in automotive management and technology (HE) Level 8 BSc (hons) in tourism marketing (HE)

Source: Adapted from ISCED 2013 (UNESCO Institute of Statistics)

The most recent data reported by the HEA and QQI is based on the recently revised ISCED 2013; however, to allow for comparisons with previous years, the ISCED 1997 field of education classification have been used. Data was mapped by the SLMRU to ISCED 1997 (which uses nine rather than 11 fields of learning).

It should be noted that, in the CSO data, a person's field of learning refers to the field of the highest level of education only. Therefore, if a person qualifies with a master's degree (level 9) in business, but later undertakes a course in statistics at a lower level (e.g. level 8), then their field of learning remains business and administration, rather than science, mathematics and statistics.

## 1.2 Data Sources

The data in this report is from the following sources:

- **The Central Statistics Office's (CSO) Labour Force Survey:** demographic data and the education attainment of those in the workforce and the population
- **The State Examinations Commission (SEC):** Leaving Certificate examination candidate numbers
- **Quality and Qualifications Ireland (QQI):** further education and training (QQI-FE) award data; QQI-higher education award data for those qualifying from non-HEA aided providers
- **The Higher Education Authority (HEA):** higher education awards data
- **The Higher Education Statistics Association (HESA):** Irish-domiciled higher education graduates in the UK
- **Eurostat:** higher education graduates
- **SOLAS:** apprenticeship population data
- **SOLAS/ETBI Programme & Learner Support System (PLSS):** FET learners; FET completers
- **Professional organisations:** Irish Tax Institute; Irish Auditing and Accounting Supervisory Authority

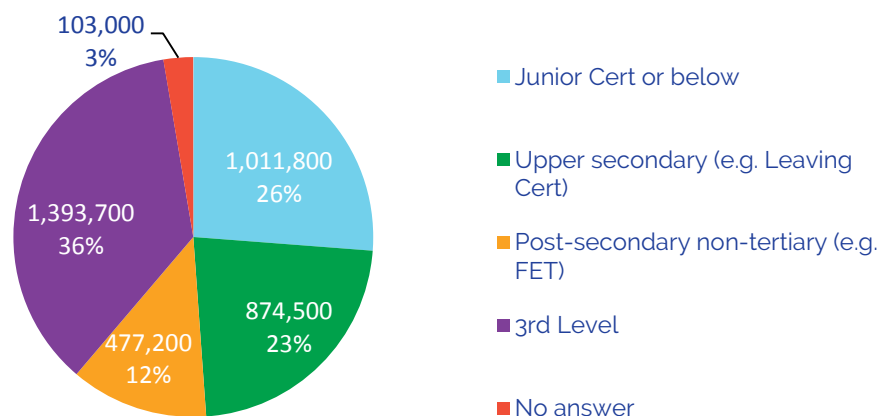
Awards data is by NFQ level; however, from a labour market perspective it is often useful to distinguish undergraduate and postgraduate awards. Therefore, in this document NFQ 8 awards data from the Higher Education Authority includes only honours bachelor degrees. Level 8 awards made in relation to higher diplomas have been included with other postgraduate qualifications at level 9.

## 2. Ireland's education profile

### 2.1 Population by highest level of education attained, Q3 2018

**36% of Ireland's population holds a third level qualification;** the share of those with at most a Junior Certificate includes those aged 15-18 years, who have typically yet to complete full-time education.

Figure 2.1 Population aged 15 years and over by highest level of education attained, Q3 2018



Source: SLMRU analysis of CSO (LFS) data

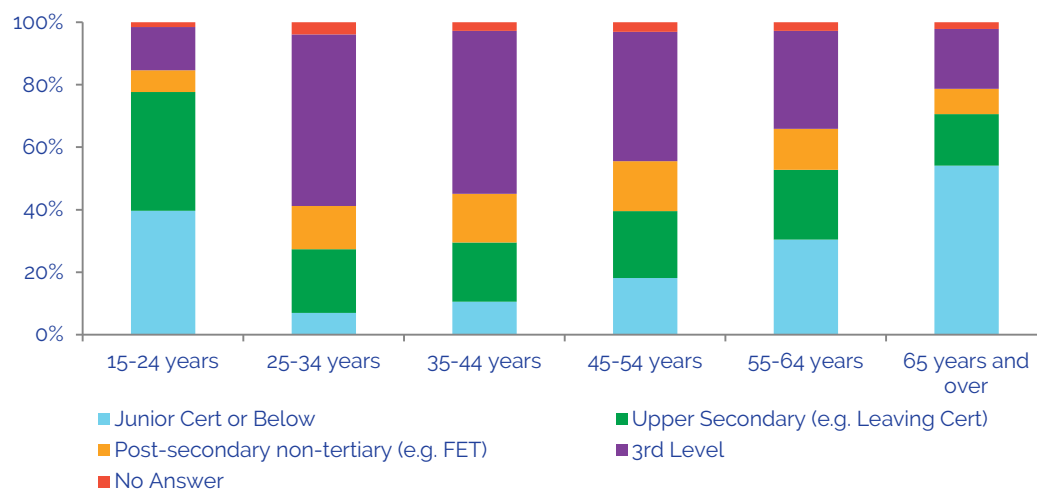
### 2.2 Population by highest level of education attained by age group, Q3 2018

**The older the population, the greater the share of persons with lower education attainment.**

The exception is for the youngest age cohort where the majority of persons have yet to complete full-time education.

The education profile of the adult population is **gradually shifting towards higher levels of education attainment:** while the majority (54%) of those aged 65 years and over have at most lower secondary qualifications, an almost identical share (55%) of 25-34 year-olds have attained third level qualifications.

Figure 2.2 Population (15+) by age group and education level, Q3 2018



Source: SLMRU analysis of CSO (LFS) data

Since a large number of those aged less than 25 are still in the education/training system and most of those aged 65 and over have retired from the workforce, all further analysis in this report will focus on persons aged 25-64 years.

### 2.3 Adults (25-64 years) by highest level of education and field of learning, Q3 2018

A breakdown of education levels by field of learning is only available at post-secondary non-tertiary and third level. Of the almost 2.6 million persons aged 25-64 years in Ireland in quarter 3 2018, 1,559,300 (61% of all adults) held either post-secondary non-tertiary (e.g. FET) or third level qualifications (Table 2.1).

- STEM qualification holders (science, computing, engineering and construction) combined accounted for 414,800 persons
- Social science, business and law qualification holders accounted for a further quarter with 402,100 persons

Table 2.1 Adults (aged 25-64 years) by highest level of education attained and field of learning

Highest level of education attained	Population aged 25-64 years
<b>Lower secondary (e.g. Junior Cert) or below</b>	403,400
<b>Upper secondary (e.g. Leaving Cert)</b>	530,900
<b>Post-secondary non-tertiary and 3<sup>rd</sup> level, of which</b>	1,559,300
<i>General learning/arts and humanities</i>	166,200
<i>Education</i>	132,300
<i>Social science, business &amp; law</i>	402,100
<i>Science</i>	74,900
<i>Computing</i>	115,100
<i>Engineering &amp; construction</i>	224,800
<i>Agriculture &amp; vet</i>	43,000
<i>Health &amp; welfare</i>	264,700
<i>Services</i>	125,600
<i>Unknown/no answer</i>	10,600
<b>Education level not stated</b>	79,400
<b>Total adult population</b>	<b>2,573,000</b>

Source: SLMRU analysis of CSO (LFS) data

### 2.4 Adults (25-64 years) by labour status and field of learning, Q3 2018

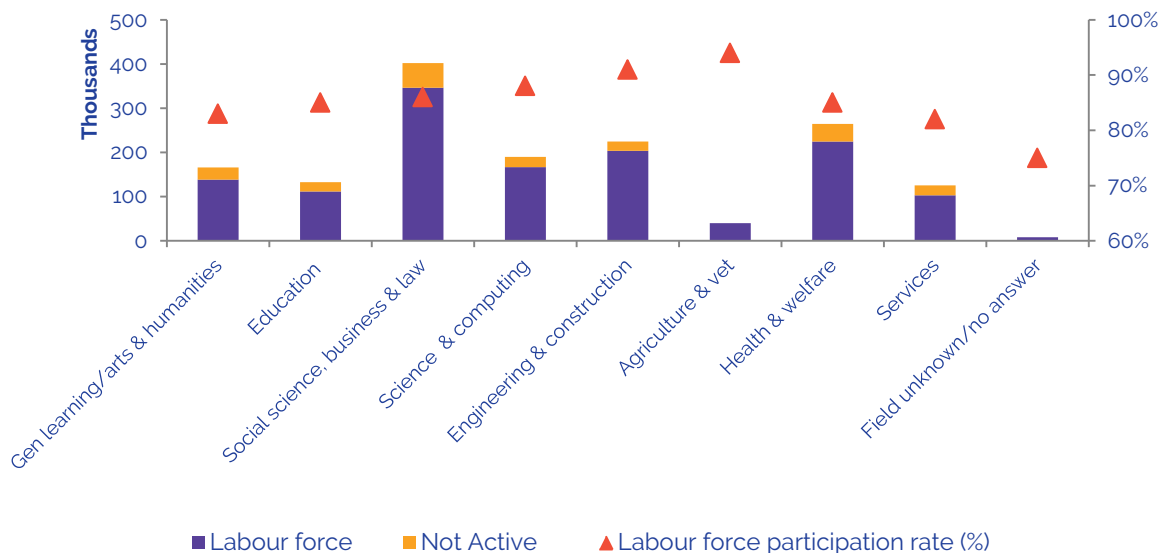
Of the almost 2.6 million 25-64 year-olds in the population in quarter 3 2018, 2.03 million were in the labour force (either employed or unemployed). The remaining 507,000 were not economically active.

**Labour force:** of the 2.03 million persons aged 25-64 years in the labour force, 1.34 million held post-secondary or third level qualifications. Figure 2.3 (blue and yellow bars) shows the field of learning for these qualification holders:

- The social science, business and law field had the largest number adults in the labour force (26%, or 346,500).
- Combined STEM subjects made up more than a quarter of the total labour force.
  - Science and computing qualification holders made up 167,000 persons
  - Engineering and construction made up 203,600

**Labour force participation rates** vary according to field of learning (Figure 2.3 - triangles), with the highest rates observed for those in agriculture & vet (94% - although the numbers involved are small) and engineering & construction (91%). The lowest labour force participation rate was for those with qualifications in services (e.g. hotel/catering, hairdressing, etc.). The labour force participation rate for those with post-secondary or third level qualifications was 86% in Q3 2018.

Figure 2.3 Post-secondary non-tertiary & 3<sup>rd</sup> level graduates field of learning and economic status, Q3 2018



Source: SLMRU analysis of CSO (LFS) data

**Economically inactive persons:** there were 215,900 persons (aged 25-64 years) with post-secondary or third level qualifications who were neither in work nor seeking work in quarter 3 2018. Of these, the largest number was in social science, business and law (55,600), with STEM qualification holders making up an additional 44,200 persons. For each field of learning, the reason for non-participation in the labour force tended to be due to engagement in home duties. The share of persons who were economically inactive due to engagement in home duties was smallest for STEM qualification holders (33%) and largest for services (54%) and health/welfare qualification holders (51%). In contrast, for those with qualifications in the education field of learning, the main reason (40%) for economic inactivity was due to retirement.

## Key points

- Ireland's young population (25-34 year-olds) is highly educated with more than half holding third level qualifications.
- In general, the older the age group, the greater the share of those with lower education attainment.
- Qualification holders in Ireland are concentrated in social science, business and law (SSBL) or STEM subjects.
- People with agriculture/vet, engineering qualifications are most likely to participate in the labour force, while those with services qualifications and general learning/arts & humanities qualifications are least likely to participate in the labour force.
- Reasons for not participating in the labour force vary by field of learning: the share not working due to
  - retirement is greatest for those with education qualifications
  - engagement in home duties is greatest for those with health/welfare qualifications.

### 3. Supply of skills from the education and training system

The potential supply of skills to the labour market that comes from the education and training system is determined by a number of factors, including the size of the relevant demographic cohorts in earlier years, immigration, and the number of learners currently in and graduating from the education and training system.

The Irish education system is made up of four inter-related sectors: primary, secondary, FET, and third level. Table 3.1 below shows the number of enrolments (rounded to the nearest 100) in each of the four sectors. In 2017/2018, there were 1,365,700 individuals enrolled in education. Of these, the FET and higher education sectors are most relevant to the supply of skills to the workforce (although the Department of Education and Skills estimated that almost 4,000 (or 7%) of all Leaving Certificate completers entered the workforce<sup>3</sup>). Combined, there were 440,700 persons enrolled in FET, higher education and private, third level colleges in 2017/2018.

Table 3.1 Number of learners enrolled by education sector, 2017/2018

Level	Number of learners enrolled
Primary	567,600
Second level - Lower secondary	194,300
Second level -Upper secondary	163,100
Further education/training	188,000
Higher Education	231,700
Private 3 <sup>rd</sup> level (Higher Education Colleges Association)	21,000
<b>Total</b>	<b>1,365,700</b>

Source: DES, SOLAS, HEA (excluding FETAC enrolments) & Higher Education Colleges Association

#### 3.1 Further education and training (FET)

##### 3.1.1 Learners in FET

Most FET in Ireland is funded through SOLAS and provided by Education and Training Boards (ETBs) and voluntary secondary and community and comprehensive schools (VSCCS).<sup>4</sup> Figure 3.1 outlines the different types of programmes in the SOLAS-funded FET sector. The number of unique learner enrolments is included to provide an indication of the magnitude of the different programmes.

FET provision has been categorised by the **typical** aims of the programmes and target clients. However, these categories are not mutually exclusive. For example, apprenticeship programmes are available to and targeted at school leavers, although a defining characteristic of such programmes is that learners must be in employment. Similarly, although Post Leaving Certificate programmes were initially designed to address the needs of those completing upper secondary education, many re-entrants to education also avail of opportunities to pursue studies in this programme category.

**Overall, 190,000 individuals participated in SOLAS-funded FET in 2018. These were made up of over 15,000 learners on apprenticeship programmes and approximately 175,000 unique learners on other FET programmes<sup>5</sup>.** However, some learners may participate in more than one

<sup>3</sup> DES (2016). School Completers -What Next? Report on School Completers from Post-Primary Schools

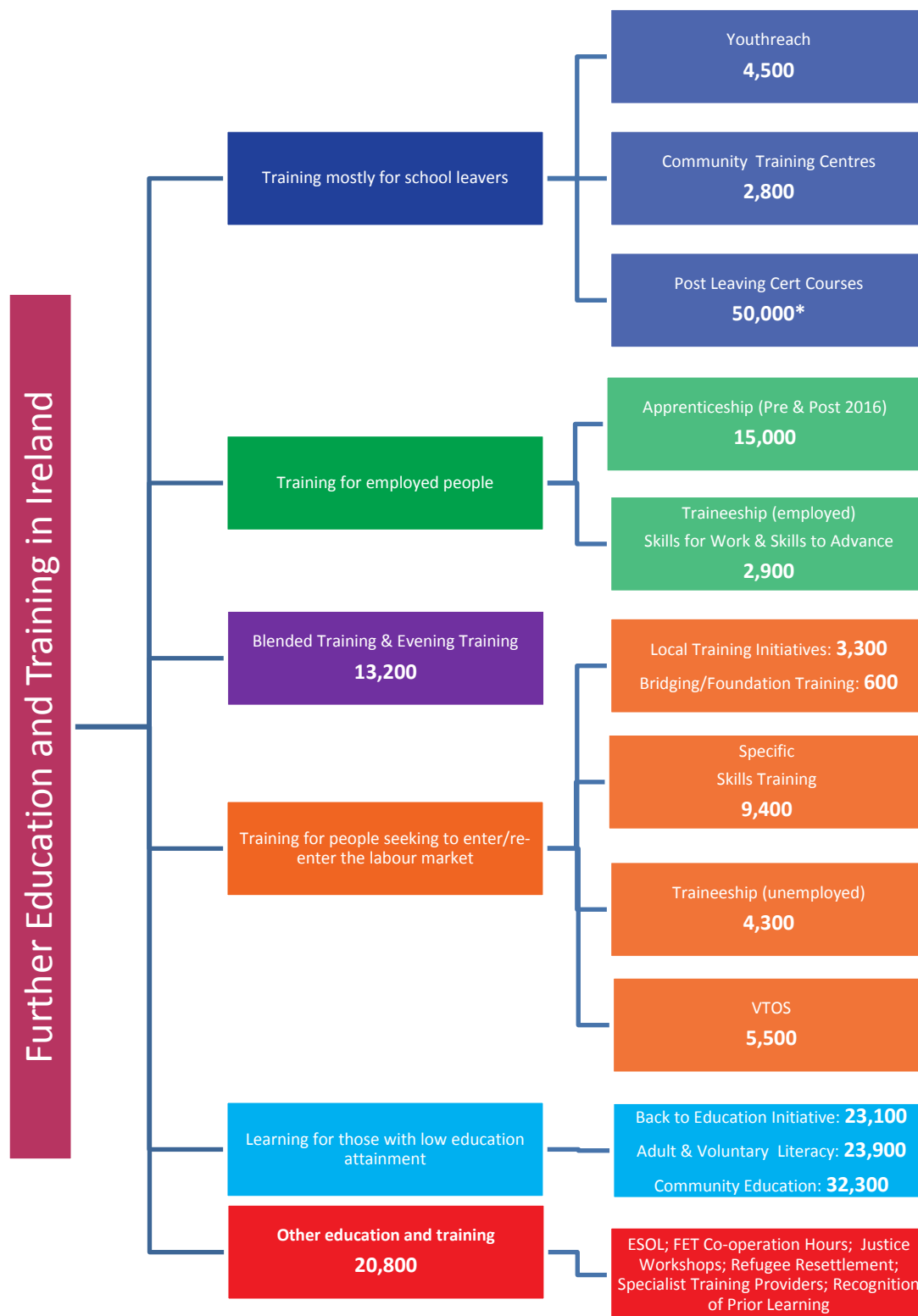
<sup>4</sup> Other providers include Irish Deaf Society, NALA, e-College, Teagasc, BIM, among others.

<sup>5</sup> The relatively short duration of most FET programmes, as well as the fact that intake and finish dates for different programmes vary throughout the year, means that counting individuals only once underestimates the true extent of FET interventions each year. However, by restricting the focus to unique learners, and counting the learner only once, we can more accurately assess the potential supply of skills to the labour market stemming from the FET system.



programme over the course of a calendar year, so the sum of learners on each programme type is greater than the total number of individual learners present in the FET sector in 2018.

Figure 3.1 Overview of Ireland's FET programmes by typical target client in 2018



Source: SOLAS PLSS MIS (extracted March 2019) and SOLAS Apprenticeship Services

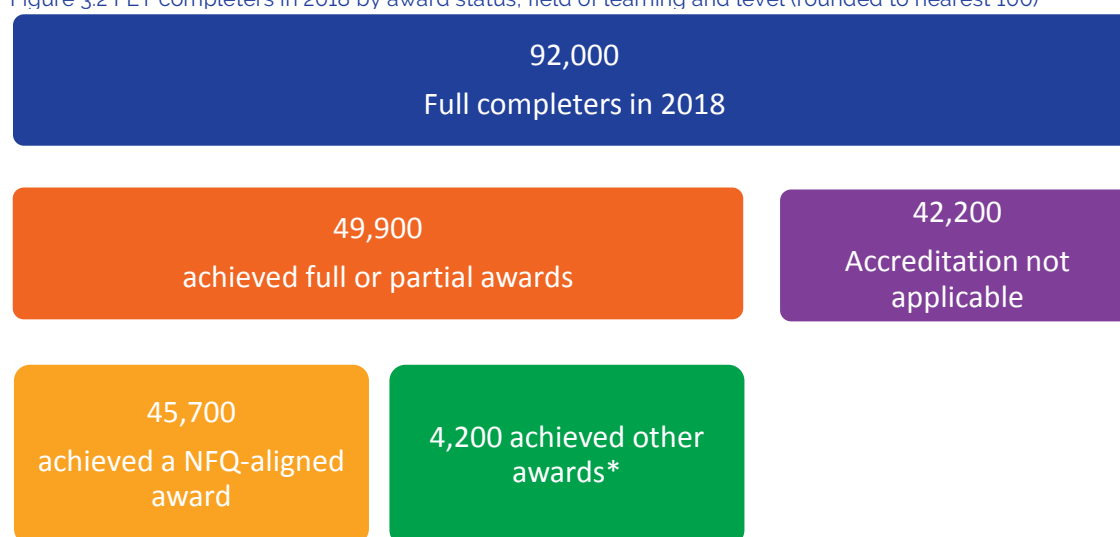
\*PLC courses run over an academic year. Therefore PLC learners present in 2018 comprise two distinct cohorts: (a) those who began their course in September 2017 and were still present for the first half in 2018, and (b) those who began in September 2018 but have yet to finish (most likely in the summer of 2019). A number of learners in the 2017/2018 cohort opted to pursue a subsequent year in the PLC programme (i.e. enrolled in 2018/2019 academic year). Those learners are counted only once in Figure 3.1 above.

