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Department of Further and Higher Education,
Research, Innovation and Science

Increasing the sustainability of Higher and Further Education provision in Ireland

Economic review of funding options



AARC

Indecon



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Disclaimer

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Despite the assistance, responsibility for the contents of this report remains with AARC, Indecon, and LE Europe.



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1. Introduction and context

The AARC Consortium (incorporating AARC, Indecon, and LE Europe) were commissioned by the European Commission's Directorate-General for Structural Reform Support (DG REFORM) to provide an **analysis of the sustainability of higher education (HE) and further education and training (FET) in Ireland**. The project's general objective is to provide support for the preparation and implementation of institutional administrative, and growth-sustaining structural reforms in Ireland by mobilising EU funds and technical experience. It is intended that the immediate beneficiaries of the project will be the Irish Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), while the analysis may also help the European Commission's work in other Member States.

Under this general objective, this study is aimed at achieving the following **three outcomes, to develop**:

1. **A policy proposal to adapt HE and FET provision** to address the current skills disparity between student outputs and qualifications and the perceived skills need of the Irish labour market, and provide the country with the right set of skills to ensure inclusive, smart, and sustainable growth;
2. **An analytical model to assess the cost implications** (for students/graduates, the Irish Exchequer, Higher Education Institutions (HEIs), and employers), and the **macroeconomic impacts of different higher education funding policy options**. Specifically, the analysis assesses the costs and macroeconomic implications associated with the **three HE funding policy options for Ireland proposed by the Expert Group on Future Funding for Higher Education**¹ (also referred to as the Cassells Review); and
3. **A policy proposal for the re-design of the higher education funding system** in Ireland that would provide equity in access, efficiency in the investment of public resources and sustainability in the face of strong demographic growth.

This report constitutes the final deliverable of the study, summarising our findings in relation to all three of these outcomes, and providing a range of policy recommendations for potential consideration by the DFHERIS.

1.1 Context

The Irish Government acknowledges human capital as one of the country's core economic strengths and a key enabler of the country's future economic, social, and cultural development. It also considers of vital importance that Ireland has an appropriately educated workforce that can adapt and respond to the challenges linked to emerging economic priorities and sustainability challenges, as well contribute to the achievement of societal objectives. Traditionally, it has strongly supported the participation of Irish youth in higher education.

Ireland faces two important challenges in its efforts to provide its population with the qualifications and skills that are demanded by the labour market and necessary to support the country's innovation and competitiveness. Firstly, despite substantial increases in investment over the past five years, the financial sustainability of the Irish higher education system is at risk. This is as a result of a growing number of students entering the third-level education system, which reflects both demographic pressures and social preferences for higher education in Ireland. Secondly, the skills, research and qualification outcomes of the current higher education and further education and training systems show some disparity with current labour market demand and future skills needs.

Participation rates in higher education in Ireland are among the highest in the EU, and significant progress has been achieved in making it more accessible to previously under-represented groups, such as students with a disability and those from economically disadvantaged backgrounds. Notwithstanding the significant benefits for the economy and society from increased participation in higher education, there is substantial variation in completion rates across sectors, institutions, fields of study and different student cohorts, as well as evidence of skills and qualifications mismatches for HE graduates.

1 Expert Group on Future Funding for Higher Education (2016).

Demographic expansion is expected to significantly increase the demand for higher education in the years ahead, likely to peak at almost 223,000 full-time students in 2030 (see Table 1), an increase of more than 38,000 compared to 2017 levels. These forecasts of higher education enrolments have thus led to an increased focus on investment levels in higher education among the Irish public and policymakers, as well as the requirement for securing an improved balance between different post-Leaving Certificate pathways (in terms of HE and FET options including apprenticeships).

Table 1. Scenarios for total full-time student enrolments in higher education in Ireland, 2020/21 to 2031/32

Academic year	Scenario S1	Scenario S2	Scenario S3	Scenario S0
2020/21	196,609	196,609	199,626	193,591
2021/22	199,258	199,623	203,956	194,925
2022/23	202,042	202,774	208,537	196,279
2023/24	204,339	205,437	212,691	197,085
2024/25	206,494	207,957	216,767	197,684
2025/26	209,633	211,462	221,980	199,114
2026/27	213,624	215,819	228,202	201,241
2027/28	217,468	220,028	233,852	203,644
2028/29	220,425	223,351	238,232	205,544
2029/30	222,264	225,556	241,167	206,653
2030/31	222,514	226,172	242,198	206,488
2031/32	222,109	226,133	242,392	205,850

Source: Department of Further and Higher Education, Research, Innovation and Science

To address these challenges, the Irish Government appointed an Expert Group on Future Funding for Higher Education (also referred to as the Cassells Review) 'to identify and consider issues related to the long-term sustainable funding of higher education in Ireland and to identify funding options for the future'. The Expert Group's final 2016 report, *Investing in National Ambition: A Strategy for Funding Higher Education*², confirmed that higher education makes a significant contribution to the development of individuals, employers, society, and the State. The report concluded that the current approach to funding is unsustainable, and that substantial increases in investment in higher education are necessary to ensure that the sector can remain viable and provide the capacity to meet the major increase in student demand projected up to 2030. The report also highlighted to imperative of linking increased public funding with enhanced quality and verification of outcomes.

In response to the work of the Expert Group and demographic pressure, there has already been a significant increase in Government investment in higher education since 2015 in excess of €500m. The Government has also committed to a number of programmes of multi-annual investment including the five-year €300m Human Capital Initiative and €90m Technological Universities Transformation Fund. The Government has also committed to a major programme of capital investment in HE under Ireland's National Development Plan. However, the Expert Group's report has opened an important debate in Ireland regarding the funding of its third-level education system, which is particularly important given the stated national ambition to have the best education and training system in Europe by 2026.

² See Expert Group on Future Funding for Higher Education (2016).

In order to build a consensus regarding a future approach to funding the higher education sector, the Minister for Education and Skills referred the Expert Group report to the Parliamentary Committee on Education for their consideration. After a period of 18 months, the Committee wrote back to the Minister requesting that the (former) Department of Education and Skills undertake an economic examination of the three policy options proposed by the Expert Group to assist the Committee in forming its view of the most appropriate option.

The Department of Public Expenditure and Reform's paper on *Understanding the Funding Needs in Higher Education*³ (part of the 2018 Spending Review) concluded that, given their nature, projecting future costs of higher education is highly sensitive to different assumptions and parameters. It, therefore, recommended basing the assessment of funding pressures arising from the future costs of higher education on a robust interrogation of granular data at institutional level, to ensure a clear understanding of the efficient cost of delivering high-quality education, and to reflect the diversity of the sector. The identification based on available information and data of projected costs of higher education provision across different discipline areas, taking into account different delivery models for higher education, would therefore provide a necessary basis for assessing the case for substantial additional public investment under the three funding options put forward by the Expert Group.

Furthermore, demographic projections of demand for full-time higher education highlight the current high transfer rate of approximately 65% between second-level and third-level education. While this transfer rate is expected to continue at current levels, the latest demographic projections also include a scenario demonstrating the impact on projected demand for higher education of a 10 percentage point reduction in the transfer rate. This could arise, for example, if instead of entering higher education, there was a significant increase in the proportion of second-level students transitioning to further education and training or taking up employment directly after Leaving Certificate completion (including in those areas where there are good opportunities for work-based learning in particular in relation to apprenticeships).

The debate on the future of higher education has therefore also brought forward the issue of qualification mismatches in the Irish labour market. While the Irish Government is strongly committed to providing equal access to tertiary education to meet economic and societal needs and support the continued human capital development that has underpinned Ireland's economic performance and convergence to high-income EU levels, some research suggests that Irish workers may be over-qualified in particular areas of the workforce.

For this reason, it has been a major priority over recent years to develop and enhance vocationally focused education and training options, including the provision of apprenticeships and traineeships and other learning opportunities in the FET sector for all learners including those that have recently completed second-level education. These options are intended to provide strong pathways into employment to meet the economy's skills and labour demand needs, and to facilitate access into the higher education sector.

3 See Department of Public Expenditure and Reform (2018).

1.2 Structure of this report

The remainder of this report is structured as follows.

Part I (Sections 2 to 9) outlines our analysis of higher education and further education and training provision in Ireland, and the extent to which the provision of skills and qualifications aligns with current and expected future labour market demand in Ireland:

- In **Section 2**, we provide an overview of the **education and training policy framework in Ireland**, and summarise **key lessons learnt from the policy responses to address skills needs undertaken in other countries** of relevance to the Irish context (including Estonia, Canada, and New Zealand).
- In **Section 3**, we analyse **FET and HE participation in Ireland**, including an assessment of the pathways between FET and HE qualifications.
- **Section 4** assesses the **Irish labour market demand for individuals in possession of different levels of education**, in aggregate and by sector within the Irish economy.
- **Section 5** provides a breakdown of the sector of employment of HE and FET graduates depending on their field of study, to allow an **assessment of the alignment of graduates' fields of study with their economic activities post-graduation**.
- In **Section 6** we examine the **implications of future labour demand in the Irish economy for the HE and FET systems**, using forecasts in the labour demand for individuals in possession of different levels of qualifications (over the period 2020 to 2025).
- **Section 7** considers the **changing skills needs within the Irish economy arising from emerging sectors and technologies**, focusing on the requirements of Ireland's exporting sectors; the skills impact of automation, digitalisation, and Artificial Intelligence; and the effects of Ireland's transition to a low carbon economy.
- In **Section 8**, we analyse the existence of **skills mismatches within the Irish labour market**, and the extent to which HE and FET skills provision aligns with existing and expected future labour market demands.
- **Section 9** outlines the **main conclusions from our analysis of skills provision in Ireland**, summarising the key findings from the detailed evidence on any mismatch between the qualifications and skills provided by the Irish HE and FET systems and the skills demand of the Irish labour market.

Part II (Sections 10 to 16) outlines our analysis of the different higher education funding policy options proposed for Ireland by the Expert Group on Future Funding for Higher Education⁴ (also referred to as the Cassells Review), including an estimation of the costs (to students/graduates, the state, higher education institutions (HEIs), and employers) and **macroeconomic impacts** of each option:

- In **Section 10**, we summarise our findings from an **analysis of higher education fees and funding systems operating in other jurisdictions of relevance to Ireland** (including predominantly state-funded systems as well as hybrid models), and outline a range of **key lessons** learnt from these international approaches.

⁴ Expert Group on Future Funding for Higher Education (2016).

- In **Section 11**, we provide an overview of the current (Baseline) funding regime (for students who entered higher education in Ireland in the 2019-20 academic year⁵) as well as the three different alternative funding options proposed by the Cassells Review and modelled as part of the analysis.
- In **Section 12**, we provide a detailed assessment of the resource flows (between the Exchequer, higher education institutions, students and employers) and macroeconomic impacts (on the General Government Balance (i.e. the public deficit) and Government Net Debt)⁶ associated with the **fees and funding arrangements currently operating in Ireland** (i.e. the Baseline system).
- In **Section 13**, we undertake an analysis of the **predominantly state-funded system under Option 1 of the Cassells Review's proposals**⁷. This option would involve the abolition of tuition fees and student contributions; an increase in the size and coverage of the maintenance grant package available to higher education students; as well as a significant increase in the level of block grant funding provided to higher education institutions by the Higher Education Authority (HEA).
- In **Section 14**, we model the **increase in state funding with continuing fees as proposed under the Cassells Review's Option 2**. Under this option, fees would continue to be charged, but the current fees and funding arrangements for full-time undergraduate students would be extended to cover all students (i.e. including part-time and postgraduate students). In addition, this option would include the same improved maintenance grant package as under Option 1, as well as an increase in the block grant funding allocated to institutions by the Higher Education Authority.
- In **Section 15**, we model the combination of **increased state funding with income-contingent student contribution loans as proposed under Option 3 of the Cassells Review**. This option would involve the same fee regime as Option 2, as well as the same improved maintenance grant package (as proposed for both Option 1 and 2). However, in addition, this option would include an increase in the student contribution charge, backed by non-means-tested income-contingent loans (rather than means-tested grants). Again, this option would also involve an increase in HEA block grant funding; however, the increase would be relatively lower than in Option 1 or 2, given that HEIs would also receive additional resources from the assumed increase in the student contribution charge.
- **Section 16** provides a **comparison** of the Baseline and all three Cassells options, comparing the **strengths and weaknesses of each system** in terms of the associated costs and resource flows, macroeconomic impacts, as well as wider effects (e.g. in relation to access to higher education, continuation rates, and the quality of HE provision).

Finally, **Part III (Section 17)** concludes with a set of specific proposals and recommendations for a reform programme designed to improve the co-ordination between the skills and human capital demand and supply in the Irish economy, and to increase the sustainability of higher education and further education and training provision in Ireland.

⁵ Throughout the analysis, we model the costs/resource flows and macroeconomic impacts associated with the cohort of students who started higher education qualifications in Ireland in the 2019-20 academic year.

⁶ The analysis is based on an economic model of the costs and impacts of the Irish HE funding system developed as part of Deliverable 2.1 of this study (see LE Europe (2020a)).

⁷ Throughout this report, we also refer to the options proposed by the Cassells Review as 'Cassells Option 1', 'Cassells Option 2' and Cassells Option 3', respectively.

PART I: **Meeting the Skill Requirements** **of Ireland's Labour Market**



2. Policy approaches to skills provision

2.1. Overview of the Irish education and training policy framework

Ireland's National Skills Strategy 2025 provides an overarching framework for supporting the development of an Irish labour force that is well educated and has the ability to adapt to changing skills needs in the market⁸. In Ireland, students who complete second-level education can progress to third-level education – either within the further education and training sector or the higher education sector. A noted feature of the Irish system is the very high proportion of school leavers who progress to higher education, and the low percentage of the school leaver cohort who go directly to further education including in relation to apprenticeships which is a major priority for development under the recent Apprenticeship Action Plan.

In analysing any potential mismatch between the qualification and skills provided by the higher education and FET sectors in Ireland and the skills demands of the labour market, it is important to note the valuable work undertaken by the Irish National Skills Council, the National Training Fund Advisory Group, the Regional Skills Fora and other groups such as the Skills and Labour Market Planning Unit in SOLAS and the Expert Group on Future Skills Needs. The National Skills Council provides a mechanism to identify the skills demands of the economy. Since the commencement of this project, Ireland and other countries have been dramatically impacted by the COVID-19 pandemic. The implications of this have been evaluated by the National Skills Council, which has identified eight key priorities (see Table 2). These are important in informing the subsequent analysis in this report.

Table 2. Summary of Irish National Skills Council – Priorities Summer 2020

1	Skills responses should be balanced and encompassing in labour market terms.
2	Need for recognition of a broad skills agenda that can be flexibly delivered to a diverse range of learners
3	Skill provision to respond to immediate labour market requires short, focused and agile programme.
4	Important to maintain support for education and training programmes with a strong work-based component.
5	Employers can play an important role advising on shaping and supporting the delivery of education and training.
6	Priorities for skills will continue including skills for lifelong learning, green economy, digital skills, leadership and management development skills and a focus on labour market inclusion.
7	Employment in roles that are often characterised as 'low skilled' will require upskilling and reskilling using digital and technology skills.
8	Online and digital learning will be critical.

Source: National Skills Council

⁸ See Department of Business, Enterprise, and Innovation (2019) - <https://www.education.ie/en/Schools-Colleges/Services/National-Skills-Strategy/>.

2.2. Overview of approaches in other countries

To complement the analysis of any skills mismatches in Ireland, an analysis has been undertaken of examples of relevant innovative international practices. Based on agreement with the Department of Further and Higher Education, Research, Innovation and Science, the international research has focused on the experience of Estonia, Canada, and New Zealand.

2.2.1 Overview of policy responses in Estonia

An important development in Estonia is the Vocational Educational Institutions Act, which was introduced to better link vocational programmes with the labour market and to have more flexible ways of accessing vocational training⁹. A key focus in Estonia is to change the balance between FET and HE by improving the status of vocational education and training (VET). As part of this policy, apprenticeships were established in Estonia (in 2006), and numbers have increased over time. In order to attract younger apprentices¹⁰, the Estonian Government utilised European Social Funding to support 4,600 additional apprenticeships between 2015 and 2018, and new apprenticeships commenced in specialised areas¹¹. Pilot work-based learning programmes with higher education institutions have begun to make such apprenticeships more attractive¹².

In order to enhance the pathways to higher education, higher educational institutions in Estonia recognise prior learning and work experience via the Estonian Higher Education Standard¹³. In some cases, VET graduates can progress to HE via relaxed entry requirements, provided they are studying the same area in which they studied in VET¹⁴. To assist in the transition between VET and HE, HE institutions offer preparatory courses for possible VET entrants, with some having additional customised courses in their subject areas.

Another relevant example of Estonia's policy response in the area of skills is its system of forecasting future labour market skill requirements. Estonia has updated its system of forecasting future labour market skill requirements through the OSKA (Oskuste Arendamise koordineerimisüsteem) analytical tool. It collates information using a mixed-methods approach from sectoral surveys assessing the labour/skill needs of each sector using a combination of qualitative and quantitative research methods¹⁵. This is used in conjunction with quantitative data to produce labour market forecasts. The goal is for educational provision to be better aligned with labour market needs¹⁶.

2.2.2 Overview of policy responses in Canada

Significant innovations have been made in Canada to enhance the education systems, learning opportunities, and overall outcomes. This includes the work of the Council of Ministers of Education Canada (CMEC), which developed the Learn Canada 2020 education and skills framework¹⁷. The CMEC has outlined a number of priority areas, including addressing post-secondary education's accessibility and affordability (e.g. finding a balance between tuition costs and financial aid), assessing the role of employers to encourage their participation in preparing students for employment, and examining the most relevant learning outcomes to postsecondary education¹⁸. The Forum of Labour Market Ministers has also developed a Strategic Plan to ensure the better alignment of skills with labour market needs¹⁹. This included optimising the mobility of certified workers and apprentices across the labour market. Also of interest is the work undertaken by Employment and Social Development Canada (ESDC), which has developed an Essential Skills Profile Database containing 350 essential skills profiles with information on

9 <https://www.cedefop.europa.eu/es/news-and-press/news/estonia-vet-law-amendments-bring-better-vocational-training-and-labour-market-links>

10 See Musset, et al. (2019).

11 https://www.baltictimes.com/estonian_s_vet_first_apprenticeship_program_for_aircraft_mechanics_celebrates_student_graduation/

12 https://www.hm.ee/sites/default/files/htm_aruanne_2018_en.pdf

13 The Estonian Higher Education Standard 2019: <https://www.riigiteataja.ee/akt/112072019017>

14 Correspondence with the Estonian Ministry of Education and Research.

15 <https://oska.kutsekoda.ee/en/oska-management-methodology/oska-methodology/>

16 <https://www.cedefop.europa.eu/en/tools/matching-skills/all-instruments/development-oska-system-labour-market-monitoring-and-future-skills-forecasting>

17 <http://cmec.ca/Publications/Lists/Publications/Attachments/187/CMEC-2020-DECLARATION.en.pdf>

18 https://www.cmec.ca/158/Postsecondary_Education.html

19 <http://flmm-fmmt.ca/about-us/>

how workers in particular occupations²⁰. In terms of labour market information on skills shortages and gaps in Canada, the Labour Market Information Council (LMIC) also works to improve the reliability and accessibility of labour market information in facilitating decision-making by employers, workers, job seekers, academics, policymakers, educators, career practitioners, students, parents and under-represented populations²¹. The LMIC has noted that labour market changes are occurring at an unprecedented pace, driven by technology, business model innovations, population growth, evolving global trading patterns, and climate change²².

The experience of Canada is particularly relevant in considering the pathways between further education and higher education. In Canada, those that undertake vocational pathways in post-secondary colleges can attend university upon receiving a college diploma²³. Bridging courses are available for those who are not ready to undertake a university course, and for VET students who did not finish high school²⁴. An interesting example of approaches to pathways is the Trade to Degrees programme, developed by the Northern Alberta Institute of Technology. This allows recognised trade professionals the opportunity to progress from an apprenticeship credential to the third year of their four-year Bachelor of Business Administration programme²⁵.

2.2.3 Overview of policy responses in New Zealand

The New Zealand experience is of interest to the challenges faced in Ireland in the way in which skill needs are assessed. Skills anticipation in New Zealand is largely based around using occupational shortages as a proxy of skills shortages. The Ministry of Business, Innovation and Employment (MBIE) uses a Computable General Equilibrium Model to develop yearly employment forecasts for industries, broad occupational and skills groups, underpinned by the macroeconomic outlook in the Consensus Forecasts of the New Zealand Institute of Economic Research²⁶. These forecasts set priorities for tertiary education, training for industry, and the MBIE's medium- to long-term employment outlook²⁷.

The New Zealand Skills Strategy Action Plan includes measures to address underutilisation of human capital and to address skill needs. The objective was to improve the use and retention of skills to transform workplaces, make education and training more responsive to skills, increase employer and worker awareness of skills needs, and develop a unified approach to defining, valuing and measuring skills²⁸. A number of initiatives were introduced, such as the joint Australian and New Zealand Standard Classification of Occupations (ANZSCO), enabling better definition, measurement, and comparison of skills and occupations²⁹. The public Labour Market Dashboard was developed as a one-stop-shop for labour market and skills data, bringing together 76 datasets³⁰. Skills shortages in specific areas were targeted, such as the Engineering e2e programme, which achieved its initial target of 500 extra engineering graduates per year by 2017³¹. University places and tuition fees were reduced in STEM-related and other highly skilled professions, to meet skills shortages in these areas³².

Also of interest is that VET in New Zealand is currently undergoing major reform, providing a stronger focus on employers to ensure the skills they require are delivered. In New Zealand, shorter courses in the form of training schemes, learning or training with credits leading to an award but not a qualification on the New Zealand Qualifications Framework, and micro-credentials were formally introduced by the New Zealand Qualifications Authority in 2018³³.

20 <https://www.canada.ca/en/employment-social-development/programs/essential-skills/profiles/guide.html>

21 <https://lmic-cimt.ca/about>

22 <https://lmic-cimt.ca/wp-content/uploads/2018/10/LMI-Insights-No.-1.pdf>

23 <https://www.sram.qc.ca/international-student/curricula-and-levels>

24 For an example of a bridging programme at the University of Toronto see: <http://sites.utoronto.ca/typ/faq.html>

25 <https://www.nait.ca/nait/admissions/transfer-and-credit-options/pathways/trades-to-degrees>

26 These forecasts cover exports, imports and consumption growth. See OECD (2017).

27 Ministry of Business, Innovation and Employment (2019).

28 New Zealand Skills Strategy Action Plan 2018. https://www.beehive.govt.nz/sites/default/files/NZ-Skills-Strategy-Action-Plan-2008_0.pdf

29 <https://www.abs.gov.au/ausstats/abs@.nsf/0/8B1F5DDDD46033ABCA2575DF002DA75E?opendocument>

30 https://mbienz.shinyapps.io/labour-market-dashboard_prod/

31 <http://engineeringe2e.org.nz/about/background-and-issues/>

32 See OECD (2016).

33 <https://www.nzqa.govt.nz/providers-partners/approval-accreditation-and-registration/micro-credentials/guidelines-training-scheme-micro-credential/>

2.3 Summary of key findings and implications

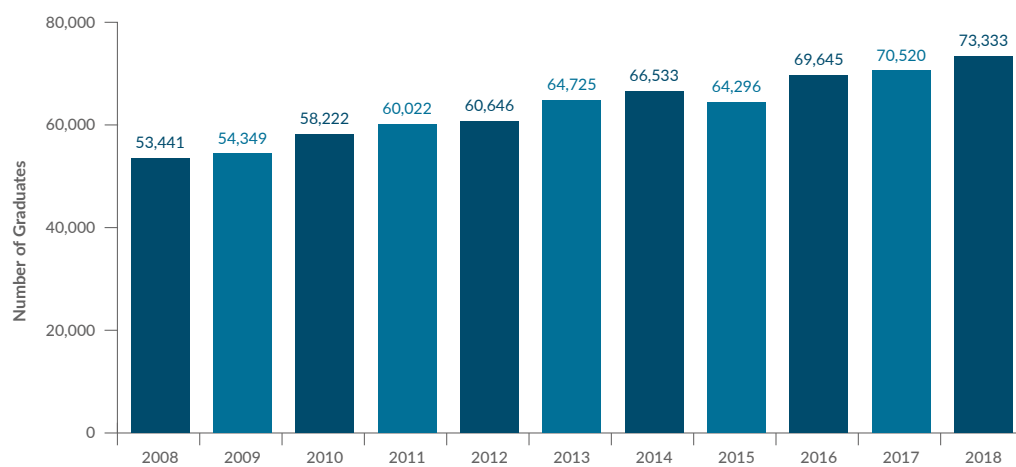
Our analysis of policy approaches to skills provision in Ireland and in other case studies examined suggests that Ireland has a well-developed policy system to align educational and training provision with skill requirements, but there are areas in which reform is needed. The review of international practice confirms the need to consider the balance between the FET and HE systems, and to further develop pathways between further education and higher education. There is a need for enhanced approaches to the forecasting of future educational and skills requirements. The international experience also reinforces the importance of the educational and training system having the flexibility to respond to changing skill requirements, to ensure that the focus is on future skill needs. These changes need to be considered within the wider context of the exceptionally high number of school leavers who proceed in the first instance to higher education institutions in Ireland and the potential role of FET in ensuring a more balanced tertiary education system. Ways to ensure the most effective use of existing skills to ensure a better alignment with labour market need, to safeguard against over-qualification and to promote the engraining of a culture of lifelong learning also require careful policy consideration.

3. HE and FET participation

3.1 Higher education participation

The number of graduates who were awarded qualifications ranging from NFQ Levels 6-10 between 2008 and 2018 are shown in Figure 1. Since 2008, the number of students graduating from HEA-funded institutions has increased by over 37%. These individuals represent an important source of high skills for the Irish economy. However, the rate of growth has implications for the financial sustainability of the HE sector.

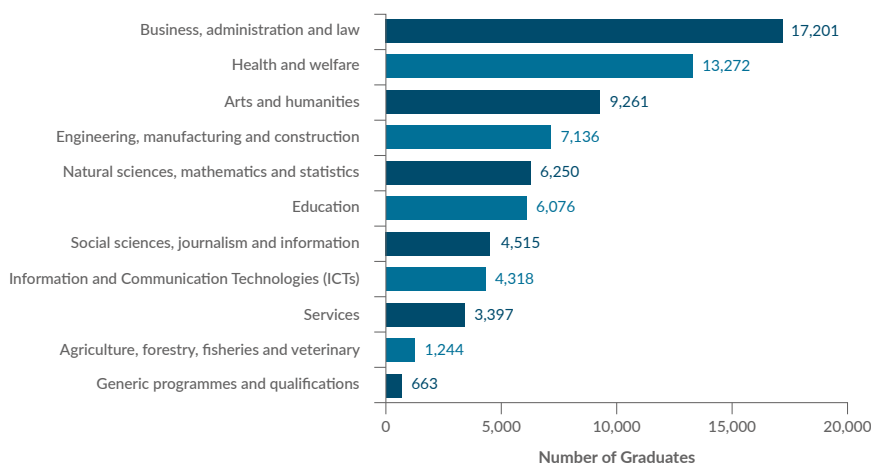
Figure 1. Trends in the total number of higher education graduates (all HEA-funded institutions), 2008-2018



Note: Figures do not include enrolments in private institutions.
Source: HEA

Figure 2 shows the total number of qualifications awarded by field of study in 2018. It highlights the difference in supply of higher-level graduates by field of study. Business, administration and law had the highest number of graduates, at 17,201. Other major areas of field of study include health and welfare, arts and humanities, engineering, manufacturing and construction, natural sciences, mathematics and statistics, and education.

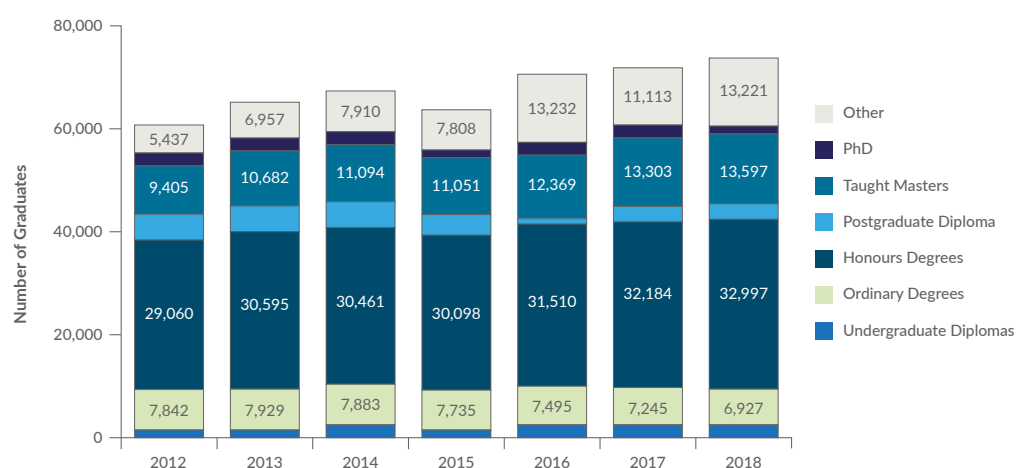
Figure 2. Total number of higher education graduates by field of study in 2018



Note: Figures do not include enrolments in private institutions.
Source: HEA

Figure 3 illustrates the different qualifications that are awarded under NFQ Levels 6-10. The most awarded qualification between 2012 and 2018 was the Honours Bachelor's Degree, with the total number of graduates with this degree steadily increasing since 2012. Taught Master's Degrees are the second-most awarded qualification, with numbers again steadily increasing since 2012. This coincides with an increase in the percentage of students graduating with a Master's Degree from 16% in 2012 to 19% in 2018, with more students now graduating at that level. The increase in students graduating with a Master's Degree (NFQ Level 9) is linked with the increase in the number of students gaining an Honours Degree (NFQ Level 8). As more and more students graduate with Level 8 qualifications, this increases the number of people eligible to pursue further education qualifications such as a Master's Degree or a postgraduate diploma.

Figure 3. Total number of higher education graduates by degree type, 2012 to 2018



Note: Figures do not include enrolments in private institutions. 'Other': Undergraduate Certificate; Certificate; Higher Certificate; Postgraduate Certificate; Higher Diploma; Research Master's.

Source: HEA

3.2 Further education and training provision

Further education and training in Ireland is defined as education and training that occurs after second-level education that is not part of the third-level system. It is important to note that FET may result in many students subsequently progressing to HE, and the linkages between HE and FET are important.