### 3.1.2 FET completers (graduates)

Within the FET sector, graduates from FET programmes are more commonly referred to as 'completers' since many FET programmes are not specifically designed to lead to formal awards (see Figure 3.2). The FET sector distinguishes between full completers, partial completers, and early leavers. This section looks at the number of unique learners who had fully completed a FET programme in 2018 and who were no longer learners in the FET system, regardless of whether they obtained an award.

Figure 3.2 outlines the profile of FET completers in 2018. Note that apprenticeship data is not included here. Excluding those obtaining craft-certificates (i.e. qualifying apprentices, of which there were 1,459 in 2017<sup>6</sup>), 92,000 learners completed at least one FET programmes in 2018. Almost half (46%) had been on programmes that do not lead to accreditation, while a further 49,900 obtained either a full award (e.g. QQI major award, City and Guilds qualification) or partial award (e.g. QQI minor award, City and Guilds unit).

Figure 3.2 FET completers in 2018 by award status, field of learning and level (rounded to nearest 100)



Source: SOLAS/ETBI (PLSS – data extracted March 2019)

Notes: numbers above are based on the latest finish date. It is possible for a learner to do more than one course and/or programme, possibly gaining an award at a higher level and in a different field of learning. Only the field and, where relevant, level of the last course finished is included.

\*Other awards include those made by City and Guilds, ICS Skills (ECDL)

Table 3.2 provides a breakdown by level and field of learning for the 92,000 FET completers in 2018.

- **Just over one half of all completers received an award;** these awards were comprised of QQI awards<sup>7</sup> (any type – major, minor, special purpose), Junior/Leaving Certificate awards, or other awards (such as City and Guilds, ICS/ECDL, etc).
- Almost 42,200 completers were on courses that did not lead directly to awards; the majority of these completers were on courses in the general field of learning; including arts/crafts (non-accredited), community education (e.g. gardening, local history, arts, etc), drama, ESOL, digital media/digital photography, among others.

<sup>6</sup> (QQI-FET major awards for craft certificates 2017); QQI-FET data is further described in section 3.1.3.

<sup>7</sup> The number of QQI awards here is greater than the numbers provided later in this report (Chapter 3.3. onwards). This is due to the inclusion of all QQI award types in the SOLAS data in Figure 3.2 and Table 3.1 above. In general, each learner receives only one QQI major award in a given year, but a learner can receive one or more minor/special purpose awards, or even more than one award type (e.g. a major and a minor award). In order to avoid an overestimation of the supply of skills to the labour market, the remainder of this report focuses on major awards only.

- Approximately 4,200 completers achieved awards that were not aligned to the NFQ. These are predominantly in the STEM related areas where **industry certification or international awards** were offered.
- 56% of all completers in 2018 had studied courses in general learning.
- When only the 49,900 persons who achieved an award are considered, 16% had studied social science, business and law (SSBL), 14% had studied health and welfare, and a further 14% had studied services. STEM accounted for 13% of the total.

Not included in the 49,900 award achievers below are 1,459 qualifying apprentices<sup>8</sup>, most of whom were in construction and engineering related areas (e.g. electrical, motor mechanic, plumbing, fitter, and metal fabrication).

Table 3.2 FET full completers by level (where available) and field of learning, 2018

	Level 1	Level 2	Level 3	Level 4	Level 4/5	Level 5	Level 6	Level 8	Level N/A*	Award N/A**	Total
General learning	500	1,900	5,100	2,900	500	800	-	-	200	39,900	<b>51,700</b>
Education	-	-	-	100	-	2,600	1300	-	0	0	<b>4,000</b>
Arts & Humanities	-	-	0	-	-	2,500	1400	50	100	0	<b>4,000</b>
Social science, bus. & law	-	-	0	700	-	5,600	1400	-	200	300	<b>8,200</b>
Science	-	-	-	0	-	300	0	-	0	0	<b>300</b>
ICT	-	-	200	600	-	1,000	300	-	1,400	300	<b>3,900</b>
Eng. & const.	-	-	100	400	-	1,100	100	-	1,100	1,000	<b>3,700</b>
Agriculture	-	-	-	400	-	700	200	-	0	0	<b>1,300</b>
Health/welfare	-	-	-	0	-	6,700	400	-	0	0	<b>7,100</b>
Services	-	-	0	1500	-	3,500	800	-	1,200	700	<b>7,700</b>
<b>Total</b>	<b>500</b>	<b>1,900</b>	<b>5,500</b>	<b>6,500</b>	<b>500</b>	<b>24,800</b>	<b>6,000</b>	<b>50</b>	<b>4,200</b>	<b>42,200</b>	<b>92,000</b>

Source: SOLAS (PLSS – data extracted March 2019)

\*Award made was not aligned to the levels on the National Framework of Qualifications (NFQ)

\*\*Award/certification not part of programme aim

Note: numbers have been rounded to the nearest 100 (except Level 8 (honours degree)) and therefore do not necessarily add up to the totals

### 3.1.3 QQI FET major awards

In looking at QQI FET major awards, it must be borne in mind that the numbers cited in Section 3.1.2 above are not directly comparable with the QQI-FET major awards data outlined in this section since:

- The PLSS data (in Table 3.2) covers recipients of any QQI award (e.g. Major award, minor award etc)
- The PLSS data also includes non-QQI awards (e.g. City and Guilds awards)
- The QQI-FET major awards data includes not only awards made to learners through SOLAS funded provision, but also those made to learners through other providers such as Teagasc, Skillnets, private providers (although SOLAS-funded provision accounts for the vast majority of QQI-FET awards made every year).
- PLSS data does not include apprenticeship data; QQI awards data includes awards made to apprentices (mostly craft apprenticeships).

<sup>8</sup> Refers to the number of craft certificates (major awards) made by QQI in 2017

Therefore, in examining potential supply to the labour force from Ireland's FET system, Chapters 4-11 of this report focus on the number of QQI-FET major awards, supplemented where relevant by the number of non-QQI FET awards made to FET learners (drawn from the PLSS). While this is likely to underestimate to some extent the true numbers emerging from the FET sector (one could argue that holding a number of FET minor awards could be sufficient to skill, up-skill or reskill an individual), it at least has the benefit of not overestimating the potential supply.

In 2017 (the latest data available at the time of writing), there were almost 34,000 major awards made to learners in the FET sector (mostly to learners at Education and Training Boards; other providers include voluntary secondary and comprehensive schools, Teagasc, Skillnets, private providers, among many others).

The highest number of awards was made in the following fields:

- health and welfare (11,300 awards, representing a third of all major awards in FET); healthcare support awards amounted to almost 3,100 and childcare awards to almost 4,200
- social science, business and law (5,825, or 14%), typically for office administration, business studies and business administration
- arts and humanities (3,874 awards or 11%)

Table 3.3 FET major awards by NFQ level and field, 2017

Major Awards (2017)	NFQ 1	NFQ 2	NFQ 3	NFQ 4	NFQ 5	NFQ 6 (FET)	Grand Total
Generic programmes etc	372	1,130	990	236	-	-	<b>2,728</b>
Education	-	-	-	-	9	45	<b>54</b>
Arts and humanities	-	-	588	815	1,920	551	<b>3,874</b>
Social science, business & law	-	-	196	542	4,550	537	<b>5,825</b>
Science	-	-	-	2	330	-	<b>332</b>
Computing	-	-	-	-	602	212	<b>814</b>
Engineering and construction	-	-	3	6	441	1,527	<b>1,977</b>
Agriculture and veterinary	-	-	-	195	3,292	451	<b>3,938</b>
Health and welfare	-	-	-	17	9,172	2,083	<b>11,272</b>
Services	-	-	-	243	2,417	503	<b>3,163</b>
<b>Total</b>	<b>372</b>	<b>1,130</b>	<b>1,777</b>	<b>2,056</b>	<b>22,733</b>	<b>5,909</b>	<b>33,977</b>

Source: QQI FET (major awards)

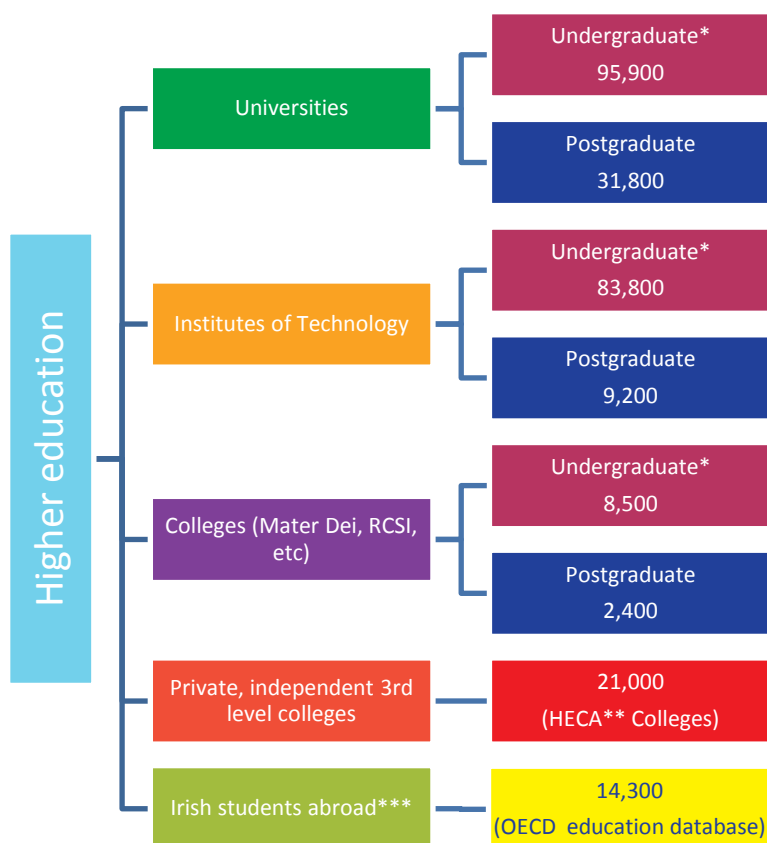
## 3.2 Higher education system

### 3.2.1 Higher education enrolments

**There were 252,700 learners enrolled in higher education in Ireland in 2017/2018, with a further 14,300 learners, who were domiciled in Ireland, enrolled in third level institutions abroad** (2016 data). It is not possible to provide a breakdown by level for non-HEA aided third level sector (i.e. private, third level colleges and 3<sup>rd</sup> level colleges abroad)<sup>9</sup>. However, the majority of learners at universities, IoTs and colleges are enrolled on undergraduate programmes (82%, or 188,200 learners).

<sup>9</sup> Learners at institutes of technology (IoT) also receive QQI higher education awards. However as HEA data includes awards made to learners at IoTs, in this report, QQI-higher education (QQI-HE) awards are excluded from QQI-HE data.

Figure 3.1 Higher education programmes, by institution type and programme, 2017/2018



Source: HEA, HECA (Chairman's message), OECD online database

\*Undergraduate numbers include access and foundation level enrolments, but exclude FETAC enrolments.

\*\* The Higher Education Colleges Association (HECA) represents 15 colleges in the private education sector, including Dublin Business School, Griffith College, Hibernia College and the National College of Ireland. A full list of the colleges represented by HECA is included in Appendix A2. Many learners graduating from programmes at these colleges earn awards made by QQI.

\*\*\*OECD education database holds data on international students. (Excludes ERASMUS students).

### 3.2.1 Higher education graduates

In 2017/2018, over 70,500 learners graduated from HEA-aided higher education (Table 3.4). There were an additional 5,800 major awards made to learners at private third level colleges (Table 3.5). The largest fields in terms of the number of awards made were:

- Social science, business and law (over 23,600 awards across both sectors)
- Health and welfare (almost 13,100 awards in total)
- Arts and humanities (over 9,400 awards)

As can be seen from Table 3.5, private third level colleges play a significant role in higher education provision in Ireland, particularly in the areas of social science, business and law, ICT, and education qualifications.

Table 3.4 Number of 3<sup>rd</sup> level awards by NFQ level in HEA-aided institutions, 2017

Level	Level 6	Level 7	Level 8*	Level 9	Level 10	Total
General learning	169	22	0	32	6	<b>229</b>
Education	1,169	169	2,063	3,001	58	<b>6,460</b>
Arts & humanities	419	893	6,000	1,705	174	<b>9,191</b>
Social science, bus. & law	2,155	2,110	8,464	7,782	298	<b>20,809</b>
Science	245	672	3,283	1,049	322	<b>5,572</b>
ICT	217	778	1,770	1,500	56	<b>4,321</b>
Eng. manuf. & const.	1,126	1,669	2,934	1,203	220	<b>7,152</b>
Agriculture & vet	40	360	568	88	32	<b>1,088</b>
Health & welfare	1,176	1,448	6,103	3,407	277	<b>12,411</b>
Services	717	1,193	999	372	2	<b>3,283</b>
<b>Total</b>	<b>7,433</b>	<b>9,314</b>	<b>32,184</b>	<b>20,139</b>	<b>1,445</b>	<b>70,515</b>

Source: HEA

\* Higher diplomas are placed at level 8 on the National Framework of Qualifications (NFQ). However, as they are postgraduate awards, they have been included with other postgraduate awards at level 9 in HEA data.

Table 3.5 Number of QQI awards (major) from private, independent, 3<sup>rd</sup> level providers, 2017

	Level 6	Level 7	Level 8	Level 9/10	Total
Arts and humanities	4	105	115	15	239
Social science, business & law	107	278	1,816	627	2,828
Education		42	78	794	914
Science	1	8	92	79	180
ICT	56	50	578	239	923
Eng., manuf. & construction		55		2	57
Health and welfare	12	280	167	219	678
Services	6	26			32
Unclassified <sup>10</sup>				23	23
<b>Total</b>	<b>186</b>	<b>844</b>	<b>2,846</b>	<b>1,975</b>	<b>5,874</b>

Source: QQI-HE (major awards; from selected providers – see appendix A1 for a list of providers)

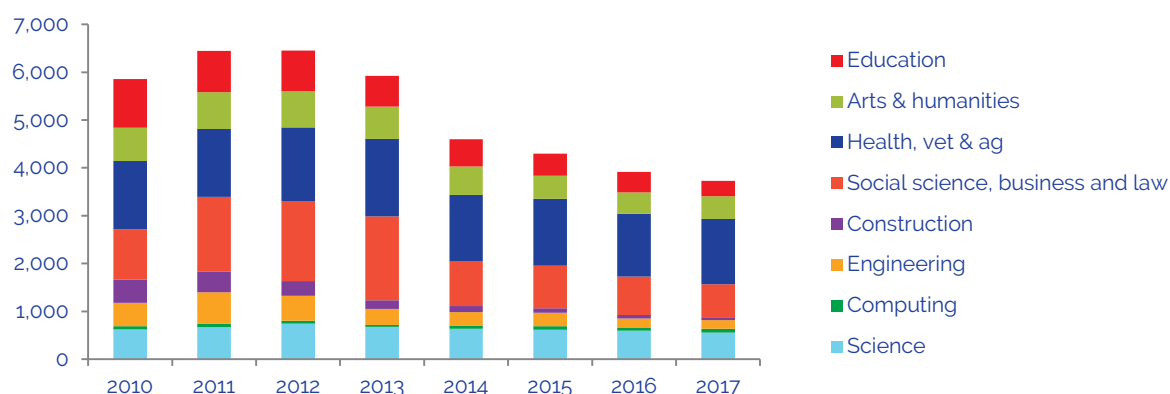
Every year, a number of Irish-domiciled students enrol in programmes at higher education institutions in the UK. In 2017, 3,730 Irish-domiciled learners gained qualifications from UK higher education institutions (Figure 3.4). With 1,370 qualifiers (37% of the total), the largest numbers were for health, veterinary and agriculture qualifiers, followed by social science business and law, with 685 qualifiers.

The number of Irish-domiciled students graduating from UK higher education has declined significantly (by 42%), going from a peak of 6,450 in 2012 to 3,730 in 2017. The declines were particularly sharp for engineering and construction, at -66% and -79% respectively. Despite these decreases, the demand for health, veterinary and agriculture related courses has remained strong, with the share of qualifiers from this discipline increasing from 24% in 2012 to 37% in 2017.

The decrease in the number of Irish-domiciled learners at UK higher education is thought to be linked to a number of factors such as the introduction of fees in the UK and, more recently, uncertainty around Brexit.

<sup>10</sup> The original data from QQI contained almost 1,000 awards in the unclassified category. Based on award title, the SLMRU was able to categorise the awards into more relevant fields. Only 23 awards remained in the unclassified category.

Figure 3.4 Irish-domiciled learners gaining qualifications from UK higher education institutions, 2010-2017



Source: HESA (UK)

### 3.3 Overview of awards by level and field

In this section, we attempt to bring together the different datasets around the potential supply of skills emerging from the education and training system. In order to prevent double counting, QQI data reported here is confined to major awards. This is supplemented by non-QQI FET awards from SOLAS/ETBI Programme and Learner Support System (PLSS). The latest data available at the time of writing was 2017/2018 for higher education data (HEA), 2017 for QQI data (major awards) and 2018 for non-QQI FET (from SOLAS/ETBI Programme and Learner Support System).

In 2017, there were over a quarter of million awards made to learners in spanning levels 1 to 10 on the National Framework of Qualifications (Table 3.6). Junior Certificate and Leaving Certificate awards made up the highest numbers and accounted for over one half of all awards made. Awards in the FET sector made up 15%, while the remaining third were higher education awards. In addition to QQI FET awards, approximately 4,200 learners in the FET sector obtained awards that were not aligned to the National Framework of Qualifications (NFQ).

Table 3.6 Awards by level, 2013-2017 (2018 for non-QQI FET)

Totals	2013	2014	2015	2016	2017
Junior Cert (Level 3)	58,935	60,327	59,521	60,247	61,654
Leaving Cert (Level 4/5)	55,577	56,989	57,931	58,466	58,543
QQI-FET major awards (Levels 1-4)	4,346	6,297	5,562	4,927	5,335
QQI-FET major awards (Levels 5 & 6)	28,907	22,203	26,756	28,217	28,642
Level 6 (higher education)	5,631	6,142	5,544	7,707	7,433
Level 7	9,689	10,136	9,564	9,552	9,314
Level 8*	30,595	30,461	30,098	31,510	32,184
Level 9/10	18,810	19,790	19,077	20,864	21,584
<i>Sub-total (NFQ 1-10)</i>	<i>221,490</i>	<i>212,345</i>	<i>214,053</i>	<i>221,490</i>	<i>224,689</i>
Non-QQI FET	n/a	n/a	n/a	n/a	4,179
Non-HEA (QQI HE) 3rd level	n/a	3,051	4,864	4,883	5,871
<b>Total</b>	<b>221,490</b>	<b>215,396</b>	<b>218,917</b>	<b>226,373</b>	<b>234,739</b>

Source: State Examinations Commission; HEA, QQI (major awards only)

\*Higher diplomas are placed at level 8 on the National Framework of Qualifications (NFQ). However, as they are postgraduate awards, they have been included with other postgraduate awards at level 9 in HEA data.