FET is of critical importance in meeting the skills needs of the economy. The three main categories of FET include those focused on employment outcomes, progression training, and the development of transversal skills. Employment outcome courses/training are programmes that are aimed at improving employment outcomes for participants. The goal is to assist learners to progress directly into the labour market and into employment. Progression focused courses/training are programmes that have an objective to progress learners to higher-level FET or higher education. These are important in meeting the overall targets for tertiary education, and in enhancing social inclusion. Transversal skills development courses/training are programmes intended to help learners develop transversal skills, which are skills that can be used in a wide range of situations and employment settings and are not usually considered to be specifically related to a particular job, sector, or area of knowledge. Information on the types of programmes focused on the three main areas of further education and training is presented in Table 3.

Table 3: FET programmes in Ireland

Employment outcomes	Progression	Transversal skills
Apprenticeship Training	Bridging and Foundation Training	Adult Literacy
Blended Training	BTEI Groups	ESOL
Evening Training	Community Training Centres	FET Co-operation Hours
Post Leaving Certificate	Specialist Training Programmes	ITABE
Specific Skills Training	Youthreach	Refugee Resettlement
Traineeships Training		Voluntary Literacy Tuition
VTOS		Community Education

Source: SOLAS

Table 4 shows the change in the number of beneficiaries³⁶ and new entrants to further education and training between 2014 and 2019. 2018 experienced the highest number of new entrants to FET over the six-year period, with the 2019 figure slightly lower than the previous year.

Table 4. FET beneficiaries and new entrants, 2014 to 2019

Year	Beneficiaries	New entrants
2014	341,726	215,929
2015	369,523	231,234
2016	339,283	245,400
2017	323,308	230,641
2018	337,966	251,391
2019	329,293	247,855

Source: Presentation of SOLAS data

Generic programmes and qualifications were the most popular field of study for FET learners in 2018, accounting for almost half of learners (see Table 5). This in part reflects the differing levels of qualifications of FET learners. Business and administration and law; health and welfare; and services each accounted for around 10% of learners.

³⁶ Defined as individuals who will benefit from interventions provided through FET funding in a given year, irrespective of whether they are present at the start of the year or join a course during the year, as per the SOLAS FET Services Plan.

Table 5. Field of study of FET learners in 2018

Field of study	# of FET learners	% of total
Generic programmes and qualifications	81,488	46.6%
Business and administration and law	18,136	10.4%
Health and welfare	17,691	10.1%
Services	17,476	10.0%
Arts and humanities	9,803	5.6%
Education	9,261	5.3%
Information and communication technology	8,718	5.0%
Engineering, manufacturing and construction	7,369	4.2%
Agriculture, forestry, fisheries and veterinary	3,521	2.0%
Natural sciences, mathematics and statistics	978	0.6%
Social sciences, journalism and information	613	0.4%
Total	175,054	100%

Source: Presentation of SOLAS data

More FET learners were attending Level 5 certificate courses than any other level. The number of FET graduates in 2019 amounted to 51,969.

Table 6. Breakdown of FET graduates by highest award level achieved – 2018 and 2019

Highest Award Achieved	Award Level	No. of Graduates - 2018*	No. of Graduates -2019* **
Level 1 Certificate	NFQ 1	429	605
Level 2 Certificate	NFQ 2	2,037	2,706
Level 3 Certificate	NFQ 3	7,794	5,573
Level 4 Certificate	NFQ 4	8,034	9,111
Level 4/5 Certificate	NFQ 4.5	738	386
Level 5 Certificate	NFQ 5	33,800	22,278
Advanced Certificate/Higher Certificate	NFQ 6	10,244	4,113
Honours Bachelor's Degree/Higher Diploma	NFQ 8	102	7
Non-NFQ assigned Industry Awards	Non-NFQ assigned Industry Awards	6,036	7,190
Total	-	69,214	51,969

Note:

* Figures relate to the number of unique learners in each period who complete their education and achieve a certified NFQ-assigned or other industry award/qualification and are based on the highest level of award achieved in that period.

** 2019 figures are preliminary.

Source: Analysis of SOLAS PLSS data

3.3 Apprenticeship training

An important element of FET which has been given increased attention is apprenticeship training. This area of FET provision has historically been less developed in Ireland than in some other countries. Apprenticeships are industry-led programmes which offer learners training in both the workplace and in education and training centres (such as ETB (Education and Training Board) centres, IOTs (Institutes of Technology) or colleges of further education). The programmes are focused on employment outcomes and on meeting specific skills needs. The main apprenticeships are in the areas of construction, electrical industries, and engineering; however, new developments have provided opportunities in a much wider range of areas. A QQI Level 6 Advanced Certificate Craft was awarded to those who successfully completed an apprenticeship in the years before 2016³⁷. Apprenticeships differ from traineeships, which are shorter work-based learning (usually a minimum of 30% of time is allocated to workplace learning³⁸).

Table 7 displays the number of new registrations in apprenticeships from 2014 up to November 2020, by the area of the apprenticeship. The annual number of registrations in apprenticeships between 2014 and 2019 has increased from 2,698 to almost 6,177. The decline in the year-to-date figure for 2020 reflected the impact of COVID-19. In recent years, new industry-led consortia apprenticeships leading to an award between Levels 5 and 10 on the NFQ have been created, both in the areas traditionally covered by craft apprenticeships, as well as in new areas³⁹. New apprenticeships have also been established in the areas of finance, hospitality and food, auctioneering, biopharma, ICT and Logistics, sales, and recruitment.

Table 7. Number of apprentice registrations, 2014 to 2020

Area	2014	2015	2016	2017	2018	2019	2020*
Auctioneering	-	-	-	-	53	92	71
Biopharma	-	-	-	-	16	31	30
Construction	582	693	914	1,180	1,486	1,479	1,252
Electrical	1,051	1,184	1,617	2,095	2,249	2,388	1,850
Engineering	453	508	503	678	709	763	506
Finance	-	-	67	190	189	215	155
Hospitality & Food	-	-	-	25	150	144	28
ICT	-	-	-	-	61	180	90
Logistics	-	-	-	-	27	34	52
Motor	604	760	716	673	708	750	529
Recruitment	-	-	-	-	-	-	27
Printing	8	8	4	2	-	-	-
Sales	-	-	-	-	-	76	86
Total	2,698	3,153	3,821	4,843	5,648	6,177	4,729

Note:

* Registrations for 2020 are up to November 2020 and are annualised based on the percentage change in the same period in the previous year. Apprenticeships are to be established in Hairdressing and Retail.

Source: SOLAS submission to the Joint Oireachtas Committee on Education on Skills 2019

37 CSO Further Education Outcomes - Graduation Years 2010-2016, 2019. Available at: <https://www.cso.ie/en/releasesandpublications/ep/p-feo/furthereducationoutcomes-graduationyears2010-2016/apprenticeships/>

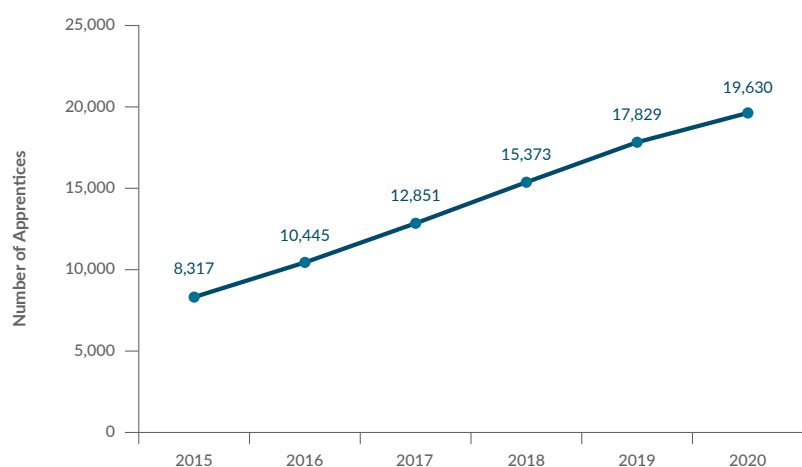
38 Department of Education and Skills (2016).

39 https://www.citizensinformation.ie/en/education/vocational_education_and_training/apprenticeships.html

40 https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_education_and_skills/submissions/2019/2019-10-22_opening-statement-andrew-brownlee-ceo-solas_en.pdf

Figure 4 provides the total number of learners in apprenticeship programmes between 2015 and 2020. From 2015 to 2020 there was an increase in the number undertaking apprenticeships of 136%, from 8,317 to 19,630.

Figure 4. Number of apprenticeships, 2015 to 2020

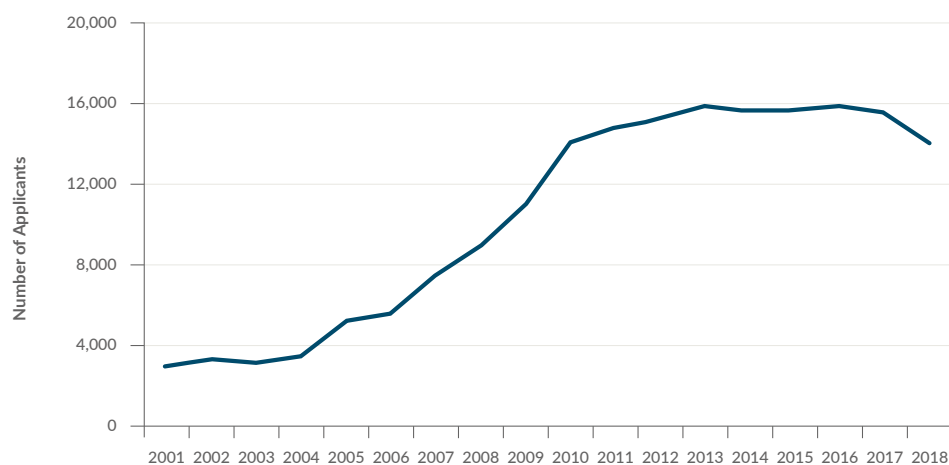


Source: Analysis of SOLAS Data

3.4 Pathways between FET and HE

Of importance to Irish policymakers is the balance of school leavers progressing to FET compared to the numbers progressing to HE. Also of importance are the pathways between FET and HE. Figure 5 shows that there was a steady increase between 2004 and 2010 in the number of CAO applicants who had a FET QQI award. Also of note is that many previous FET graduates enter HE outside of the formal CAO QQI process. This highlights the integrated role of FET and HE in meeting the educational and skill requirements of the Irish economy.

Figure 5. Trends in CAO demand from applicants with FET QQI awards



Source: Transitions Reform Sub-Group – confidential data from working paper

3.5 Summary of key findings

Our analysis of HE and FET participation indicates that Ireland has supported very high levels of participation in higher education, and there has been a dramatic growth in enrolments in HE over the decade to 2019. The largest number of qualifications are in Honours Degrees, but there has been a significant increase in postgraduate qualifications. The largest field of study by numbers for HE graduates is business, administration, and law; followed by health and welfare; and arts and humanities. Within the FET sector, the largest field of study is generic programmes and qualifications, which reflects the fact that most FET leavers are attending Level 5 or lower-level certificate courses. Generic qualifications can subsequently provide a foundation for more specific employment-related training, and can support life-long training programmes and future progression to higher levels. Apprenticeship registrations have grown significantly, and registration numbers reached 6,177 in 2019. The number of applicants to HE from FET has grown significantly but remains relatively low. This highlights the integrated role of FET and HE in meeting the skill requirements of the Irish economy.

4. Labour demand for graduates by sector

4.1 Educational attainment in the Irish labour force

Participation rates in higher education in Ireland are very high as compared to other EU countries, and this is reflected in the levels of educational attainment in the Irish labour force. The figures presented in Table 8 also show that there has been steady growth in the percentage of the labour force with third-level Honours Degrees or higher.

Table 8. Education level of individuals in the Irish labour force (in Q4 of each year, 2014 to 2019)

Highest education level achieved	2014	2015	2016	2017	2018	2019
Primary or below	3.1%	3.2%	2.7%	2.6%	2.4%	2.8%
Lower secondary	11.0%	10.3%	10.3%	9.5%	9.1%	8.7%
Higher secondary	24.2%	23.9%	23.5%	23.8%	23.1%	23.5%
Post-secondary non-tertiary	13.6%	13.0%	13.8%	14.3%	14.8%	14.6%
Third-level Non-Honours Degree	11.9%	12.1%	11.8%	11.3%	11.3%	10.6%
Third-level Honours Degree or higher	32.9%	34.3%	34.6%	35.8%	36.7%	37.2%
Other/not stated	3.4%	3.3%	3.4%	2.7%	2.6%	2.7%
Total number in labour force (000s)	2,203	2,229	2,264	2,297	2,332	2,379

Source: Analysis of CSO Labour Force Survey data

There is a correlation between education and employment which is evident from the data on the labour market status by educational attainment (see Table 9). In 2019, approximately half of individuals (aged 15+) who were in employment had a Bachelor's Degree or higher. When including those who had attained a Higher Certificate/Post Leaving Certificate (PLC) and above, this increases to almost two-thirds. A much higher percentage of those with low levels of education were unemployed.

Table 9. Number of persons aged 15+ by labour market status and highest education level achieved, 2019

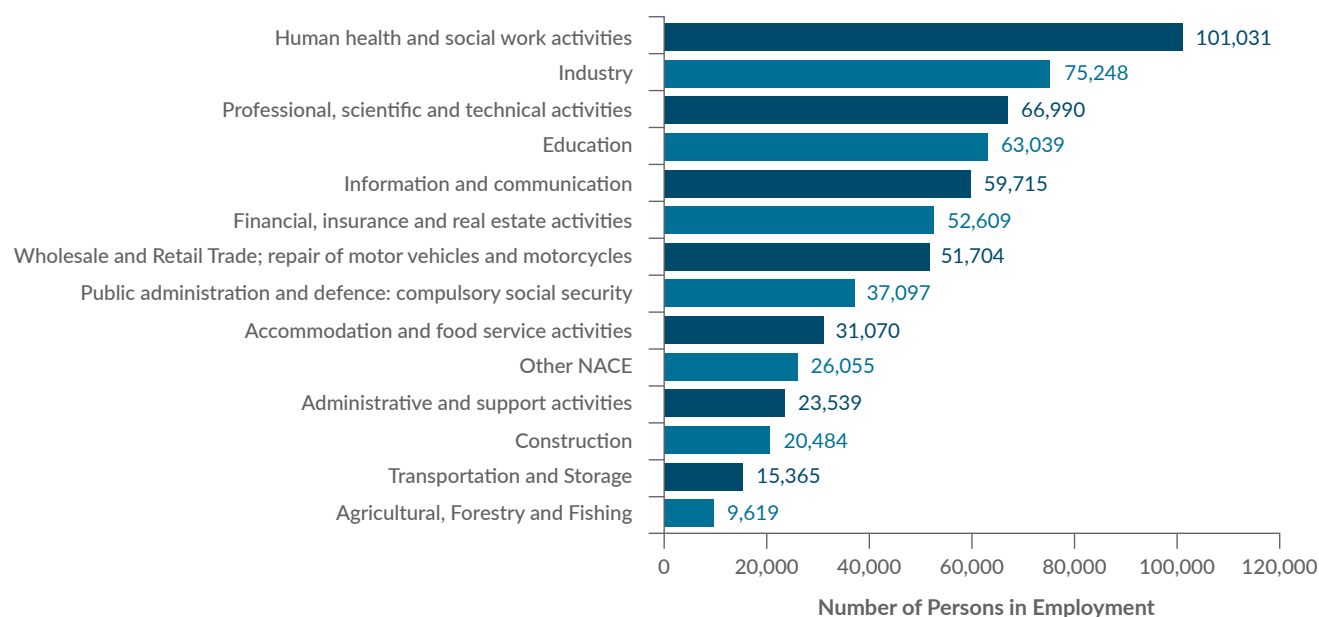
Highest education level achieved	Labour market status						
	Employed	Un-employed	Student	Retired	Unable to work	On Home Duties	Other
Primary	71,653	16,600	70,061	186,530	54,241	60,321	2,774
Lower secondary	187,893	29,318	150,293	93,215	43,144	61,469	2,279
Upper secondary	478,672	43,339	149,853	105,589	35,681	81,483	4,724
Higher Certificate/PLC	317,453	24,631	17,173	47,532	20,657	45,386	2,627
Ordinary Bachelor's Degree	143,363	7,438	5,190	31,015	7,109	16,600	997
Honours Bachelor's Degree	636,693	26,675	24,454	85,103	14,922	48,049	4,102
Postgraduate Diploma/degree/Doctorate	298,342	10,012	6,420	25,483	3,515	13,974	1,967
Total	2,134,069	158,013	423,443	574,467	179,268	327,282	19,470

Source: Analysis of CSO Labour Force Survey data

Health and social work activities are the largest single sector amongst employed individuals with an Honours Bachelor's Degree, employing over 100,000 of these graduates in 2019 (see Figure 6). Industry was the second-largest sector of employment for those with Honours Degrees, followed by professional, scientific, and technical activities.

Amongst those with a postgraduate degree/diploma or above, education is the single largest sector of employment, followed by health and social work. Information and communications, professional, scientific, and technical activities, and industry are also major employers of those with postgraduate degrees.

Figure 6. Number of persons with Honours Bachelor's Degrees in employment in 2019, by sector of employment



Source: Analysis of CSO Labour Force Survey data

4.2 Sector employment breakdown by education level

To further inform the analysis, it is useful to examine sectoral employment by education level for each of the NACE Rev 2 sectoral classifications. NACE provides the framework for collecting and presenting a large range of statistical data according to economic activity⁴¹. As an evaluation of this, it is useful to consider some examples of different sectors in the Irish economy.

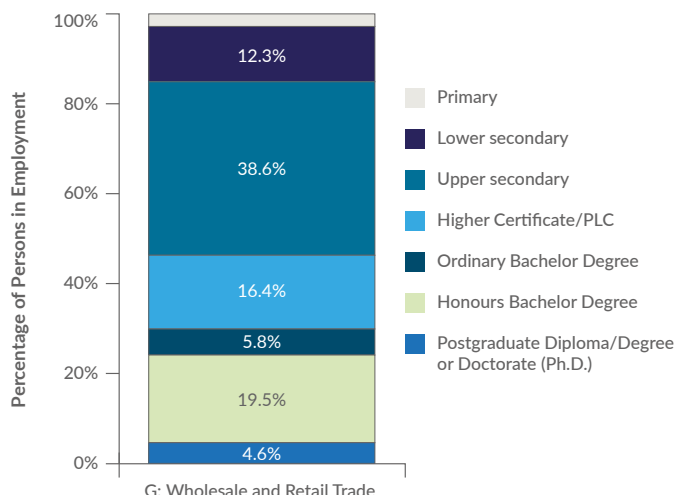
One major sector of employment in Ireland is the **wholesale and retail trade sector**, which is composed primarily of employees with a Higher Certificate/PLC or lower qualifications (with individuals with upper secondary education comprising the largest group; see Figure 7). However, a significant minority (almost one-third) of employees in the sector have an Ordinary Bachelor's Degree or above.

41 <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>. For a full list of NACE sectors, see Section 5.1.

Figure 7. Number of persons employed in the wholesale and retail trade sector (incl. repair of motor vehicles and motorcycles) in 2019, by highest education level

Highest education level achieved	Number of persons
Primary	7,686
Lower secondary	32,548
Upper secondary	102,275
Higher Certificate/PLC	43,454
Ordinary Bachelor's Degree	15,421
Honours Bachelor's Degree	51,704
Postgraduate Diploma/degree/Doctorate	12,200
Total	265,288

Source: Analysis of CSO Labour Force Survey data

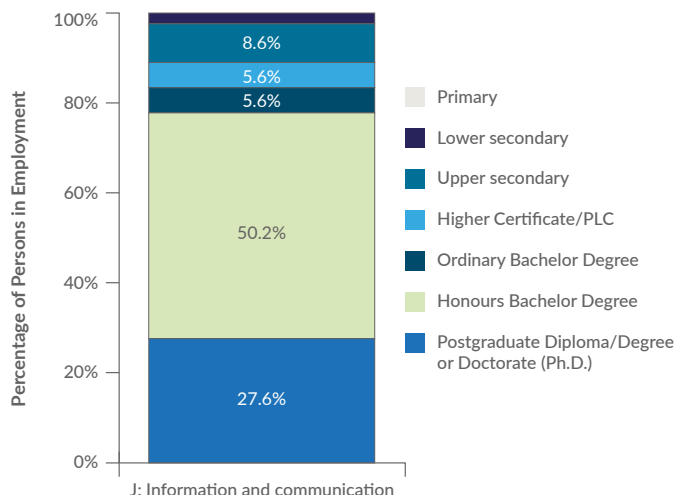


The **information and communication sector**, in contrast with the wholesale and retail sector, is mostly comprised of individuals who have some form of higher education (see Figure 8). Over 50% of employees in the sector in 2019 had attained an Honours Degree, with a further 27.6% achieving some form of postgraduate qualification, and 5.6% had attained an Ordinary Degree. Thus, approximately 83% of employees in the sector had attained a higher education qualification.

Figure 8. Number of persons employed in the information and communication sector in 2019, by highest education level

Highest education level achieved	Number of persons
Primary	391
Lower secondary	2,439
Upper secondary	10,244
Higher Certificate/PLC	6,677
Ordinary Bachelor's Degree	6,664
Honours Bachelor's Degree	59,715
Postgraduate Diploma/degree/Doctorate	32,800
Total	118,929

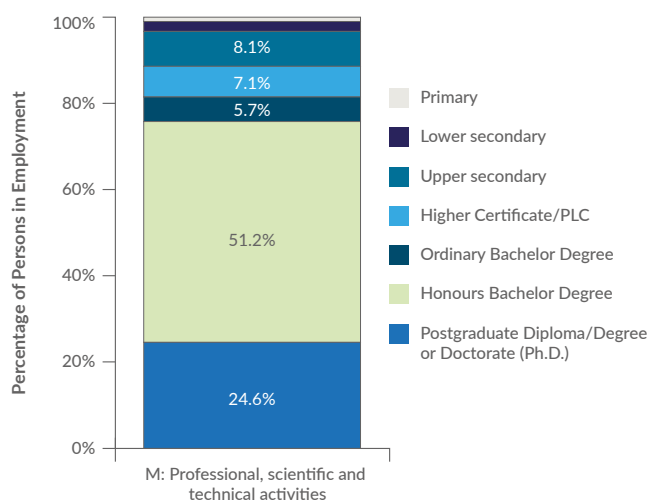
Source: Analysis of CSO Labour Force Survey data



Many graduates are also employed in **professional, scientific, and technical activities**, with over 80% of the employees holding an Ordinary Bachelor's Degree or a higher qualification (see Figure 9).

Figure 9. Number of persons employed in the professional, scientific, and technical activities sector in 2019, by highest education level

Highest education level achieved	Number of persons
Primary	743
Lower secondary	3,505
Upper secondary	10,542
Higher Certificate/PLC	9,253
Ordinary Bachelor's Degree	7,504
Honours Bachelor's Degree	66,990
Postgraduate Diploma/degree/Doctorate	32,216
Total	130,753

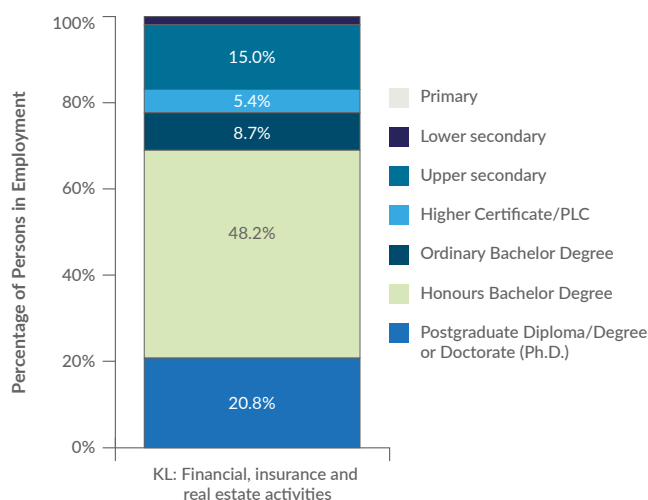


Source: Analysis of CSO Labour Force Survey data

Other sectors also have very high skilled requirements for graduates. For example, the **financial, insurance and real estate activities sector** had a similar composition as the information and communication sector, with the majority (almost 80%) of employees in the sector having some form of higher education qualification (see Figure 10).

Figure 10. Number of persons employed in the financial, insurance and real estate activities sector in 2019, by highest education level

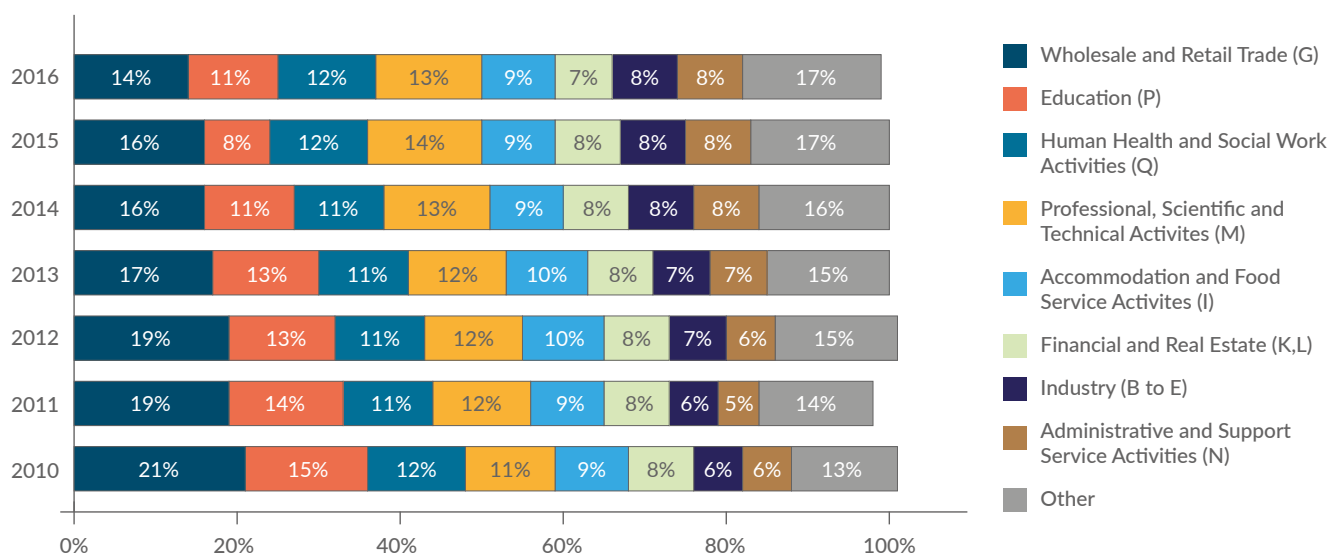
Highest education level achieved	Number of persons
Primary	125
Lower secondary	2,026
Upper secondary	16,315
Higher Certificate/PLC	5,837
Ordinary Bachelor's Degree	9,488
Honours Bachelor's Degree	52,609
Postgraduate Diploma/degree/Doctorate	22,664
Total	109,063



Source: Analysis of CSO Labour Force Survey data

An analysis of economic sectors entered by graduates one year after completing their higher education qualifications shows that a wide range of sectors in the Irish economy employ graduates (see Figure 11). However, the percentage of employees in each of the sectors who are graduates varies significantly.

Figure 11. Economic sectors entered by graduates one year after graduation, 2010 to 2016



Note: Other sectors include Agriculture, Forestry and Fishing (A), Construction (F), Transportation and Storage (H), Information and Communication (J), Public Administration and Defence (O), Other NACE Activities (R-U), and Unknown.
Source: CSO

4.3 Summary of key findings

Our analysis of labour demand by sector indicates that there are marked differences in the employment of graduates across different sectors. Important sectors for employment of graduates are **wholesale and retail trade; professional, scientific, and technical activities; health and social work; education; information and communication; and accommodation and food services**. Graduates with Bachelor's degrees or Higher Certificates have lower levels of unemployment than individuals with lower levels of qualifications in the Irish labour market. Over 89,000 persons with education levels below Higher Certificate/PLC are unemployed, while this cohort accounted for 34% of those employed in the labour market. Our analysis suggests that in addition to the need for the FET and HE sectors to meet medium and high skill requirements, there is an important role for FET in addressing under-education in certain groups in the labour force.

5. Sectoral employment of HE and FET graduates by field of study

This section provides a breakdown of the sectoral employment of HE and FET graduates by their field of study, to allow for an assessment of the alignment of graduates' field of study with their post-graduation sector of employment. To highlight the issues, it is useful to consider the main sectors of employment by field of study, as well as some more detailed illustrative examples of employment for HE and FET graduates by fields of study in certain sectors.

5.1 Employment by sector and field of study

As outlined in Section 4.2, European-wide economic activities are organised under NACE Rev 2 classifications, which provide the framework for collecting and presenting a large range of statistical data according to economic activity⁴². Table 10 lists NACE Rev 2 sectors according to their classifications A-U.

Table 10. NACE Rev. 2 sector classifications

Code	Sector
A	Agriculture, forestry, and fishing
B-E	Industry
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and storage
I	Accommodation and food storage activities
J	Information and communication
K-L	Financial, insurance and real estate activities
M	Professional, scientific, and technical activities
N	Administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
Q	Human health and social work activities
R-U	Other NACE activities

Source: CSO

⁴² Again, see <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

Table 11 contains data on the number of employed persons (aged between 15 and 64) with higher education qualifications by their field of study and sector of work. The largest sectors of employment for those with high levels of qualifications are health and social work (Q); education (P); industry (B-E); professional, scientific, and technical activities (M); information and communications (J); financial, insurance, and real estate activities (K-L); and wholesale and retail trade (G).

Table 11. Total employed persons (aged 15-64) with higher education qualifications in 2019, by field of study and industry

Field of study	Industry (NACE classification)													
	A	B-E	F	G	H	I	J	K-L	M	N	O	P	Q	R-U
General Programmes	65	2,134	426	2,011	566	1,206	2,182	1,519	2,040	661	1,879	1,037	1,781	1,728
Education	382	2,209	297	2,775	166	2,176	974	951	1,310	1,103	1,255	72,898	5,558	2,069
Arts and Humanities	318	3,987	912	7,577	1,566	5,345	8,150	4,980	6,294	3,300	5,942	14,463	6,237	9,099
Social Sciences/ Business	2,566	32,999	5,664	28,179	9,635	13,911	27,947	53,133	45,902	14,987	26,271	14,185	20,015	8,954
Natural Sciences and Maths	1,029	17,003	760	4,163	809	1,781	5,070	3,114	7,791	1,230	4,441	8,538	4,732	1,202
ICT	160	7,984	842	5,509	1,768	1,494	36,555	8,342	3,409	2,653	3,360	4,386	1,653	1,639
Engineering	1,082	30,814	15,396	7,489	4,237	2,243	7,766	3,103	20,816	3,566	4,450	3,057	1,783	1,734
Agriculture	5,986	3,534	510	1,695	926	780	290	412	2,417	1,156	1,829	445	738	1,349
Health and Welfare	830	6,333	804	7,151	1,249	3,353	1,764	1,434	3,150	1,962	6,355	7,950	113,037	4,919
Services	356	4,593	1,116	4,949	2,467	10,454	1,425	1,539	1,625	2,554	5,366	1,961	3,553	4,839
Unknown	92	765	110	703	258	468	686	524	418	349	568	358	337	228
Total	12,865	112,354	26,838	72,201	23,645	43,210	92,809	79,052	95,171	33,520	61,717	129,278	159,425	37,760

Source: Analysis of CSO Labour Force Survey data

Table 12 shows that in some sectors, there is a high level of concentration of persons from individual fields of study. 71% of employees in health and social with high qualifications studied health or welfare programmes, whilst 67% of those employed in financial, real estate or insurance activities studied programmes in social sciences or business.

Table 12. Distribution of employed Persons (aged 15-64) with high qualifications by field of study, in top 6 economic sectors, 2019

Field of study	Industry (NACE classification)					
	Q	P	B-E	M	J	K-L
General Programmes	1%	1%	2%	2%	2%	2%
Education	3%	56%	2%	1%	1%	1%
Arts and Humanities	4%	11%	4%	7%	9%	6%
Social Sciences/Business	13%	11%	29%	48%	30%	67%
Natural Sciences and Maths	3%	7%	15%	8%	5%	4%
ICT	1%	3%	7%	4%	39%	11%
Engineering	1%	2%	27%	22%	8%	4%
Agriculture	0%	0%	3%	3%	0%	1%
Health and Welfare	71%	6%	6%	3%	2%	2%
Services	2%	2%	4%	2%	2%	2%
Unknown	0%	0%	1%	0%	1%	1%
Total	100%	100%	100%	100%	100%	100%

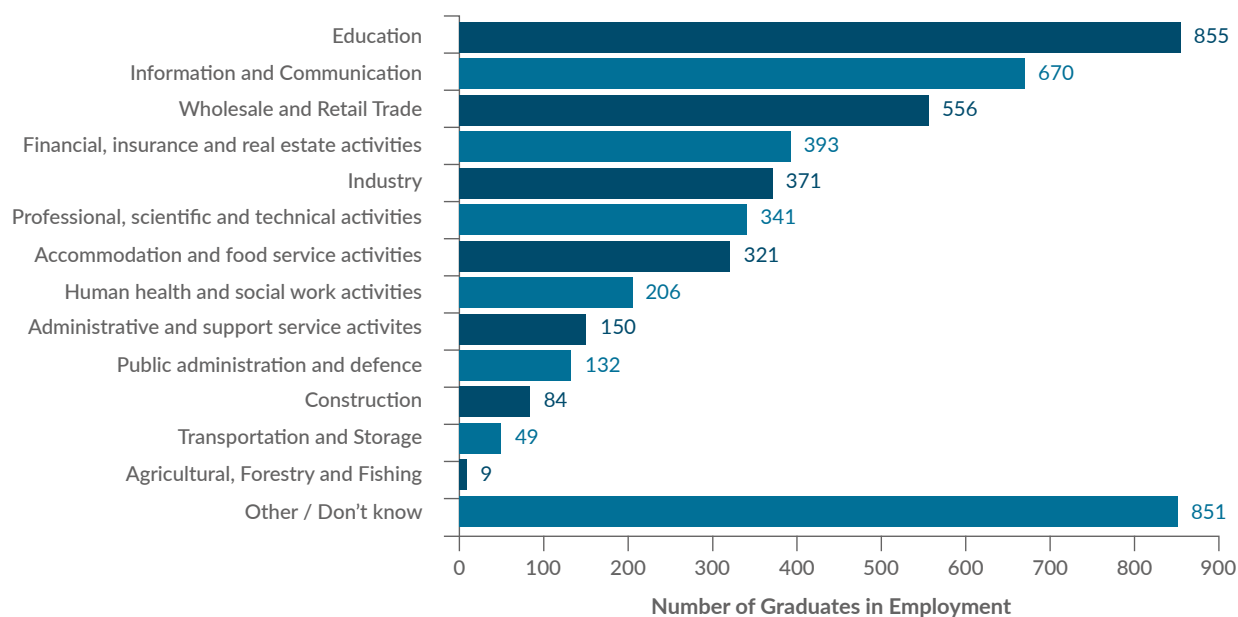
Source: Analysis of CSO Labour Force Survey data

5.2 Employment of HE graduates by sector and field of study

An analysis of the sector of employment for graduates who studied arts and humanities is presented in Figure 12. Whilst the education sector was the largest destination of graduates who studied arts and humanities, there were a number of other sectors which accounted for significant employment, including information and communication, and wholesale and retail trade. This suggests that graduates from arts and humanities are in demand across a number of different sectors in the economy.

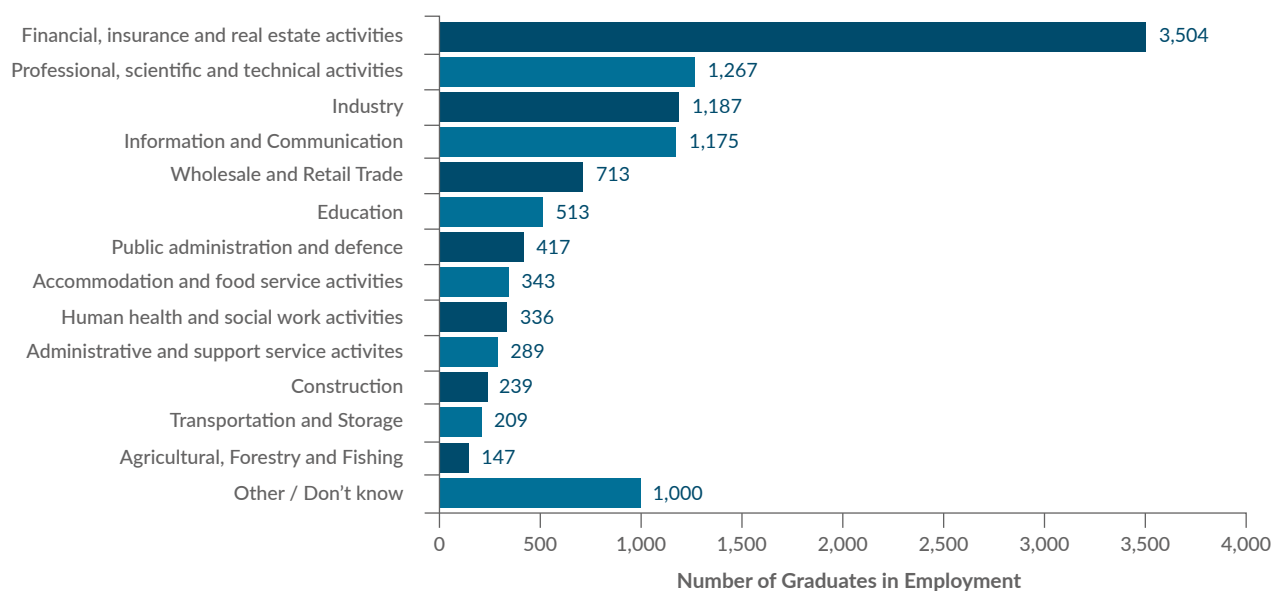
Figure 13 shows that a large portion of higher education graduates from **business, administration, and law** courses obtained employment in the financial, insurance, and real estate activities sector. However, over 1,000 graduates also obtained employment in each of the professional, scientific, and technical activities, industry, and information and communication sectors. Whilst this suggests a degree of alignment between the field of study and certain sectors, there are also significant numbers of graduates entering employment in other sectors in the economy.

Figure 12. Arts and humanities HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

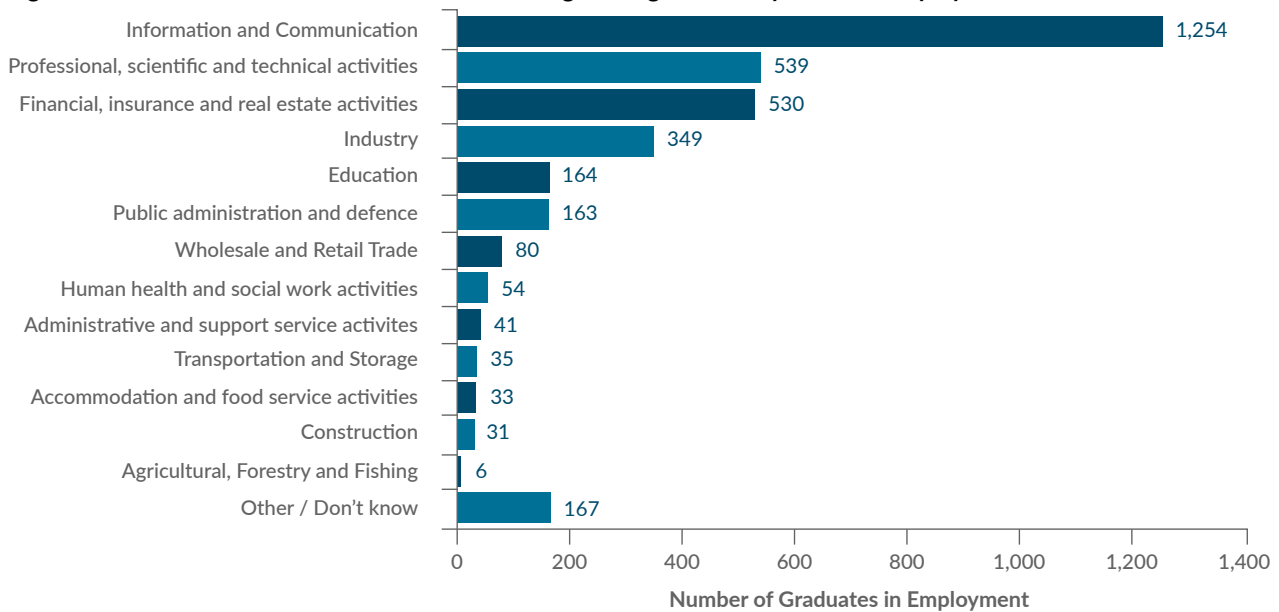
Figure 13. Business, administration, and law HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

Figure 14 shows the clear alignment of the ICT field of study with the information and communication sector. This sector employed more than twice the number of these graduates than any other individual sector.

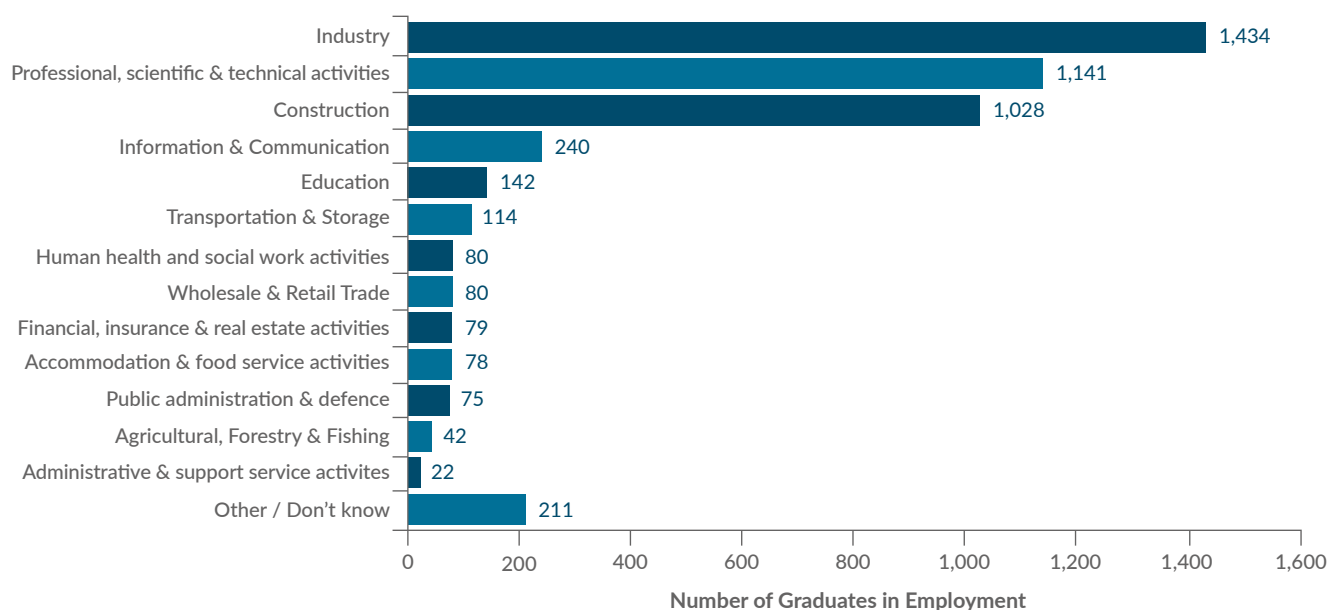
Figure 14. Information and communication technologies HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

The three main destinations for HE graduates of **engineering, manufacturing, and construction** courses were employed in industry; professional, scientific, and technical activities; and construction (see Figure 15). These three sectors accounted for over 75% of the graduates from these areas of study.

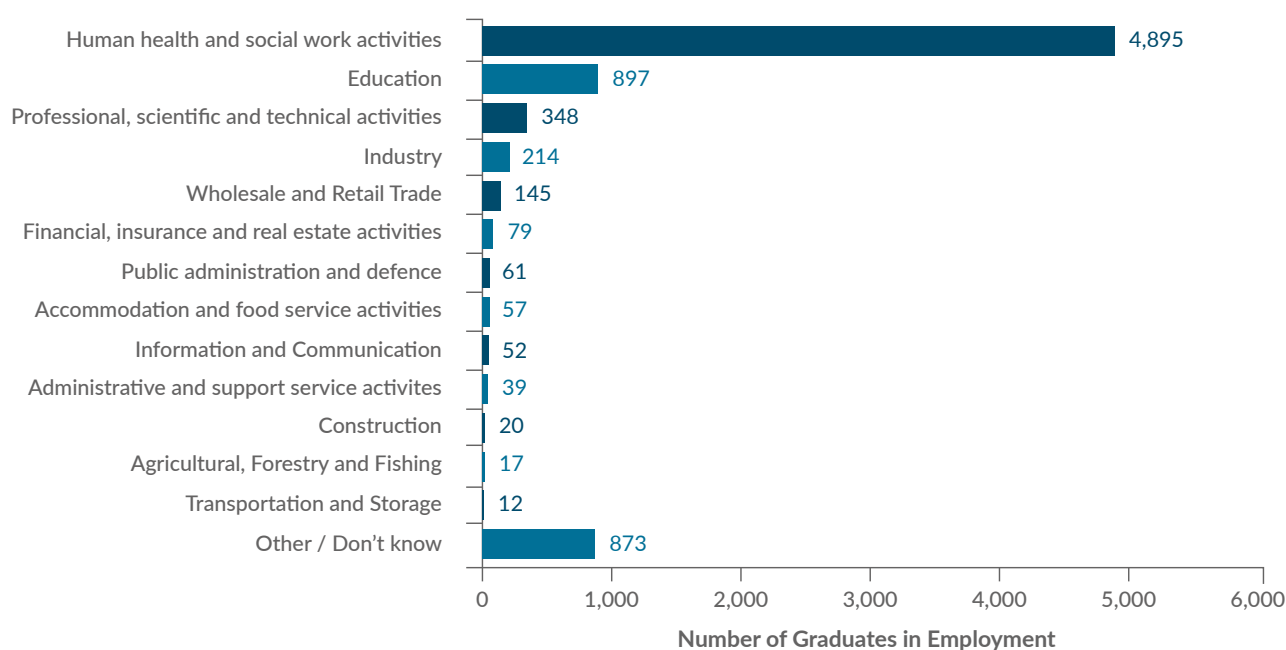
Figure 15. Engineering, manufacturing, and construction HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

It is evident from Figure 16 that the majority of HE graduates who studied **health and welfare** subjects were employed in the health and social work activities sector.

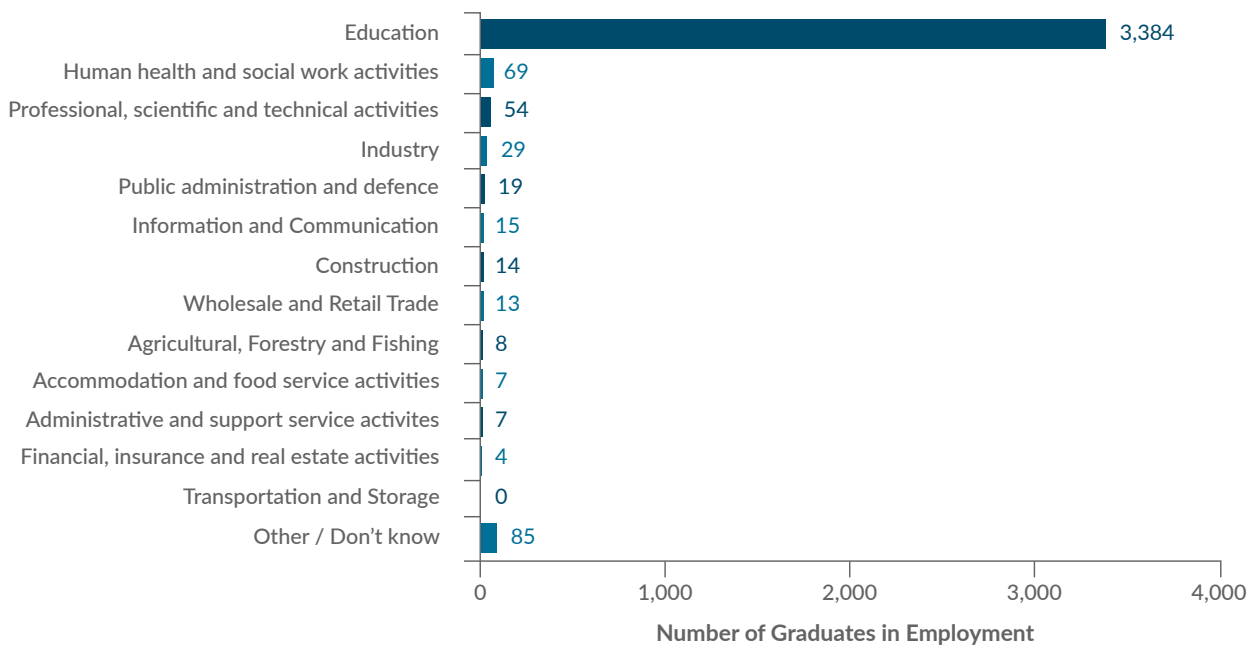
Figure 16. Health and welfare HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

Figure 17 shows the clear alignment for HE graduates in **education** subjects with subsequent employment in the education sector.

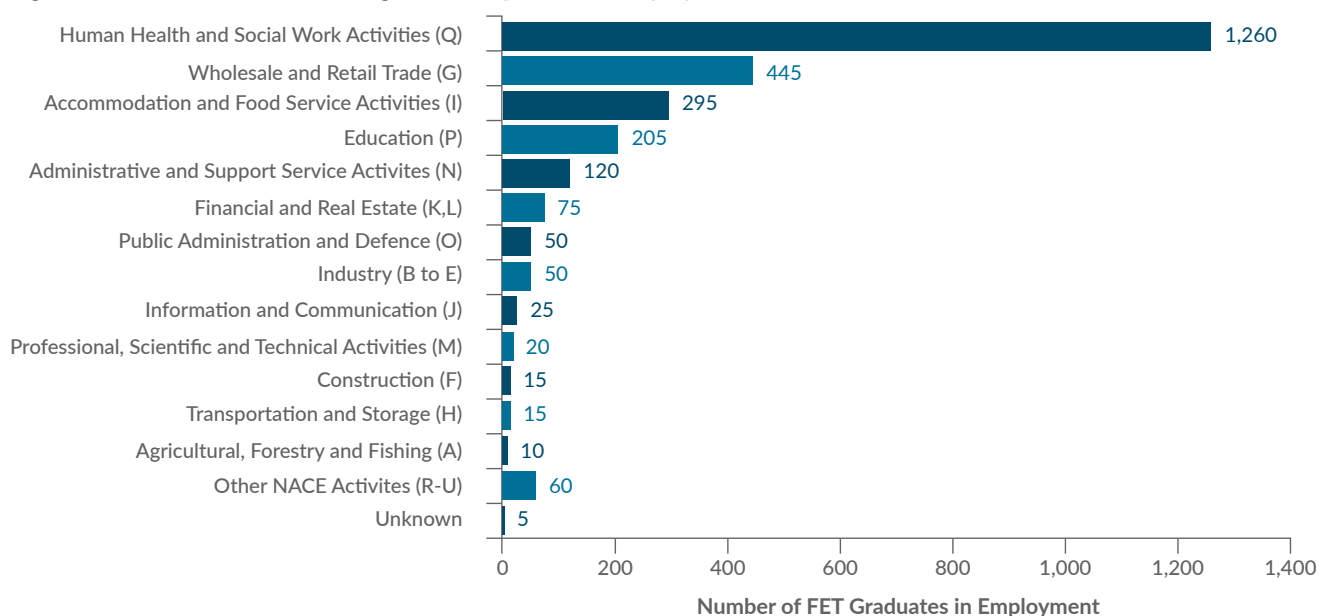
Figure 17. Education HE graduates by sector of employment



Source: HEA Class of 2018 Graduate Outcomes Survey (2020)

5.3 Employment of FET graduates by sector and field of study

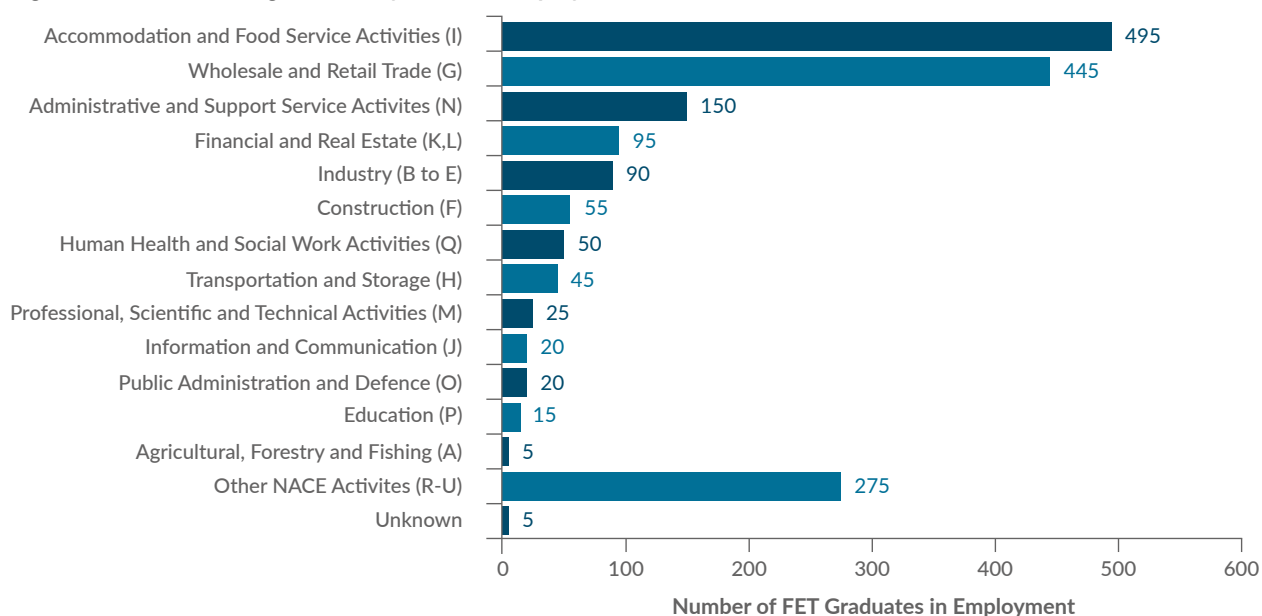
As displayed in Figure 18, it is evident that human health and social work activities was the main sector of employment for FET graduates from **health and welfare courses**. This indicates a strong degree of alignment between the field of study and the sector of employment for this group of FET graduates.

Figure 18. Health and welfare FET graduates by sector of employment

Note: All numbers are rounded to the nearest 5.

Source: CSO FET Graduate Outcomes Data (Class of 2016 - 1 Year from Graduation)

FET **services** graduates were mainly employed in accommodation and food service activities and in wholesale and retail trade, as shown in Figure 19. These two sectors accounted for the majority of FET services graduates in employment a year after graduation.

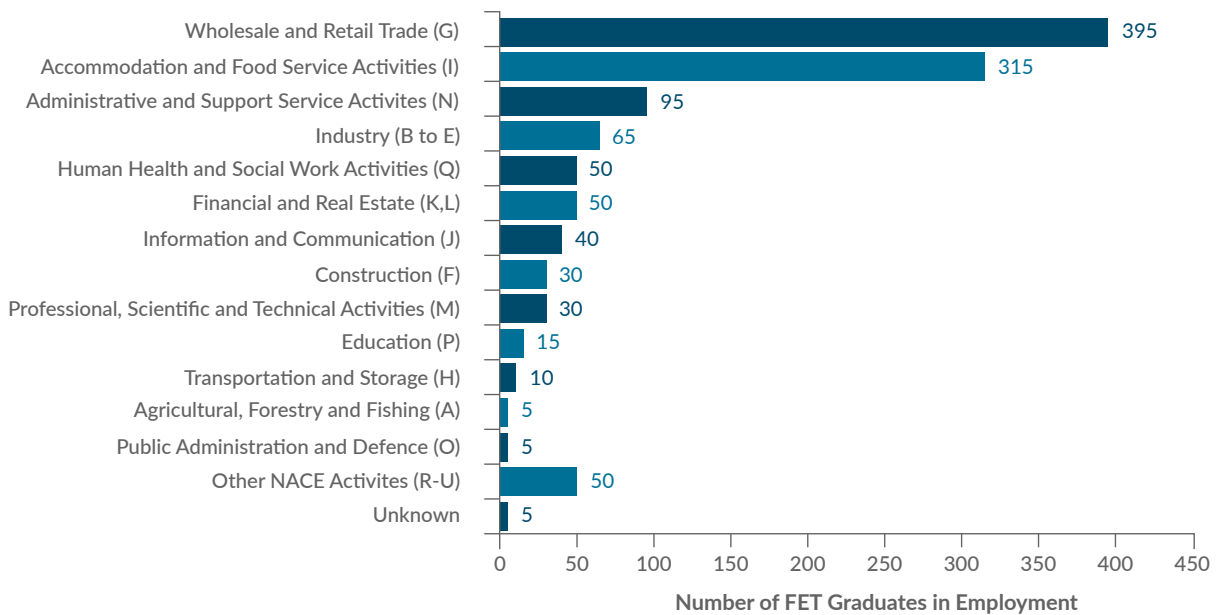
Figure 19. Services FET graduates by sector of employment

Note: All numbers are rounded to the nearest 5.

Source: CSO FET Graduate Outcomes Data (Class of 2016 - 1 Year from Graduation)

As displayed in Figure 20, the majority of **arts and humanities** FET graduates who were employed one year after graduation were employed in either the wholesale and retail trade sector, or in accommodation and food service activities. These are major employers in the Irish economy, and the FET sector plays an important role in meeting the skill needs of these two sectors.

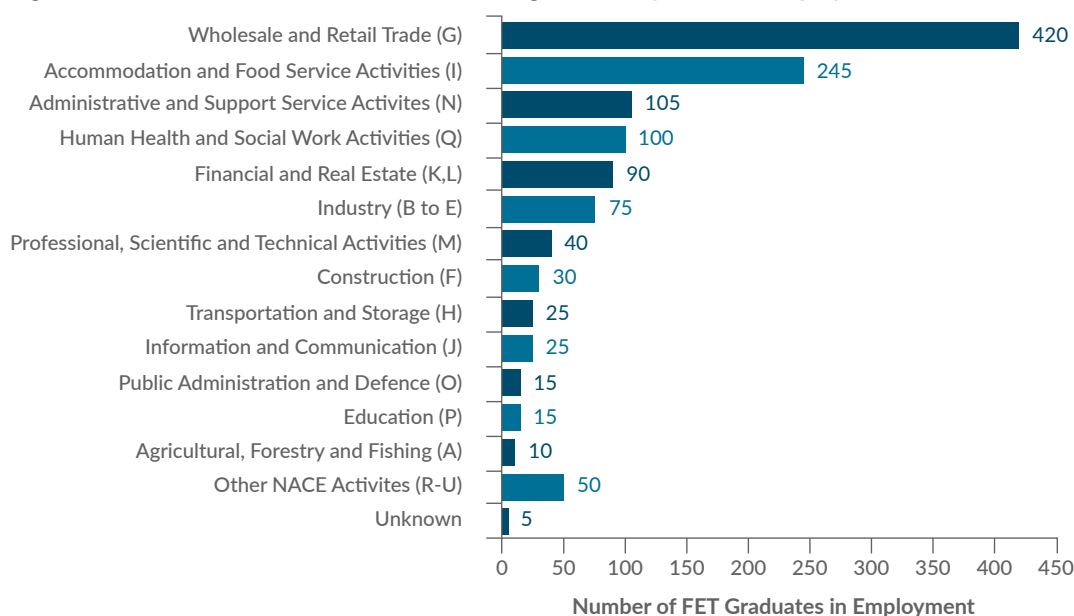
Figure 20. Arts and humanities FET graduates by sector of employment



Note: All numbers are rounded to the nearest 5.

Source: CSO FET Graduate Outcomes Data (Class of 2016 - 1 Year from Graduation)

Figure 21 shows that the main sector of employment for graduates from FET courses in **business, administration and law** was the wholesale and retail trade sector.

Figure 21. Business, administration, and law FET graduates by sector of employment

Note: All numbers are rounded to the nearest 5.

Source: CSO FET Graduate Outcomes Data (Class of 2016 - 1 Year from Graduation)

5.4 Implications of the review of sectoral employment of graduates

The largest areas of employment of those with high levels of qualifications are health and social work; education; industry; professional, scientific, and technical activities; information and communications; financial, insurance, and real estate activities; and wholesale and retail trades.