Table 3.7 provides a summary of FET awards and third level awards by field and level. Overall, there were over 114,500 awards made to learners completing programmes in the FET and third level sectors in 2017. In terms of fields of learning, social science, business and law had the highest number of awards, which at almost 30,000 made up more than a quarter of all awards made in 2017. Level 8 awards (honours degrees) had the highest number of awards, although this was not consistent across all fields of learning; most notably, the highest number of awards in health and welfare, services and agriculture/vet were made in the FET sector at level 5.

Table 3.7 FET and 3<sup>rd</sup> level awards by field and NFQ level, 2017 (2018 for non-QQI FET)

	Further Education & Training					Higher Education					Total
	Level 1-3	Level 4	Level 5	Level 6	Non-QQI FET	Level 6	Level 7	Level 8*	Level 9/10	QQI-HE	
<b>General learning</b>	2,492	236	0	0	155	169	22	0	38	0	3,112
<b>Education</b>	0	0	9	45	0	1,169	169	2,063	3,059	914	7,428
<b>Arts &amp; humanities</b>	588	815	1,920	551	50	419	893	6,000	1,879	239	13,354
<b>Social science, business and law</b>	196	542	4,550	537	246	2,155	2,110	8,464	8,080	2,828	29,708
<b>Science &amp; computing</b>	0	2	932	212	1,448	462	1,450	5,053	2,927	1,103	13,584
<b>Eng. Manuf. &amp; const.</b>	3	6	441	1,527	1,067	1,126	1,669	2,934	1,423	57	10,253
<b>Agriculture &amp; vet</b>	0	195	3,292	451	0	40	360	568	120	0	5,026
<b>Health &amp; welfare</b>	0	17	9,172	2,083	0	1,176	1,448	6,103	3,684	678	24,361
<b>Services</b>	0	243	2,417	503	1,213	717	1,193	999	373	32	7,690
<b>Total by level</b>	3,279	2,056	22,733	5,909	4,179	7,433	9,314	32,184	21,583	5,851**	114,521

Source: HEA, QQI (FET & selected HE major awards), SOLAS/ETBI (PLSS)

\*It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NQF are included with other postgraduate qualifications at level 9.

\*\*Note that QQI-HE data contains a number of awards in the 'unclassified' field of learning. Based on the award title, the SLMRU has re-categorised most of these awards among relevant fields (mostly computing). Not included in the table above are 23 'unclassified' awards for which it was impossible to assign a field of learning based on the award title.



## 4. Science & computing

### 4.1 Awards from the education and training system

**Total awards (2013-2017): the number of science and computing awards reached over 12,000** in 2016 and remained at just above that level in 2017; steady increases at level 8, as well as rises in the number of awards in the FET system in more recent years, have offset the small declines observed at level 6 (HE) and level 7 (Figure 4.1). Awards in 2017 were split almost evenly between the science and computing fields, which is a departure from earlier years when science awards were stronger in terms of numbers (e.g. in 2013, science awards amounted to 56% of the total).

**Science:** there were almost 6,100 awards in 2017, almost four fifths of which were made at level 8 or above (Figure 4.2). At 3,160, more than one half science awards were made for biology related programmes (Table 4.1).

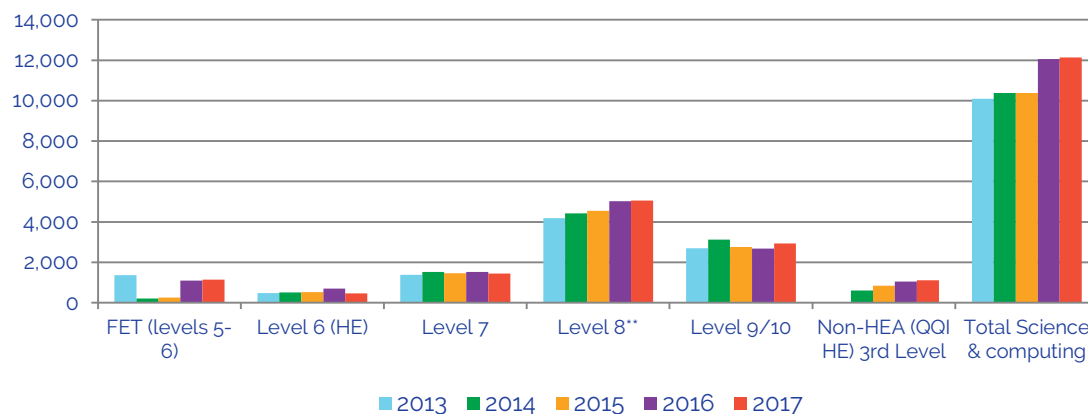
**Computing:** there were over 6,000 awards in 2017, over three quarters of which were made at level 8 or above (Figure 4.3). The number of awards made in non-HEA (QQI) 3<sup>rd</sup> level colleges<sup>11</sup> for computing exceeded 900, 89% of which were made at level 8 or 9.

**Irish-domiciled graduates in the UK:** in 2017, 560 persons domiciled in the Republic of Ireland obtained science qualifications from UK higher education institutions; a further 80 persons obtained ICT qualifications.

**EU Comparison (Figure 4.4):** when compared to other EU countries,

- the share of third level graduates in Ireland who had studied science is broadly in line with the EU average of 8%
- the share of graduates in Ireland who had studied ICT is double the EU average (7% for Ireland compared to 3.5% across the EU 28). In fact, together with Finland and Malta, Ireland has the highest share of all EU countries.

Figure 4.1 Science & computing awards, 2013-2017



Source: HEA, QQI (FET-major awards) & selected QQI (HE-major awards)

Note: data for 2013 for non-HEA QQI 3rd level is not available by the same field of learning breakdowns and is excluded from Figure 4.1;

\*Level 6 awards include a small number of university certificates, not formally aligned at this level on the NQF

\*\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards.

Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NQF are included with other postgraduate qualifications at level 9.

<sup>11</sup> Non-HEA QQI 3<sup>rd</sup> level awards exclude awards made at institutes of technology. The number includes awards made to learners at private, independent colleges, such as Griffith College, Dublin Business School, National College of Ireland, and many others. A full list of the non-HEA providers making QQI major awards to learners is provided in Appendix 1.

Figure 4.2 Science awards by level, 2017

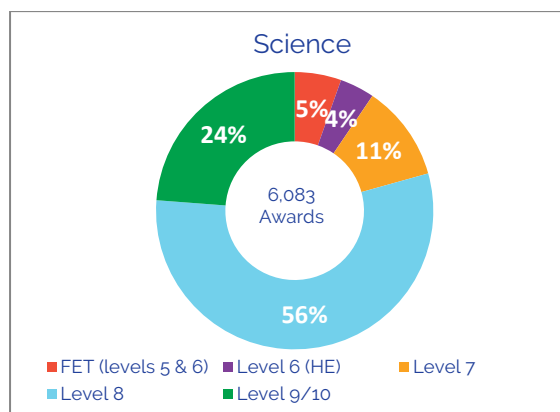
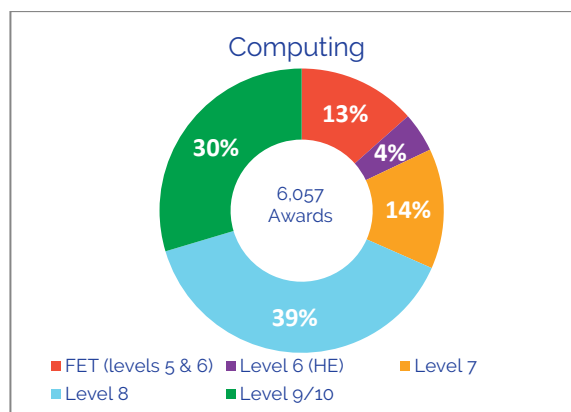
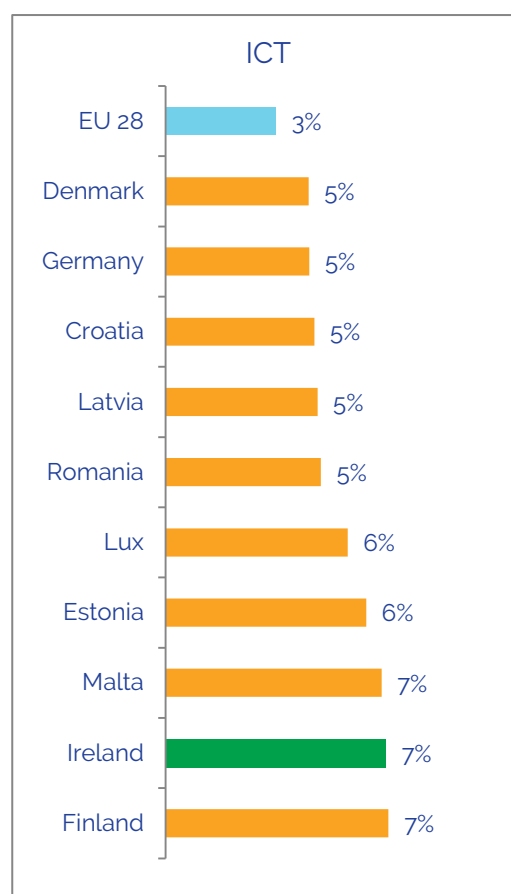
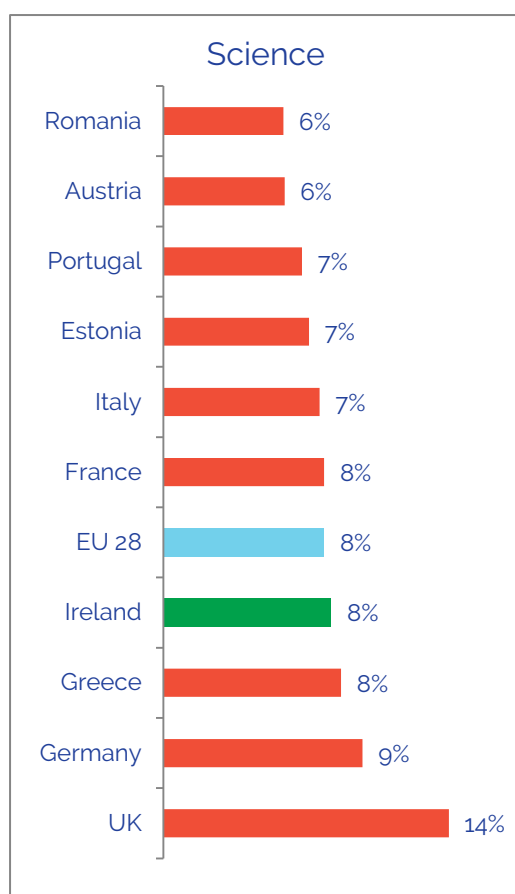


Figure 4.3 Computing awards by level, 2017



Source: HEA, QQI (FET) & selected QQI (HE major awards- private, independent colleges)

Figure 4.4 Science and ICT graduates as a share of total graduates in the EU, 2016 (Top ten countries only)



Source: Eurostat. Data extracted 12.02.2019

**Science and computing awards by detailed field:** of the 12,141 science and computing awards made in 2017/2018, almost 2,000 were in software development, spanning levels 5-10 on the NFQ, although the majority are made at level 8 and above. In addition (and not included in the table below), there were over 1,400 FET awards, not on the NFQ, most of which related to high level skills (e.g. Comptia, etc.), although a number were also for more basic computing skills (e.g. MS Office and ECDL).

Table 4.1 Awards in science and computing, by NFAQ and detailed field of learning, 2017

2017 graduates	FET			Higher Education				Grand Total
	Level 1-4	Level 5	Level 6 (FET)	Level 6*	Level 7	Level 8	Level 9/10	
<b>Combined science/computing</b>	<b>2</b>	<b>330</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>48</b>	<b>16</b>	<b>396</b>
<b>Biology &amp; environment science, inc</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>133</b>	<b>491</b>	<b>1839</b>	<b>708</b>	<b>3,171</b>
<i>Biochemistry</i>	-	-	-	4	56	393	78	531
<i>Environment/wildlife</i>	-	-	-	9	39	244	164	456
<b>Physical science, including</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>68</b>	<b>176</b>	<b>1,100</b>	<b>313</b>	<b>1,657</b>
<i>Chemistry</i>	-	-	-	57	100	464	138	759
<b>Maths &amp; statistics</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>44</b>	<b>5</b>	<b>296</b>	<b>334</b>	<b>679</b>
<b>ICT , of which</b>	<b>-</b>	<b>602</b>	<b>212</b>	<b>217</b>	<b>778</b>	<b>1770</b>	<b>1556</b>	<b>5,135</b>
<i>Computing n.e.c./interdisciplinary</i>	-	-	-	104	296	814	778	1,992
<i>Computer use</i>	-	42	-	53	153	208	81	537
<i>Database and networks</i>	-	240	69	16	97	110	97	629
<i>Software development</i>	-	320	143	44	232	638	600	1,977
<b>QQI (HE) Science/computing</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>57</b>	<b>58</b>	<b>670</b>	<b>318</b>	<b>1,103</b>
<i>Science</i>	-	-	-	1	8	92	79	180
<i>Computing</i>	-	-	-	56	50	578	238	922
<b>Total</b>	<b>2</b>	<b>932</b>	<b>212</b>	<b>519</b>	<b>1,508</b>	<b>5,723</b>	<b>3,244</b>	<b>12,141</b>

Source: HEA, QQI (FET) & selected QQI (HE major awards to learners at private, independent colleges)

## 4.2 Adult population (25-64 year-olds) with science and computing qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or 3<sup>rd</sup> level qualifications. Of these, 190,000 persons (12%) held qualifications in either science or computing (5% in science, 7% in computing) (Figure 4.5).

- At 88%, the share of science and computing qualification holders who are in the labour force is higher than most other fields of learning (except engineering and agriculture/vet).
- 62% of FET graduates in science/computing were employed, compared to 85% of 3<sup>rd</sup> level qualification holders in this field.
- Of the science and computing qualification holders who were in employment, two thirds work in high skilled occupations (i.e. managerial, professional or associate professional roles).
- There are over 33,000 persons in the adult population who were not participating in the workforce: of these 10,300 were unemployed and 23,000 were economically inactive, mainly due to being engaged in home duties. Nonetheless, the inactivity rate for adults with science and computing qualifications was amongst the lowest across all fields of learning.

Figure 4.5 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in science and computing by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

[ ] Data in square brackets is small and should be treated with caution.

\*\* High skilled roles are comprised of managerial, professional and associate professional occupations

### 4.3 Potential supply from education and training system by related occupation

Table 4.2 details occupations in the National Skills Bulletin (2018) for which skills shortages were identified and where a qualification in science/computing is likely to be required or sought by employers. It should be noted, however, that not all science and computing graduates progress to employment in a related field and conversely it is possible to be employed in a computing occupation without a relevant qualification.

Therefore, the numbers outlined in Table 4.2 are only indicative of the potential supply of skills through the education and training system. They do not necessarily point to a direct correspondence between demand and supply of skills.

Table 4.2 Science and computing occupations for which shortages were identified: demand and education supply indicators, 2017/2018

Occupation (NSB description)	Number Employed, 2017 (Annual Average)	Annualised Employment Growth Rate (2012-17)	% 3 <sup>rd</sup> Level Graduates	Potential supply: Awards in science & computing (rounded to nearest 100)	
Chemical, biological & physical scientists	17,900	4.5%	95%	Level 8 +	4,800*
Programmers & software developers	26,000	4.6%	91%	Level 8 +	1,200
ICT specialist & project managers	18,800	3%	84%	Level 8 +	2,900
ICT profs. n.e.c.	19,600	6.4%	88%		
Science & eng. Technicians**	24,800	3.1%	70%	Level 6 & 7 (HE) Level 5 & 6 (FET)	900 300
IT technicians	20,300	8.8%	70%	Level 6 & 7 (HE) Level 5 & 6 (FET)	1,100 800

Source: National Skills Bulletin (NSB) 2018, QQI (FET & HE major awards), HEA

\* includes 1,100 in chemistry & biochemistry

\*\* see next chapter on engineering for the engineering related component (an additional 2,373 awards)

#### 4.4 Key points for science and computing

- The potential supply of skills to the labour market stemming from the education/training system is increasing.
- The labour force participation rate for people with these qualifications is higher than average (88%), and the unemployment rate is low at 6%.
- People with these qualifications tend to work in high skilled occupations.
- Compared to other EU countries, Ireland has a high share of 3<sup>rd</sup> level graduates in both science and computing – for computing, Ireland has one of the highest shares, second only to Finland.
- Although comparatively the numbers employed in science and computing occupations are relatively small, they nonetheless involve skills that are in high demand by employers, although niche area expertise and experience are often key requisites.
- Of those who are not economically inactive, the highest numbers are engaged in home duties (including 6,600 third level graduates).

## 5. Engineering, manufacturing & construction

### 5.1 Awards from the education and training system

**Total awards (2013-2017): the number of engineering, manufacturing and construction awards reached almost 9,200** in 2017. Despite the increases in 2016 and 2017, the total number of awards in this discipline remains below the 9,900 observed in 2013 (Figure 5.1); this decline is due almost entirely to a decrease in the number of construction awards – the number of engineering awards actually increased (Figures 5.2 and 5.3).

**Engineering & manufacturing:** there were just over 7,100 awards in 2017, the majority (55%) of which were made at NFQ levels 5, 6 or 7 (Figure 5.4). It should be noted here that FET awards in this category include craft-electrical awards at level 6, which, although classified within the engineering related field, are related to activity in the construction sector. In 2017, there were 418 craft electrical awards.

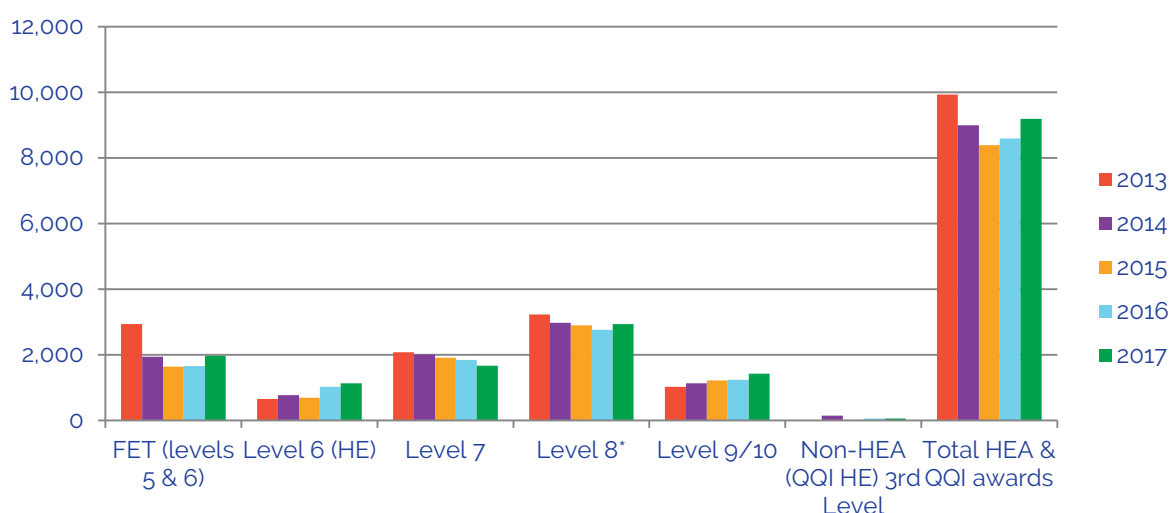
The sharp declines in engineering in FET were related to a fall across a range of awards titles, but in particular electrical (which almost halved), heavy vehicle mechanic, and motor mechanic.

**Construction:** there were almost 2,100 awards in 2017, over one half of which were made at level 8 or above (Figure 5.5). Although the number of construction awards has begun to recover at level 9, and the decreases at level 7 and 8 are less sharp than before, the total number made in this area remains almost 40% lower than in 2013 (when the number of awards was 3,400).