Within these broad areas, there are very significant differences in the sectors of employment of **HE graduates** depending on their field of study. For example, for **HE business administration and law graduates**, the main sectors of employment are financial, insurance and real estate; professional, scientific, and technical activities; industry; and information and communications. For **HE ICT graduates**, the largest sector of employment is information and communication. The main sectors of employment for **HE graduates in arts and humanities** are education; information and communication; and wholesale and retail trade. The majority of **health and welfare graduates** are employed in health and social work, and, similarly, the majority of **education graduates** were employed in the education sector.

For **FET graduates**, there are also very significant differences in the sectors of employment depending on graduates' field of study. The evidence also indicates significant differences in sectors where FET graduates are employed compared with HE graduates even when adjustments are made for field of study. For example, **FET business, administration, and law graduates** are mainly employed in wholesale and retail trade, accommodation and food services, and administrative and support services. In some sectors, FET graduates' employment is directly related to field of study, such as in **health and welfare**. FET graduates' sectoral employment in a number of areas is less related to their field of study than HE graduates. For example, FET graduates in ICT are mainly employed in wholesale and retail trade, and in accommodation and food services. The sectoral employment profile of FET graduates is also likely to reflect the levels of courses attended (note that more FET graduates attend Level 5 certification courses than any other level).

6. Future labour demand and implications for HE and FET

6.1 Modelling framework

In order to ensure that Ireland's population has the qualifications and skills required by the labour market, it is important to consider the future developments in employment in the Irish economy by levels of educational qualification. This is aligned with the European Skills Agenda⁴³ for sustainable competitiveness, social fairness, and resilience. Specifically, our analysis is an example of the implementation of Action 2 of the European Commission's Skills Agenda, which is designed to strengthen skills intelligence. Our forecast analysis aims to **project labour demand for individuals at different levels of education, by looking at the responsiveness of labour demand to economic growth in the Irish economy**. Scenarios have been developed across industries as well as occupational groups, with the aim of highlighting the relationships between industries and fields of study and future demand. We consider labour demand for three qualification levels: high, medium, and low, based on the official ISCED classification system. Table 13 summarises the three qualification levels across the ISCED and Irish NFQ Levels.

Table 13. Distribution of qualification levels

Skill level	ISCED 2011*	NFQ
Low qualification	Levels 0-2	Levels 1-3
Medium qualification	Levels 3-4	Level 4 – 6 (excl. Higher Certificate)
High qualification	Levels 5-8	Level 6 (excl. QQI Advanced Certificate) - 10

Note: Both ISCED classifications (ISCED 1997 and 2011) are separately included in the LFS dataset. We construct the three aggregate levels of education based on the correspondence between the old and new ISCED classification.

Source: Eurostat

The basic underlying model of our labour demand forecast is derived from an econometric model regressing employment on GDP by type of employment-education level. We differentiate employment by highest level of education attained. Different models are then run for both the aggregate economy and each economic sector, as well as by educational field. To investigate the relationship between employment and skill demand, we specify the following model(s):

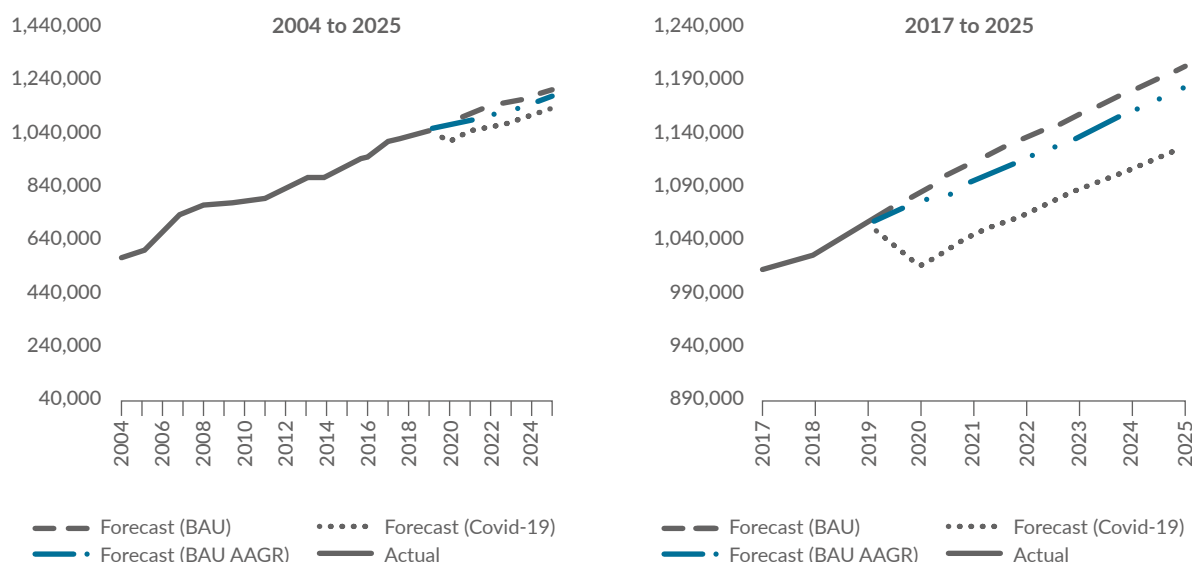
Where Y is employed individuals (working age 20-64) in industry i , with qualification j , and at time t ; GDP is at time t and in current prices and represents the skill demand of the Irish economy; ϵ_t is an error term at time t ; and α is a constant. The coefficients estimate the responsiveness of employment across education levels to the requirement of skills within an economic sector. A number of different specifications were tested, including variables for GDP one-off changes.

6.2 Labour demand projections for higher-level qualifications

In developing projections of labour demand for highly qualified workers, it is useful to consider a Business as Usual (BAU) scenario and a second scenario under which we account for the COVID-19 shock. A third scenario, BAU AAGR, has also been developed to show projections based on the estimated long-run growth rate for 2020-2025.

Figure 22 graphically illustrates the forecasts for high qualification labour demand under the three scenarios: BAU, BAU AAGR, and COVID-19. The figure on the left focuses on a longer time period (2004-2025), and demonstrates an increasing requirement from the Irish economy to fulfil its economic growth via workers whose highest education level attained is between NFQ Level 6 (excluding QQI Advanced Certificates) and Level 10. Under the COVID-19 scenario, the model predicts the aggregate demand for high qualifications to drop in 2020 by nearly 4%. High qualification labour demand is expected to recover in 2021, in line with predictions for a recovery of GDP, and increase at a long-run growth rate of around 2% in 2022. Across all three scenarios modelled, we estimate that between 1,130,000 and 1,200,000 total employees with high qualifications will be required in 2025.

43 See European Commission (2020a).

Figure 22. Aggregate labour demand forecast for high qualifications, 2004 to 2025 and 2017 to 2025

Note: Projections are based on the mid-range value of the growth rates reported under each scenario.

Source: Economic modelling by Indecon

For the years 2020-2025, our model estimates an expansion of between 12.15% and 15.41% in the demand for highly qualified workers in the BAU scenario (see Table 14). In the COVID-19 scenario, we estimate an initial reduction between -4.22% and -3.70% in high qualification labour demand, but then a rebound as GDP is expected to recover. Overall, forecast labour demand growth for high qualifications under COVID-19 is around seven percentage points lower than in the BAU scenario.

Table 14. Forecast of growth in labour demand for high qualifications, 2020 to 2025

Scenario		Year						Total over period
		2020	2021	2022	2023	2024	2025	
BAU	Variable growth rate	2.54%–3.03%	2.42%–2.91%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	12.15%–15.41%
BAU AAGR	Average growth rate	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	10.35%–13.56%
COVID-19	Variable growth rate	-4.22%–-3.70%	2.87%–3.36%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	1.65%–2.14%	5.21%–8.31%

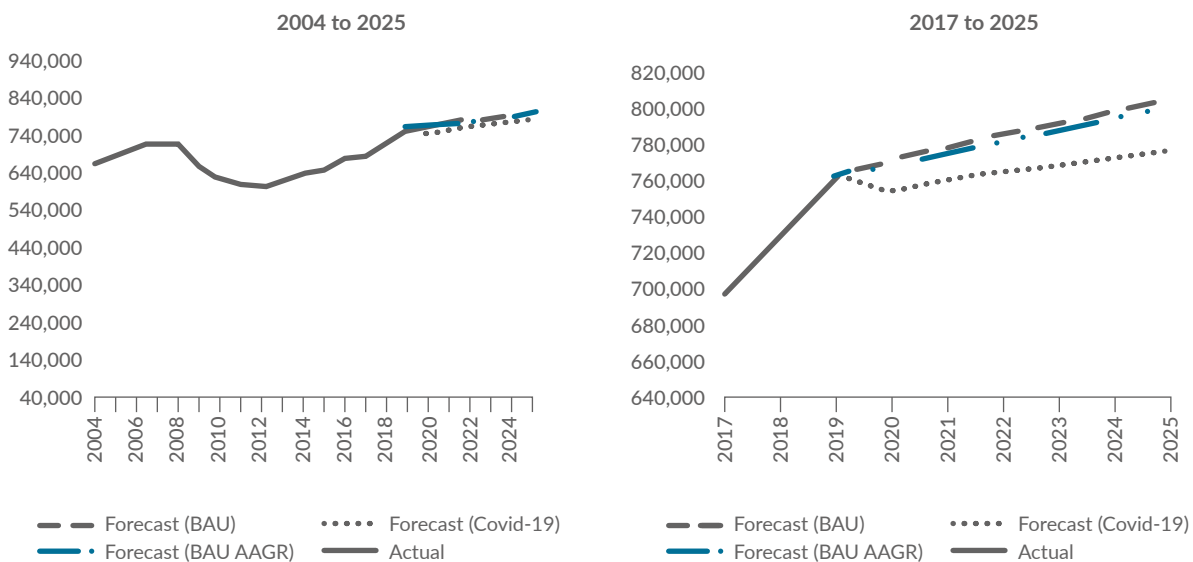
Note: Independent variable: GDP

Source: Economic modelling by Indecon

6.3 Labour demand projections for medium-level qualifications

Figure 23 presents the trend in the aggregate labour demand for medium qualifications, again under the BAU, BAU AAGR and COVID-19 scenarios. The figure on the left (for 2004-2025) again includes the historical trend, evidencing a severe decrease in the labour market demand for medium qualifications post-recession, and a rebound in 2014. The chart on the right presents our projections (for 2020-2025) where, unlike for high qualifications, we estimate a smaller increase over the forecast period. In 2025, we forecast a total of between 777,000 and 805,000 employed workers with medium qualifications under the COVID-19 scenario and BAU scenario, respectively.

Figure 23. Aggregate labour demand forecast for medium qualifications, 2004 to 2025 and 2017 to 2025



Note: Projections are based on the mid-range value of the growth rates reported under each scenario.
Source: Economic modelling by Indecon

Our modelling suggests that in 2020, labour demand for medium qualifications under the BAU scenario will slightly increase, by nearly 1% (see Table 15). Under the COVID-19 scenario, the initial impact is less severe for medium as opposed to high qualifications since the decrease is estimated to be slightly below -1%. The model suggests a return to a long-run growth of approximately 0.5%-0.6% per annum between 2022 and 2025. The total estimated increase between 2020 and 2025 equates to growth of between 3.40% and 4.15% under the BAU scenario, and between 1.52% and 2.26% under the COVID-19 scenario.

Table 15. Forecast of growth in labour demand for medium qualifications, 2020 to 2025

Scenario		Year						Total over period
		2020	2021	2022	2023	2024	2025	
BAU	Variable growth rate	0.74%–0.86%	0.70%–0.82%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	3.40%–4.15%
BAU AAGR	Average growth rate	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	2.91%–3.65%
COVID-19	Variable growth rate	-1.22% – -1.10%	0.83%–0.95%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	0.48%–0.60%	1.52%–2.26%

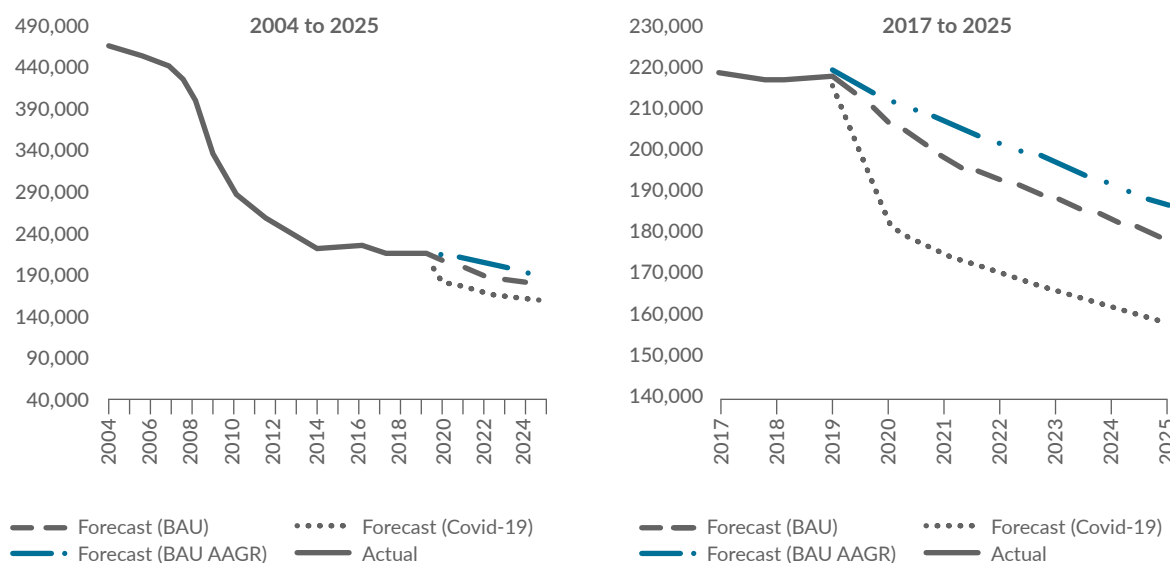
Note: Independent variable: GDP

Source: Economic modelling by Indecon

6.4 Labour demand projections for lower-level qualifications

Figure 24 presents the trend in aggregate labour demand for low qualifications, under the BAU, BAU AAGR, and COVID-19 scenarios. Again, the figure on the left includes a longer time frame (2004–2025), while the figure on the right focuses on the forecast period (2017–2025). Unlike high and medium qualifications, the long-run aggregate trend in the labour market demand for low qualifications is negative, and GDP growth is associated with a reduction in the number of low qualification jobs. Between 2009 and 2019, there was an approximate fall of 150,000 workers with low qualifications. From roughly 218,000 at the end of 2019, our models suggest a decline to approximately 179,000 workers by the end of 2025 in the BAU scenario.

Figure 24. Aggregate labour demand forecast for low qualifications, 2004 to 2025 and 2017 to 2025



Note: Projections are based on the mid-range value of the growth rates reported under each scenario.

Source: Economic modelling by Indecon

We use the same approach to predict the impact of COVID-19; however, the negative relationship between low qualifications and GDP growth indicates that a reduction in GDP due to COVID-19 would predict an increase in low skilled labour demand. For this reason, a separate method for low qualifications under COVID-19 was used. Specifically, we imposed a proportional reduction in low qualification labour demand as the one-year similar proportional impact relative to the 2008 recession. The range of growth rates presented in Table 16 suggests a decline of between -14.25% and -19.94% for low qualifications in the labour market under the BAU scenario, and a decline of between -25.94% and -30.99% under the COVID-19 scenario.

Table 16. Forecast of growth in labour demand for low qualifications, 2020 to 2025

Scenario		Year						
		2020	2021	2022	2023	2024	2025	Total over period
BAU	Variable growth rate	-3.33% – -4.44%	-3.17% – -4.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-14.25% – -19.94%
BAU AAGR	Average growth rate	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-12.32% – -18.12%
COVID-19	Variable growth rate	-16.00% – -17.11%	-3.76% – -4.87%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-2.17% – -3.28%	-25.94% – -30.99%

Note: Independent variable: GDP

Source: Economic modelling by Indecon

6.5 Summary of key findings

While there are inevitable difficulties in estimating future labour market demand for employees with different levels of qualifications, the econometric results suggest that all sectors show a positive relationship between economic growth and the demand for high qualifications, and a negative relationship between economic growth and the demand for low qualifications. The analysis further predicts that the shift in the sectoral mix of qualifications towards higher skills will continue during the post-COVID-19 economic recovery.

The impact of COVID-19 on the forecasts highlights how developments in the economy can quickly change skill requirements. This reinforces the importance of flexibility within the FET and HE systems. The move towards higher skills does not imply that increased numbers have to be accommodated within the HE system, as there is an important role for the FET sector in providing high and medium skills at Levels 5 and 6. Overall, the analysis suggests that FET and HE systems will need great flexibility to adjust to the expected changes in labour market requirements in order to avoid significant skill mismatches.

7. Emerging sectors and technologies

7.1 Impact of technological change on skill needs

Emerging industries come into existence with the creation of a new industrial value chain, or the radical reconfiguration of an existing one, driven by a disruptive idea or ideas. This leads to new products or services with higher added value, driving a high growth rate in the industries concerned, and further market potential⁴⁴. Technological change, and the increased reliance on that technology, can also result in changes in the skill needs within industries. Further, changing societal needs, such as the need to address climate change, are resulting in the emergence of new sectors and activities.

7.2 Skills requirements of internationally traded sectors

Ireland is one of the most open trading nations in the world, with a very high rate of engagement with international trade. The composition of Ireland's export base has also changed as Ireland transitioned from relatively low value-added operations in the 1990s to higher-end R&D, logistics, and management functions today. Ireland's economy is concentrated in a number of industrial sub-sectors, which in turn influences the nature of skills needs. These include pharmaceuticals and chemicals, medical devices, ICT/internet services, financial services, and business services.

The HE and FET sectors are critical in supporting the skill requirements of Ireland's internationally traded sectors. This also requires significant investment in training by firms in these sectors. Evidence examined for this report shows that export-orientated firms spend over €180m per annum on formal, structured training (see Table 17). Expenditure by Irish-owned exporting firms on formal training of their employees has increased over the last ten years, to almost match the expenditure of foreign-owned firms. There is also likely to be significant additional investment in training by employers in the non-exporting sectors of the Irish economy.

Table 17. Annual training expenditure of agency-supported firms in 2018, € million

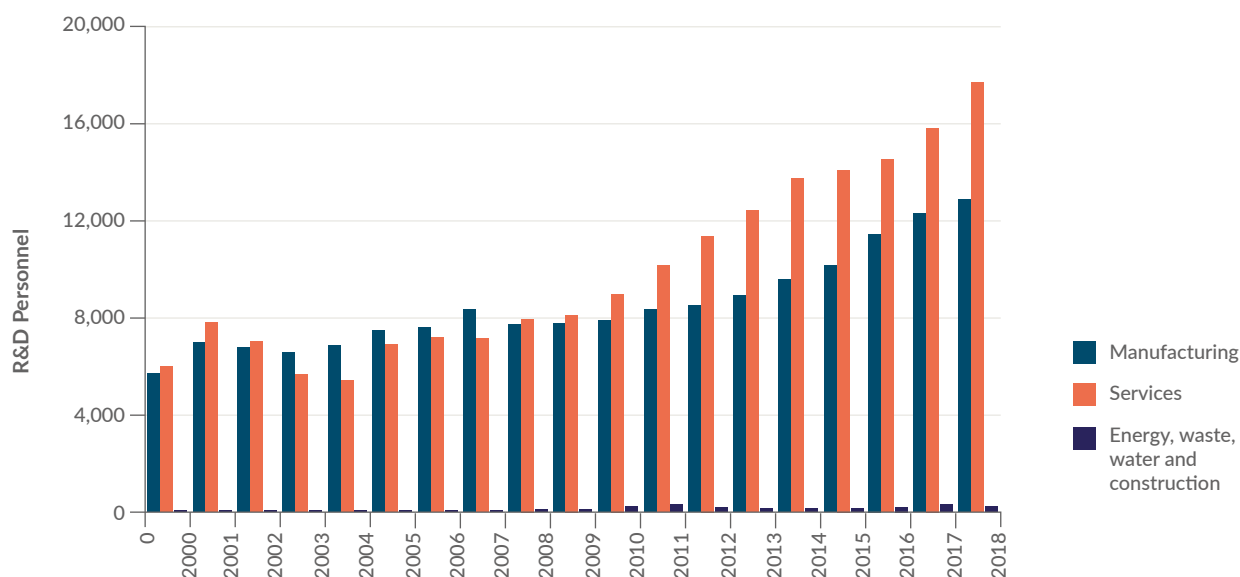
Sector	Indigenous firms	Foreign-owned firms	Total
Traditional manufacturing	31.2	4.9	36.1
Computer, electronic & optical products	2.3	6.2	8.5
Chemicals	1.8	17.5	19.4
Electrical equipment, machinery & misc. manufacturing	9.5	4.8	14.4
Medical device manufacturing	1.1	11.6	12.8
Energy, water, waste & construction	9.1	0.3	9.4
Computer services	12.7	38.4	51.0
Financial services	2.5	4.8	7.3
Business services	11.5	3.4	14.9
Other services	6.4	2.3	8.8
Total	88.2	94.4	182.5

Source: Annual Business Survey of Economic Impact

Ireland has become a major R&D centre for many indigenous and foreign-owned companies, and the availability of high-quality R&D skills is critical for this sector. In considering emerging sectors and technologies, Figure 25 shows the number of R&D personnel employed in exporting firms.

44 https://ec.europa.eu/growth/industry/policy/cluster/emerging-industries_en.

Figure 25. R&D employment of exporting firms by broad industrial area, 2000-2018



Source: Annual Business Survey of Economic Impact

7.3 Automation, digitisation, and Artificial Intelligence

Technological development has major implications for labour markets. Innovations such as automation and digitalisation drive productivity growth, increase revenues, generate new jobs, and thus can contribute to higher living standards⁴⁵. Increased automation and digitalisation are already having an impact on demand in the labour market. As a result of technology becoming increasingly embedded in business functions and processes, Cedefop skills forecasts for Ireland up to 2025⁴⁶ predict an increase in demand for high-level ICT skills (such as skills in cloud computing and big data analytics), as well as an increase in the demand for various other levels of ICT skills across all sectors. The European Skills and Jobs Survey highlights that 43% of adult employees have recently experienced changes in the technologies they use at work, and 47% saw changes in their working methods or practices as a result of technological changes⁴⁷. Berger and Frey (2016) suggest that advanced digital skills, mainly programming and coding, will soon become mandatory in many jobs.

The Expert Group on Future Skills Needs considered several emerging skills needs across the ICT sector, noting that ‘at the heart of the digital transformation trend is the blurring of the lines between ICT and business’⁴⁸. They noted the increasing pace at which AI/CS technologies are growing, which has created challenges in relation to acquiring workers with appropriate skillsets in this relatively new domain, with many organisations struggling to meet their demand for AI talent. The Future Jobs Ireland 2019 report suggested that with the ongoing movement towards automation and AI, it is necessary to maintain a workforce that will be able to adapt and respond adequately to the changes that technology will bring⁴⁹.

Given the importance of internationally traded sectors to the Irish economy, it is important to understand the potential impact of sectors which have high levels of AI adoption. Building on the findings by McKinsey Global Institute (2017) and others, we grouped internationally

45 OECD (2018a).

46 <http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/ireland-skills-forecasts-2025>

47 Cedefop (2018).

48 Expert Group on Future Skills Needs (2019).

49 Department of the Taoiseach and Department of Business, Enterprise and Innovation (2019).

Table 18. Employment in top AI adoption sectors in Ireland, 2019

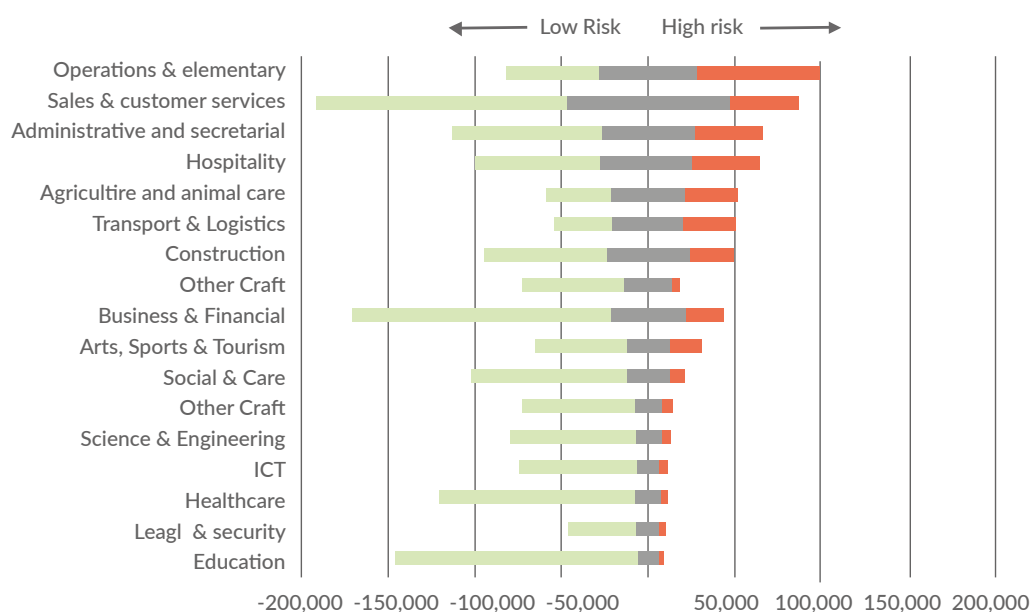
Sector	Employment (No.)	Employment (% supported by IDA, EI and Údarás)
High-Technology Manufacturing		
Chemicals	27,449	7%
Computer, Electronic, and Optical products	17,285	5%
Electrical equipment	6,120	2%
Machinery and equipment	13,560	4%
Transport equipment	5,160	1%
Medical Device Manufacturing	31,276	8%
Sub-total	100,850	27%
High-Technology Services and Telecommunication		
Publishing, Broadcasting & Telecommunication	8,021	2%
Computer Programming	33,140	9%
Computer Consultancy	31,475	8%
Computer Facilities Management	12,832	3%
Other IT and Computer Services	18,664	5%
Sub-total	104,132	28%
Financial and Business Services		
Financial Services	17,142	5%
Business Services	27,642	7%
Sub-total	44,784	12%
Total	249,766	66%

Source: Analysis of ABSEI database

In examining the impact of automation and artificial intelligence on future skills, it is important to consider two aspects. Firstly, the impact of automation on those with lower skills needs to be considered, as this has implications for the FET sector in helping impacted individuals to re-train for other occupations or for employment in other sectors. Secondly, it is important to consider the opportunities for the FET and HE sectors to facilitate the expansion in demand for those with medium and higher skills arising from the growth of internationally traded high-tech sectors in Ireland. There has been significant work done on the impact of automation on opportunities for those with lower skills. As less work has been undertaken on the labour market opportunities arising from AI and the implications for increased skill requirements in the economy, this is further considered later in this chapter.

The Irish Government Economic and Evaluation Service carried out an assessment on the impact of automation in Ireland in 2018, which was extended by SOLAS in 2020 to quantify occupations in Ireland in terms of their level of automation risk⁵⁰ (using the 16 occupational groups in the occupational employment profiles section of the National Skills Bulletin). These estimates were based on a methodology developed by Frey and Osbourne (2013) and the OECD (2018b). These in turn were based on a probabilistic model that depended on a two-by-two matrix, with routine versus non-routine tasks on one axis and manual versus non-manual tasks on the other (Autor et al., 2003). The estimates for Ireland show that around two in five workers are at high or medium risk of automation. Over 370,000 people in Ireland are estimated to be employed in occupations at high risk of automation, representing 15% of the working population. A further 600,000 were in jobs considered at medium risk of automation, representing a further 26% of the working population. This is illustrated in Figure 26.

50 See SOLAS (2020a).

Figure 26. Number of persons employed by occupational group and automation risk, 2019

Source: SOLAS/SLMRU analysis of CSO Labour Force Survey, Q4 2019

In assessing the employment and skills impacts of AI, it is important to note that AI is a different concept than automation. The application of AI is often driven by the handling of data requirements which are needed to facilitate innovation in new service areas. Automation, in contrast, involves the automation of repetitive tasks without human intervention. A recent study commissioned by the National Standards Authority of Ireland shows that almost 4 in 10 Irish companies currently use AI⁵¹. Moreover, the survey results suggest that more than half of businesses say that they plan to use AI in the next five years, while 82% believed that the development of standards in AI is important to their businesses. There has been a very fast growth in the AI capital stock in Ireland in recent years. Figure 27 presents the trend of employment for three broad sectors encompassing manufacturing and services that are identified as having high levels of AI adoption. The data shows that overall employment levels have grown strongly in internationally traded sectors with high levels of AI adoption.

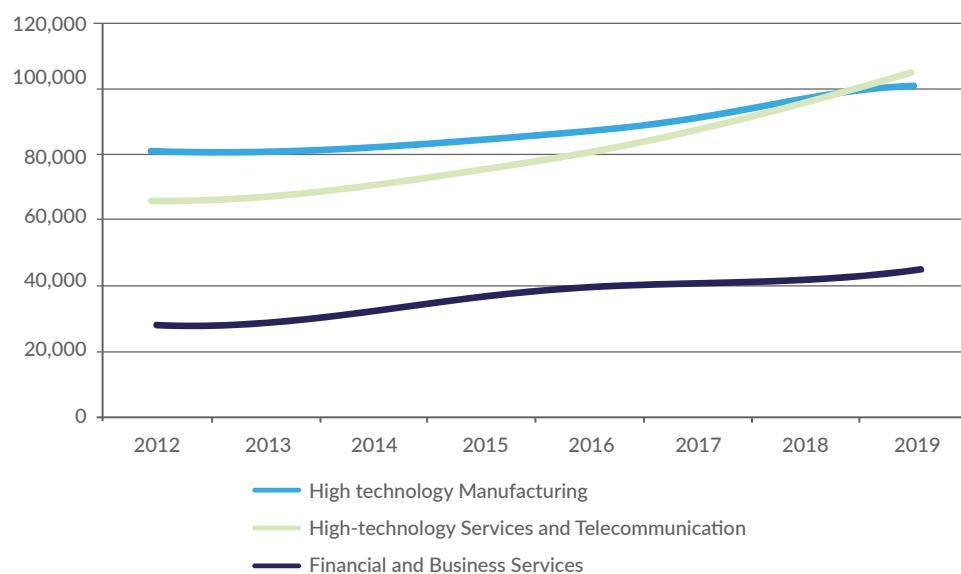
By potentially increasing productivity, AI and digitisation more widely impact the employment levels required to produce a given level of output⁵². In examining the likely skills and employment impact, it is useful to empirically model the relationship between labour productivity and the AI (and non-AI) capital stock⁵³. In order to inform the analysis, we completed new econometric modelling on this using panel data on total labour (hours worked), the real fixed capital stock for AI⁵⁴ and non-AI, and total output. The results of the economic modelling undertaken enable an estimation of the rate of change of the AI capital stock. The results of this regression are shown in Table 19. The marginal impact suggests a growth rate of the AI capital stock in Ireland of around 6.6%.