**Irish-domiciled graduates in the UK:** in 2017, there were 65 persons domiciled in the Republic of Ireland who had obtained construction related qualifications from UK higher education institutions; a further 175 persons obtained engineering qualifications. The number of qualifiers has declined sharply from 485 (construction) and 490 (engineering) since 2010.

**EU Comparison (Figure 5.6):** the share of third level graduates in Ireland who had studied engineering, manufacturing and construction is lower than the EU average of 15%.

Figure 5.1 Engineering, manufacturing & construction awards, 2013-2017



Source: HEA, QQI (FET-major awards) & selected QQI (HE-major awards for 2014 onwards)

\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

Figure 5.2 Eng & manuf awards\*, 2013-2017

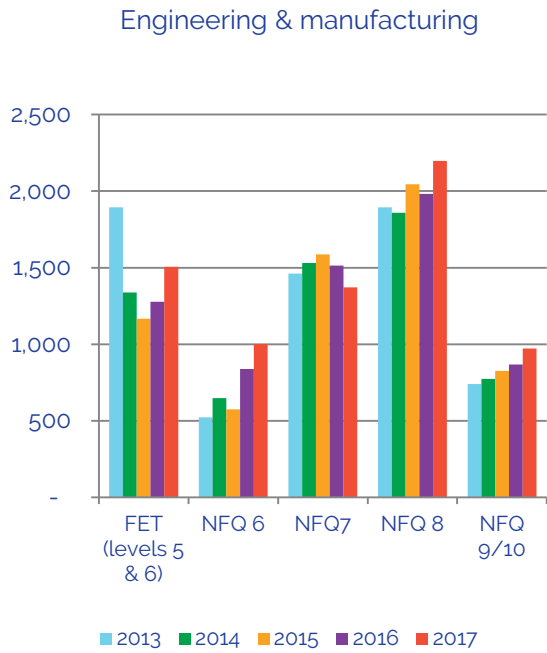
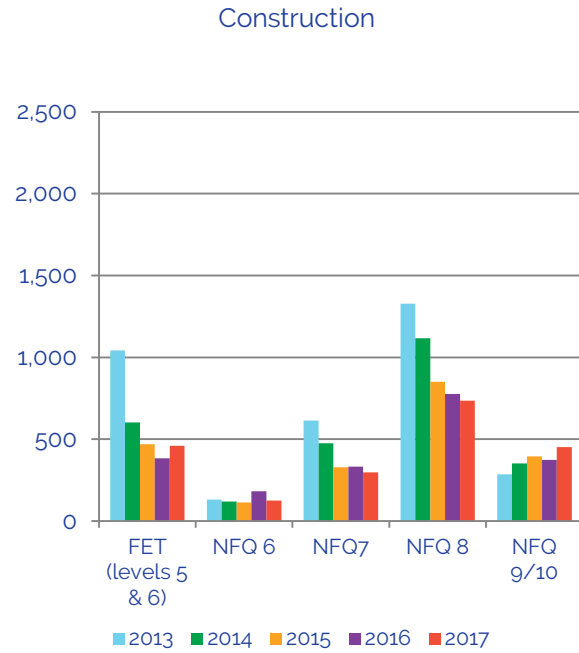


Figure 5.3 Construction awards, 2013-2017



Source: HEA, QQI (FET-major awards)

\*Excludes awards at levels 1-4

Figure 5.4 Eng & manuf awards by level\*, 2017

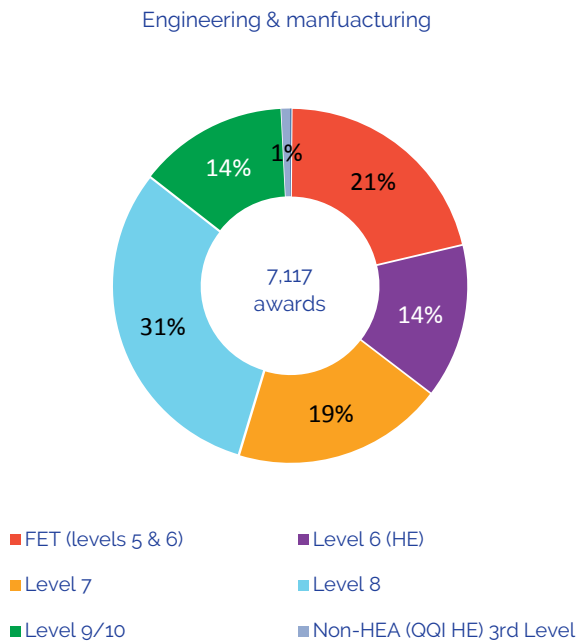
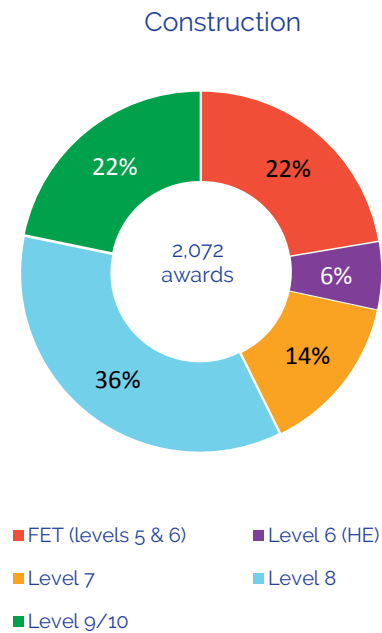


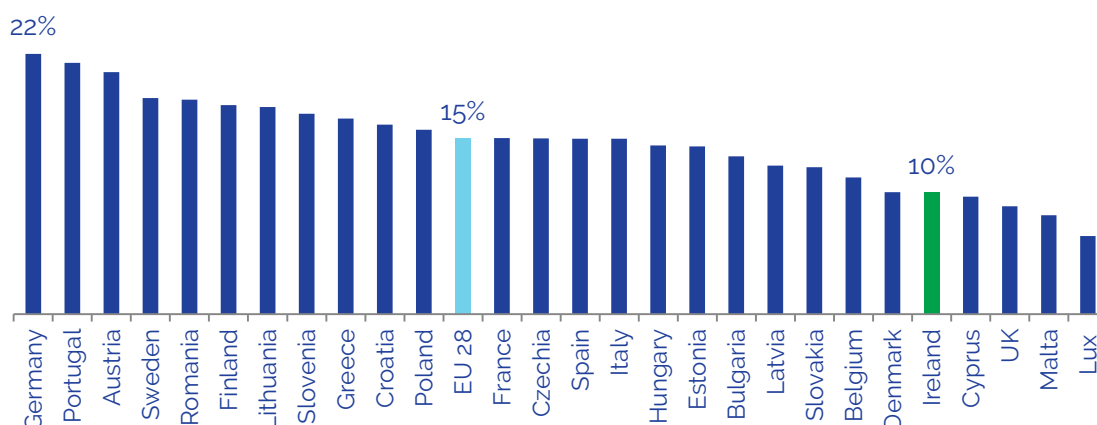
Figure 5.5 Construction awards by level 2017



Source: HEA, QQI (FET-major awards) & selected QQI (HE-major awards)

\*Excludes nine awards at levels 1-4

Figure 5.6 Engineering, manufacturing & construction 3<sup>rd</sup> level graduates as a share of total graduates, 2016



Source: Eurostat. Data extracted 12.02.2019

**Engineering, manufacturing and computing awards by detailed field (Table 5.1):** there were almost 9,200 awards in engineering/manufacturing and construction (there were a further 1,100 awards not on the NFQ made to learners in the FET sector).

Engineering/manufacturing: with respect to sub-disciplines, electronics and automation had the highest number of awards (1,372), most of which were made in higher education (level 7 and 8); this was followed by mechanics and metal work (e.g. mechanical engineering) at almost 1,300 awards, mostly at level 7 and above).

Construction: there were approximately 160 graduates who obtained level 8 honours degrees in civil or structural engineering; there were over 260 graduates at level 8 who had obtained qualifications in architecture or architectural technology (*excludes interior and landscape architecture*).

Table 5.1 Awards in engineering, manufacturing & construction by NFQ and detailed field of learning, 2017

	FET (2017)			Higher Ed (2017)				Total
	NFQ 1-4	NFQ 5	NFQ 6	NFQ 6	NFQ 7	NFQ 8	NFQ 9/10	
<b>Combined Eng., manuf. &amp; const.</b>	<b>9</b>	<b>3</b>	<b>165</b>	-	-	-	-	<b>177</b>
<b>Engineering, including</b>	<b>0</b>	<b>123</b>	<b>1,199</b>	<b>753</b>	<b>1,258</b>	<b>1,834</b>	<b>823</b>	<b>5,990</b>
<i>Mechanics &amp; metal work</i>		83	355	91	339	359	66	1,293
<i>Electricity &amp; energy</i>			490	119	136	201	85	1,031
<i>Electronics &amp; automation</i>		40	97	163	487	473	112	1,372
<i>Chemical &amp; process</i>				82	26	94	222	424
<b>Manufacturing &amp; process, inc</b>	-	<b>18</b>	-	<b>248</b>	<b>114</b>	<b>364</b>	<b>149</b>	<b>893</b>
<i>Food processing</i>				45	91	191	74	401
<i>Materials</i>				1	14	26	16	57
<b>Construction, including</b>	-	<b>135</b>	<b>328</b>	<b>125</b>	<b>297</b>	<b>736</b>	<b>451</b>	<b>2,072</b>
<i>Architecture &amp; town planning</i>				10	18	257	209	492
<i>Building &amp; civil engineering</i>				107	266	403	174	950
<b>QQI-HE (2017)</b>	-	-	-	-	<b>55</b>	-	<b>2</b>	<b>57</b>
<b>Total</b>	<b>9</b>	<b>261</b>	<b>1,710</b>	<b>1,126</b>	<b>1,724</b>	<b>2,934</b>	<b>1,425</b>	<b>9,189</b>

Source: HEA, QQI (FET-major awards) & selected QQI (HE-major awards)

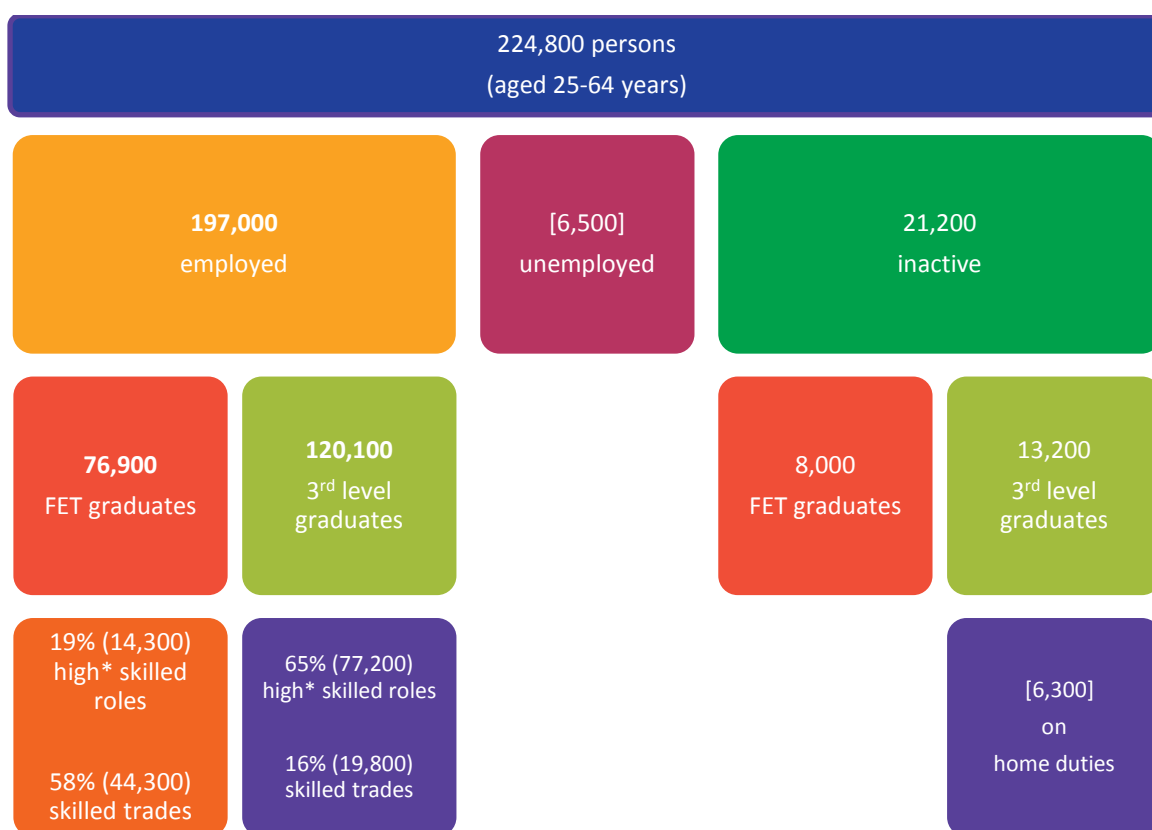


## 5.2 Adult population (25-64 year-olds) with engineering, manufacturing and construction qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or 3<sup>rd</sup> level qualifications. Of these, 224,800 (or 14%) held qualifications in engineering, manufacturing or construction (Figure 5.7).

- Engineering, manufacturing and construction qualification holders were predominantly male (90%).
- Engineering, manufacturing and construction qualification holders had one of the highest labour force participation rates across all fields of learning (91% compared to an average of 86%) (only the ag & vet field had a higher labour force participation rate).
- Of the 197,000 engineering/construction qualification holders in employment, almost 80% worked in either skilled trades or high skilled occupations.
- Nonetheless, third level graduates are more likely to work in high skilled occupations while FET graduates are more likely to work in skilled trades.

Figure 5.7 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in engineering, manufacturing and construction by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

Numbers in brackets [...] are small and should be treated with caution

\*High skilled roles are comprised of managerial, professional (e.g. mechanical engineer) and associate professional (e.g. building engineering technician) occupations

### 5.3 Potential supply from education and training system by related occupation

Table 5.2 details occupations in the National Skills Bulletin (2018) for which skills shortages were identified and for which a qualification in this field is likely to be required or sought by employers. It should be noted, however, that not all engineering and construction graduates progress to employment in a related field. Furthermore, these graduates will also be in demand for occupations for which no shortages have been identified.

Therefore, the numbers outlined in Table 5.2 are only indicative of the potential supply of skills through the education and training system. They do not necessarily point to a direct correspondence between demand and supply of skills.

Table 5.2 Engineering & construction occupations: demand and education supply indicators, 2017/2018

Occupation (NSB description)	Employed 2017	% 3 <sup>rd</sup> Level Graduates	Annualised Employment Growth Rate (2012-17)	Potential supply: awards in engineering & construction (rounded to nearest 10)	
Production, design & QC engineers	13,000	91%	8.4%	Level 8+	3,170*
Other engineering professionals	14,200	79%	7.2%		
Civil engineers & construction project managers	11,000	86%	6.3%	Level 8+	580 (including 180 in civil/structural & 130 in construction management)
Architects & town planners, architectural technologists, & surveyors	12,400	89%	2.3%	Level 8+ Level 6/7 (HE)	460 (architecture) 100 (quantity surveying/construction economics) 420 (const/arch)
Science & engineering technicians**	24,800	70%	3.1%	Level 6 & 7 (HE) Level 5 & 6 (FET)	2,430 170 (eng.tech.)
Carpenters & joiners	18,100	-	9%	Level 6 (FET)	100
Other construction trades	24,100	-	10.9%	Level 6 (FET)	50 (const plant fitting, architect tech)
Construction operatives & elementary occupations	38,900	-	0.2%	Level 1-5 (FET)	140
Metal forming, welding & related trades	10,200		8%	Level 6 (FET)	300
Metal machining, fitting & instrument making trades	23,300	[31%]	2.5%		
Electrical & electronic trades, etc.***	36,200	34%	3.2%	Level 5 & 6 (FET)	590

Source: National Skills Bulletin 2018, QQI (FET & HE major awards), HEA

[.] Data in square brackets is small and should be treated with caution.

\*Includes: 400 mechanical; 300 electrical; 600 electronic/automation; and 300 chemical/process awards)

\*\*See previous chapter on science for the engineering related component (where there are an additional 1,200 awards coming from the science/computing discipline for this occupation)

\*\*\* Possible future shortage

## 5.4 Key points for engineering, manufacturing and construction

- The potential supply of skills to the labour market stemming from the education/training system is increasing for **engineering & manufacturing**.
- However, while the rate of decline for construction has slowed, and has even begun to make small increases at postgraduate level and in the FET sector, **supply of construction skills** to the labour market from the education/training sector has yet to recover from the losses observed as a result of the recession.
- At 91%, the labour force participation rate for people with these qualifications is amongst the highest across all fields of learning (only agriculture and vet qualification holders have a higher rate).
- Although persons with FET qualifications in this field tend to work in skilled trades (58%), almost a fifth work in high skilled roles – this is one of the highest shares for FET across all fields of learning (except social science, business and law).
- There were 21,200 persons who were not economically active, 13,200 of whom were third level graduates.
- **Engineering & manufacturing:** the National Skills Bulletin has identified several occupations which are experiencing shortages; while the magnitude of the shortage is likely to be small, particularly for the more senior roles, the specific skills-set required, combined with the need for work experience in the area, means that despite the increased output from the education system, some employers are finding it difficult to fill some engineering vacancies.
- **Construction:** The National Skills Bulletin has identified a number of construction occupations which are experiencing shortages; these shortages span a range of occupations, from skilled trades to professionals and managers. Given the decline in graduate output in recent years, and the fact that many courses require 4 or more years to qualify, job opportunities and even shortages are expected to persist in the short-to-medium term.

## 6. Social science, business and law (SSBL)

### 6.1 Awards from the education and training system

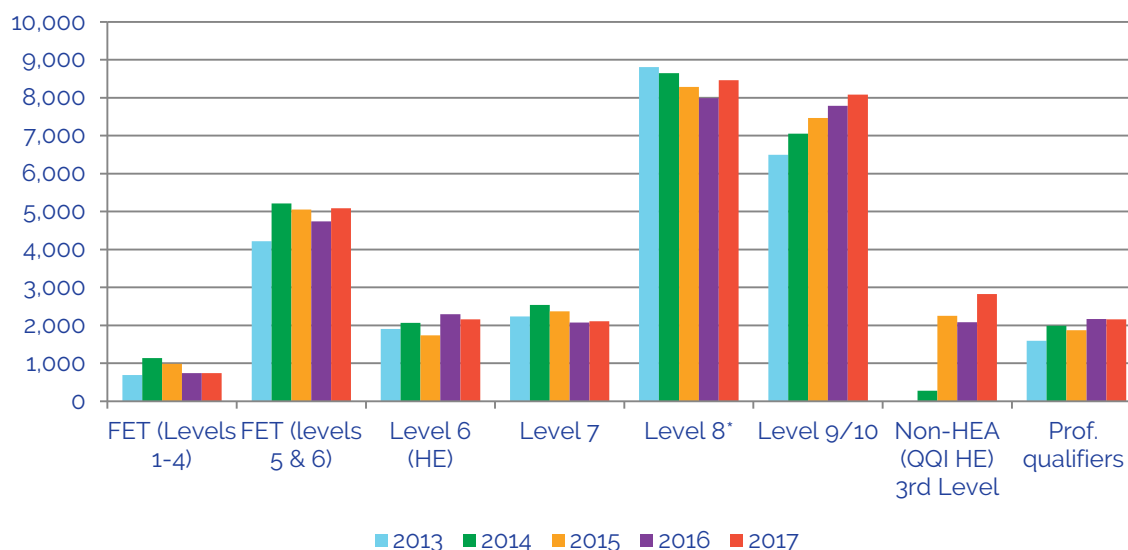
**Total awards (2013-2017): the number of social science, business and law (SSBL) awards reached over 31,600** in 2017, representing a 6% increase on the preceding year and a rise of more than a fifth when compared to 2013 (Figure 6.1). These numbers include professional qualifications made to those qualifying as accountants, tax advisors and tax technicians.

**Level (Figure 6.2):** SSBL awards were predominantly made in the third level sector. For awards on the National Framework of Qualifications (29,454 in 2017), almost two thirds were at level 8 or higher. Although there were increases at levels 5, 8 and 9/10, most of the overall growth in awards in this field is due to increases in the number of awards made in the private, independent third level sector.

**Irish-domiciled graduates in the UK:** in 2017, 685 persons domiciled in the Republic of Ireland obtained qualifications in the field of social science, business and law from UK higher education institutions.

**EU Comparison (Figure 6.3):** the share of third level graduates in Ireland who had social science, business and law qualifications was below the EU-28 average (31% for Ireland compared to the EU average of 34%).

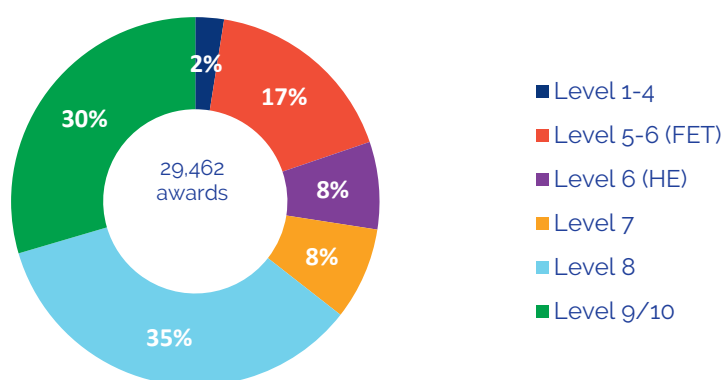
Figure 6.1 Awards in social science, business and law (SSBL), 2013-2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards), Irish Tax Institute, Irish Auditing and Accounting Supervisory Authority (IAASA)

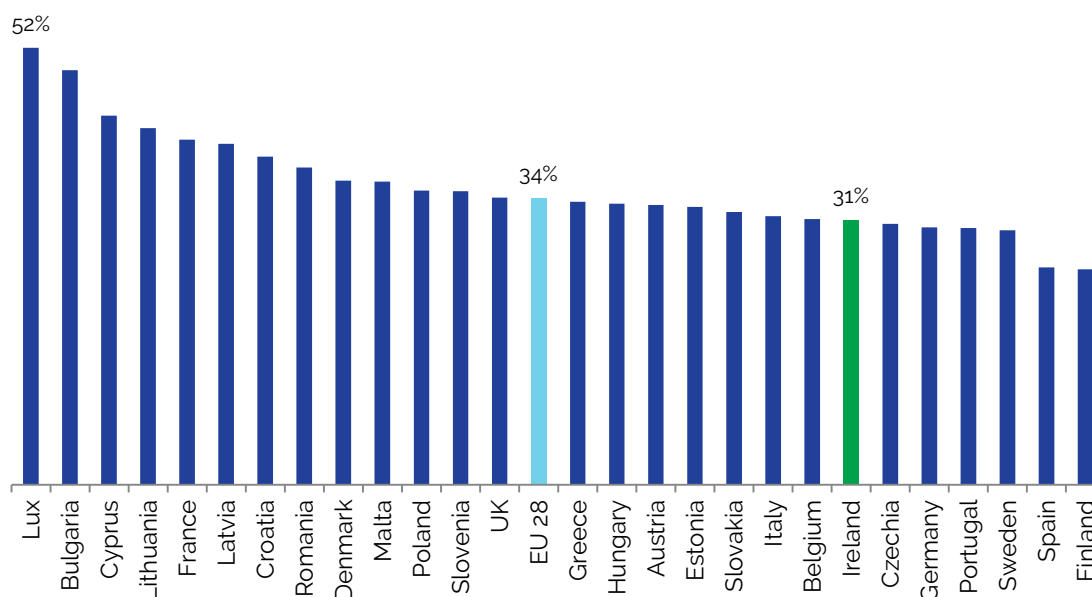
\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFAQ are included with other postgraduate qualifications at level 9.

Figure 6.2 Awards in social science, business and law (SSBL), by level, 2017



Source: HEA, QQI (FET-major awards) & selected QQI (HE-major awards). Professional qualifications which are not on the National Framework of Qualifications are not included.

Figure 6.3 Share of graduates in SSBL in EU countries, 2016



Source: Eurostat. Data extracted 12.02.2019

**SSBL awards by detailed field** Table 6.1 provides a detailed breakdown of social science, business and law awards by level and detailed field.

- There were 432 economics graduates, although this does not capture learners who may have studied economics as part of other programmes (e.g. arts, commerce).
- There were almost 1,200 accounting and tax graduates at third level; in addition 2,155 persons gained qualifications with relevant accounting/tax bodies (e.g. ACCA).
- Most marketing and advertising awards were made in the third level sector, and amounted to 1,647 in 2017.

In addition (and not included in the Table below), there were approximately 200 learners who obtained non-QQI awards in the FET sector in this field.

Table 6.1 Awards social science, business & law by NFQ and detailed field of learning, 2017

2017 graduates	FET			Higher Education				Grand Total
	Level 1-4	Level 5	Level 6 (FET)	Level 6	Level 7	Level 8	Level 9/10	
<b>Social science, etc, inc</b>	-	<b>1,123</b>	<b>16</b>	<b>549</b>	<b>199</b>	<b>1,965</b>	<b>1,767</b>	<b>5,619</b>
<i>Economics</i>	-	-	-		19	229	184	432
<i>Psychology</i>	-	-	-	155	21	416	577	1169
<b>Business &amp; law, inc</b>	<b>738</b>	<b>3,427</b>	<b>521</b>	<b>1,606</b>	<b>1,911</b>	<b>6,499</b>	<b>6,313</b>	<b>21,015</b>
<i>Business/admin</i>	-	1,017	-	462	555	2,906	1,362	6,302
<i>Accounting &amp; tax</i>	-	-	-	40	211	667	279	1,197
<i>Management/admin</i>	-	-	399	758	820	1216	2,728	5,921
<i>Marketing &amp; advertising</i>	-	64	-	254	176	414	739	1,647
<i>Secretarial</i>	196	1,994	122	19	1			2,332
<i>Law</i>	-	99	-	56	99	1079	587	1,920
<b>Non-HEA (QQI HE) 3rd Level, inc</b>				<b>107</b>	<b>278</b>	<b>1,816</b>	<b>627</b>	<b>2,828</b>
<i>Business/admin</i>	-	-	-	96	222	1,177	525	2,020
<i>Law</i>	-	-	-	-	-	62	10	72
<b>Prof. qualifiers (tax &amp; accountancy)</b>								<b>2,155</b>
<b>Total</b>	<b>738</b>	<b>4,550</b>	<b>537</b>	<b>2,262</b>	<b>2,388</b>	<b>10,280</b>	<b>8,707</b>	<b>31,617</b>

Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards), Irish Tax Institute, Irish Auditing and Accounting Supervisory Authority (IAASA)

## 6.2 Adult population (25-64 year-olds) with social science, business and law qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or third level qualifications. Of these, 402,100 (or 26%) held qualifications in the social science, business and law (SSBL) field of learning.

- The share of persons who were either employed or unemployed (i.e. the labour force) was 86%, on par with the average for those with post-secondary or third level qualifications (in this age group).
- Although this field of learning (SSBL) had the highest *number* of persons who were unemployed, the unemployment rate (3.8%) was slightly below the average (4.4%) for persons with post-secondary or third level qualifications.
- There were 55,600 persons who were not economically inactive, 70% of whom were third level graduates (mostly female).
- Although more than two thirds of employed SSBL qualification holders worked in high skilled roles, a sizeable minority (almost a fifth) worked in administrative/secretarial occupations.

Figure 6.3 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in SSBL by economic status. Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

[..] Data in square brackets is small and should be treated with caution.

\*High skilled roles comprise those working as managers, professionals (e.g. accountants) or associate professionals (accounting technicians)

### 6.3 Potential supply from education and training system by related occupation

Table 6.2 details occupations in the National Skills Bulletin (2018) for which skills shortages were identified and for which a qualification in this field is likely to be required or sought by employers. It should be noted, however, that not all social science, business and administration graduates progress to employment in a related field and conversely it is possible to be employed in many business occupations without a business qualification (with the exception of regulated professions such as accountants). Furthermore, these graduates will also be in demand for occupations for which no shortages have been identified.

Therefore, the numbers outlined in Table 5.2 are only indicative of the potential supply of skills through the education and training system. They do not necessarily point to a direct correspondence between demand and supply of skills.

Table 6.3 Business, financial, admin, secretarial, sales, marketing & customer service occupations: supply and demand indicators 2017/2018

Occupation (NSB description)	Number Employed, 2017 (Annual Average)	% 3 <sup>rd</sup> Level Graduates	Annualised Employment Growth Rate (2012-17)	Potential supply: Awards in SSBL (rounded to nearest 10)	
<b>Finance related occupations</b>					
Accountants & tax experts	40,400	94%	1.2%	Level 8+	950 (account/tax)
Actuaries, economists & statisticians; other business profs.**	[5,800]	[92%]	-0.5%		Professional qualifications
Financial analysts and insurance underwriters	<b>16,100</b>	86%	4.9%	Level 6 & 7 (HE)	250
<b>Social science and business related occupations</b>					
Mgt. consultants, bus. analysts & project managers	<b>12,200</b>	94%	7.8%	Level 8+ Level 6 & 7	14,440 <b>270 (from chapter 8 services)</b>
Other bus. associate profs.	<b>17,400</b>	74%	10.1%	Level 6 & 7 (HE)	3,970
<b>Sales and marketing occupations</b>					
Business sales executives	22,300	60%	-2.1%	Level 8+	1,150
Sales accounts & bus. dev. managers	19,700	70%	2.2%	Level 6 & 7 (HE)	430
Other sales and marketing assoc. prof.	18,700	68%	5.1%		
Customer service occupations	25,400	45%	9%	n/a	

Source: National Skills Bulletin (NSB) 2018, QQI (FET & HE major awards), HEA, IAASI; Irish Tax Institute

[..] Data in square brackets is small and should be treated with caution.

\* Actuarial science and statistics graduates are included in Table 5.2 with other science and maths graduates

\*\* Possible future skills shortage



## 6.5 Key points for social science, business and law

- The potential supply of skills to the labour market stemming from the education/training system is increasing for this field of learning.
- In Ireland, as in most EU countries, social science, business and law, had the highest number of graduates across all fields of learning.
- Despite the increase in graduate numbers, there remain occupations for which shortages have been identified, largely due to requirements such as niche, industry experience or specific skills combinations (e.g. native speaker competence in languages).
- In addition, it is possible that there is a degree of skill mismatch, with almost a fifth of 3<sup>rd</sup> level graduates working in administrative occupations, occupations for which it could be argued a 3<sup>rd</sup> level qualification is not required.
- There is a large number of persons who are not economically active (55,600), and despite a low unemployment rate (<4%), there were 13,300 unemployed persons.

## 7. Health and welfare

### 7.1 Awards from the education and training system

**Total awards (2013-2017): the number of health and welfare awards reached almost 24,400 in 2017**, which is broadly similar to 2016. This, however, masks fluctuations at different NFQ levels, most notably increases of over 100 awards at levels 7 and 8 and in the non-HEA 3<sup>rd</sup> level sector, with declines at other levels.

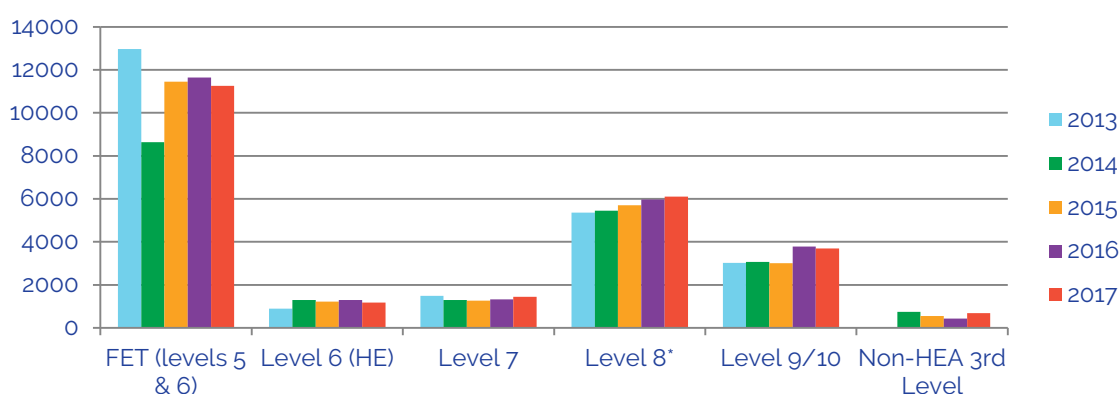
**FET:** The declines in FET awards between 2013 and 2014 were related to a sharp drop in the number of awards made for community/health services, healthcare support and health services skills. Although numbers for these awards have risen since then, in 2017, they still remained below the levels observed in 2013. In contrast, awards for early childhood care and education have increased, reaching over 4,100 in 2017 (up from under 3,000 in 2013 and under 4,000 in 2014).

**Third level:** between 2016 and 2017, the number of awards in higher education remained broadly similar (at 13,000), although this masks a decline at postgraduate level and an increase at level 8 and in the non-HEA aided sector. Nonetheless, when compared to 2013, there were increases across all levels except level 7 (which declined by fewer than 40 awards).

**EU Comparison (Figure 7.3):** on average, the share of graduates in the EU who had studied health and welfare related courses was 14%; Ireland's share was higher at 17%, possibly due to the fact that nursing qualifications in Ireland are third level degrees, whereas in some other countries, nursing education occurs outside the third level sector.

**Irish-domiciled graduates in the UK:** within the broader field of health, veterinary and agriculture, 1,370 Irish domiciled learners obtained qualifications in this area in UK higher education institutions in 2017, representing 37% of the total. This represents the most popular field of learning for Irish-domiciled learners in the UK. While the overall number of Irish-domiciled qualifiers in the UK has been declining in recent years (-42% between 2012 and 2017), the decline for this subject area is less steep (-11%), with the result that the share of qualifiers from this discipline increased from 24% in 2012 to 37% in 2017.

Figure 7.1 Health and welfare awards, 2013-2017

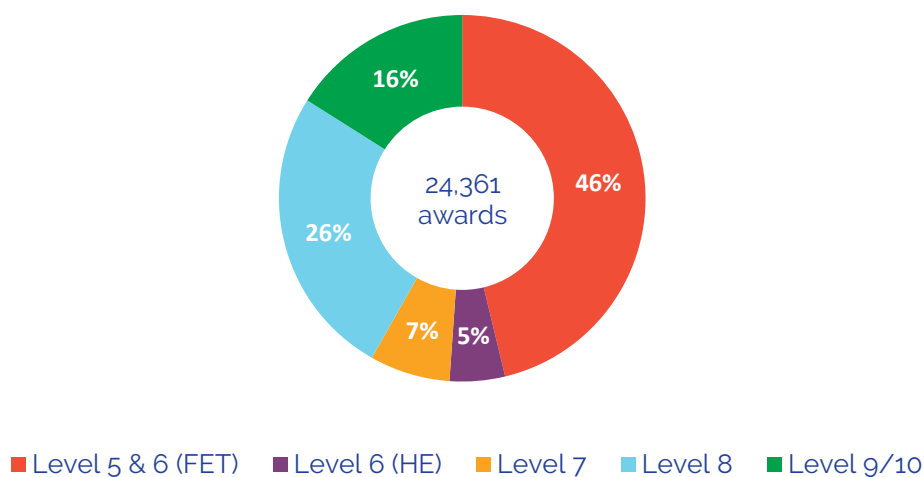


Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards)

\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

Excludes 17 awards at levels 1-4

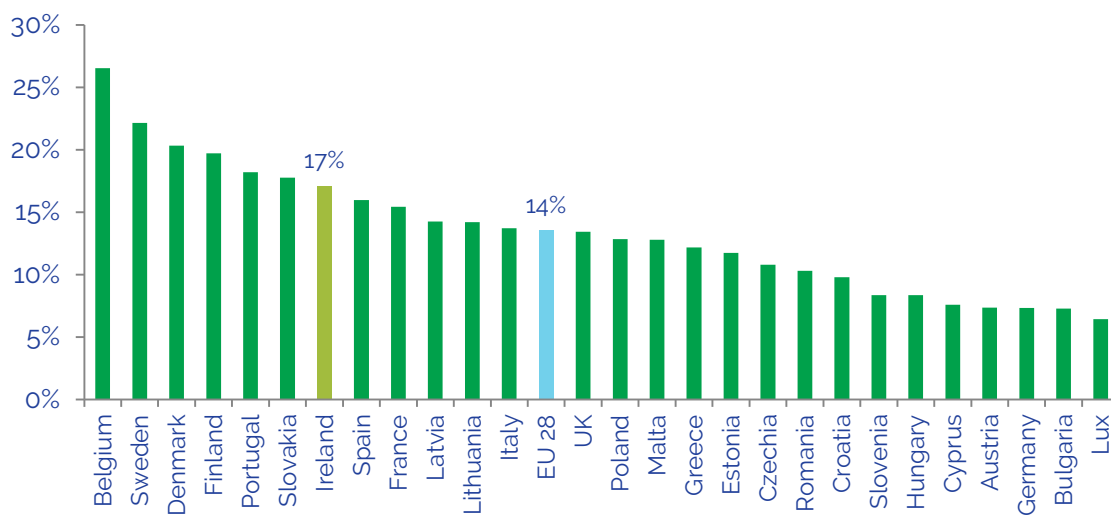
Figure 7.2 Health and welfare awards by NFQ level, 2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards),

Not depicted in the graph (but included in the total) are 17 awards at levels 1-4

Figure 7.3 Share of graduates in EU countries in health and welfare, 2016



Source: Eurostat. Data extracted 12.02.2019

**Health and welfare awards by detailed field (Table 7.1):** almost half (46%) of all awards in this field were made in the FET sector (predominantly for healthcare support and childcare awards); a further quarter were made at level 8, with almost three quarters of these awards being for health related courses such as nursing, medicine, etc. The remaining 25% of courses at level 8 tend to be for childcare and social care studies.