51 <https://www.adaptcentre.ie/news/four-in-ten-irish-companies-currently-use-artificial-intelligence-ai>

52 For example, see Brynjolfsson and McAfee (2014); Autor (2015); Frey and Osborne (2017); and Crowley and Doran (2019).

53 In this section, AI will be used as shorthand for AI/digitisation.

54 Taken as intangible fixed assets such as computer software, research and development, and other computing software as a proxy for AI capital, while the rest is taken as non-AI capital stock.

Figure 27. Employment in sectors with high AI adoption in Ireland, 2012 to 2019

Source: Analysis of ABSEI database

Table 19. Econometric results for the assessment of AI capital growth in Ireland

Variables	Log AI capital	Log AI capital	Marginal effects
Year	0.0470*** (0.0153)	0.0622*** (0.00240)	
Year*Ireland		-0.00102*** (0.00003)	0.0612*** (0.0024)
Constant	-84.47*** (30.70)	-114.4*** (4.802)	
Observations	432	432	
R-squared	0.022	0.985	
EU Other 25 interaction with Year		Yes	

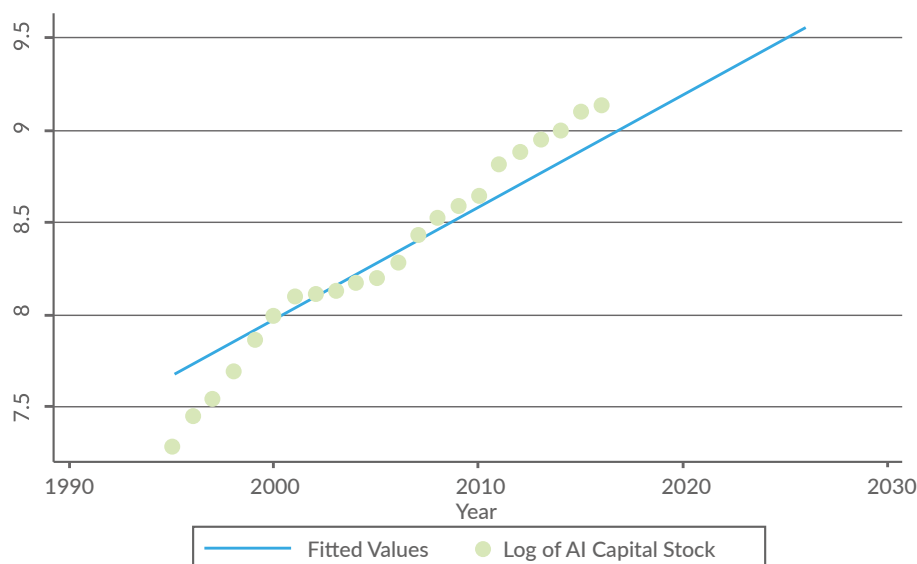
Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Marginal effect for AI stock time trend for Ireland: 0.0673-0.0010=0.0663.

Source: Analysis of EU KLEMS database

The estimated rate of growth of AI is used to obtain the trend of the AI capital stock for Ireland over time, keeping other things constant, as shown in Figure 28.

Our modelling also suggests that around 28% of the total growth in labour productivity in Ireland can be attributed to increases in the AI capital stock, as summarised in Table 20.

Figure 28. AI capital stock time trend in Ireland

Source: Analysis of EU KLEMS database

Table 20. Econometric results for the assessment of AI capital growth in Ireland

Rate/share of growth	%
Rate of growth in labour productivity attributable to growth in AI capital stock	1.59%
Rate of growth in labour productivity	5.60%
Share of growth in labour productivity attributable to growth in AI capital stock	28.32%

Source: Analysis of EU KLEMS database

7.4 Transitioning to a low carbon economy

In considering future skill requirements, it is also important to take account of the need to transition to a low carbon economy. Agenda 2030 and the Paris Agreement on climate change require a transformational shift of the world's economies and societies towards climate resilient and sustainable development. At European level, the European Green Deal provides a roadmap with actions to boost the efficient use of resources, with the intention that the EU is climate neutral by 2050. To do this, a European Climate Law is being proposed, which would turn this aspiration into a legal obligation and require a reform of all sectors of the European economy. This includes investing in environmentally friendly technologies; encouraging industry to innovate; rolling out cleaner, cheaper, and healthier forms of private and public transport; decarbonising the energy sector; and ensuring buildings are more energy efficient.

As signalled in the Climate Action Plan 2019⁵⁵, the Irish Government supports the adoption of a net zero target of carbon emissions by 2050 at EU and Ireland levels. The Climate Action Plan sets out a decarbonisation pathway to 2030, which would be consistent with the adoption of a net zero target in Ireland by 2050. The plan commits to evaluating in detail the changes which would be necessary in Ireland to achieve this target⁵⁶. The Government's Future Jobs Ireland framework⁵⁷ includes the challenge of transitioning to a low carbon economy as one of its five core pillars.

⁵⁵ Department of Communications, Climate Action and Environment (2019).

⁵⁶ Triple E Consulting (2014).

⁵⁷ Department of Business, Enterprise and Innovation (2019).

The transition to a more sustainable economy and society can result in changes in the number of workers in different occupations, and changes in the skills required for particular occupations⁵⁸. According to the European Commission, the climate and energy transition may require skills that are neither fully available in the current labour market, nor provided by the education system. Providing workers with the skills required will require investing in education and training⁵⁹. A specific example of achieving this transition is the Irish 'Just Transition Fund' for the Midlands, covering investment in retraining and reskilling and helping local communities and businesses adjust to the closure of the peat-burning plants in Shannonbridge and Lanesboro.

Evidence from European and developing countries indicates that the sectors that are most often included in adaptation strategies are infrastructure (including energy infrastructure), water (including flood-prevention measures), agriculture (including forestry, fisheries, and husbandry), biodiversity conservation, and health⁶⁰. A list of some of the occupations/skills that are most likely to be affected by the need to adapt the global economy to a more environmentally sustainable manner is provided in Table 21.

Table 21. Sectors and occupations with high relevance for climate change adaptation

Sectors	Occupations
Agriculture	Agricultural extension; control of plant disturbing organisms; organic agriculture; inspector of organic crop production; inspector of organic livestock production; agricultural engineer
Biodiversity & ecosystem services	Forest ecosystem controller
Built environment	Building of coastal protections; mechanical heating, ventilation and air conditioning systems; brownfield site redevelopment specialist; civil engineer; quantity surveyor; building inspector
Environmental protection & pollution treatment (carbon sinks, etc.)	Desulphurization and denitrification; forest protection and nature conservation; environmental manager; geologist; geophysicist; conservation scientist; environmental scientist; earth and soil scientist; air pollution analyst; environmental engineer; environmental impact and restoration analyst; prediction and modelling of climate change; climate change impact assessment and adaptation; CO2 capture, storage and, processing; treatment of non-CO2 GHG emissions; monitoring of harmful substances and purification of the environment
Forestry, husbandry and fishery	Food safety supervisor; forestry technical support personnel; forestry management unit; forest carbon inventory; rehabilitation & reclamation of forest & land; harvesting & storage of seeds of forest plants; watershed management; forestry counsellor; feed quality control; agricultural extension; control of plant disturbing organisms; organic agriculture; inspector of organic crop production; inspector of organic livestock production; brackish water aquaculture; marine safety officer
Public health	Environmental sanitation system planner; food safety supervisor; environmental and occupational health inspector
Transport	Transport manager; transport analyst; road transport manager; aeronautical engineer
Water management	Drinking water management; drinking water supply system operator; maintenance of production units for drinking water treatment; maintenance of water transmission and distribution units; water relief expert; water quality analyst; water treatment plant operator
Waste management (solid waste, electronic waste)	Waste collection and segregation; waste management planner; waste materials plant operator; recycling or rubbish collector; refuse sorter

Source: International Labour Organization (2018)

⁵⁸ International Labour Organisation (2015).

⁵⁹ European Commission (2020b).

⁶⁰ See International Labour Organization (2011 and 2015); and Triple E Consulting (2014).

The challenge of ensuring the right vocational skills to address climate change is recognised in the SOLAS Strategy for Further Education and Training⁶¹. For example, it notes that 'there should be a national roll-out of NZEB (near zero energy buildings) construction skills centres, programme development across all green skills areas should be ramped up, and curricula across all relevant apprenticeships and other FET programmes should be updated to embed a sustainable development focus'.

7.5 Summary of key findings

The evidence on the impact of emerging sectors and technologies on skills for certain skills in Ireland indicates that increased automation and digitisation will fundamentally change Ireland's labour market demand. This is reflected in the current demand for high-level ICT skills in cloud computing and big data analytics, as well as other areas. As set out in the OECD Economic Survey of Ireland 2020 "*technological change is transforming Ireland's economy, leading to new jobs and innovative products*".⁶² Nevertheless, the adoption of new technologies has been uneven across sectors.

The internationally traded sectors in Ireland which have the highest levels of AI adoption employ almost 250,000 workers. As highlighted by the results of the analysis summarised in Table 20 above, productivity is likely to grow as a result of the application of AI. This will reduce employment for any given level of output. However, the overall employment impact will depend on the extent to which AI facilitates the expansion of economic activity in the relevant sectors. A key contributing factor to the extent to which advancements in AI impact on employment will be the availability of the skills in the Irish labour market to take advantage of the new opportunities in those sectors experiencing the greatest increase in productivity from the application of AI. Also, of importance is that over 370,000 people in Ireland are estimated to be employed in occupations at high risk of automation, representing 15% of the working population and a further 600,000 were in jobs considered at medium risk of automation, or 26% of the working population. Lower skilled workers are more at risk of automation.

In addition to emerging technologies, the movement to a carbon-neutral economy will have a significant impact on skill needs. Climate adaptation programmes will require employment in medium- and low-skilled sectors, and training programmes will be needed to facilitate this development. The SOLAS Strategy for FET places emphasis on programme and curricula development to meet skills needs in this area.

61 See SOLAS (2020b).

62 Seitani and Westmore (2020). OECD Economics Department - <https://oecdecoscope.blog/2020/02/13/promoting-inclusive-growth-in-ireland-in-the-context-of-population-ageing-and-continued-technological-diffusion/>

8. Alignment of skills provision and existing labour demand

8.1 Skill mismatches

In examining the alignment of skills provision and existing labour demand, it is necessary to consider different concepts of skills mismatches, and various measurements of skills mismatches in Ireland. Table 22 outlines the various types of skills mismatch, including vertical **skills mismatch**, **horizontal skills mismatch**, and **skills shortages or gaps**. A vertical skills mismatch may be due to over- or under-qualification of the workforce when compared to market requirements. Horizontal mismatch relates to graduates who are employed in sectors that are not directly aligned with their field of study, which may lead to a wage penalty incurred by the graduate. There may also be difficulties in recruiting suitable graduates at market rates due to skills shortages or gaps.

Table 22. Different concepts of potential skills mismatches

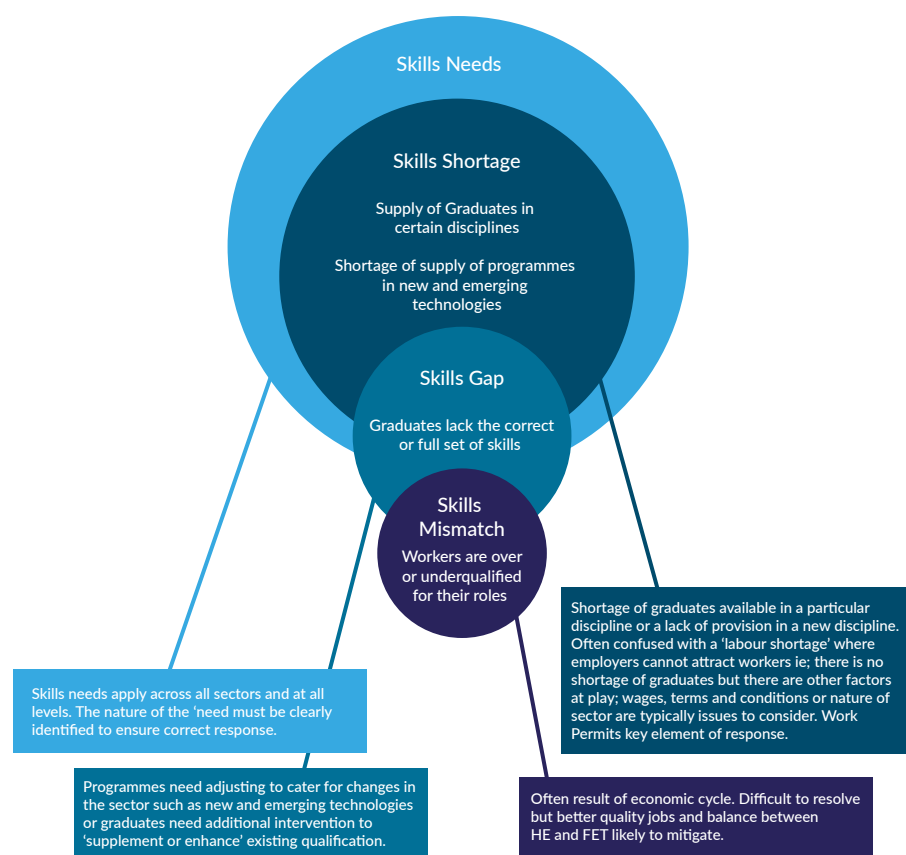
Concept	Implications
Vertical skills mismatch	
Over-education / over-skilling compared to market requirements	<ul style="list-style-type: none"> • Potentially suggests that level of education and training for some individuals is in excess of current requirements • Need to consider wider societal impacts • Critical to take account of future rather than existing demand • Underutilisation of human capital imposes substantial costs for employees and society
Under-education/ under-skilling compared to market requirements	<ul style="list-style-type: none"> • Has received less attention in empirical studies • Impacts on wage levels and probability of employment
Horizontal skills mismatch	
Graduates employed in occupations not directly related to principal field of study	Wage penalty compared to where field of study is matched, but there may be other determinants of wage differences
Skills shortages/skills gaps	
Difficulties in recruiting suitable graduates at market rates	<ul style="list-style-type: none"> • Skill gaps have impacts on economic output / productivity • Impacts on attractiveness of Ireland for investment

Source: Analysis by Indecon

Figure 29 shows the relationships between skills needs, shortages, gaps and mismatches, and outlines how these can be subsets of each other.

In evaluating skill mismatches, it is important to note the methodologies which are typically used to assess such mismatches (see Table 23). In some cases, there are deficiencies in the methodologies, and the findings can vary depending on the approaches used.

Figure 29. Relationship between skills needs, shortages, gaps, and mismatches



Source: Department of Further and Higher Education, Research, Innovation and Science

Table 23. Methodologies to measure skill mismatches

Concept	Implications
Vertical skills mismatch	
Over-education / over-skilling compared to market requirements	<ul style="list-style-type: none">• Subjective methods• Empirical methods comparing skills to mode or average skills• Job evaluation methods
Under-education/ under-skilling compared to market requirements	
Horizontal skills mismatch	
Graduates employed in occupations not directly related to principal field of study	<ul style="list-style-type: none">• Comparison of empirical data on employment and areas of study• Subjective methods
Skills shortages/skills gaps	
Difficulties in recruiting suitable graduates at market rates	<ul style="list-style-type: none">• Employee surveys• Employer surveys

Source: Analysis by Indecon

8.2 Macroeconomic skills mismatch

In considering skills mismatches, it is useful to compare Ireland to other EU Member States in relation to macroeconomic skills mismatch in terms of employment. The data in Figure 30 (based on work published by the European Commission (2019)) suggests that there are relatively high levels of macroeconomic skill mismatch in Ireland.

Figure 30. Comparison of macroeconomic skills mismatch in terms of employment (%) across EU member states, 2007 and 2017



Source: European Commission (2019)

The European Commission’s study further presents a measure of underqualification based on the number of low- and medium-qualified workers that hold a job for which they are unqualified, as a share of total employment (see Figure 31). This measure is based on the probability of a worker being underqualified, and the share of low and medium qualified workers in employment. Based on this information, Ireland’s level of underqualification decreased between 2007 and 2017.

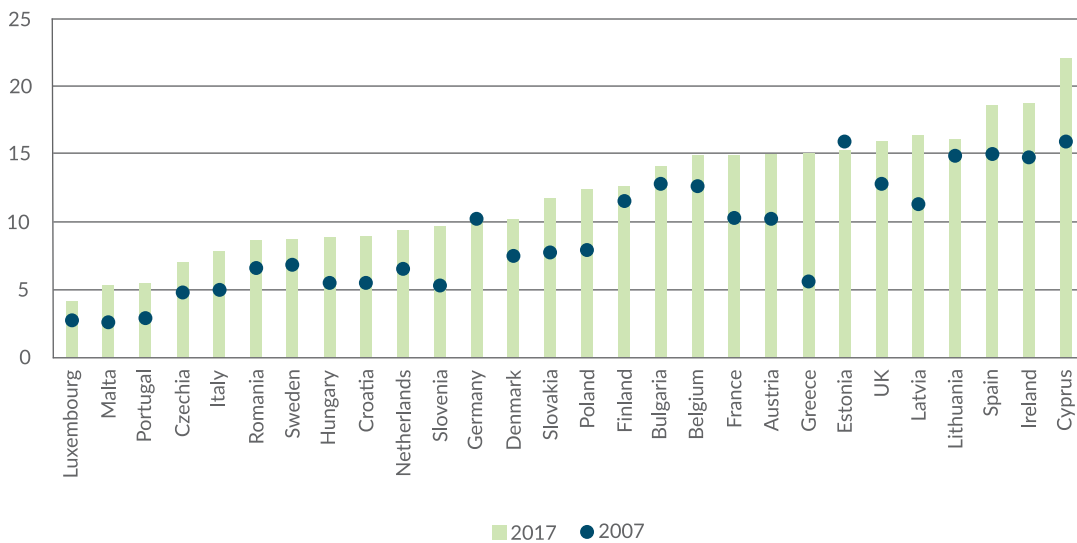
Figure 31. Underqualification as a percentage of total employment



Source: European Commission (2019)

A contrasting measure of overqualification (again as a share of employment) suggests that Ireland has a relatively high level of overqualification (see Figure 32). This measure is based on the probability of high- or medium-qualified workers being overqualified, and the share of high- and medium-qualified workers in total employment. It is, however, important to recognise the changing skill needs of the economy.

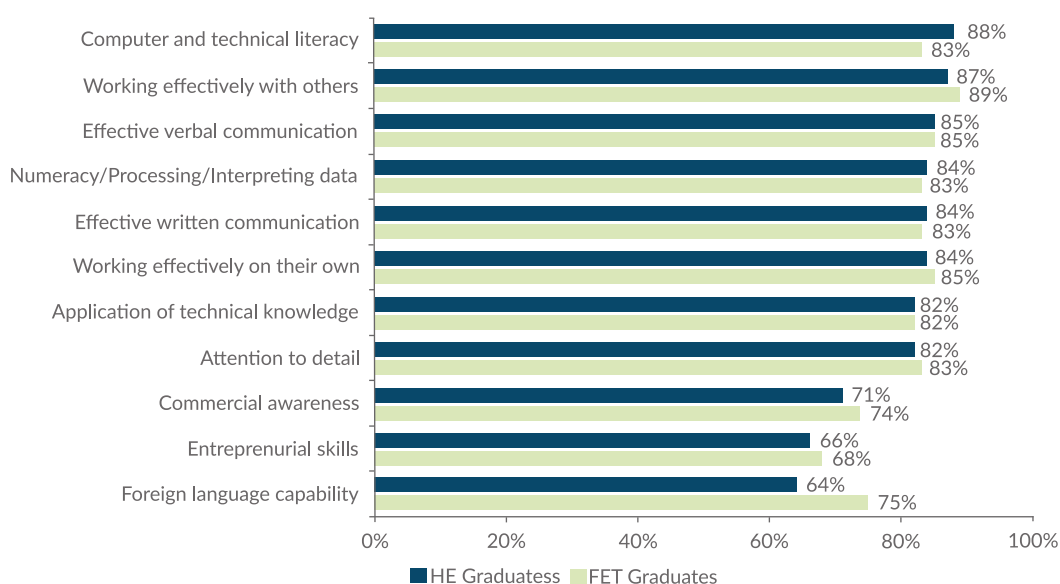
Figure 32. Overqualification as a percentage of total employment



Source: European Commission (2019)

The following figures, based on the Irish National Employer and Eurobarometer surveys, asked employers for their views on the skills of HE and FET graduates and their recent recruits, as well as the potential skills gaps in the future. The majority of employers were satisfied with both HE and FET graduates across a range of skills, including computer and technical literacy, working effectively with others, effective verbal communication, as well as other skills (see Figure 33).

Figure 33. Irish employers' satisfaction levels with the skills of HE and FET graduates



Source: Irish National Employer Survey (SOLAS, HEA, QQI and Fitzpatrick Associates (2019))

Irish employers are more satisfied with the HE graduates they recruited when compared to the rest of the EU (see Table 24). Whilst most employers indicated that they did not think that there were skills gaps in relation to HE or FET graduates either now or in the next three to five years, over one fifth indicated that there may be skills that are not currently available.

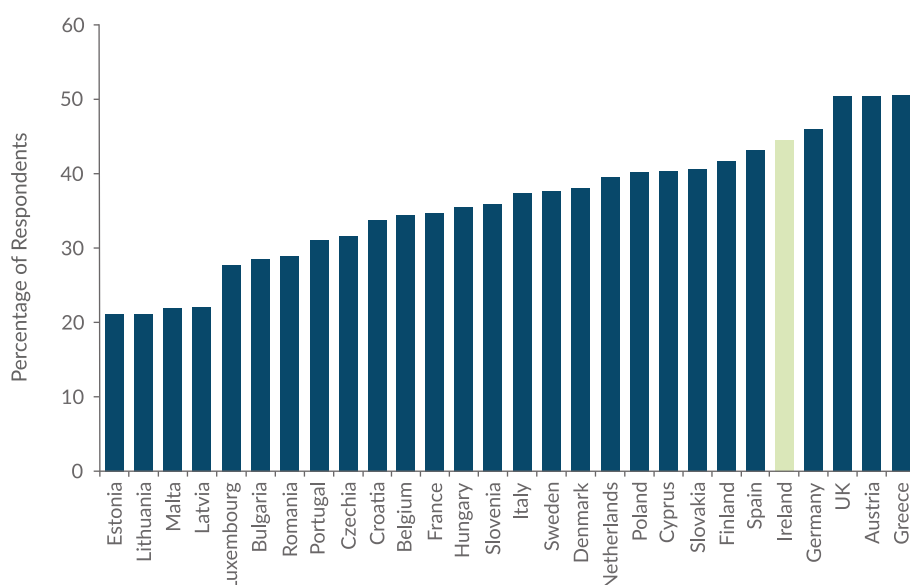
Table 24. Employer satisfaction with the skills of HE graduates recruited by their company in the last 3-5 years (Ireland and EU 27)

Skill	Ireland		EU 27	
	Very satisfied	Rather satisfied	Very satisfied	Rather satisfied
Good reading / writing skills	63.2%	34.6%	34.0%	59.4%
Good with numbers	48.9%	48.9%	28.5%	66.9%
Computer skills	58.9%	38.9%	38.3%	56.7%
Team-working skills	56.3%	41.0%	31.5%	61.7%
Communication skills	53.3%	43.4%	27.2%	62.0%
Analytical and problem-solving skills	48.3%	47.2%	24.3%	62.5%
Decision-making skills	38.9%	56.1%	19.5%	63.4%
Ability to adapt to and act in new situations	39.6%	54.4%	24.7%	63.4%
Planning and organisational skills	40.9%	52.5%	22.8%	64.0%
Sector specific skills	45.6%	47.4%	30.7%	59.4%
Foreign language skills	31.9%	54.9%	23.8%	59.4%

Source: Flash Eurobarometer 304: Employers' perception of graduate employability

The following figure shows that over 40% of employees (who responded to Cedefop's European Skills and Jobs Survey 2014) believe their skills to be above those required for their jobs (see Figure 34). This is one of the highest rates in the EU.

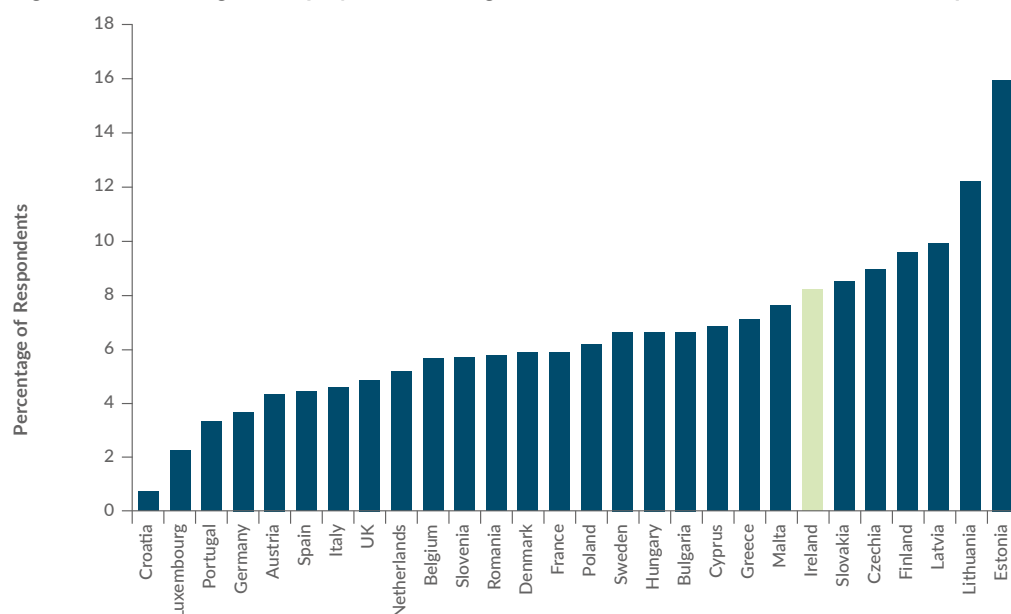
Figure 34. Percentage of employees indicating that their skills are above those required for their jobs



Source: Analysis of Cedefop European Skills and Jobs Survey 2014

As part of the same survey, when asked whether some of their skills were below those required for their jobs, less than 10% of respondents indicated that they felt that this was the case in Ireland (see Figure 35).

Figure 35. Percentage of employees indicating that some of their skills are below those required for their jobs



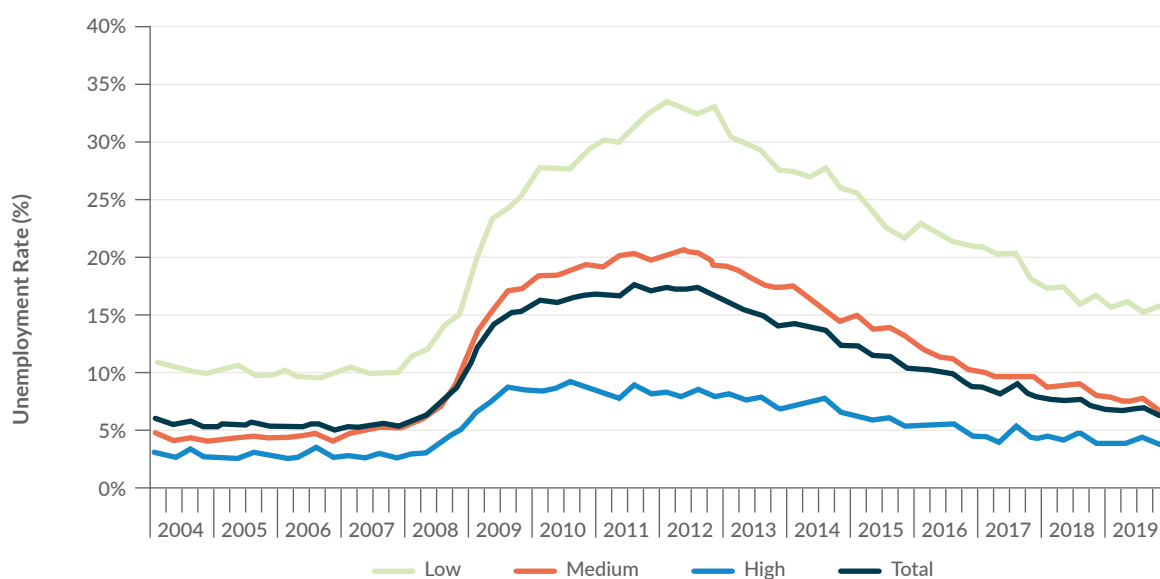
Source: Analysis of Cedefop European Skills and Jobs Survey 2014

8.3 Unemployment and participation rates

Figure 36 shows the trend in unemployment in Ireland across different education levels (low, medium, and high) since 2004. While there were increases in unemployment for each education level following the 2008 economic crisis, the increase in unemployment rates was most pronounced amongst those with lower education levels. Unemployment rates have remained below 10% for those with high qualifications in all quarters since 2004; in contrast, the unemployment rate among individuals with low education remained above 15% in 2019, following a peak of more than 30% in 2011 and 2012. The unemployment rate of those with medium qualifications was similar to the overall unemployment rate in the economy prior to the 2008 financial crisis, but moved slightly above it over the period of the crisis and the subsequent recovery.

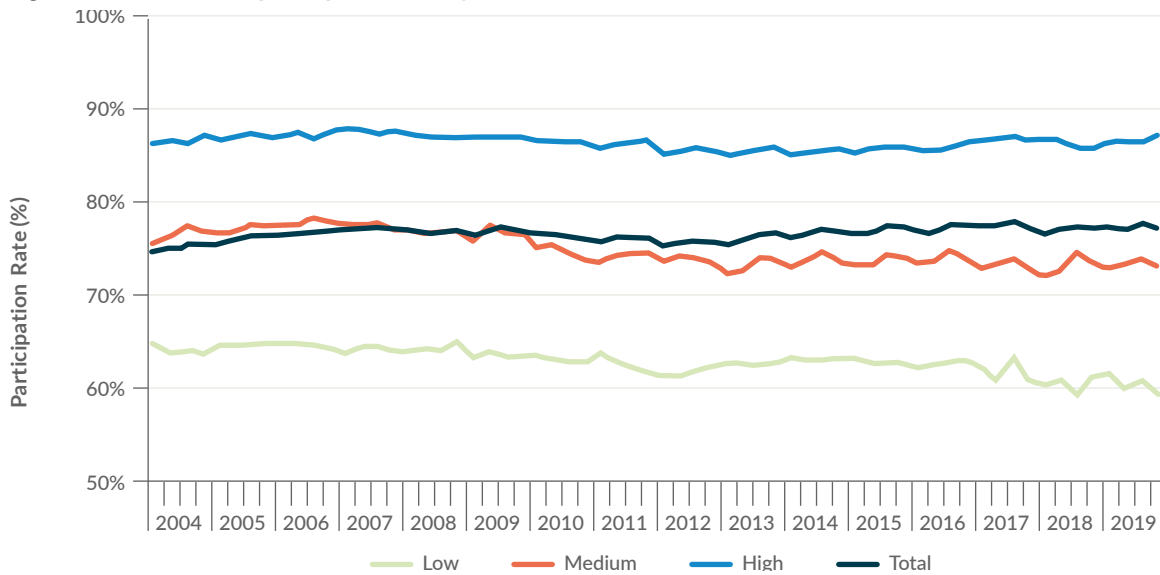
Considering the trend in labour participation across the different education levels (see Figure 37), those with high levels of education had the most stable labour participation rate between 2004 and 2019, with only a slight dip following the 2008 recession. Labour force participation amongst those with low levels of education has been trending downwards since 2004, falling below 60% in the last quarter of 2019.

Figure 36. Unemployment rate by education level, 2004 to 2019



Source: Analysis of CSO Labour Force Survey data

Figure 37. Labour force participation rate by education level, 2004 to 2019

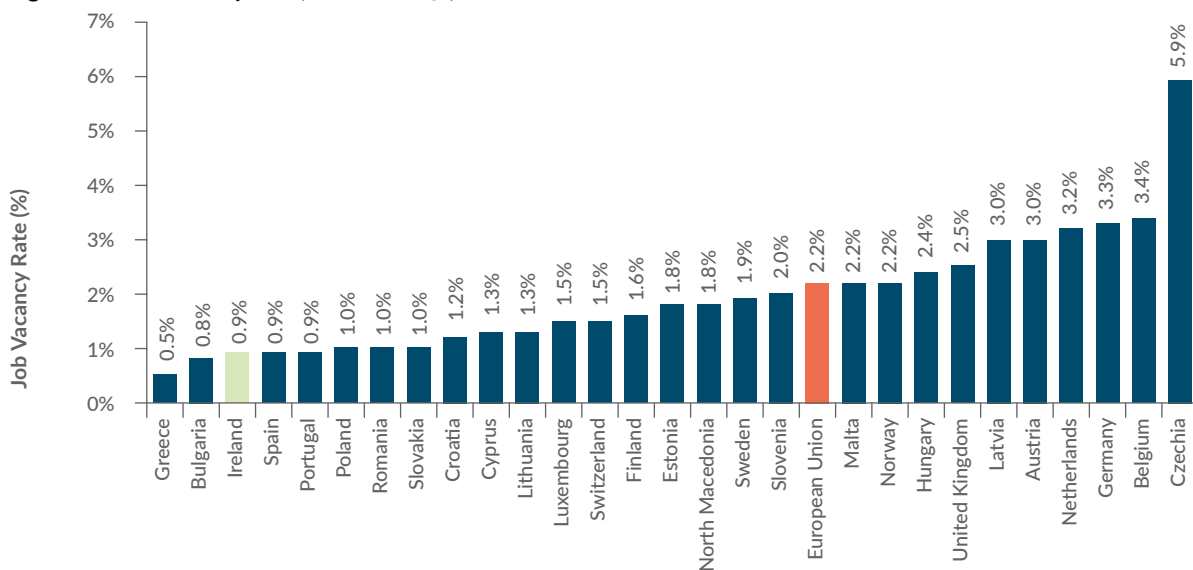


Source: Analysis of CSO Labour Force Survey data

8.4 Job vacancy rate

When compared with other EU Member States, prior to the COVID-19 pandemic, Ireland had one of the lowest job vacancy rates, standing at 0.9% in Q4 of 2019 (see Figure 38). This was less than half of the vacancy rate across the European Union as a whole (2.2%).

Figure 38. Job vacancy rate (% in 2019 Q4)



Source: Analysis of CSO Labour Force Survey data

8.5 Summary of key findings

Different concepts of skill misalignment are interlinked. While the empirical focus has been mainly on vertical skills mismatch (in terms of over-education) and horizontal skills mismatch, the policy focus has been on skills gaps. We also note that there has been relatively little emphasis on under-education in the empirical research⁶³. The methodological techniques used to measure skills mismatches have deficiencies, and alternative approaches often suggest different results. Alignment of skill provision with future demand rather than existing demand is of fundamental importance. There is, however, some evidence of macroeconomic skills mismatches in the Irish economy, as well as evidence that many graduates believe that they have skills that are higher than what is required by their current jobs. These findings have important implications for the planning and utilisation of human capital in the Irish economy including in relation to the size and composition of graduate output in HE and the balance with graduate output from FET as well as for the objectives of industrial and enterprise strategy in terms of the profile of employment in Ireland in particular given the rapid changes being experienced as a consequence of technological change. Responding to mismatches in terms of under-education is also of critical importance.

Job vacancy rates in Ireland prior to the COVID-19 pandemic stood at only 0.9%, compared to an EU average of 2.2%. This, combined with the satisfaction of Irish employers with HE and FET graduates' skills, suggests that the HE and FET systems have been successful in meeting current skill needs. There is, however, a challenge in responding to future skill requirements.

63 This was also highlighted in research by the ESRI (see McGuinness et al., 2017) and others.

9. Conclusions on skills demand and skills mismatches in Ireland

Table 25 presents the key conclusions of the detailed evidence examined on any mismatch between the qualifications and skills provided by the HE and FET systems in Ireland, and the skills demand of the Irish labour market

Table 25. Summary of conclusions on skills mismatches and skills demand in Ireland

1	Higher education and FET provision has in general been successful in meeting the skill and human capital requirements of Ireland's labour market.
2	There is evidence of some misalignment between the output of the HE and FET systems in terms of specific skills needed to meet future labour market requirements.
3	Effective pathways required between further and higher education remain underdeveloped.
4	Expected changes in future labour market demands will require continued and fundamental reform of the HE and FET system.
5	COVID-19 has had an unprecedented impact on job losses in labour intensive sectors, which has implications for the future model of HE and FET.
6	Significant intensification of employer engagement is required to address skills needs.
7	The HE sector faces major challenges in responding to changing labour market requirements and demographic changes, while maintaining quality and excellence.

Source: Analysis by Indecon

1. Higher education and FET provision has in general been successful in meeting the skill and human capital requirements of Ireland's labour market.

The Irish economy has in recent years been one of the fastest growing economies in the EU and has performed very well in per capita output. This could not have been achieved without the improvements in the labour force in which the Irish HE and FET systems played a key role. Very high levels of employment outcomes have been achieved by HE and FET graduates and there has been a strong income premium obtained by Irish higher education graduates. Employers have indicated high levels of satisfaction with the skills of HE and FET graduates which were much higher than the average for other EU countries. Job vacancy rates in Ireland, prior to the COVID-19 pandemic, have been among the lowest in Europe. Of note is that Ireland's open labour market has also played an important role in Ireland's economic performance, but the HE and FET sectors have been very successful in meeting skill requirements.

2. There is evidence of some misalignment between the output of the HE and FET system in terms of specific skills needed to meet future labour market requirements.

Despite Ireland's success in meeting skills needs, the research completed for this project shows that the percentage of employees who reported education or skill levels in excess of those required to do their job was higher in Ireland than in many other EU countries. The available evidence indicates a concern over the under-utilisation of human capital in the Irish economy. There is also evidence that some employees have higher qualifications than the average in their sector, and this may indicate some vertical mismatch. A significant percentage of graduates work in areas not directly related to their field of study, and such graduates secure lower incomes than if a horizontal match occurs. In addition, certain cohorts in the Irish labour market are under-skilled relative to future labour market needs.

3. Effective pathways required between further and higher education remain underdeveloped.

Irish higher education is very concentrated at the point of school leaving, and pathways between further and higher education remain underdeveloped. There has, however, been significant progress made in enhancing access pathways, but only a minority of school leavers who go directly to higher education come from the further education sector. In some parts of the HE system,

greater progress has been made, and around one-fifth of the annual intake of Institutes of Technology represent transitions from FET. Overall, progression from FET to HE requires significant additional policy focus. The action in the European Skills Agenda to develop a European approach to micro-credentials will be of value, and reforms to accelerate the development of effective pathways in Ireland should be supported.

4. Expected changes in future labour market demands will require continued and fundamental reform of the HE and FET system.

New modelling completed for this study demonstrates that the shift in labour demand towards higher skills is likely to continue and become stronger. Emerging sectors and technologies including AI will likely result in fewer jobs in low skilled sectors, but will open up opportunities for significant expansion in high skilled internationally traded sectors. There is an imperative for the entire education and training sector to respond proactively to the rapidly changing requirements in all sectors and new technologies. Substantial new opportunities also exist in sectors related to climate adaptation and new technologies. The scale and nature of future changes will require enhanced flexibility and responsiveness to change as part of the required reforms in the HE and FET systems.

5. COVID-19 has had an unprecedented impact on job losses in labour intensive sectors, which has implications for the future model of HE and FET.

Job losses have been concentrated in younger age cohorts with lower levels of educational qualifications in labour intensive sectors. The response to COVID-19 will require major adjustments in the mode of delivery of HE and FET to include greater utilisation of online/blended education and part-time options. This could build on the responsiveness evident to date in Irish educational and training institutions. While there is uncertainty of the impact of COVID-19 on the operation of the HE and FET sectors, there are likely to be constraints on the utilisation of existing facilities, and this will impact the ability to accommodate increased student numbers. Ways to ensure that the FET and other parts of the training and education sectors respond to the rise in youth employment are needed. The transition of workers from declining sectors into higher productivity growing occupations and sectors should be informed by the skills profile of workers in these sectors. This should build on the European Commission's recent youth employment and skills package.

6. Significant intensification of employer engagement is required to address skills needs.

Employers and employees currently play an important role in shaping and supporting the education and training sector. This report has examined quantitative evidence on the scale and growth of investment in training in Ireland's exporting sectors. This needs to be enhanced and mainstreamed to other sectors. This is aligned with the European Skills Agenda, which inter alia plans to promote the participation of social partners in labour market projects and the identification of training needs to develop skill intelligence. Current involvement by employers includes an important role in providing advice and information on existing and future skills and human capital requirements. Employers also play a critical role in offering work placements and apprenticeship opportunities that strengthen links between education and training and employment. Employer investment in training in internationally traded sectors has increased significantly, but ongoing investment in all sectors including SMEs is required.

7. The HE sector faces major challenges in responding to changing labour market requirements and demographic changes, while maintaining quality and excellence.

The long-term financial sustainability of Ireland's higher education system is at risk in view of projected demographic trends and the need to invest to enhance quality and excellence of HE provision in key areas such as teaching and learning and research. These challenges will be further exacerbated by demographic changes and the rapidly changing needs of the labour market with a continued strong shift towards higher skills. Emerging sectors and technologies will also result in a transformed environment for HE. COVID-19 has exacerbated challenges facing the sector, but also highlighted opportunities concerning digitalisation of the HE system and greater flexibility in delivery options.

PART II: **Comparison of different higher education funding options for Ireland**



10. Lessons from funding systems in other jurisdictions of relevance to Ireland

As part of the analysis of the Irish funding system and the different options proposed by the Cassells Review, we undertook an in-depth **review of international higher education fees and funding systems** to understand their potential strengths and weaknesses. In particular, given the three options proposed by the Cassells Review (whose overall composition and detailed underlying funding assumptions were agreed with the DFHERIS), we identified a number of higher education fees and funding approaches in jurisdictions (both within and outside the European Union) that were considered either:

- **Predominantly state-funded**, i.e. jurisdictions with no explicit tuition fees levied (or only notional tuition fees), possibly combined with a mixture of maintenance grants and loans to provide student support (e.g. **Sweden, Austria**, and to a lesser extent, **Scotland**), or
- **Hybrid models**, i.e. jurisdictions where institutions are funded through tuition fees that are either partially or entirely administered through the provision of loans alongside Exchequer-funded core grants paid to higher education institutions. This fee structure is combined with further maintenance grants and/or loans to support students during their studies (**England, Wales**, and to a lesser extent, **Northern Ireland**).

It is important to note that throughout this analysis, there are **significant differences** in the approaches adopted between the selected jurisdictions, but also *within* those jurisdictions in particular that have adopted income-contingent loan-backed fees and maintenance support (the hybrid model approach). These differences relate to the general **system-wide focus** (i.e. whether the primary focus relates to maintenance costs or tuition costs), the precise characteristics of funding (means-tested or universal grants and/or loans), but also the **eligibility and treatment** of different groups of students (i.e. level and mode of study).

Balancing the broad range of options contained in the Cassells Review, we also included an analysis of jurisdictions adopting a ‘predominantly state-funded’ approach (**Sweden and Austria**). This allowed for the identification of some important messages in respect of the coverage and sufficiency of higher education funding, the balance of contribution between the individual and the state, as well as some of the outcomes (both positive and negative) associated with predominantly state-funded and hybrid systems.

Consideration of the ‘whole’ higher education offer is critical⁶⁴. In particular, understanding the entirety of the different systems helps clarify not just how different higher education funding models currently operate in other countries, but also how they might operate in Ireland and reflect Irish priorities. This is particularly important given that approximately 40% of the overall Irish population aged between 15 and 64 have third-level education, which increases to approximately 55% amongst the 25 to 34 year old age group⁶⁵.

10.1 What is the definition of ‘predominantly state-funded’ higher education?

The definition of ‘predominantly state-funded’ needs to consider both the coverage – in terms of tuition fee support, maintenance support, and institutional funding – but also the level of funding across these dimensions. Jurisdictions that are predominantly state-funded (such as **Sweden** or **Austria**) make use of a range of different mechanisms to deliver substantial levels of taxpayer-funded fee and maintenance support to broad groups of students, as well as providing adequate levels of institutional funding.

⁶⁴ This section builds on a detailed analysis of relevant international practices for higher education funding undertaken in Deliverable 3.1 submitted as part of this study (see LE Europe (2020c)). While this section provides a summary of key findings, Deliverable 3.1 considers all elements of the higher education fees and funding arrangements in each of the relevant jurisdictions. In particular, some jurisdictions appear to be largely state-funded (for instance because there are no explicit tuition fees charged to specific groups of students); however, these same jurisdictions may offer only very limited maintenance support. In contrast, other jurisdictions considered in the analysis appear to be associated with a lower level of state funding as a result of high nominal tuition fees, but offer subsidised maintenance support to a broader population of prospective students (resulting in better access and social mobility outcomes).

⁶⁵ See Central Statistics Office (2019).

A number of jurisdictions (such as **Ireland** itself, as well as **Scotland**) *appear* to be ‘predominantly state-funded’; however, these systems offer state-subsidised (or free) tuition to some specific groups of students (for instance, full-time undergraduates) but not others (e.g. part-time or postgraduate students). Similarly, these jurisdictions offer only modest maintenance grants to small sections of the student body.

At the other end of the spectrum, a more market-orientated approach that offers a balance of contribution between the state and the individual has been adopted in **England, Wales, and Northern Ireland**.

10.2 Funding levels – what is the appropriate unit of resource?

The level of public investment in higher education institutions in Ireland has been lower in recent periods than in those jurisdictions operating a predominantly state-funded system (**Sweden** and **Austria**); jurisdictions adopting a ‘mixed-economy’ or hybrid approach (**Scotland** or **Northern Ireland**); or those jurisdictions operating a more ‘market orientated’ hybrid system (**Wales** or **England**). This assessment is based on the estimated costs of higher education delivery in Ireland undertaken by the Higher Education Authority⁶⁶; the historic level of funding that existed in Ireland before the financial crisis in 2008; and the level of comparable funding that occurs in some other state-funded jurisdictions. As a broad indication, the funding gap was estimated to be approximately €2,500 per student per annum; however, it is important to note that, since 2015, there has been a significant increase in higher education funding from the National Training Fund, with current expenditure increasing by almost 40% (or €570 million) to more than €2 billion in the five-year period 2015 to 2020. This increased funding has in part reversed the significant decline in public investment per undergraduate student in higher education that took place between 2008 and 2015.

10.3 Comparison of international fees and student support arrangements

10.3.1 Tuition fees

For full-time undergraduate students, higher education in Ireland is not entirely free at the point of entry for all students. Scotland, Austria and Sweden offer essentially free fees, while **Northern Ireland, Wales and England** offer loans to cover the entire tuition fee. In Ireland, the means-tested grant offered to offset the student contribution results in a proportion of prospective learners facing up-front direct costs of either €1,500 or €3,000 per annum (depending on their reckonable household income).

There is a **much more varied approach with respect to part-time undergraduate fees**. In **Scotland, Sweden and Austria**, part-time undergraduate students are treated comparably to full-time undergraduates, and charged no tuition fee. Part-time students are also treated comparably to full-time students in **England, Wales and Northern Ireland**, in the sense that tuition fees are levied – but supported by loans. In Ireland, there are key differences between the treatment of full-time and part-time students. Whereas full-time students receive an effective tuition fee grant as well as a means-tested grant to cover the student contribution, there is no corresponding fee support for part-time students.

10.3.2 Maintenance support

As with a number of other jurisdictions, maintenance grants constitute a key feature of undergraduate support in Ireland. Although the maximum grants available in Ireland are reasonably large in relative terms, in reality, based on the specific eligibility criteria and the means-testing applied, **the average level of grant is modest compared to the maintenance support provided in the other jurisdictions**. In addition, the eligibility criteria and means-testing of the grants are **relatively complicated** compared to other jurisdictions.

⁶⁶ See Higher Education Authority (2017a).

In general, across the other different jurisdictions assessed, there are government loans to cover students' living expenses; however, the structure and generosity of the loan systems varies significantly. In Ireland, there are no loans available for maintenance support for higher education students. As identified in the Cassells Review, given the costs associated with higher education participation, the relatively modest level of maintenance grants available to students in Ireland may act as a potential deterrent to HE participation.

10.4 Higher education fees and funding in Ireland – issues to consider

10.4.1 Availability and levels of maintenance support

The maintenance grant support available to full-time students in Ireland is limited (compared to other jurisdictions), and is unlikely to fully cover students' living costs. This may result in significant unintended consequences, such as excessive term-time working, less effort devoted to learning activity, and lower completion rates. In addition, the absence of adequate maintenance support may result in a number of prospective higher education students who have the ability to attend higher education being unable to do so, due to a lack of financial resources. This runs counter to the principle embodied in the Cassells Review, which indicated that any new higher education funding system should underpin access, participation and progression among all socio-economic groups.

10.4.2 General design of student support

The eligibility criteria and means-testing of maintenance grants and student contribution grants in Ireland could be reviewed. Instead of a 'cliff-edge' system, whereby students' eligibility for maintenance grants and student contribution grants declines in steep steps (from 100% to 75% etc.), a system that allows for gradual tapers might be considered. This would address a number of issues with respect to equity, but also remove any incentives to 'game' the current system. Furthermore, certain eligibility criteria for maintenance grants in Ireland are not only means-tested (with several additional household criteria), but dependent on the source of students' reckonable income. Therefore, a detailed review of student support arrangements should be undertaken.

10.4.3 General complexity

Ireland operates a relatively complicated system of higher education fees and student support compared to the other jurisdictions assessed. In particular, the existence of tuition fees paid by the State under the Free Fees Initiative alongside the student contribution, a number of different forms of maintenance support, as well as a range of different eligibility criteria have resulted in several layers of complexity. This is likely to leave the key users of the system – prospective students and their families – with information gaps. Irrespective of the final approach adopted in Ireland in respect of higher education fees and funding, examination should be given to implementing a more straightforward system.

10.4.4 Equity between part-time and full-time study

Unlike most other jurisdictions, in general, the Irish system provides no core financial support for part-time students⁶⁷ (comparable to full-time undergraduate students), and this important form of study could be more integrated into the higher education fees and student support planning frameworks. This is particularly given the increased focus on part-time flexible learning resulting from the COVID-19 pandemic, and the requirement to develop a culture of lifelong learning across the workforce in light of the accelerating pace of technological change impacting on employment. There are some jurisdictions (such as Wales) that have made significant strides in placing part-time (and postgraduate) education on the same footing as traditional full-time undergraduate study, and consideration might be given as to how this was achieved.

⁶⁷ Some support for part-time students is provided for those who are unemployed, lone parents or individuals with a disability.

10.5 Lessons from other jurisdictions of relevance to Ireland

With the general expansion of higher education participation, all jurisdictions considered have faced similar issues in respect of the delivery of higher education, but also in respect of providing sufficient support to an ever-increasing pool of students.

In response to the challenge, all jurisdictions have adopted very different responses⁶⁸. Whereas **Sweden** and **Austria** (and **Scotland** to a lesser extent) have retained or implemented a predominantly state-funded approach, **England** and **Wales** (and to a lesser extent **Northern Ireland**) have moved towards the provision of loans for tuition fees and maintenance. There have been **mixed results**, and there are **many lessons to be learnt from the different approaches**:

- **Higher education is costly – and the cost must fall between the general taxpayer and those who may directly benefit from higher education including graduates and employers.** As such, there will be **trade-offs** between the level and breadth of funding available to support students with the costs of attending higher education.
- **There is no single best practice approach to higher education tuition fees and student support.** All systems have both advantages and disadvantages. Some jurisdictions charge low or negligible tuition fees to prospective students but combine this with modest maintenance support, making access to higher education a significant challenge for prospective students from less well-off backgrounds (often with limited coverage in terms of part-time and postgraduate students). Other jurisdictions have attempted to remedy this access problem through the offer of loans for fees and/or maintenance costs, but this significantly increases the complexity of HE funding, and can result in large loan balances and long-lasting loan repayment burdens for graduates.
- Those jurisdictions that are predominantly state-funded (such as **Sweden** or **Austria**) make use of a range of different mechanisms to deliver substantial levels of taxpayer-funded fee and maintenance support to broad groups of students, as well as providing high levels of institutional funding. In addition to the coverage of these systems, it is important to consider the adequacy of funding across these mechanisms. There is often a **trade-off between extent to which any higher education system is predominantly state-funded and the adequacy of the public funding available, given other priorities for government spending**.
- **Considering those jurisdictions that offer student loans, it is important to differentiate between the principle of student loans and their application in practice.** The general intention of the provision of student loans is to share the cost of higher education between the beneficiaries of higher education (i.e. students/ graduates, many of whom achieve a substantial permanent income premium relative to those who do not obtain higher education qualifications), and the general taxpayer. However, in practice, income-contingent loan repayment systems have often been implemented poorly.
- **Irrespective of the types of student support provided, within reason, the student support system needs to be relatively straightforward and understandable** – to both prospective students and those administering the system. Although higher education fees and funding systems will necessarily be complicated in places, the complexity and inflexibility of some systems has been unnecessarily increased due to a number of piecemeal changes made over time. Any higher education fees and student support system needs to be developed with the long-term goals of the nation in mind – but also relatively straightforward and easily communicated.
- **Language and information are important:**
 - » Describing higher education ‘quality’ in terms of simple measures such as contact hours, staff-student ratios, or through the lens of league tables has resulted in higher education becoming commoditised or transactional, rather than being a key driver of economic growth and wellbeing.
 - » In general, there is a lack of clarity in respect of higher education fees and funding. Providing students and their families with **accurate information** on the range of public student support measures available, who *currently* pays for higher education, the potential *balance of contributions* under alternative funding systems, where the actual costs of higher education are incurred, what the *benefits* are, and who receives those benefits, is hugely important. This is of particular importance in ensuring students and their families are better informed in the choices they make in terms of participation in higher education programmes.

⁶⁸ Again, see Deliverable 3.1 (LE Europe (2020c)) for information on the current funding approaches in all jurisdictions of interest, as well as more in-depth country specific case studies on the evolution of higher education fees and funding in England, Wales and Scotland.

- **Unintended consequences:** There may be **unintended long-term consequences** associated with any changes to the existing funding arrangements in Ireland that need to be considered. Changing the balance of contribution may result in students becoming 'consumers', which may come at a significant cost for higher education institutions, but also has consequences on staff wellbeing. Similarly, changes in funding arrangements may not help support greater collaboration within and between institutions in Ireland. Therefore, any potential amendments to the Irish system need to be clearly and carefully communicated to the wide range of stakeholders in higher education in Ireland. It is vital that the financial consequences of any possible changes (in terms of the costs to relevant stakeholders) are fully assessed and considered prior to implementation.
- **Need for reform:** Given the issues facing the sustainability of funding for higher education in Ireland, and the very high levels of participation in the higher education sector, reforms will be required. These are needed to ensure value for money and the most effective use of resources, which was a key theme discussed in the Cassells Review. The Cassells Review also highlighted the ongoing requirement for carefully monitoring and regulating costs, as well as a continuing drive for greater efficiency and effectiveness in the use of resources⁶⁹. The reforms will be needed regardless of the funding method chosen. In addition, the reforms will require the need for flexibility in the higher education sector to adjust to the skills needs of the economy, and to the implications arising from the COVID-19 pandemic (including those identified by the National Skills Council).

⁶⁹ The Cassells Review suggested that greater accountability could be facilitated by a more systematic approach to the timely collection and publication of data on the higher education cost base, to allow for a meaningful comparison and benchmarking of costs across the sector.

11. Overview of higher education funding options considered

In this section, we outline the types and coverage of funding provided under the current Irish HE funding system, as well as each of the three alternative systems proposed by the Cassells Review. The Cassells Review itself⁷⁰ provided only relatively limited information on the exact specification of its proposed funding options. As a result, in addition to the current (Baseline) funding system, we agreed with the DFHERIS the overall composition and detailed underlying funding assumptions for three consolidated scenarios to be analysed (see Table 26):

- **The current funding regime, for students who entered higher education in Ireland in the 2019-20 academic year (Baseline):**

The Baseline system currently offers a range of different types of grant funding to support students with their fee costs⁷¹, as well as (means-tested) maintenance grants to help with students' living costs⁷². This **fee and maintenance support is predominantly provided for undergraduate full-time students only**. The Exchequer further supports institutions' delivery through the block grant funding allocated to HEIs by the Higher Education Authority (e.g. to support the delivery of high-cost subjects (through its Recurrent Grant Allocation Model (RGAM)), or through additional 'top-slices' for specific activities)⁷³. This funding also includes an allocation to HEIs to cover the costs of the **Free Fees Initiative**, through which the Exchequer currently funds the tuition fees for a large number of (full-time undergraduate) students. Finally, following the recommendations made by the Cassells Review⁷⁴, employers indirectly contribute to the funding of the HE system through an increase in the National Training Fund (NTF) levy to support the public funds available for higher education provision;

- **The predominantly state-funded system (Option 1 of the Cassells Review):**

Option 1 involves **the abolition of tuition fees and student contribution charges**⁷⁵, alongside a significant **increase in HEA block grant funding provided to institutions** to compensate for the loss in fee income, but also to increase the total level of resource available to institutions as compared to the current (Baseline) level. In addition, under Option 1 (as well as Options 2 and 3), there would be an **increase in the level of standard and special maintenance grants offered** to support students with their living costs, as well as an **extension of these grants to part-time and postgraduate**⁷⁶ students⁷⁷;

70 Again, see Expert Group on Future Funding for Higher Education (2016).

71 Note that there are two specific types of fee grant currently provided to (undergraduate full-time) students that have been excluded from the analysis. Specifically, the model does not take account of the tuition fee element and the field trip element of the fee grant. Based on our conversations with the DFHE, and information provided by Student Universal Support Ireland (SUSI), the annual funding provided through these elements is relatively small, and is only provided to students in relatively exceptional cases. As a result, it was agreed that these fee grant elements would not be included in the model, so that the analysis would instead focus on the student contribution element of the fee grant only (as this constitutes the core type of fee grant, provided to the vast majority of students).

72 Note that, while the different types of fee support grants are available to both Irish and EU domiciled students studying in Ireland, maintenance grants are available to Irish domiciled students only.

73 The HEA funding included in our model relates to any funding that is targeted at directly supporting institutions' higher education teaching delivery. Specifically, following detailed conversations with the HEA, this funding includes the RGAM core grant itself, as well as several additional Department-directed, strategic or university/Institute of Technology top-slices that are specifically provided to support institutions' teaching costs (see Deliverable 2.1 (LE Europe, 2020a) for more information).

74 i.e. this recommendation of the Cassells Review has already been implemented in the current Baseline system.

75 Though we assume that other levies (typically covering administrative costs, also referred to as 'capitation levies' by some institutions) would continue to be charged at the same level as in the current system, where applicable.

76 Under the current system, the standard maintenance grants are only available to undergraduate full-time students, while both undergraduate and postgraduate full-time students have access to the special maintenance grants (for students from households with very low reckonable income). Under each of the three options proposed by the Cassells Review, both the (enhanced) standard and special rate maintenance grants would be available to undergraduate and postgraduate students undertaking qualifications on a full-time or part-time basis.

77 Based on conversations with the DFHE, we further assume an increase in the maximum reckonable income thresholds below which students are eligible for funding, for both the standard and special maintenance grants. For standard maintenance grants, given the fact that these income thresholds have not been increased since 2013, we have uprated all thresholds based on the growth in average weekly earnings in Industries B to E (Production, transport, craft and other manual workers) between 2013 (Q2) and 2019 (Q2) (based on data from the Central Statistics Office (2020)). For special maintenance grants, we have instead uprated the threshold from €24,000 to €24,500, in line with the recent increase in the threshold for 2020-21.