Table 7.1 Awards in health and welfare by NFQ and detailed field of learning, 2017

2017 graduates	Level 1-4	FET Level 5	Level 6 (FET)	Level 6	Higher Education Level 7	Level 8	Level 9/10	Total
<b>Health &amp; Welfare n.e.c</b>	-	-	-	254	93	325	507	1,179
<b>Health , including</b>	-	4,323	-	253	366	4,143	2,674	11,759
<i>Medicine</i>				-	42	1342	496	1,880
<i>Nursing &amp; caring</i>		4,323		59	67	1576	1310	7,335
<i>Dental studies</i>				68	98	85	31	282
<i>Pharmacy</i>				83	12	188	264	547
<b>Welfare, including</b>	17	4,849	2,083	669	989	1635	503	10,745
<i>Childcare &amp; youth services</i>	17	2,340	1,841	338	519	721	84	5,860
<i>Social work/ counselling</i>		2,509	242	260	292	803	347	1702
<b>QQI-HE</b>	-	-	-	12	280	167	219	678
<b>Total health &amp; welfare</b>	17	9,172	2,083	1,188	1,728	6,270	3,903	24,361

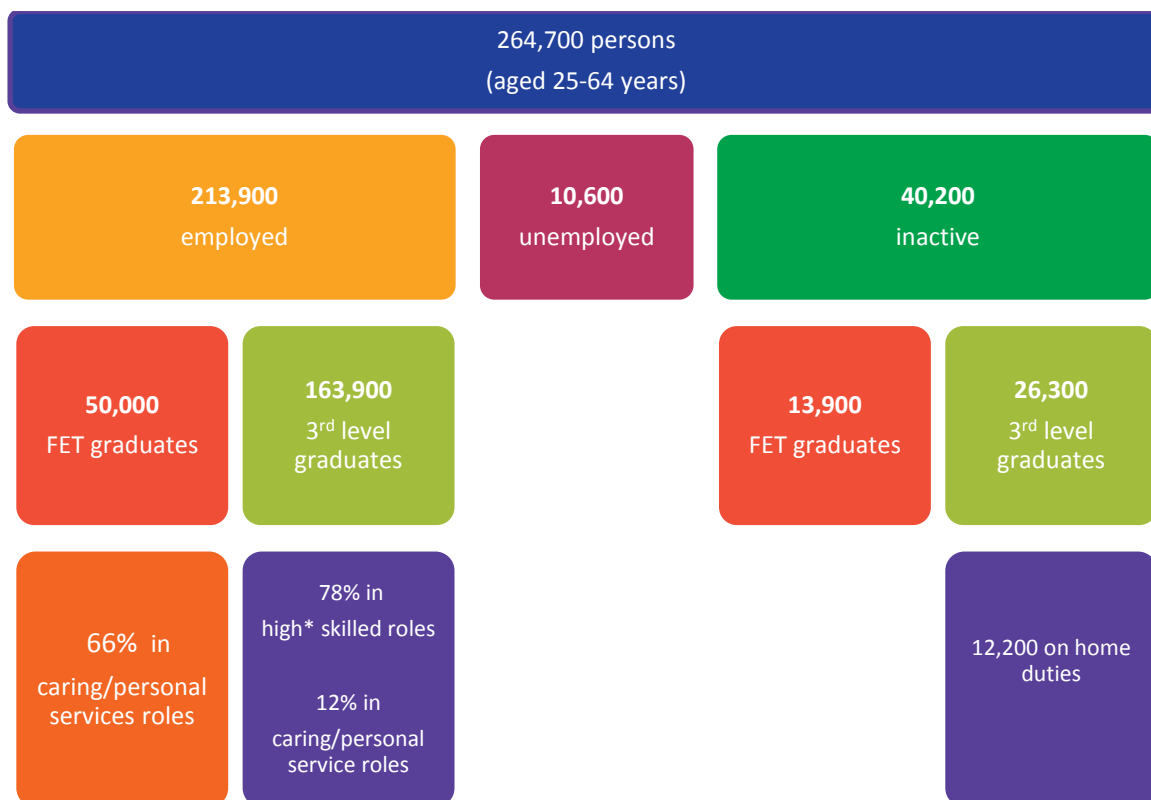
Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards),

## 7.2 Adult population (25-64 year-olds) with health and welfare qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or third level qualifications. Of these, 264,700 (or 17%) held health/welfare qualifications.

- At 85%, the labour force participation rate (i.e. share of persons either employed or unemployed) was slightly below the average for persons with post-secondary or third level qualifications (86%).
- The majority of employed FET qualification holders were working in personal or caring service occupations (typically as carers).
- While the majority of third level health/welfare qualification holders in employment were working in professional roles (e.g. nurses), there was nonetheless a sizeable share (nearly 12%) working in caring roles.
- There were 26,300 third level graduates not in the labour force, with 12,200 (46%) not working due to being engaged in home duties.

Figure 7.4 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in health and welfare by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\*High skilled roles comprise those working as managers, professionals or associate professionals

### 7.3 Potential supply from education and training system by related occupation

Table 7.2 details occupations in the National Skills Bulletin (2018) for which skills shortages were identified and for which a qualification in this field is likely to be required or sought by employers. It should be noted, however, that not all health and welfare graduates progress to employment in a related field. Furthermore, these graduates will also be in demand for occupations for which no shortages have been identified.

Therefore, the numbers outlined in Table 7.2 are only indicative of the potential supply of skills through the education and training system. They do not necessarily point to a direct correspondence between demand and supply of skills.

Table 7.2 Healthcare, social and care occupations: demand and education supply indicators, 2017/2018

Occupation (NSB description)	Number Employed, 2017 (Annual Average)	% 3 <sup>rd</sup> Level Graduates	Annualised Employment Growth Rate (2012-17)	Potential Supply: Awards in health and welfare (rounded to nearest 10)	
<b>Health occupations</b>					
Medical practitioners	15,800	100%	2.2%	Level 8 Level 9/10	1,340 500
Nurses & midwives	58,500	97%	-2.4%	Level 8 Level 9/10	1,580 1,310
Other healthcare professionals	23,300	87%	6.1%	Level 8+	Pharmacy: 140 Dentistry: 80 Radiography & radiotherapy: 90 All other health: 1,240
Care workers, home carers, etc.*	61,700	32%	4.7%	Level 5 & 6 FET	4,320

Source: National Skills Bulletin 2018, QQI (FET & HE major awards), HEA

\* Although a skills shortage has not been identified for this occupation (care workers/home carers etc), issues are arising in relation to factors such as turnover, geographical mobility etc.

## 7.4 Key points for health and welfare

- The potential supply of skills to the labour market stemming from the education/training system remained broadly similar between 2016 and 2017, although this masks increases at level 7 and level 8, and declines at level 5 and level 6 (FET and HE).
- Although the share of health and welfare graduates in Ireland is higher than the EU average, there are a number of health professional occupations that continue to be in short supply (doctors, nurses).
- Of third level qualification holders in this field who were in employment, 12% were working in caring occupations, pointing to possible skills mismatch and over qualification in relation to this occupation.
- Although the total number of Irish-domiciled graduates from UK higher education institutions has declined in recent years, the decline for health related subjects is less sharp than other fields. Indeed the share of health related graduates has actually increased, going from just over a fifth in 2012 to over a third in 2017.
- The demand for care workers is expected to continue due to aging population demographics.

## 8. Services

### 8.1 Awards from the education and training system

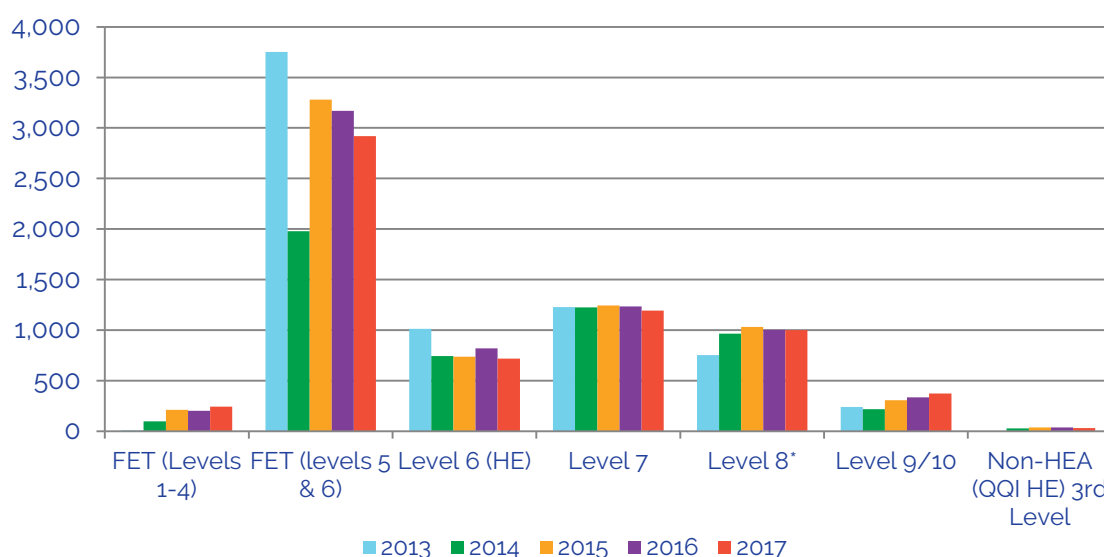
**Total awards (2013-2017): the number of awards in the services field of learning reached almost 6,500 in 2017**, which is a 5% decline on the preceding year, and an 8% decline when compared to 2013 (Figure 8.1). In spite of the overall decline, the number of awards at level 8 increased by a third and postgraduate awards increased by more than a half. The sharp drop in FET awards between 2013 and 2014 was due to significant declines in the number of sports/recreation awards (fell by almost 1,000), followed by hairdressing awards (fell by 460 awards). Subsequent increases occurred, in particular for sports, professional cookery and other hospitality related awards. Nonetheless, the total number of FET awards in 2017 remains below that observed in 2013.

**Level:** along with the agriculture and vet field of learning, services is one of the few fields where awards are almost evenly distributed across the FET and third level sectors: almost half (49%) of all awards in this field were made in the FET sector (Figure 8.2).

**Irish-domiciled graduates in the UK:** students in this field of learning are categorised in the UK data in other fields (e.g. engineering (transport) or management (catering)).

**EU Comparison (Figure 8.3):** at 5% in 2016, the share of third level graduates in Ireland who had studied services is above the EU average of 4%.

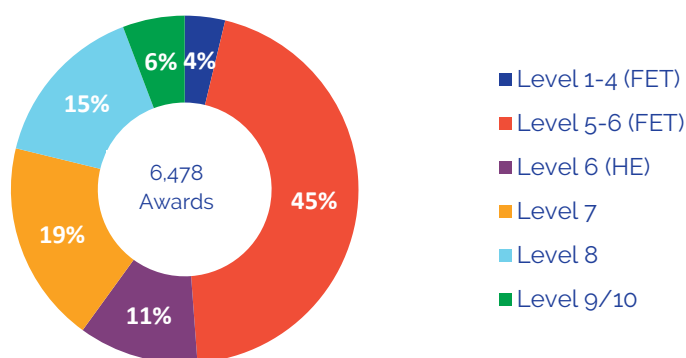
Figure 8.1 Awards in the services field of learning by NFQ level, 2013-2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards)

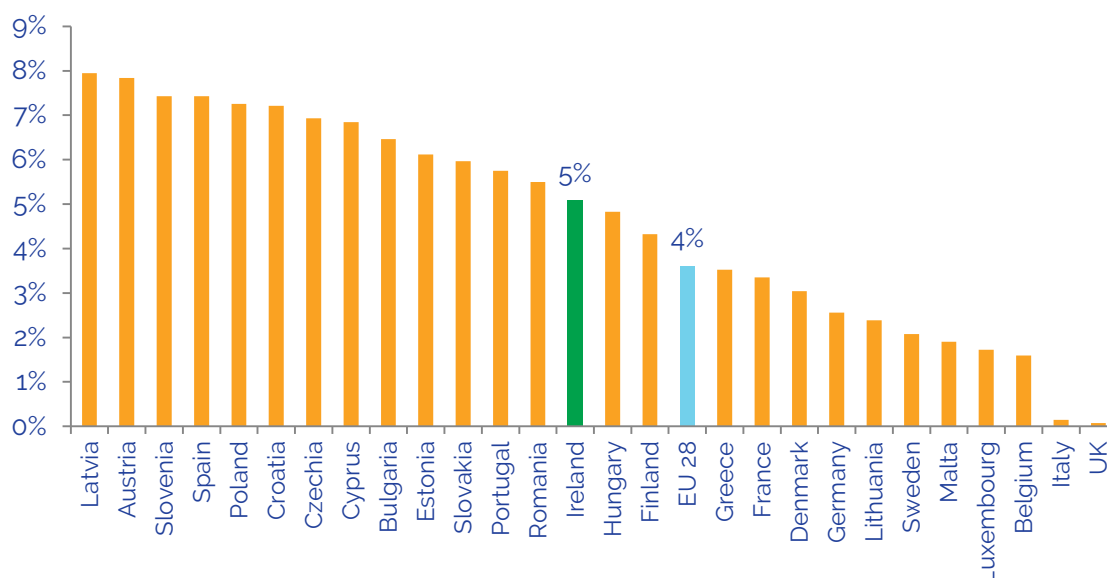
\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

Figure 8.2 Awards in services by level, 2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards)

Figure 8.3 Share of graduates in EU countries in services, 2016



Source: Eurostat. Data extracted 12.02.2019

### Services awards by detailed field (Table 8.1):

- Hotel, restaurant and catering: there were over 1,600 awards made in 2017 with awards being made in both the FET and higher education sectors; included in these awards were 340 FET awards for professional cookery and a further 490 awards in culinary related areas in the third level sector (mostly at levels 6 and 7).
- Sports awards account for the highest number of awards in the services field of learning; they are concentrated at levels 5, 7 and 8.
- Transport services awards include qualifications in transport management and nautical sciences. However, most supply chain management and logistics awards are *not* included in this field of learning (they fall into business and management categories); in 2017, within the business and management category (Chapter 6, and *not* included in Table 8.1), there were almost 220 awards made at third level institutions in supply chain management areas.



In addition, there were approximately 1,200 learners who obtained non-QQI awards in the FET sector. These awards were related to a range of courses including first aid, driving (e.g. HGV, forklift), hair, beauty and catering.

Table 8.1 Awards in services by NFQ level and detailed field of learning, 2017

2017 graduates	FET			Higher Education				Grand Total
	Level 1-4	Level 5	Level 6 (FET)	Level 6	Level 7	Level 8	Level 9/10	
<b>Personal services, of which</b>	<b>235</b>	<b>2,281</b>	<b>476</b>	<b>461</b>	<b>961</b>	<b>847</b>	<b>159</b>	<b>5,420</b>
<i>Hotel, rest &amp; catering</i>	137	287	152	359	409	203	56	1,603
<i>Sports</i>	98	954	195	78	362	470	72	2,229
<i>Travel, tourism &amp; leisure</i>	-	322	88	24	190	174	30	828
<i>Hair &amp; beauty services</i>	-	718	41	-	-	-	-	759
<b>Transport services</b>	-	<b>50</b>	<b>12</b>	<b>8</b>	<b>67</b>	<b>70</b>	-	<b>207</b>
<b>Security services</b>	<b>8</b>	<b>86</b>	<b>15</b>	<b>139</b>	<b>132</b>	<b>25</b>	<b>101</b>	<b>506</b>
<b>Occupational health &amp; safety</b>	-	-	-	<b>109</b>	<b>33</b>	<b>57</b>	<b>114</b>	<b>313</b>
<b>Non-HEA(QQI-HE)</b>	-	-	-	<b>6</b>	<b>26</b>	-	-	<b>32</b>
<b>Total</b>	<b>243</b>	<b>2417</b>	<b>503</b>	<b>723</b>	<b>1,219</b>	<b>999</b>	<b>374</b>	<b>6,478</b>

Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards)

\*Higher diplomas, which are placed at level 8 on the NFQ are postgraduate awards and for the purposes of this report have been included with other postgraduate awards at levels 9/10.

## 8.2 Adult population (25-64 year-olds) with services qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or 3<sup>rd</sup> level qualifications. Of these, 8% (125,600 persons) held qualifications in services.

- The labour force participation rate for persons holding services qualifications, at 82%, was below the average of 86%, and was the lowest observed across all fields of learning.
- **FET graduates:** more than a third (16,800 persons) were working in skilled trades (e.g. chefs/cooks) and almost a further quarter (10,700 people) were employed in caring/personal services roles (e.g., hairdressers).
- **Third level graduates:** although more than a third were working in high skilled roles, especially as managers and associate professionals (e.g. Gardaí), a fifth were working in skilled trades (e.g. chefs/cooks), with a further fifth working in lower skilled occupations such as administrative and caring/personal services roles.
- At 38%, the share of third level services graduates working in high skilled occupations was lowest across all fields of learning. (On average, more than two thirds of employed third level qualification holders work in high skilled occupations.)

Figure 8.4 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in services by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

\*\* High skilled roles are comprised of managerial (e.g. hotel manager), professional and associate professional occupations

### 8.3 Potential supply from education and training system by related occupation

Table 8.2 details occupations in the National Skills Bulletin (2018) for which skills shortages were identified and for which a qualification in this field is likely to be required or sought by employers. It should be noted, however, that not all services graduates progress to employment in a related field and conversely, provided it is not a regulated profession or requires a specific license (e.g. HGV driver licence), it is possible to be employed in some occupations without a relevant qualification. Furthermore, these graduates will also be in demand for occupations for which no shortages have been identified.

Therefore, the numbers outlined in Table 8.2 are only indicative of the potential supply of skills through the education and training system. They do not necessarily point to a direct correspondence between demand and supply of skills.

Table 8.2 Services occupations: demand and education supply indicators, 2017/2018

Occupation (NSB description)	Number Employed, 2017	% 3 <sup>rd</sup> Level Graduates	Annualised Employment Growth Rate (2012-17)	Potential supply: Awards in services (rounded to nearest 10 )	
<b>Transport &amp; Logistics Occupations</b>					
<b>Managers &amp; directors in transport &amp; logistics*</b>	<b>9,200</b>	[47%]	4.4%	Level 8+ Level 6 & 7 (HE) 3 <sup>rd</sup> Level (SSBL)	70 75 220**
<b>Stock control, transport &amp; distribution admin. Occupations*</b>	<b>7,600</b>		5.8%	NFQ 5 & 6 (FET)	60
<b>Truck &amp; van drivers</b>	<b>29,300</b>		4.3%		n/a
<b>Mobile machine drivers &amp; operatives</b>	<b>14,400</b>		5.5%		
<b>Hospitality occupation</b>					
<b>Chefs &amp; cooks</b>	<b>31,700</b>	35%	7.9%	Level 8+ Level 6 & 7 (HE) Level 5 & 6 (FET)	110 420 340

Source: National Skills Bulletin (NSB) 2018, QQI (FET & HE major awards), HEA

\* Possible future demand

\*\*Numbers from the social science, business and law chapter.

[..] Data in square brackets is small and should be treated with caution.

## 8.5 Key points for services

- The potential supply of skills to the labour market stemming from the education/training system is declining.
- Nonetheless, the number of awards made in hospitality (i.e. hotel, restaurant and catering) increased
- The services field of learning is one of the few disciplines where the number of awards in the FET sector is similar to the number of awards in the higher education sector.
- The labour force participation rate for persons holding services qualifications, at 82%, was below the average of 86%, and was the lowest observed across all fields of learning.
- The share of third level graduates employed in high skilled occupations is the smallest for services compared to all other fields of learning; this is in part due to the fact that many services graduates train to work as chefs, which are classified as skilled trades rather than professionals or associate professionals. However, there is also a notable share of third level services graduates working in administrative and caring/personal services roles.

## 9. Education

### 9.1 Awards from the education and training system

**Total awards (2013-2017): the number of awards in the education field of learning reached over 7,400 in 2017** (Figure 9.1), which is 18% greater (an additional 1,100 learners) than in 2016. Most of the growth relates to an increase in level 6 (HE) awards in leadership and inclusion in education. The dip in awards in 2015 is linked to an extension of the duration of teacher education courses, which resulted in considerably fewer graduates in 2015 but a subsequent increase the following year.

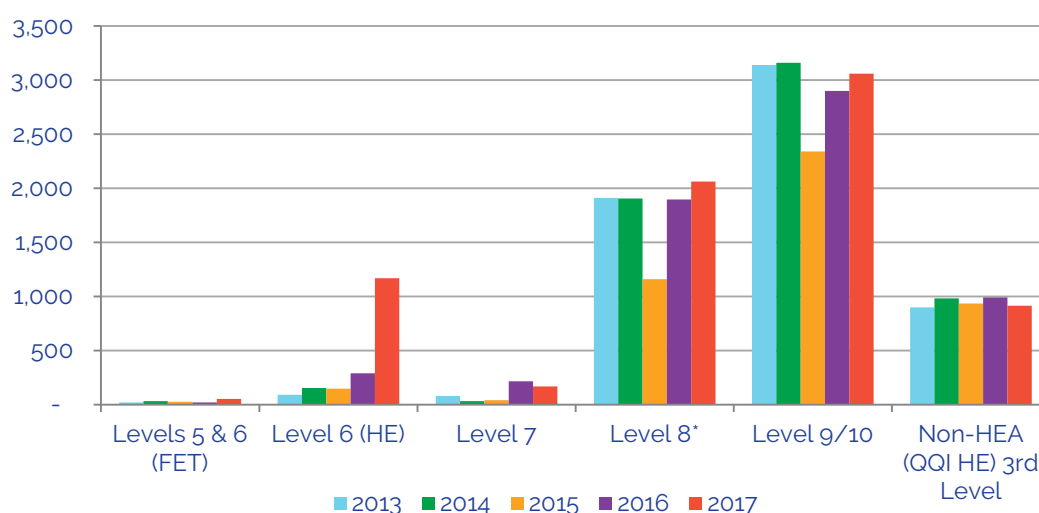
Despite these fluctuations, the number of awards made at honours degree and postgraduate level (NFQ 8+), where most initial teacher training occurs, has increased both year-on-year between 2016 and 2017 (+7% or 325 additional awards), and compared to 2013 (+1%, or 70 additional awards).

**Level:** education related awards are concentrated in the higher education sector, with over 900 awards being made in the non-HEA aided sector (e.g. Hibernia College). Most FET related childcare and education awards are classified with welfare awards in Chapter 7.

**Irish-domiciled graduates in the UK** in 2017, there were 325 Irish domiciled persons who obtained awards from UK higher education institutions in education. The numbers of Irish qualifiers from UK higher education institutions have been declining steadily in recent years, but the decreases were particularly sharp for education related qualifications. The number of education qualifiers declined by 68% between 2010 and 2017 compared to a decline of 30% for all other subjects.

**EU Comparison (Figure 9.3):** at 6%, the share of third level graduates in Ireland who had studied education is below the EU average of 9%.

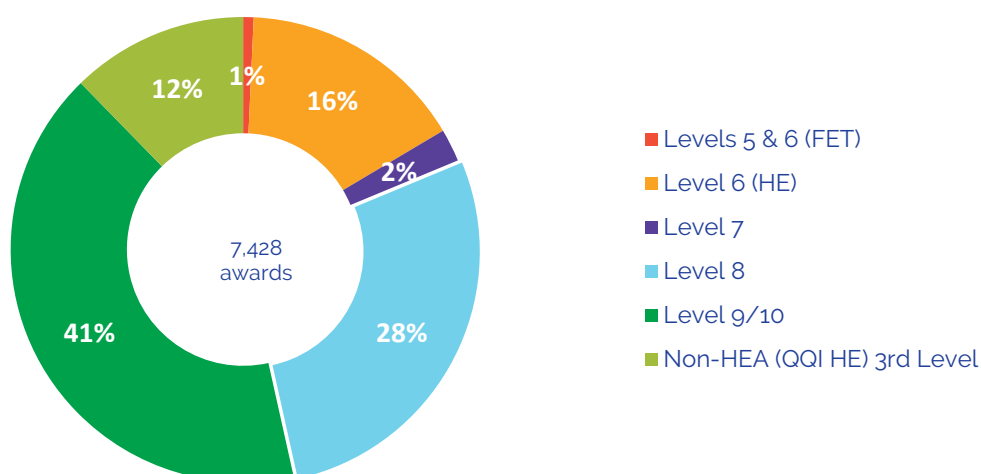
Figure 9.1 Awards in education by level, 2013-2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards).

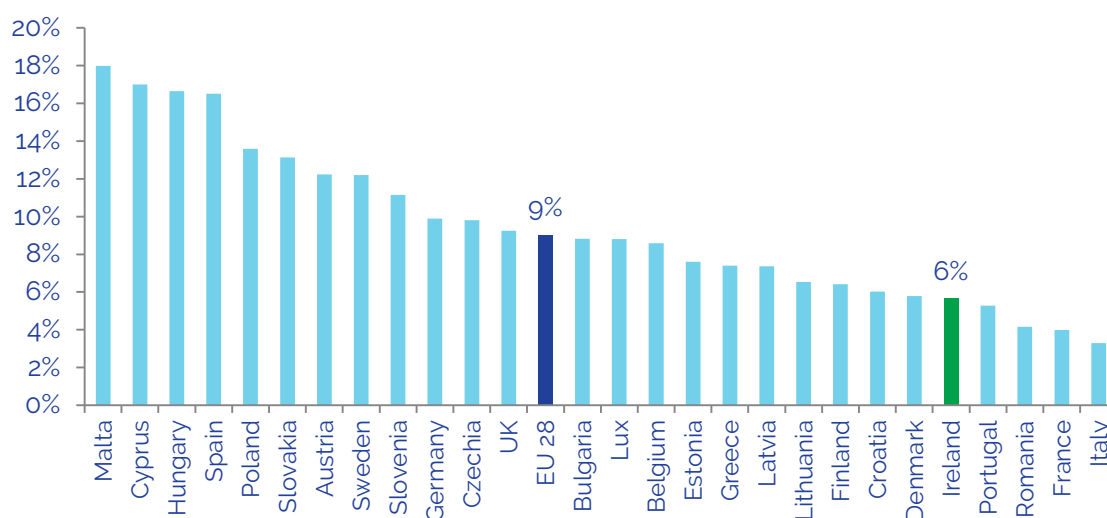
\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

Figure 9.2 Education awards by level, 2017



Source: QQI (major awards); HEA

Figure 9.3 Education graduates as a share of all third level graduates, 2016.



Source: Eurostat. Data extracted 12.02.2019

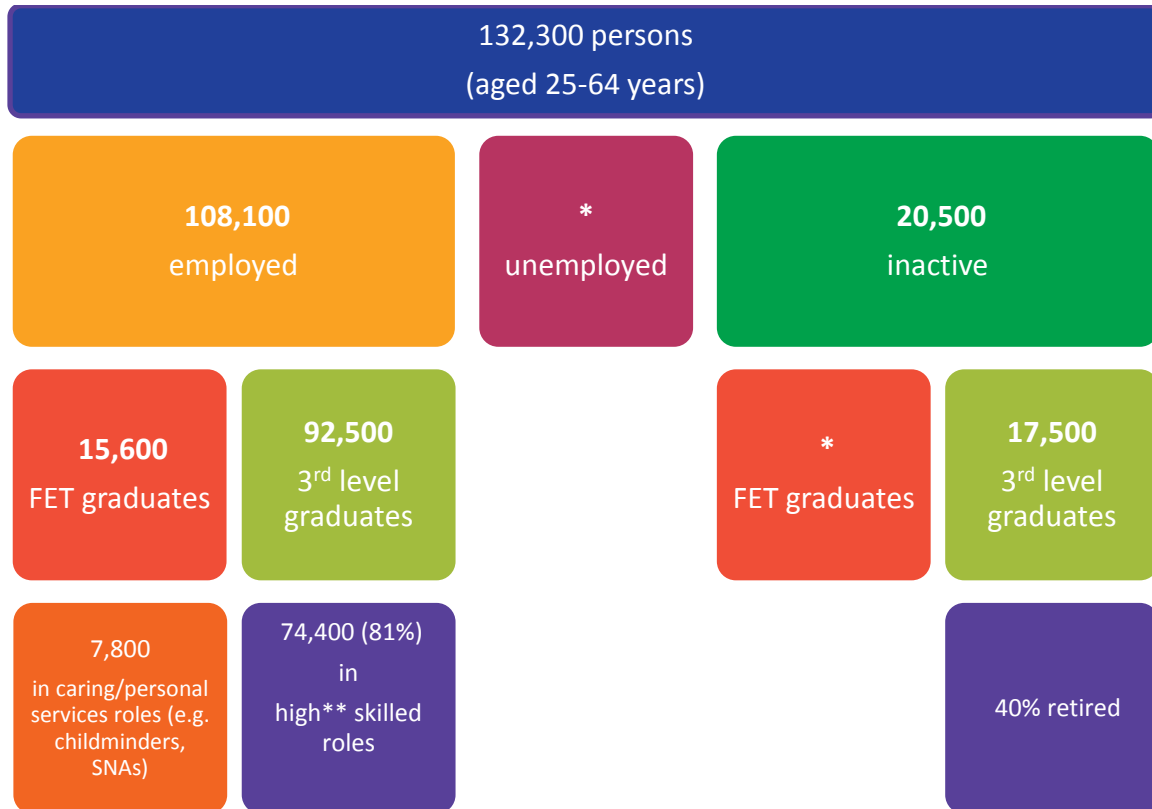
## 9.2 Adult population (25-64 year-olds) with education qualifications

In quarter 3 2018, there were 1.6 million persons (aged 25-64) who held either post-secondary or 3<sup>rd</sup> level qualifications. Of these, 8% (or 132,300 persons) held qualifications in the education field of learning.

- More than three quarters of education qualification holders were female (this compares to 53% on average across all fields of learning).
- At 85%, the labour force participation rate was almost at the national average (86%).
- 40% of the 17,500 third level graduates who were economically inactive were retired.

- For education qualification holders, the share of third level graduates who work in high skilled occupations was the highest of all fields of learning, at 81%.
- Almost one half of FET graduates in employment were working in caring/personal services roles (e.g. early childhood care/education, SNAs etc).

Figure 9.4 Adults (25-64 years) with post-secondary or 3rd level qualifications in education by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

\*\* High skilled roles are comprised of managerial, professional and associate professional occupations

### 9.3 Potential supply from education and training system by related occupation

Although the National Skills Bulletin (2018) did not identify any education related occupations for which skills shortages were arising, potential future shortages and/or issues such difficulty in sourcing specific subject skills were identified for secondary teachers.

Table 9.1 shows the labour market profile of secondary teachers as examined in the National Skills Bulletin along with the total number of education related awards made in 2017. It should be noted, however, that not all education graduates progress to employment in an education related field. Therefore the numbers outlined in Table 9.1 are indicative only.

Table 9.1 Education occupations: demand and education supply indicators, 2017/2018

Occupation (NSB description)	Number Employed, 2017 (Annual Average)	% 3 <sup>rd</sup> Level Graduates	Annualised Employment Growth Rate (2012-17)	Potential supply: awards in education (rounded to nearest 10 )	
Secondary teachers	35,300	99%	3.5%	Level 8+	2,060
				Level 9	3,000
				Level 10	60

Source: National Skills Bulletin 2018, QQI (HE major awards), HEA

## Key points for education

- The potential supply of skills to the labour market stemming from the Irish education/training system is increasing.
- However, this data does not allow for the identification of the subject areas of qualified teachers (e.g. languages, science, etc); this is an important consideration, as the changing demand for teachers is driven in large part by the demographic changes in the relevant age cohorts: the number of primary school pupils peaked in 2018 and is expected to decline in the coming years, while the number of second level pupils has begun to increase, and will continue to do so until 2025; thus, although the supply of teachers from the education system has increased, the needs of the system are likely to shift somewhat over the coming years.
- Most education graduates hold third level qualifications, a reflection of the fact that most teaching related roles require a third level qualification on entry.
- More than three quarters of adults who hold qualifications in the education field of learning are female (compared to a 53% share across all fields of learning).
- At 81%, the share of education qualification holders at third level who work in high skilled occupations (mostly professionals) is the highest across all fields of learning.

## 10. General learning, arts & humanities

### 10.1 Awards from the education and training system

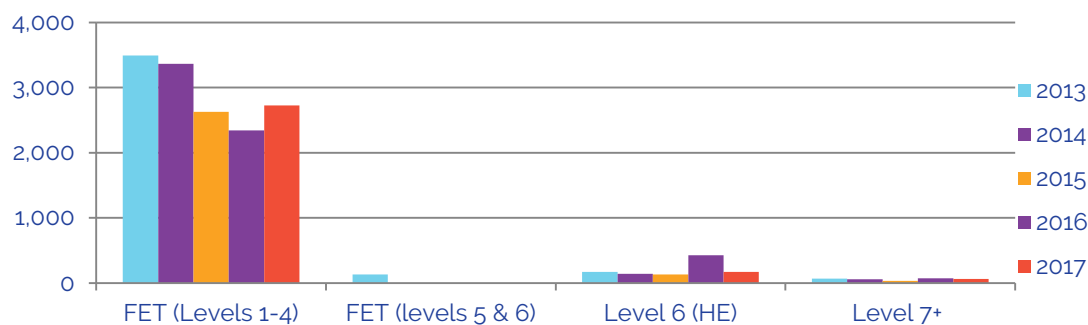
**Total awards (2013-2017):** in 2017, there were approximately 3,000 awards made for general learning programmes, and more than 13,000 for arts/humanities. The number of arts/humanities graduates tends to fluctuate year-on-year, but despite a decline between 2016 and 2017, the total number of awards made in 2017 was higher than in 2014 (Figure 10.1a). Compared to 2013, the number general learning awards fell by almost a quarter (900 fewer awards).

**Level:** General learning awards are mostly confined to the lower levels of the NFQ; while arts/humanities awards are made across a range of NFQ levels, the highest numbers are made in the higher education sector, especially at levels 8 and above (Figures 10.1a and 10.1b). When these two fields are combined, a quarter of awards were made at NFQ levels 1-4, while 60% were made in the higher education sector (Figure 10.2).

**Irish-domiciled graduates in the UK:** there were 470 Irish-domiciled qualifiers from UK higher education institutions in 2017. This is slightly higher than the 450 observed in 2016, but below the 695 who qualified in 2010.

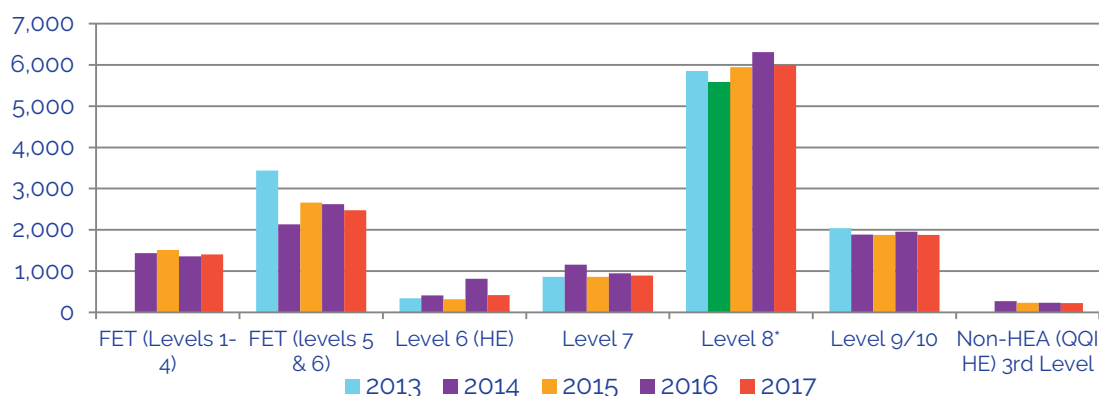
**EU Comparison (Figure 10.3):** At 14%, Ireland's share of graduates in the arts/humanities field is amongst the highest in the EU, well above the EU average 11%.; only Italy and the UK are higher.

Figure 10.1a FET and higher education awards in general learning, by NFQ, 2013-2017



Source: HEA, QQI (FET-major awards)

Figure 10.1b FET and higher education awards in arts & humanities, by NFQ, 2013-2017

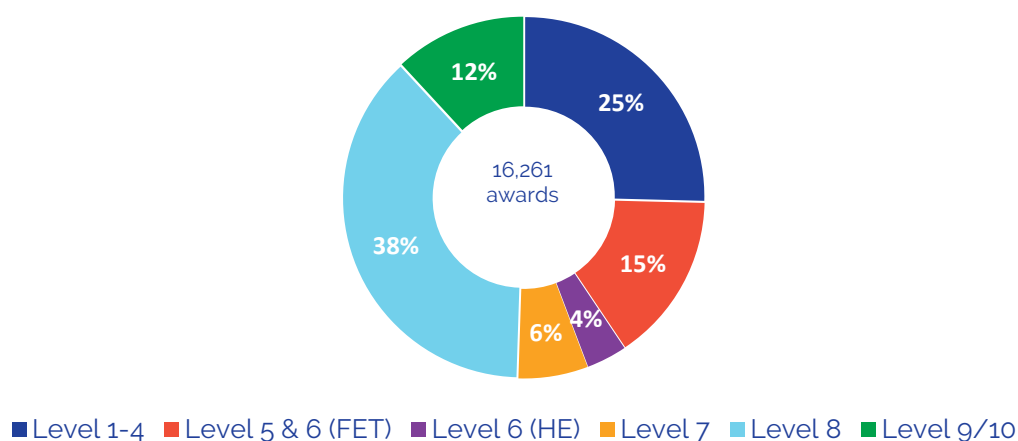


Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards for 2014 onwards)

\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

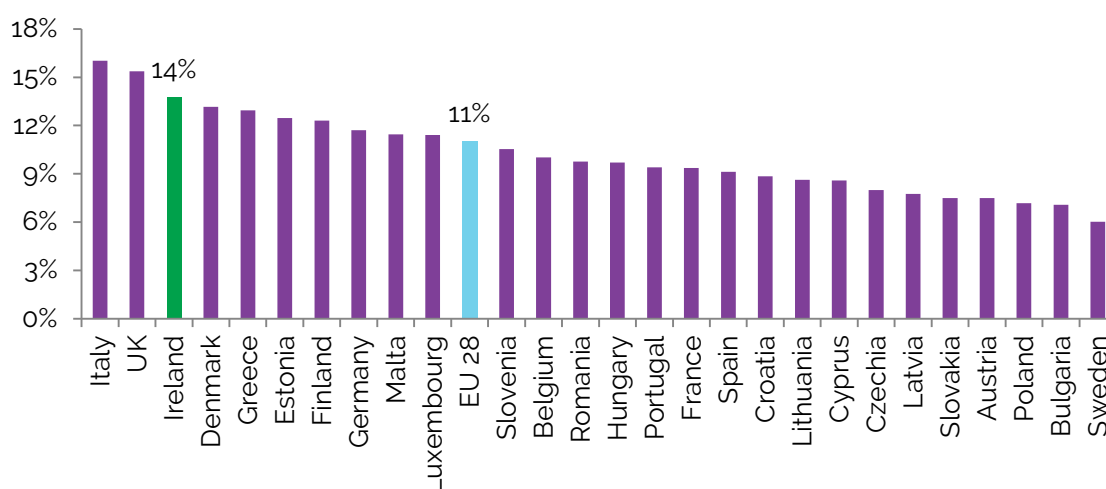


Figure 10.2 FET and higher education awards in arts & humanities and in general learning, by NFAQ, 2017



Source: HEA, QQI (FET-major awards), selected QQI (HE-major awards)

Figure 10.3 Share of graduates from arts/humanities programmes in the EU, 2016



Source: Eurostat. Data extracted 12.02.2019

**General learning, arts & humanities awards by detailed field (Table 10.1):** due to the fact that arts/humanities qualifications may be broad in nature, often combining a number of disparate fields (e.g. a foreign language and film studies; history and mathematics or BA international programmes), it can be difficult to capture the specific field of learning for many arts/humanities graduates; this is reflected in the relatively high number (4,299) of awards made in the general arts & humanities n.e.c. (not elsewhere classified) sub-field.

- There were 2,421 awards made in the field of audio-visual/media studies, with awards being made across most levels on the NFAQ and split almost evenly between the FET and higher education sectors.
- The most frequent foreign languages included in the language acquisition sub-field are French, Spanish, German, and Italian.

Not included in Table 10.1 are 200 general learning awards and 100 arts/humanities non-QQI awards made to learners in the FET sector in 2018.