- **An increase in state funding alongside continuing fees (Option 2):**

Under this option, fees would continue to be charged, **but the Free Fees Initiative and the (means-tested) student contribution grants would be extended to cover all students**^{78,79}. In other words, under Option 2, the fee funding currently only available to undergraduate full-time students would be extended to part-time and postgraduate students. As in Option 1, there would also be an **increase in the level and coverage of maintenance grants** as well as an **increase in HEA block grant funding** to align the resources available to HEIs more closely with the cost of delivery, historical benchmarks, and the jurisdictions with predominantly state-funded HE systems; and

- **An increase in state funding combined with increased student contributions backed by income-contingent loans (Option 3):**

This option would involve the same fee regime as Option 2, but with the student **contribution raised to €5,000 per full-time student per year** (and pro-rata for part-time students). As with Option 2, **all students' tuition fees would be covered by the Free Fees Initiative**; however, instead of means-tested grants covering the (higher) student contribution charge, students would be eligible for **means-tested, income-contingent student contribution loans**⁸⁰. Again, this option would also include an **increase in the level and coverage of maintenance grants**. Finally, this option would also incorporate an increase in the HEA block grant (to align the resources available to HEIs more closely with the cost of delivery, historical benchmarks, and the jurisdictions with predominantly and adequately state-funded HE systems). However, the required increase would be relatively modest compared to Option 2, given that HEIs would also receive additional resources from the assumed increase in the student contribution charge⁸¹.

As intended by the Cassells Review, each of these alternative options would result in the **same (higher) total funding for higher education**, but with each option using different funding mechanisms to achieve this (resulting in different distributions of the cost of funding each system between the Exchequer and students/graduates).

78 Including undergraduate full-time students (as in the Baseline) as well as postgraduate and part-time students.

79 We would thus assume that, in contrast to the current system (where only undergraduate full-time students' fees include a student contribution charge), all students' fees would be split into a tuition fee element, a student contribution charge (of €3,000 per full-time student) and other levies (where applicable). Specifically, in instances where the average Baseline tuition fee per student per year is larger than €3,000 (for full-time students, and pro-rata for part-time students), we assume that, under Option 2, students would be charged a student contribution of €3,000 per year, and a new tuition fee of [Baseline tuition fee minus €3,000]. In instances where the Baseline tuition fee was smaller than €3,000 (and pro-rata for part-time students), we instead assume that the entire amount of Baseline fee would be converted into a student contribution charge element (with associated grant funding available) under Option 2. See Deliverable 2.1 (LE Europe, 2020a) for a more detailed discussion of the assumptions in relation to fees.

80 These student contribution loans are relatively complex to model, as they necessitate the inclusion of post-graduation earnings and employment forecasts over graduates' lifetimes, as well as a range of different loan repayment conditions within the model. The Cassells Review did not specify any of the loan repayment conditions underlying Option 3, and our model has been set up flexibly so that these assumptions can straightforwardly be varied. Based on previous conversations with the DFHE, the core assumptions used in the model include repayment of loans at 8% of earnings above €27,000 per year (with this threshold increasing with annual average earnings growth); 0% real interest charged during study; 0% real interest charged post-graduation if earnings are less than €27,000, and 2% if earnings exceed this threshold (which again increases with annual average earnings growth). We further assume that full-time students become liable to start repaying their loans in the year post-graduation (with actual repayments only required if their income exceeds the above threshold); part-time students become liable for repayment 3 years after enrolling or post-graduation (whichever comes first); and that any outstanding loan balance is written off 30 years after this repayment due date. Full details of the modelling approach are provided in Deliverable 2.1 (see LE Europe, 2020a).

81 In other words, given that the student contribution charge per (full-time) student in Option 3 would be €2,000 higher than in Option 2 (€5,000 rather than €3,000), the assumed HEA grant per (full-time) student would be €2,000 lower.

Table 26. Overview of key funding scenarios modelled for Ireland

Type of funding	Baseline (current system)	Option 1: Predominantly state-funded	Option 2: Increased state funding with continuing fees	Option 3: Increased state funding with income-contingent loans
Fees (tuition fees, student contribution charge & other levies)	Fees charged to all students UG FT fees include €3,000 student contribution charge. This charge does not apply to UG PT, PG FT or PG PT students (i.e. these students are charged only a tuition fee and other levies (as applicable)).	Zero tuition fees and student contribution charges for all students Other levies charged at same level as in Baseline	Fees charged to all students All students (at all levels and modes) are charged a student contribution of €3,000 (pro-rata for PT), with FFI covering tuition fees.	Fees charged to all students All students (at all levels and modes) are charged a student contribution charge of €5,000 (pro-rata for PT), with FFI covering tuition fees. Tuition fees are the same as in Option 2 – so that the total fee increases for all students.
Free Fees Initiative (FFI)	For UG FT students only (covering tuition fee element)	- (zero fees)	Extended to all students (covering tuition fee element)	Extended to all students (covering tuition fee element)
Student contribution element of fee grant	UG FT students only (covering student contribution charge)	- (zero fees) Extended to all students (covering student contribution charge)	- (replaced by loan)	
Student contribution loan	-	-	-	Maximum of €5,000 (pro-rata for PT) for all students (non-means-tested) €27,000 repayment threshold (increasing with annual earnings growth); 8% repayment rate on income above threshold; 0% real interest during study, 0% or 2% real interest after (depending on income); loan write-off 30 years post-grad./ after repayment due date ¹
PG fee contribution (standard rate)²	PG FT students only	- (zero fees)	- (all students funded through FFI)	- (all students funded through FFI)
PG fee contribution (special rate)²	PG FT students only	- (zero fees)	- (all students funded through FFI)	- (all students funded through FFI)
Standard rate maintenance grant	UG FT students from Ireland only	Increased grant levels, extended to cover UG PT, PG FT and PG PT students from Ireland (pro-rata basis for PT students)		
Special rate maintenance grant	UG FT and PG FT students from Ireland only	Increased grant levels, extended to cover UG PT and PG PT students from Ireland (pro-rata basis for PT students)		
Core recurrent HEA grant	Current funding per student per year. All students.	Increase in funding to: - Compensate for lost HEI income from abolition of tuition fees and student contribution charges - Align funding more closely with costs of institutional delivery, historic benchmarks, and jurisdictions operating predominantly state-funded systems	Increase in funding to align more closely with costs of institutional delivery, historic benchmarks, and jurisdictions operating predominantly state-funded systems	Increase in funding to align more closely with costs of institutional delivery, historic benchmarks, and jurisdictions operating predominantly state-funded systems (net of the additional HEI income arising from the higher student contribution charge)
Employer funding (through NTF)	Current funding per student per year ³ . All students.	Same as baseline		

Note: 1. The analysis assumes that full-time students first become liable to repay their loan (depending on their income) in the year post-graduation. For part-time students, the model assumes that these students become liable to repay their loan 3 years after they first enrolled, or in the year post-graduation – whichever comes first. 2. Postgraduate fee contributions are also referred to as postgraduate fee contribution grants, or postgraduate fee grants. 3. The Cassells Review's recommendation of collecting employer funding for higher education through the National Training Fund has already been implemented. Therefore, this type of funding is included in the Baseline system modelled here (and is assumed to be provided at the same level in each of the alternative funding scenarios).

Source: LE Europe, based on proposals put forward by the Cassells Review (see Expert Group on Future Funding for Higher Education (2016)) and conversations with the DFHERIS

12. Lessons from funding systems in other jurisdictions of relevance to Ireland

As outlined in Section 11, the current HE funding system in Ireland offers a variety of different types of publicly funded grants to support students with their fee costs – predominantly through the Free Fees Initiative (a non-means tested tuition fee grant), but also through means-tested grants to cover the student contribution. In addition, the system offers means-tested maintenance grants to help with students' living costs. This fee and maintenance support is predominantly provided to full-time undergraduate students only. The Exchequer further supports institutions' delivery through the block grant funding allocated to HEIs by the Higher Education Authority (e.g. to support the delivery of high-cost subjects, or through additional 'top-slices' for specific activities⁸²). Finally, following the recommendations made by the Cassells Review (i.e. this recommendation has already been implemented), employers indirectly contribute to the funding of the HE system through an increase in the National Training Fund levy to support the public funds available for higher education provision.

To assess the economic costs of the current system (in terms of the resource flows between students, the Exchequer, HEIs, and employers) and its macroeconomic impacts, in this section, we analyse:

- The **total costs/resource flows associated with the 2019-20 student cohort** (over the cohort's entire study duration, and adjusted for students' continuation/completion rates in each academic year), separately by stakeholder, as well as the **total funding provided through the system**; and
- The **macroeconomic impacts** associated with the public funding provided to students in the cohort on the National Accounts, in terms of the effect on the General Government Balance and General Government Net Debt⁸³.

While this section outlines these estimates for the current (Baseline) funding system, Sections 13, 14 and 15 provide the corresponding estimates for each of the three Cassells options (and are structured in a similar manner).

12.1 Total costs/resource flows by stakeholder

The following presents the estimated total resource flows associated with the cohort of students commencing higher education qualifications in Ireland in 2019-20. The analysis includes both Irish and EU domiciled students⁸⁴ in the cohort enrolled at Irish universities, Institutes of Technology, and colleges, undertaking qualifications leading to major awards at undergraduate or postgraduate level, on either a full-time or part-time basis. In addition, note that the resource flows (in terms of different stakeholders' costs/receipts) are all estimated over the cohort's entire expected duration of study, adjusted for students' continuation/completion rates in each academic year, and **discounted to net present values (NPV) and presented in constant 2019-20 prices**⁸⁵.

12.1.1 Students

As presented in Table 27, the total net cost to students within the 2019-20 cohort of students (over the entire study period) stands at **€600 million** (or **37%** of the total system-wide resource costs of **€1,641 million** (see Table 31)). Of this total, approximately **€433 million** is incurred by full-time undergraduate students, **€29 million** by part-time undergraduates, **€85 million** by full-time postgraduates, and **€53 million** by part-time postgraduates.

82 The HEA funding also includes an allocation to HEIs to cover the costs of tuition fee grants under the Free Fees initiative.

83 In considering the economic costs and macroeconomic impacts of each funding system, it is important to note that – while not modelled here – the Exchequer also benefits from graduates' tax contributions (based on their lifetime earnings achieved after completing their HE qualifications; e.g. see Indecon (2019)). In addition, the enhanced skills arising from participation in higher education are important for the attraction of international investment to the Irish economy.

84 Note that non-EU students have been excluded from the analysis, since these students do not receive any public student support from SUSI, and only a relatively small proportion (in terms of non-EU postgraduate research students) are covered by the Higher Education Authority's recurrent grant funding paid to higher education institutions.

85 To convert values in cash terms and current prices into net present value terms in constant (2019-20) prices, we used nominal discount rates of 4%+HICP inflation for the first 30 years (from 2019-20 onwards), and 3.5%+HICP inflation thereafter (based on the standard real discount rates recommended by the Public Spending Code (Department of Public Expenditure and Reform (2019), plus inflation (to convert into constant 2019-20 prices)).

In terms of the components of this cost, the cost of the total (notional) fees charged⁸⁶ amounts to **€720 million** (made up of **€390 million** in tuition fees, **€314 million** in student contribution charges, and **€16 million** in other levies or capitation charges⁸⁷). Given the composition of the cohort⁸⁸, the majority of these fee costs are associated with full-time undergraduate students (**€612 million**), with a further **€11 million**, **€62 million** and **€35 million** associated with part-time undergraduate, full-time postgraduate and part-time postgraduate students, respectively.

Against these notional fee costs, the fee support provided by the Exchequer was estimated at **€434 million**. Given the current eligibility rules, this funding was largely concentrated amongst full-time undergraduate students, with **€429 million** of this support accrued by full-time undergraduates (**€285 million** associated with the Free Fees Initiative and **€144 million** associated with means-tested student contribution grants). In addition, full-time postgraduate students receive approximately **€5 million** in fee support through postgraduate fee contributions⁸⁹ (split roughly evenly between the standard and special rate of grant). In other words, under the current funding system, almost **99%** of government fee support is directed towards full-time undergraduate students.

Table 27. Total student resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices - Baseline

Type of funding	UG FT	UG PT	PG FT	PG PT	Total
Tuition fees	(€285m)	(€11m)	(€60m)	(€33m)	(€390m)
Student contributions	(€314m)	-	-	-	(€314m)
Other levies	(€12m)	(€0m)	(€2m)	(€2m)	(€16m)
Total notional fee costs	(€612m)	(€11m)	(€62m)	(€35m)	(€720m)
Free Fees Initiative	€285m	-	-	-	€285m
Student contribution grants	€144m	-	-	-	€144m
PG fee contributions - standard	-	-	€2m	-	€2m
PG fee contributions - special	-	-	€3m	-	€3m
Total fee support	€429m	-	€5m	-	€434m
Maintenance costs	(€362m)	(€17m)	(€31m)	(€18m)	(€428m)
Maintenance grants - standard	€59m	-	-	-	€59m
Maintenance grants - special	€53m	-	€2m	-	€55m
Total maintenance support	€112m	-	€2m	-	€114m
Total	(€433m)	(€29m)	(€85m)	(€53m)	(€600m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.

Source: LE Europe analysis

86 i.e. this refers to notional fee costs before the receipt of any public fee support provided by the Exchequer.

87 Other levies, also referred to as 'capitation levies' by some institutions, typically cover administrative costs.

88 i.e. driven by the fact that approximately 71% of students who started higher education qualifications in 2019-20 were undertaking full-time undergraduate qualifications. Please see Deliverable 2.1 for more information on the characteristics of the cohort.

89 Postgraduate fee contributions are also referred to as postgraduate fee contribution grants, or postgraduate fee grants.

In terms of living costs, the analysis estimates that the total cost of maintenance associated with the cohort stands at **€428 million** (of which **€362 million** is associated with full-time undergraduate students⁹⁰). In terms of financial support for these maintenance costs, the analysis estimates that the Exchequer cost associated with the maintenance grant support provided to students in the cohort stands at approximately **€114 million** (of which **€59 million** is associated with standard maintenance grants for undergraduate students, **€53 million** is associated with special maintenance grants for undergraduate students, and **€2 million** is associated with special maintenance grants for postgraduate students). Mirroring the above findings in relation to public fee support, approximately **98%** of government maintenance support is currently received by full-time undergraduate students.

12.1.2 Exchequer

Table 28 presents the comparable results for the net cost of the current HE funding system associated with the 2019-20 cohort from the Exchequer perspective.

Table 28. Total Exchequer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices - Baseline

Type of funding	UG FT	UG PT	PG FT	PG PT	Total
Free Fees Initiative	(€285m)	-	-	-	(€285m)
Student contribution grants	(€144m)	-	-	-	(€144m)
PG fee contributions - standard	-	-	(€2m)	-	(€2m)
PG fee contributions - special	-	-	(€3m)	-	(€3m)
Total fee support	(€429m)	-	(€5m)	-	(€434m)
Maintenance grants - standard	(€59m)	-	-	-	(€59m)
Maintenance grants - special	(€53m)	-	(€2m)	-	(€55m)
Maintenance loan write-off	-	-	-	-	-
Total maintenance support	(€112m)	-	(€2m)	-	(€114m)
HEA grants	(€412m)	(€23m)	(€36m)	(€22m)	(€493m)
NTF funding from employers	€85m	€7m	€9m	€9m	€109m
Total	(€868m)	(€16m)	(€35m)	(€13m)	(€932m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.

Source: LE Europe analysis

In relation to fee support, mirroring the above receipts to students (presented in Table 27), the Exchequer cost associated with the funding for the 2019-20 cohort was estimated at **€434 million**. Similarly, reflecting students' above-discussed maintenance funding receipts, the analysis indicates that the Exchequer cost of maintenance funding for the cohort stands at approximately

⁹⁰ The Cassells Review proposed 'an increase in the value of maintenance payments to better reflect living costs'. To model the average maintenance costs per student, we assume that the average maintenance grants provided under the different alternative funding options exactly equal the living costs incurred by students. In other words, the assumed average maintenance costs per student per year is based on the average (standard plus special rate) estimated maintenance grants that would be provided under each of the Cassells Review's options (1 to 3). As a result, for Irish domiciled students, the estimated aggregate living costs associated with the 2019-20 cohort is exactly offset by the maintenance grants provided under each of the Cassells Review options (see Sections 13, 14, and 15). For more information on these assumptions, see Deliverable 2.1 (LE Europe, 2020a).

€114 million (of which **€59 million** is associated with standard maintenance grants and **€55 million** is associated with special maintenance grants (to the least well-off students)).

In terms of institutional support, the Exchequer contributes approximately **€493 million** per cohort in block grants via the Higher Education Authority, of which **€412 million** is associated with full-time undergraduate students (**84%** of total). The remaining **€81 million** is allocated to support the teaching of part-time undergraduate students (**€23 million**), full-time postgraduates (**€36 million**), and part-time postgraduates (**€22 million**).

Finally, the Exchequer receives an estimated **€109 million** of dedicated funding for higher education per cohort from employers through contributions to the National Training Fund.

In total, the net Exchequer cost associated with the 2019-20 cohort of students stands at approximately **€932 million**. This constitutes approximately **57%** of the total system-wide funding associated with the cohort (**€1,641 million**, presented in Table 31).

12.1.3 Higher education institutions

The total funding received by higher education institutions associated with the cohort stands at **€1,213 million** (see Table 29). In terms of the components of this funding, approximately **€390 million** of this income is generated through tuition fees, while a further **€314 million** is generated through student contributions, and **€16 million** is generated through other (e.g. capitation) levies on students. The remaining **€493 million** in funding is received through block grants from the Higher Education Authority. Again, the majority of these resources is associated with undergraduate full-time students (**€1,023 million**, or **84%** of the total).

Table 29. Total HEI resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices - Baseline

Type of funding	UG FT	UG PT	PG FT	PG PT	Total
Tuition fees	€285m	€11m	€60m	€33m	€390m
Student contributions	€314m	-	-	-	€314m
Other levies	€12m	€0m	€2m	€2m	€16m
Total fee income	€612m	€11m	€62m	€35m	€720m
HEA grants	€412m	€23m	€36m	€22m	€493m
Total	€1,023m	€34m	€98m	€57m	€1,213m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.
Source: LE Europe analysis

12.1.4 Employers

As outlined above, employers contribute to the cost of the Irish higher education system through their contributions to the National Training Fund levy, which, following the recommendations of the Cassells Review, has increased by **0.3 percentage points** to support the available Exchequer funding of HE programmes. Mirroring the above-discussed Exchequer receipts of this funding, the total NTF employer levy funding associated with the 2019-20 cohort was estimated at approximately €109 million (see Table 30).

Table 30. Total employer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices - Baseline

	UG FT	UG PT	PG FT	PG PT	Total
NTF funding from employers	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)
Total	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.
Source: LE Europe analysis

12.1.5 Total cost of funding the system

Table 31 presents the aggregate resource flows associated with the cohort of students commencing higher education qualifications in Ireland in 2019-20. Of the **€1,641 million** total cost of funding higher education (institutions and students)⁹¹, approximately **€932 million** is provided by the Exchequer (57%), compared to **€600 million** covered by students (37%), and the remaining **€109 million** funded by employers (7%).

In terms of the resource flows associated with different groups of students, the analysis suggests that the Exchequer contributes **63%** of the total costs of higher education for full-time undergraduate students. Given that the public student support for fees and maintenance is currently large available to full-time undergraduate students only, this compares to **31%** for part-time undergraduate students, **27%** for full-time postgraduate students, and **18%** for part-time postgraduate students.

Table 31. Total funding for higher education (by study level and mode), net present values in constant 2019-20 prices - Baseline

Stakeholder	UG FT	UG PT	PG FT	PG PT	Total
€ million					
Exchequer	€868m	€16m	€35m	€13m	€932m
Higher education institutions*	-	-	-	-	-
Students	€433m	€29m	€85m	€53m	€600m
Employers	€85m	€7m	€9m	€9m	€109m
Total	€1,385m	€52m	€129m	€75m	€1,641m
% of total					
Exchequer	63%	31%	27%	18%	57%
Higher education institutions*	-	-	-	-	-
Students	31%	55%	66%	71%	37%
Employers	6%	14%	7%	12%	7%
Total	100%	100%	100%	100%	100%

Note: * HEIs do not contribute to the cost of the higher education system funding system, but instead are net receivers of funds from students and the Exchequer. All monetary estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding.
Source: LE Europe analysis

91 This is calculated by adding the total net costs of the HE funding system to students (Table 27), the Exchequer (Table 28) and employers (Table 30).

12.2 Macroeconomic impacts

The above analysis of the current funding system concentrated on the resource flows between the Exchequer, employers, students, and higher education institutions. Another key aspect of the analysis was to model the macroeconomic impacts of the current and proposed higher education funding systems on the Irish National Accounts, including the impact on:

- The level of **public deficit/surplus** – in terms of the **General Government Balance** (i.e. the balance of Government income and expenditure accrued per year). Within the calculation of this measure, government expenditure pushes the General Government Balance into **deficit**, while government revenue pushes the General Government Balance into **surplus**; and
- The level of **public debt** – in terms of **General Government Net Debt** (i.e. the (cumulative) stock of liabilities minus assets in a given year). To identify the impact on this measure, we assume that higher education funding is essentially financed through borrowing (with the exception of NTF levy receipts). In calculating this measure, government expenditure results in an **increase** in General Government Net Debt (as a liability adding to Government borrowing), while government revenue **reduces** General Government Net Debt (as an asset). General Government Net Debt is a cumulative measure, and, under the Baseline (as well as under Cassells Options 1 and 2⁹²), it equals the negative of the cumulative sum of the annual General Government Balance.

Note that, in contrast to the above-described resource flows between the relevant stakeholders of interest (which are expressed in NPV terms in constant 2019-20 prices), the impact of the different HE funding systems on the public deficit/surplus and public debt in each year⁹³ is measured in **(undiscounted) cash terms and current prices**⁹⁴.

12.2.1 Impact on the General Government Balance

In Figure 39, we present the impact of the current higher education fees and funding regime in Ireland on the General Government Balance, in each year over the duration of the 2019-20 cohort's study duration.

The analysis indicates that the current system of higher education fees and funding results in a deficit in the General Government Balance of **€359 million** in 2019-20, **€316 million** in 2020-21, and **€285 million** in 2021-22 (alongside some small additional deficits in subsequent years associated with programmes of a relatively longer duration (e.g. part-time study)). The different deficit impacts over time reflect the fact that the number of students in the cohort undertaking higher education in each year declines – both because of students' completion of programmes (with a noticeable break after three years, based on the average study duration for full-time Honours Degrees), as well as any non-continuation.

⁹² See Sections 13.2 and 14.2, respectively.

⁹³ Note that, in line with the rest of the analysis, the macroeconomic impacts of the different higher education funding systems on the Irish National Accounts are measured per academic year, rather than per fiscal year.

⁹⁴ For more information on the calculation of the General Government Balance and General Government Net Debt, please refer to Deliverable 2.1.

Figure 39. Impact of the HE funding system on the General Government Balance (current prices in cash terms) – Baseline

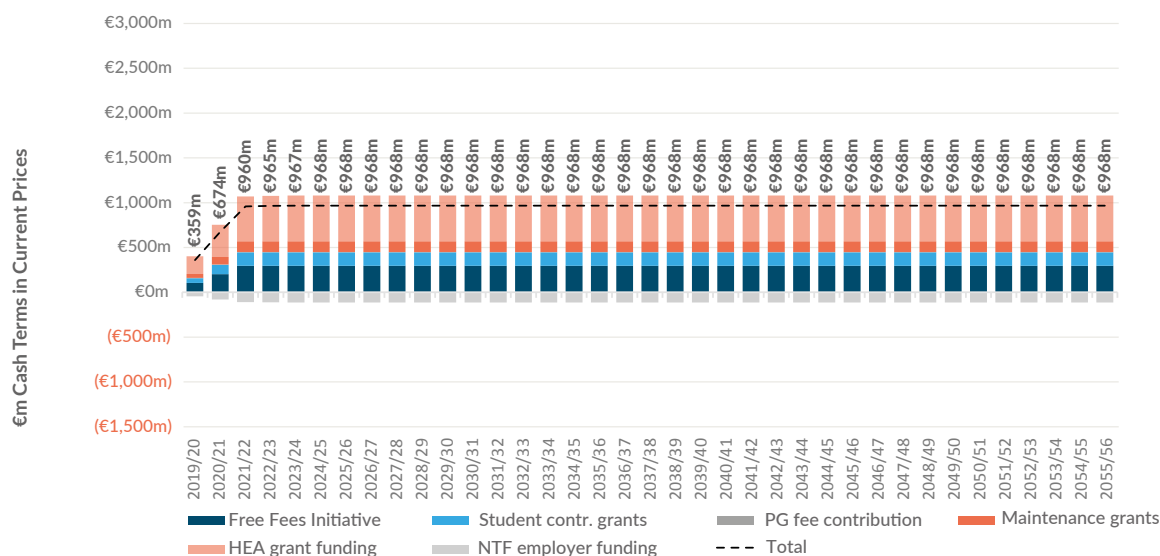


Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe

12.2.2 Impact on General Government Net Debt

In Figure 40, we present the impact of the current higher education fees and funding associated with the 2019-20 cohort's period of study on General Government Net Debt. In steady state (in 2025-26), the debt impact of financing the student support provided to the cohort alongside the associated institutional grant funding to higher education institutions (net of any NTF employer contributions) was estimated at €968 million annually.

Figure 40. Impact of the HE funding system on General Government Net Debt (current prices in cash terms) – Baseline



Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe

13. The impact of the Cassells Review's proposals: Option 1

The Cassells Review's Option 1 involves the **abolition of tuition fees and student contribution charges**, alongside a significant **increase in HEA block grant funding provided to institutions** to compensate for this loss in fee income⁹⁵. This option would also involve an **additional uplift** to the HEA grant funding to increase the total level of resource available to institutions above the current (Baseline) level. As with all three Cassells Review options, there would be an **increase in the level of standard and special maintenance grants offered** to support students with their living costs, as well as an **extension of these grants to part-time and postgraduate students**.

13.1 Total costs/resource flows by stakeholder

13.1.1 Students

Given the removal of fees and student contribution charges, alongside the more generous maintenance support, Table 32 illustrates that the total net cost to students in the 2019-20 cohort of students (over the entire study period) was estimated at **€29 million** (or 2% of the total system-wide resource costs of **€1,958 million** (see Table 36)). Of this total, approximately **€20 million** is associated with full-time undergraduate students, **€1 million** with part-time undergraduates, **€6 million** with full-time postgraduates, and **€3 million** with part-time postgraduates.

Table 32. Total student resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 1

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	-	-	-	-	-	€390m
Student contributions	-	-	-	-	-	€314m
Other levies	(€12m)	(€0m)	(€2m)	(€2m)	(€16m)	-
Total notional fee costs	(€12m)	(€0m)	(€2m)	(€2m)	(€16m)	€704m
Free Fees Initiative	-	-	-	-	-	(€285m)
Student contribution grants	-	-	-	-	-	(€144m)
PG fee contributions - standard	-	-	-	-	-	(€2m)
PG fee contributions - special	-	-	-	-	-	(€3m)
Total fee support	-	-	-	-	-	(€434m)
Maintenance costs	(€362m)	(€17m)	(€31m)	(€18m)	(€428m)	-
Maintenance grants - standard	€234m	€11m	€22m	€14m	€281m	€222m
Maintenance grants - special	€120m	€6m	€5m	€3m	€133m	€78m
Total maintenance support	€354m	€17m	€26m	€17m	€415m	€301m
Total	(€20m)	(€1m)	(€6m)	(€3m)	(€29m)	€570m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

⁹⁵ Again, see Section 11 for more information.

In terms of the components of these net costs, in the absence of tuition fees and student contribution charges, students' fee costs (in terms of other/capitation levies only) amount to **€16 million**, which represents a **€704 million** decline in fee costs compared to the Baseline. Offsetting this, the absence of fee support (in terms of FFI funding, student contribution grants and postgraduate fee contributions (of **€434 million** in total)) would result in a net benefit to students from the elimination of tuition fees and student contributions of **€270 million** per cohort compared to the Baseline.

Based on the assumptions relating to maintenance costs of **€428 million** associated with the cohort, under the proposed improved maintenance support in Option 1, approximately **€415 million** of these costs (**97%**) would be covered by the Exchequer⁹⁶ (which represents a net benefit to students of **€301 million** compared to the Baseline).

In total, under Option 1, students in the 2019-20 cohort would be approximately **€570 million** better off as a result of the improved maintenance package and the abolition of fees, compared to the Baseline (in terms of tuition fees and student contribution charges).

13.1.2 Exchequer

Table 33 presents the comparable results for the net cost of the HE funding system proposed under Option 1 from the Exchequer perspective.

Again, as there would be no fees charged to higher education students (apart from other/capitation levies), compared to the Baseline, the Exchequer would save approximately **€434 million** in funding previously associated with public fee support paid to students.

However, reflecting the increased maintenance support for students, the Exchequer cost associated with maintenance grants would increase to **€415 million** (of which **€281 million** is associated with standard maintenance grants and **€133 million** is associated with special maintenance grants). Given the extension of this funding to part-time and postgraduate students, this maintenance support would be more evenly spread across the student cohort, with **€354 million** paid to by full-time undergraduate students, **€17 million** to part-time undergraduates, **€26 million** to full-time postgraduates, and **€17 million** to part-time postgraduates. Overall, the improved maintenance package results in an increase in these Exchequer costs of **€301 million** per cohort compared to the Baseline.

In terms of grant funding for higher education institutions, under Option 1, the Exchequer would contribute approximately **€1,514 million** in HEA block grants per cohort, of which **€1,273 million** is associated with full-time undergraduate students. The remaining **€241 million** would be allocated to support the teaching of part-time undergraduates (**€47 million**), full-time postgraduates (**€123 million**) and part-time postgraduates (**€71 million**). Overall, this represents a **€1,022 million** increase in HEA funding compared to the current system.

Finally, under Option 1, the Exchequer would continue to receive approximately **€109 million** per cohort from large employers through contributions to the National Training Fund (i.e. the same estimated amount as in the Baseline). In total, under Option 1, the net Exchequer cost associated with the 2019-20 cohort of students was estimated at approximately **€1,820 million** (through HEA grants to institutions and maintenance support to students). This represents an increase of **€888 million** per cohort compared to the Baseline, and approximately **93%** of the total system-wide cost of higher education under Option 1 (of **€1,958 million** (see Table 36)).

96 As outlined above (see Section 12.1.1), for Irish domiciled students, the estimated aggregate living costs associated with the 2019-20 cohort is exactly offset by the maintenance grants provided under each of the Cassells Review options. For EU domiciled students, we assume the same average maintenance costs as for Irish domiciled students. However, EU domiciled students are not eligible to receive public maintenance grant support (neither under the current system, nor under the Cassells Review's proposals), resulting in the (small) discrepancy between the total maintenance costs incurred by all students in the cohort (€428 million) and the amount of maintenance grant funding provided by the Exchequer (€415 million).