Table 10.1 Awards in general learning and arts/humanities by NFQ and detailed field of learning, 2017

2017 graduates	FET			Higher Education				Grand Total
	Level 1-4	Level 5	Level 6 (FET)	Level 6	Level 7	Level 8	Level 9/10	
<b>General learning</b>	<b>2,728</b>	<b>0</b>	<b>0</b>	<b>169</b>	<b>22</b>	<b>0</b>	<b>38</b>	<b>2,957</b>
<b>Arts &amp; humanities n.e.c.</b>	<b>1,403</b>	<b>-</b>	<b>-</b>	<b>207</b>	<b>12</b>	<b>2,477</b>	<b>200</b>	<b>4,299</b>
<b>Arts, including</b>	<b>-</b>	<b>1,920</b>	<b>551</b>	<b>129</b>	<b>607</b>	<b>1,995</b>	<b>622</b>	<b>5,824</b>
<i>Audio-visual/media</i>		822	234	112	371	681	201	2,421
<i>Fine arts</i>		585	154		102	417	97	1,355
<b>Humanities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>83</b>	<b>274</b>	<b>1,528</b>	<b>1,057</b>	<b>2,942</b>
<i>Literature &amp; linguistics</i>				0	95	370	242	707
<i>Language acquisition</i>				8	102	306	164	580
<i>History/archaeology</i>				40	62	254	284	640
<b>QQI - HE</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>105</b>	<b>115</b>	<b>15</b>	<b>227</b>
<b>Total</b>	<b>4131</b>	<b>1,920</b>	<b>551</b>	<b>592</b>	<b>1,020</b>	<b>6,115</b>	<b>1,932</b>	<b>16,261</b>

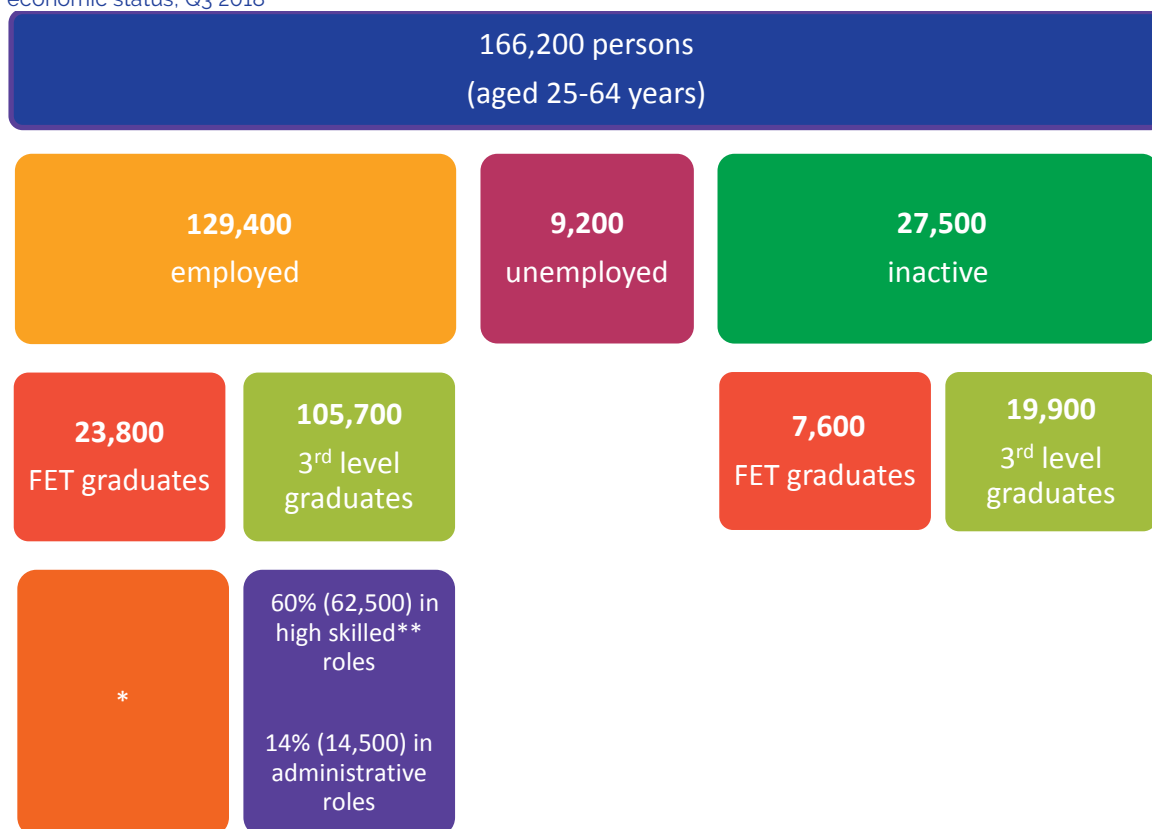
Source: HEA, QQI (FET-major awards) and selected QQI (HE-major awards)

## 10.2 Adult population (25-64 year-olds) with general learning or arts/humanities qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or third level qualifications. Of these, 11% (166,200 persons) held qualifications in either arts/humanities or general learning.

- At 83%, the labour force participation rate for adults with qualifications in these fields was below the average (86%).
- The unemployment rate was higher than average (at almost 7%), compared to 4.4% on average for those with post-secondary or third level qualifications.
- 68% of adults with FET qualifications in this field were in employment, compared to 80% of their counterparts with third level qualifications.
- Of those with third level qualifications in employment (105,700 persons), most were working in high skilled occupations (managers, professionals and associate professionals). However, 14% were working in administrative occupations.

Figure 10.4 Adults (25-64 years) with post-secondary or 3<sup>rd</sup> level qualifications in general learning & arts/humanities, by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

\*\*High skilled roles comprise those working as managers, professionals or associate professionals

### 10.3 Potential supply to the labour market from education and training system

There is often a high degree of flexibility in arts/humanities qualifications. The broad, transversal skills acquired by learners on these programmes, particularly from third level education, means that there are numerous possibilities both for further studies in more specialised areas (e.g. IT conversion courses, postgraduate teacher training, business/marketing programmes), and for employment across a range of occupations. Therefore, although arts/humanities graduates' skills are often highly sought after by employers, the National Skills Bulletin 2018 does not specifically identify related occupations which are experiencing shortages.

### 10.4 Key points for general learning, arts and humanities

- The number of arts/humanities emerging from the education and training system has, in the main, increased in recent years. At the same time the number of general learning awards declined slightly.
- Qualification holders in these fields are less likely to be active in the labour force and are more likely to be unemployed.
- Persons with 3<sup>rd</sup> level qualifications in this field are more likely to work in administrative occupations than those holding qualifications in most other fields of learning (except social science, business and law).

## 11. Agriculture and vet

### 11.1 Awards from the education and training system

Total awards (2013-2017): the total number of awards in agriculture and vet has been increasing since 2014, reaching over 5,000 awards in 2017 (Figure 11.1). Most of the increases occurred in the FET sector, although the third level sector has also seen increases, albeit smaller in scale.

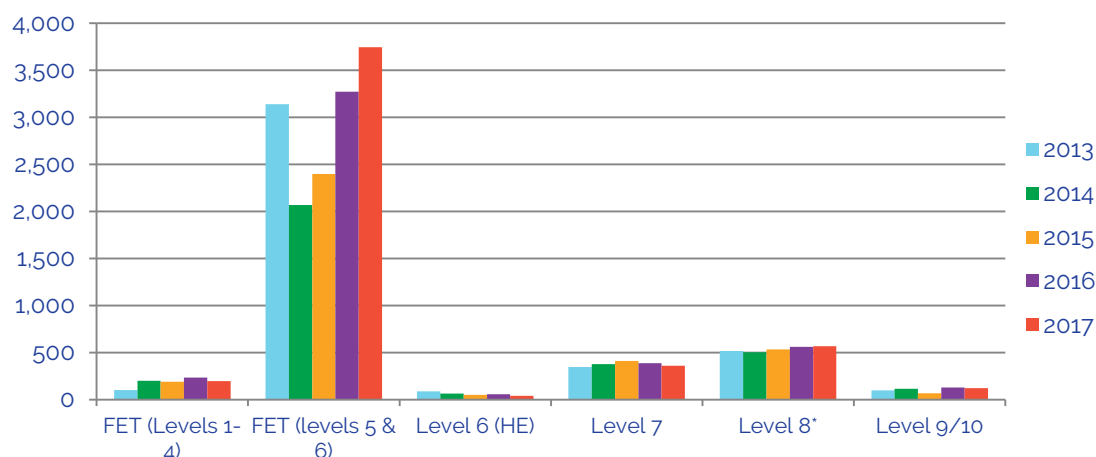
Three quarters of all awards in this field were made at levels 5 or 6 in the FET sector; 13% were made at honours degree (NFQ 8) or higher. Due to the increase in the FET sector over the period 2014-2017, the share of awards in FET (NFQ 1-6) has grown, going from 68% to 79%. Over this period, there were also increases at level 8 and above, although the number of 3<sup>rd</sup> level awards at level 6 and 7 has declined.

Fluctuations in the number of FET awards made between 2012 and 2014 are due to mostly declines and subsequent increases in the number of awards made in agriculture (level 6).

**Irish-domiciled graduates in the UK:** numbers in agriculture are included with health and welfare (see Chapter 7)

**EU comparison (Figure 11.3):** at 2%, the share of 3<sup>rd</sup> level graduates in Ireland who had studied agriculture and vet programmes is on par with the EU average.

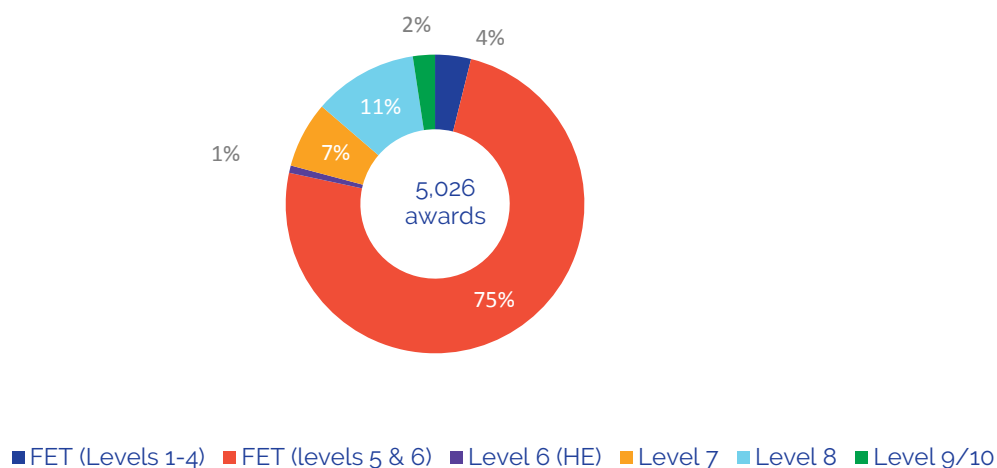
Figure 11.1 Awards in agriculture and vet, 2013-2017



Source: QQI (FET major awards) and HEA. There were no private provider awards in this field.

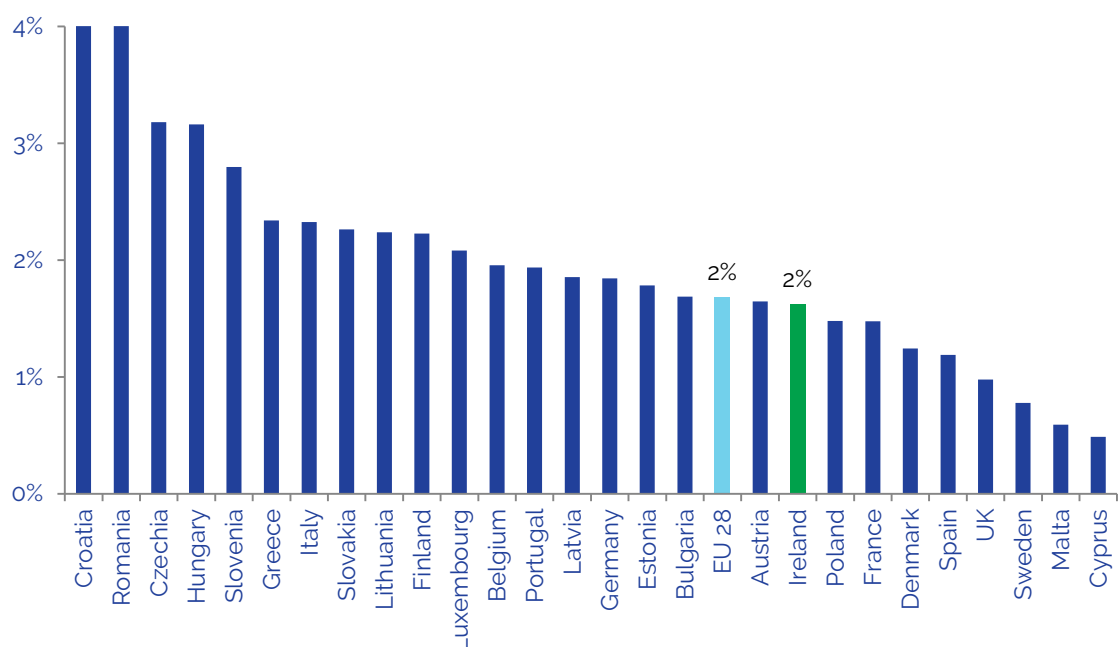
\* It is useful from a labour market perspective to distinguish between undergraduate and postgraduate awards. Therefore, in this document level 8 awards data from the Higher Education Authority includes only honours bachelor degrees while higher diplomas, although placed at level 8 on the NFQ are included with other postgraduate qualifications at level 9.

Figure 11.2 Awards in agriculture and vet by level, 2017



Source: QQI (FET major awards) and HEA.

Figure 11.3 Share of 3rd level graduates who obtained qualifications in agriculture and vet, 2016



Source: Eurostat. Data extracted 12.02.2019

As outlined in Table 11.1, the majority of awards in this field are made in agriculture, with just 15% of awards in veterinary related areas. Awards in these areas are skewed towards lower levels of the NQF, with 3,292 (almost two thirds) being made at level 5. In the higher education sector, level 8 awards dominate, followed by level 7.

Table 11.1 Awards agriculture and vet by NFQ and detailed field of learning, 2017

Number of graduates	FET		Higher Education		NFQ			Total
	NFQ 4	NFQ 5	NFQ 6 (FET)	NFQ 6 (HE)	NFQ 7	NFQ 8	NFQ 9/10	
Agriculture* of which	167	2,800	400	40	278	395	96	4,176
<i>Crop &amp; livestock</i>	0	2,590	329	25	164	253	39	3,400
<i>Horticulture</i>	167	210	71	15	46	30		539
Forestry/fisheries	0	20	8	0	12	17	-	57
Veterinary	28	472	43	0	70	156	24	793
<b>Total</b>	<b>195</b>	<b>3,292</b>	<b>451</b>	<b>40</b>	<b>360</b>	<b>568</b>	<b>120</b>	<b>5,026</b>

Source: QQI-FE and HEA

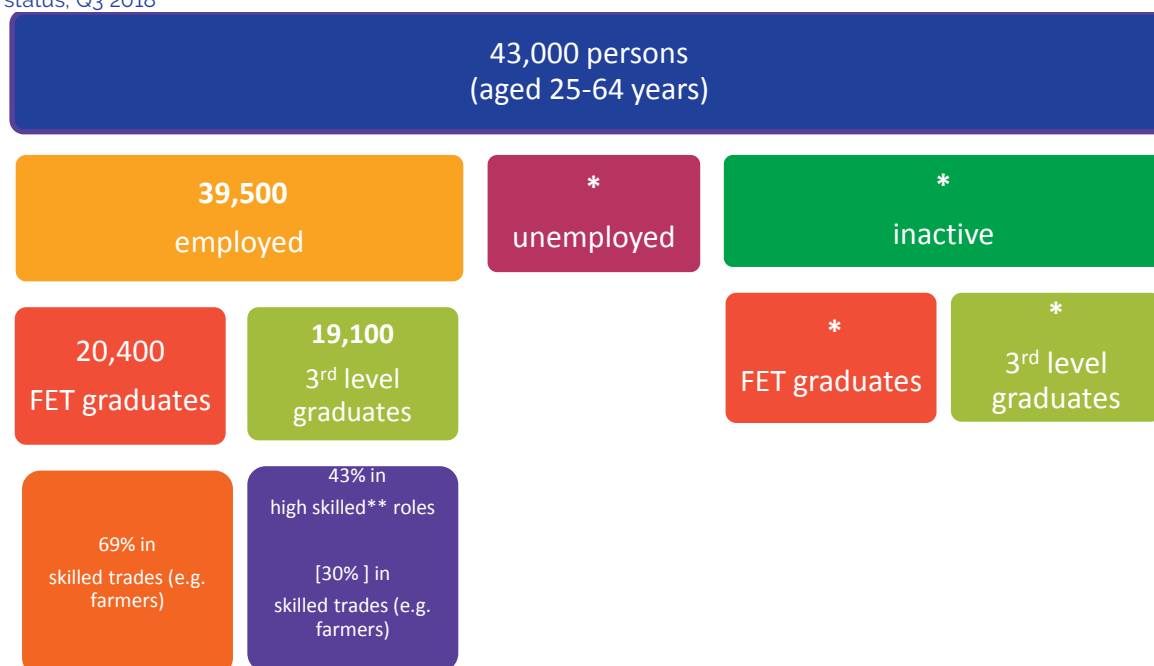
\*Includes interdisciplinary programmes with agriculture, forestry, fisheries or vet

## 11.2 Adult population (25-64 year-olds) with social agriculture and veterinary qualifications

In quarter 3 2018, there were 1.6 million adults (aged 25-64 years) who held either post-secondary or third level qualifications. Of these 3% (or 43,000 persons) held qualifications in agriculture or vet.

- Almost 80% of those with qualifications in agriculture or VET were male
- Although the numbers involved are small, the labour force participation rate for adults with qualifications in this field is the highest across all fields of learning (92% compared to the national average of 86%)
- Of the total 39,500 in employment, 16,000 were working as farmers.

Figure 11.4 Adults (25-64 years) with post-secondary or 3rd level qualifications in agriculture and vet, by economic status, Q3 2018



Source: SLMRU analysis of CSO (Labour Force Survey) data

\* Data is too small to report

[.] Data in square brackets is small and should be treated with caution.

\*\* High skilled roles are comprised of managers, professionals and associate professionals occupations

### 11.3 Potential supply from education and training system by related occupation

The National Skills Bulletin 2018 did not identify any agriculture and vet occupations for which skills shortages were arising. Nonetheless, possible *labour shortages* were identified in relation to retention, turn over and/or geographic mobility of those working in some lower skilled agriculture work (e.g. mushroom pickers).

### 11.4 Key points for agriculture and veterinary

- Agriculture and veterinary is a relatively small field of learning in terms of the number awards made each year.
- Awards are concentrated in the FET sector, with 75% made at level 5.
- Almost 80% of adults aged 25-64 who hold qualifications in agriculture or VET were male.
- Although the numbers involved are small, the labour force participation rate for adults with qualifications in this field is the highest across all fields of learning (92% compared to the national average of 86%).
- No skills shortages have been identified for agriculture & vet related occupations, although a labour shortage has been identified for elementary agriculture workers (e.g. mushroom pickers).

## Appendix A1 Higher Education Private Education Provider

Private education refers to major awards made to learners at private third level colleges.

Carlow College  
National College of Ireland  
The Open Training College  
CCT College Dublin  
Children's Therapy Centre  
Clanwilliam Institute  
College of Computing Technology  
Dorset College  
Dublin Business School  
Dublin Institute of Design  
Gaelchultúr  
Galway Business School  
Griffith College  
Hibernia College  
Ibat College Dublin  
ICD Business School  
IICP Education and Training Limited  
Independent Colleges  
Institute of Physical Therapy and Applied Science  
International College for Personal and Professional Development  
Irish College of Humanities and Applied Sciences Limited  
Irish Institute of Purchasing and Materials Management  
Kimmage Development Studies Centre  
Newpark Music Centre  
Saint Nicholas Montessori College Ireland  
Setanta College  
The American College, Dublin

## Appendix A2: HECA Colleges

College of Computing Technology,  
Dublin Business School,  
Galway Business School, Griffith College,  
Hibernia College,  
National College of Ireland,  
IICP Education and Training,  
Institute of Physical Therapy & Applied Science,  
Irish College of Humanities & Applied Sciences,  
SQT Training Ltd, Irish Institute of Purchasing & Materials Management,  
Dorset College Dublin,  
Open Training College,  
Setanta College, and  
St. Nicholas Montessori College Ireland.



## Abbreviations

CSO	Central Statistics Office
DES	Department of Education and Skills
FET	Further Education and Training
HE	Higher education
HEA	Higher Educations Authority
HECA	Higher Education Colleges Association
HEI	Higher education institution
HESA	Higher Education Statistics Authority (UK)
IoT	Institute of technology
LFS	Labour Force Survey
MIS	Management Information System
NFQ	National Framework of Qualifications
OECD	Organisation for Economic Development
PLSS	Programme and Learner Support System
QQI	Quality and Qualifications Ireland
SSBL	Social science, business & law

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