Table 33. Total Exchequer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 1

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Free Fees Initiative	-	-	-	-	-	€285m
Student contribution grants	-	-	-	-	-	€144m
PG fee contributions - standard	-	-	-	-	-	€2m
PG fee contributions - special	-	-	-	-	-	€3m
Total fee support	-	-	-	-	-	€434m
Maintenance grants - standard	(€234m)	(€11m)	(€22m)	(€14m)	(€281m)	(€222m)
Maintenance grants - special	(€120m)	(€6m)	(€5m)	(€3m)	(€133m)	(€78m)
Total maintenance support	(€354m)	(€17m)	(€26m)	(€17m)	(€415m)	(€301m)
HEA grants	(€1,273m)	(€47m)	(€123m)	(€71m)	(€1,514m)	(€1,022m)
NTF funding from employers	€85m	€7m	€9m	€9m	€109m	-
Total	(€1,543m)	(€57m)	(€141m)	(€80m)	(€1,820m)	(€888m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

13.1.3 Higher education institutions

Under Option 1, the total funding received by higher education institutions associated with the 2019-20 cohort would stand at **€1,531 million** (an increase of **€317 million** compared to the Baseline; see Table 34).

In terms of funding components, compared to the Baseline, the vast majority of this funding (**€1,514 million**) would be provided through Higher Education Authority grant funding (an increase of **€1,022 million** compared to the Baseline, and more than replacing the **€704 million** loss in tuition fee income and student contributions). The remaining **€16 million** would be generated through capitation levies on students.

Table 34. Total HEI resource associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 1

	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	-	-	-	-	-	(€390m)
Student contributions	-	-	-	-	-	(€314m)
Other levies	€12m	€0m	€2m	€2m	€16m	-
Total fee income	€12m	€0m	€2m	€2m	€16m	(€704m)
HEA grants	€1,273m	€47m	€123m	€71m	€1,514m	€1,022m
Total	€1,285m	€47m	€125m	€73m	€1,531m	€317m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution. Source: LE Europe analysis

13.1.4 Employers

Under Option 1 (or any of the Cassells Review proposals), there would be no change to employer contributions to the National Training Fund (again, since the recommended increase in the NTF levy on employers has already been implemented since the publication of the Cassells Review). As in the Baseline, across the 2019-20 cohort, this levy contribution to support the funding of higher education equates to approximately **€109 million** in total (see Table 35).

Table 35. Total employer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 1

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
NTF funding from employers	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-
Total	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution. Source: LE Europe analysis

13.1.5 Total cost of funding the system

Table 36 presents the aggregate resource flows associated with the cohort of students commencing higher education qualifications in 2019-20, under Option 1. Of the **€1,958 million** total cost of funding the system (an increase of **€317 million** compared to the current system), approximately **€1,820 million** would be provided by the Exchequer (93%), compared to **€29 million** provided by students (2%), and **€109 million** funded by employers (6%).

Table 36. Total funding for higher education (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 1

Stakeholder	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
€ million						
Exchequer	€1,543m	€57m	€141m	€80m	€1,820m	€888m
Higher education institutions*	-	-	-	-	-	-
Students	€20m	€1m	€6m	€3m	€29m	(€570m)
Employers	€85m	€7m	€9m	€9m	€109m	-
Total	€1,647m	€64m	€156m	€91m	€1,958m	€317m
% of total						
Exchequer	94%	88%	90%	88%	93%	
Higher education institutions*	-	-	-	-	-	
Students	1%	1%	4%	3%	2%	
Employers	5%	11%	6%	10%	6%	
Total	100%	100%	100%	100%	100%	

Note: * HEIs do not contribute to the cost of the higher education system funding system, but instead are net receivers of funds from students and the Exchequer. All monetary estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding.

Source: LE Europe analysis

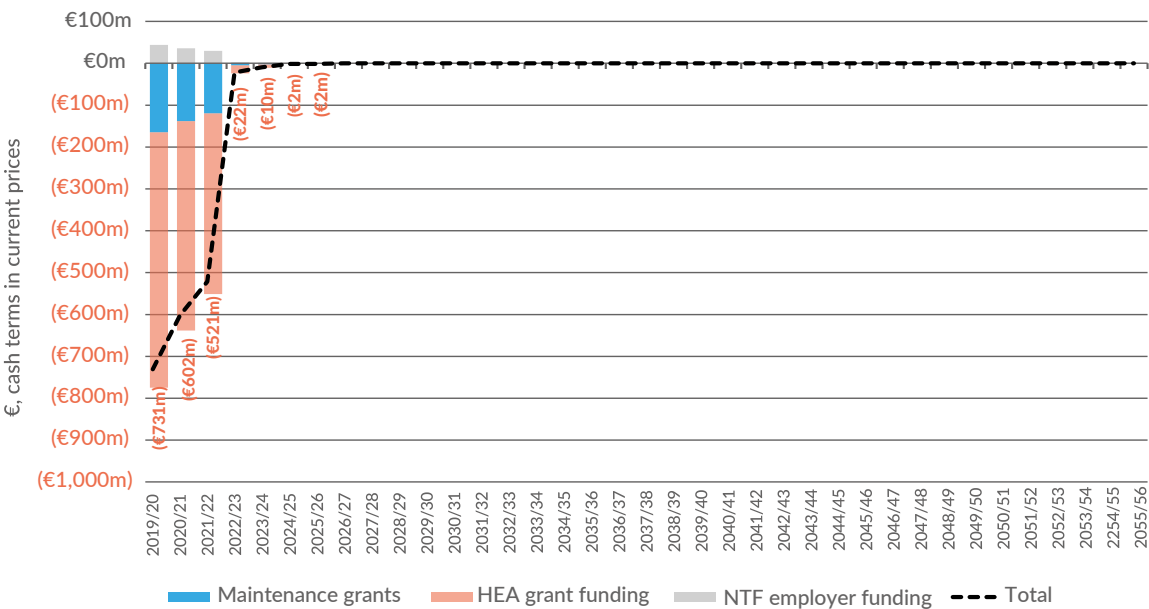
In terms of the resource flows associated with different groups of students, the Exchequer would contribute approximately **94%** of the total costs of higher education for full-time undergraduates compared to **88%** for part-time undergraduate students, **90%** for full-time postgraduate students, and **88%** for part-time postgraduate students. In other words, in contrast to the current funding system, under Option 1, the Exchequer would fund the majority of the costs of higher education for all groups of students (again due to the abolition of tuition fees and student contribution charges, and the extension of funding to part-time and postgraduate students).

13.2 Macroeconomic impacts

13.2.1 Impact on the General Government Balance

In Figure 41, we present the impact of the proposed higher education fees and funding system under Option 1 on the General Government Balance, in each year over the duration of the 2019-20 cohort's expected period of study. Again, the analysis provides an indication of the contribution of the different types of government funding to the public surplus/deficit.

Figure 41. Impact of the HE funding system on the General Government Balance (current prices in cash terms) – Cassells Option 1



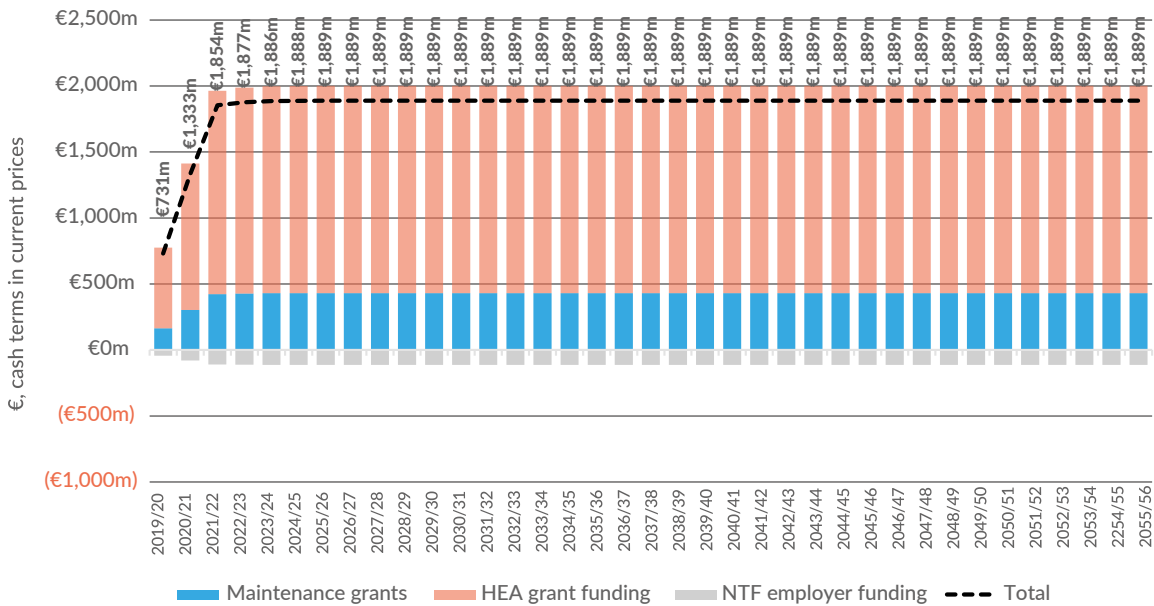
Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe analysis

The analysis indicates that the system proposed under Option 1 would result in a public deficit of €731 million in 2019-20, €602 million in 2020-21 and €521 million in 2021-22 (alongside some small deficits in subsequent years associated with relatively longer study programmes). This compares to deficits of €359 million, €316 million, and €285 million in the Baseline for the corresponding years. In terms of the contributions to the deficit, with the removal of tuition fees and student contribution charges, the entire impact on the deficit is associated with increased HEA funding and enhanced maintenance support for students (partially offset by the Exchequer receipts of funding through the NTF levy on employers).

13.2.2 Impact on General Government Net Debt

In Figure 42, we present the corresponding impact of Option 1 on General Government Net Debt associated with the higher education fees and funding over the 2019-20 cohort's expected period of study. In steady state (2025-26 and beyond), the debt impact of funding the student support provided to the 2019-20 cohort alongside the enhanced institutional HEA grant funding (net of NTF employer contributions) is estimated to be €1,889 million per annum. This represents an increase in Government Net Debt of approximately €921 million per annum in steady state compared to the Baseline.

Figure 42. Impact of the HE funding system on General Government Net Debt (current prices in cash terms) – Cassells Option 1



Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.

Source: LE Europe analysis

14. The impact of the Cassells Review's proposals: Option 2

Under Option 2 proposed by the Cassells Review⁹⁷, tuition fees and student contributions would continue to be charged to students, but the **Free Fees Initiative and (means-tested) student contribution grants would be extended to cover all students** (i.e. undergraduate full-time students (as in the Baseline), as well as part-time undergraduate and all postgraduate students). In other words, under Option 2, the public fee support provided to students (currently only available to undergraduate full-time students) would be extended to part-time and postgraduate students. As in Option 1, there would also be an **increase in the level and coverage of maintenance grants**, as well as an **uplift in HEA block grant funding** (comparable to the uplift in Option 1, but excluding the funding to replace income from tuition fees and student contribution charges).

14.1 Total costs/resource flows by stakeholder

14.1.1 Students

Given the extension of the current fee support system for full-time undergraduate students to part-time and postgraduate students, alongside the more generous public maintenance support, Table 37 illustrates that the total net cost to students in the 2019-20 under Option 2 was estimated at **€198 million** (or 10% of the total system-wide resource costs of **€1,958 million** (Table 41)). Of this total, approximately **€160 million** would be contributed by full-time undergraduate students, **€3 million** by part-time undergraduates, **€22 million** by full-time postgraduates, and **€12 million** by part-time postgraduates.

Table 37. Total student resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 2

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	(€285m)	(€4m)	(€28m)	(€15m)	(€332m)	€58m
Student contributions	(€314m)	(€6m)	(€32m)	(€19m)	(€372m)	(€58m)
Other levies	(€12m)	(€0m)	(€2m)	(€2m)	(€16m)	-
Total notional fee costs	(€612m)	(€11m)	(€62m)	(€35m)	(€720m)	-
Free Fees Initiative	€285m	€4m	€28m	€15m	€332m	€47m
Student contribution grants	€175m	€4m	€16m	€9m	€204m	€60m
PG fee contributions - standard	-	-	-	-	-	(€2m)
PG fee contributions - special	-	-	-	-	-	(€3m)
Total fee support	€460m	€8m	€44m	€24m	€536m	€101m
Maintenance costs	(€362m)	(€17m)	(€31m)	(€18m)	(€428m)	-
Maintenance grants - standard	€234m	€11m	€22m	€14m	€281m	€222m
Maintenance grants - special	€120m	€6m	€5m	€3m	€133m	€78m
Total maintenance support	€354m	€17m	€26m	€17m	€415m	€301m
Total	(€160m)	(€3m)	(€22m)	(€12m)	(€198m)	€402m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

⁹⁷ Again, see Section 11 for more information.

In terms of the components of these net costs, the total (notional) fee cost (before taking account of public fee support) was estimated at **€720 million** (consisting of **€332 million** in tuition fees, **€372 million** in student contribution charges, and **€16 million** in other levies). While the total fees would remain unchanged as compared to the Baseline, this represents a **€58 million** switch between tuition fees and student contribution charges compared to the Baseline (driven by part-time undergraduate and postgraduate students, due to the extension of the current fee support system to these students⁹⁸). Offsetting this notional fee cost, the public grant support for tuition fees and student contribution charges was estimated at **€536 million** (an increase of **€101 million** as compared to the Baseline⁹⁹).

Of the total estimated maintenance costs of **€428 million** per cohort, under the improved maintenance support in Option 2 (as well as Options 1 and 3), again, approximately **€415 million** would be covered by the Exchequer through public maintenance grants (which represents a net benefit to students of **€301 million** compared to the Baseline).

In total, under Option 2, students in the 2019-20 cohort would be approximately **€402 million** better off compared to the Baseline.

14.1.2 Exchequer

The comparable analysis of the net Exchequer cost of funding the higher education system proposed under Option 2 is presented in Table 38.

Mirroring the additional receipts for students with respect to the extension of the current undergraduate full-time fee support system to all students, under Option 2, the Exchequer cost of public fee support for the cohort was estimated at €536 million (a €101 million increase compared to the Baseline).

Table 38. Total Exchequer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 2

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Free Fees Initiative	(€285m)	(€4m)	(€28m)	(€15m)	(€332m)	(€47m)
Student contribution grants	(€175m)	(€4m)	(€16m)	(€9m)	(€204m)	(€60m)
PG fee contributions - standard	-	-	-	-	-	€2m
PG fee contributions - special	-	-	-	-	-	€3m
Total fee support	(€460m)	(€8m)	(€44m)	(€24m)	(€536m)	(€101m)
Maintenance grants - standard	(€234m)	(€11m)	(€22m)	(€14m)	(€281m)	(€222m)
Maintenance grants - special	(€120m)	(€6m)	(€5m)	(€3m)	(€133m)	(€78m)
Total maintenance support	(€354m)	(€17m)	(€26m)	(€17m)	(€415m)	(€301m)
HEA grants	(€674m)	(€36m)	(€63m)	(€38m)	(€810m)	(€317m)
NTF funding from employers	€85m	€7m	€9m	€9m	€109m	-
Total	(€1,403m)	(€54m)	(€125m)	(€70m)	(€1,652m)	(€719m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution. Source: LE Europe analysis

⁹⁸ See Deliverable 2.1 (LE Europe, 2020a) and Deliverable 2.2 (LE Europe, 2020b) for more detail.

⁹⁹ Note that, given the extension of the current fee support for undergraduate full-time students to postgraduate (and part-time) students, we would assume that the Exchequer would no longer provide any (standard or special rate) postgraduate fee contribution grants.

As under Option 1, reflecting the increased maintenance support for students, the Exchequer cost of maintenance grants would increase to **€415 million** (of which **€281 million** is associated with standard maintenance grants and **€133 million** is associated with special maintenance grants). Again, compared to the Baseline, this maintenance support would be spread more evenly across different groups of students in the cohort, and represents an increase in the Exchequer cost of maintenance funding of **€301 million** compared to the Baseline.

In terms of grant funding for higher education institutions, under Option 2, the Exchequer would contribute approximately **€810 million** in HEA block grants per cohort, of which **€674 million** is associated with full-time undergraduate students. The remaining **€137 million** would be allocated to support the teaching of part-time undergraduates (**€36 million**), full-time postgraduates (**€63 million**), and part-time postgraduates (**€38 million**). Overall, this represents a **€317 million** increase in HEA funding compared to the current system.

Finally, under Option 2, the Exchequer would again continue to receive approximately **€109 million** per cohort from employers through their contributions to the National Training Fund (unchanged from the Baseline).

In total, under Option 2, the aggregate net Exchequer cost associated with the 2019-20 cohort of students was estimated at approximately **€1,652 million**. This equates to an increase of **€719 million** compared to the Baseline, and approximately **84%** of the total cohort cost of the funding that would be included in the HE funding system under Option 2 (of **€1,958 million** (see Table 41).

14.1.3 Higher education institutions

Under Option 2 (as under Options 1 and 3), the total funding received by higher education institutions associated with the cohort would again stand at **€1,531 million** (an increase of **€317 million** compared to the Baseline). While the total HEI funding would be the same under all options proposed by the Cassells Review (as intended), there is significant variation across these options in terms of the sources of this funding. Specifically, in terms of funding components, under Option 2, approximately **€720 million** would be generated through the fees charged by institutions (consisting of **€332 million** in tuition fees, **€372 million** in student contribution charges, and **€16 million** in other levies). The remaining **€810 million** of funding would be received in the form of HEA block grant funding (an increase of **€317 million** compared to the Baseline). This is presented in Table 39.

Table 39. Total HEI resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 2

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	€285m	€4m	€28m	€15m	€332m	(€58m)
Student contributions	€314m	€6m	€32m	€19m	€372m	€58m
Other levies	€12m	€0m	€2m	€2m	€16m	-
Total fee income	€612m	€11m	€62m	€35m	€720m	-
HEA grants	€674m	€36m	€63m	€38m	€810m	€317m
Total	€1,285m	€47m	€125m	€73m	€1,531m	€317m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

14.1.4 Employers

Under Option 2, again, there would be no change to the level of employer contributions to the National Training Fund. As in the Baseline and under Option 1, across the 2019-20 cohort, this levy contribution to support the funding of higher education equates to approximately **€109 million** in total (see Table 40).

Table 40. Total employer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 2

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
NTF funding from employers	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-
Total	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

14.1.5 Total cost of funding the system

Table 41 presents the aggregate resource flows associated with the cohort of students commencing higher education qualifications in 2019-20, under Option 2. The total cost of funding higher education would increase to **€1,958 million** (an increase of **€317 million** compared to the Baseline). While the total cost of the system would thus be equal to the cost of Option 1 (as intended by the Cassells Review), given the different funding mechanisms used to achieve this increase, Option 2 would result in a different split of these funding costs between the Exchequer and students. Specifically, of the **€1,958 million**, approximately **€1,652 million** would be provided by the Exchequer (**84%**), compared to **€198 million** by students (**10%**), and the remaining **€109 million** contributed by employers (**6%**).

In terms of the resource flows associated with different groups of students, the Exchequer would contribute approximately **85%** of the total costs of higher education for full-time undergraduate students, compared to **84%** for part-time undergraduate students, **80%** for full-time postgraduate students, and **77%** for part-time postgraduate students. Hence, in contrast to the Baseline funding system, under Option 2, the Exchequer would fund the majority of the costs of higher education for all groups of students (due to the extension of fee support and maintenance support to part-time and postgraduate students).

Table 41. Total funding for higher education (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 2

Stakeholder	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
€ million						
Exchequer	€1,403m	€54m	€125m	€70m	€1,652m	€719m
Higher education institutions*	-	-	-	-	-	-
Students	€160m	€3m	€22m	€12m	€198m	(€402m)
Employers	€85m	€7m	€9m	€9m	€109m	-
Total	€1,647m	€64m	€156m	€91m	€1,958m	€317m
% of total						
Exchequer	85%	84%	80%	77%	84%	
Higher education institutions*	-	-	-	-	-	
Students	10%	5%	14%	13%	10%	
Employers	5%	11%	6%	10%	6%	
Total	100%	100%	100%	100%	100%	

Note: * HEIs do not contribute to the cost of the higher education system funding system, but instead are net receivers of funds from students and the Exchequer. All monetary estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding.

Source: LE Europe analysis

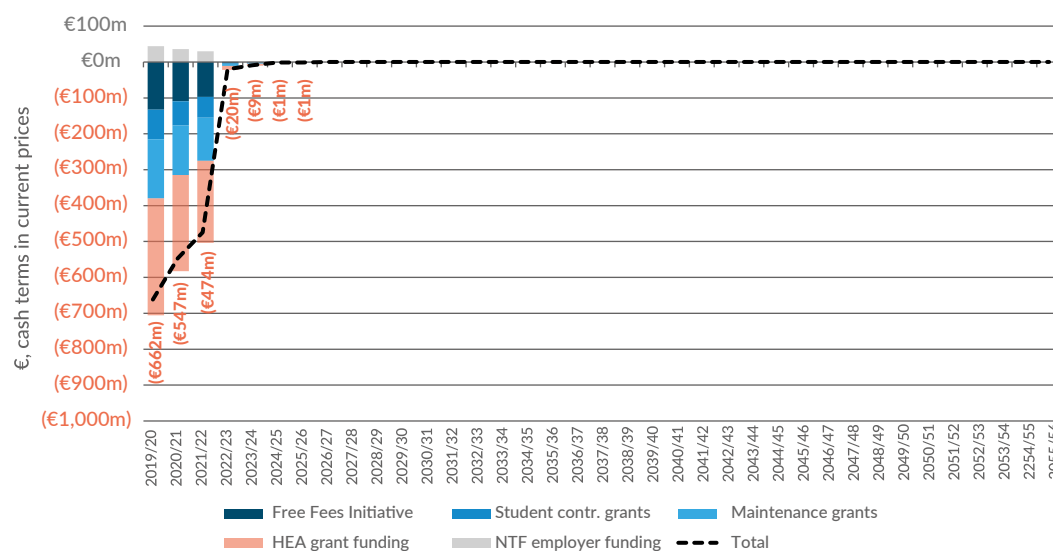
14.2 Macroeconomic impacts

14.2.1 Impact on the General Government Balance

In Figure 43, we present the impact on the General Government Balance of the proposed higher education fees and funding system under Option 2, in each year over the duration of the 2019-20 cohort's expected period of study. Again, the analysis assesses the contribution of the different types of government funding to the public surplus/deficit.

The analysis indicates that the system of higher education fees and funding under Option 2 would result in a public deficit in the General Government Balance of **€662 million** in 2019-20, **€547 million** in 2020-21, and **€474 million** in 2021-22. This compares to deficits of **€359 million**, **€316 million**, and **€285 million** in the Baseline for the corresponding years. In terms of the contributions to the deficit of each funding component, roughly half of the deficit in each of these years under Option 2 would be driven by the institutional block grant funding provided by the HEA, with the remainder driven by the provision of maintenance grants, Free Fees Initiative funding, and student contribution grants (all of which would be available to undergraduate and postgraduate, as well as full-time and part-time students).

Figure 43. Impact of the HE funding system on the General Government Balance (current prices in cash terms) – Cassells Option 2

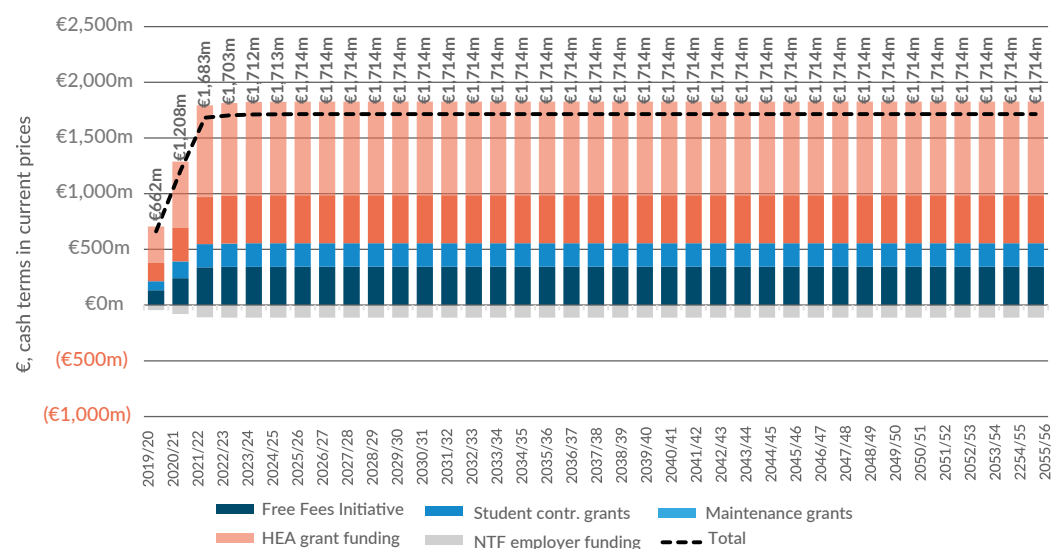


Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe analysis

14.2.2 Impact on General Government Net Debt

In Figure 44, we present the corresponding impact of Option 2 on General Government Net Debt associated with the 2019-20 cohort's expected period of study. In steady state (2025-26 and beyond), under Option 2, the debt impact of funding the 2019-20 cohort of higher education students was estimated to be **€1,714 million**. This represents an increase in Government Net Debt of approximately **€747 million** per year in steady state compared to the Baseline.

Figure 44. Impact of the HE funding system on General Government Net Debt (current prices in cash terms) - Cassells Option 2



Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe analysis

15. The impact of the Cassells Review's proposals: Option 3

Option 3 of the Cassells Review's proposals would involve the same fee regime as Option 2, but with the student **contribution raised to €5,000 per full-time student per year** rather than €3,000 (and pro-rata for part-time students). As with Option 2, all students' **tuition fees would be covered by the Free Fees Initiative**; however, instead of means-tested grants covering the (higher) student contribution charge, students would be eligible for **non-means-tested income-contingent student contribution loans**. Again, this option would also include an **increase in the level and coverage of maintenance grants**. Finally, this option would also incorporate an **increase in the HEA block grant**; however, the increase would be relatively modest compared to Option 2, given that HEIs would also receive additional resources from the assumed increase in the student contribution charge¹⁰⁰.

Loan structure

Student contribution loans are relatively complex to model, as they necessitate the forecasting of post-graduation earnings and employment over graduates' lifetimes, as well as the inclusion of a range of different loan repayment conditions within the model.

The Cassells Review did not specify the exact detail of the potential loan repayment conditions underlying Option 3. Based on discussions with the DFHERIS, we assume that these loans would be repaid at a **marginal rate of 8% of earnings above €27,000 per year** (with this threshold increasing with annual average earnings growth); **0% real interest charged during study; 0% real interest charged post-graduation if earnings are less than €27,000; and 2% if earnings exceed this threshold** (which again increases with annual average earnings growth). We further assume that full-time students become liable to start repaying their loans in the year post-graduation (with actual repayments only required if their income exceeds the above threshold); that part-time students become liable for repayment 3 years after enrolling or post-graduation (whichever comes first); and that **any outstanding loan balance is written off 30 years after this repayment due date**.

Full details of the underlying assumptions and modelling approach are provided in Deliverable 2.1.

15.1 Student loan estimates

Before considering the estimated resource flows associated with the proposed system (for each of the different stakeholders), this section provides an analysis of the specific outcomes associated with the income-contingent student contribution loans supporting the increased student contribution charge as proposed under Option 3.

15.1.1 Graduate loan repayments by age

Figure 45 presents the expected lifetime loan repayments (during the 30-year loan repayment period) of Irish domiciled full-time Honours Degree students in the 2019-20 cohort living in Ireland post-graduation¹⁰¹, by income quintile and gender (in cash terms in current prices). These loan repayments are based on an average level of debt at graduation per student of **€15,200¹⁰²** (in cash terms in current prices).

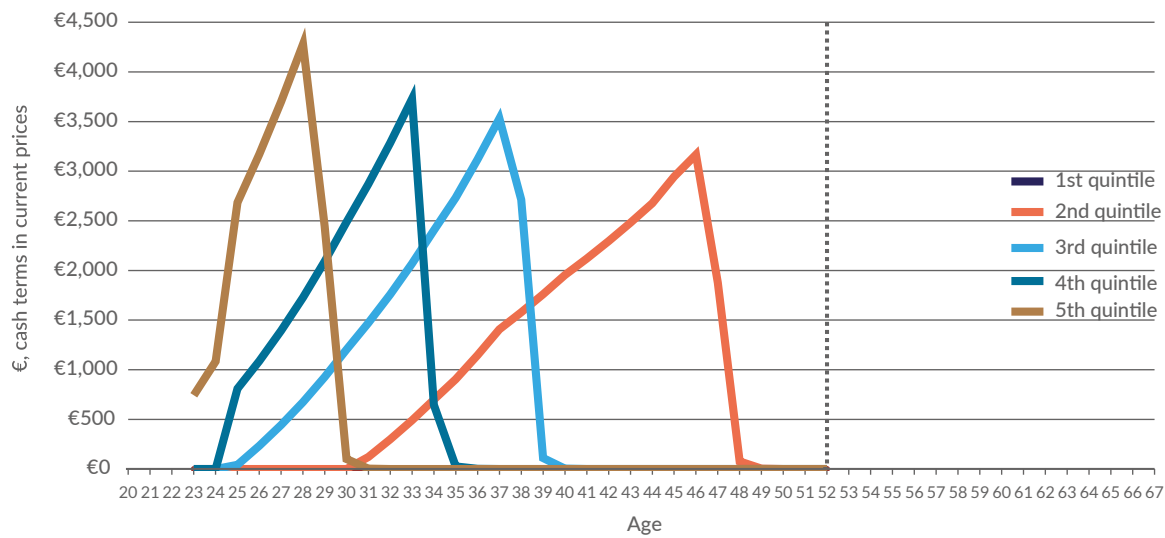
100 In other words, given that the student contribution charge per (full-time) student in Option 3 would be €2,000 higher than in Option 2 (€5,000 per annum rather than €3,000), the assumed HEA grant per (full-time) student would be €2,000 lower.

101 Loan repayments are estimated separately for students in the 2019-20 cohort who are expected to live in Ireland vs. abroad post-graduation – i.e. the model distinguishes between the loan repayments of graduates based on their residence post-graduation. In addition, we assume that Irish and EU domiciled students (i.e. students who are registered as Irish or EU domiciled when enrolling in HE) have a different likelihood of emigrating post-graduation, as well as a different likelihood of making repayments on their loans if they emigrate. Therefore, the model further estimates separate loan repayments based on students' domicile at the time of enrolling in higher education in Ireland. For more information, please refer to Deliverable 2.1 (LE Europe, 2020a).

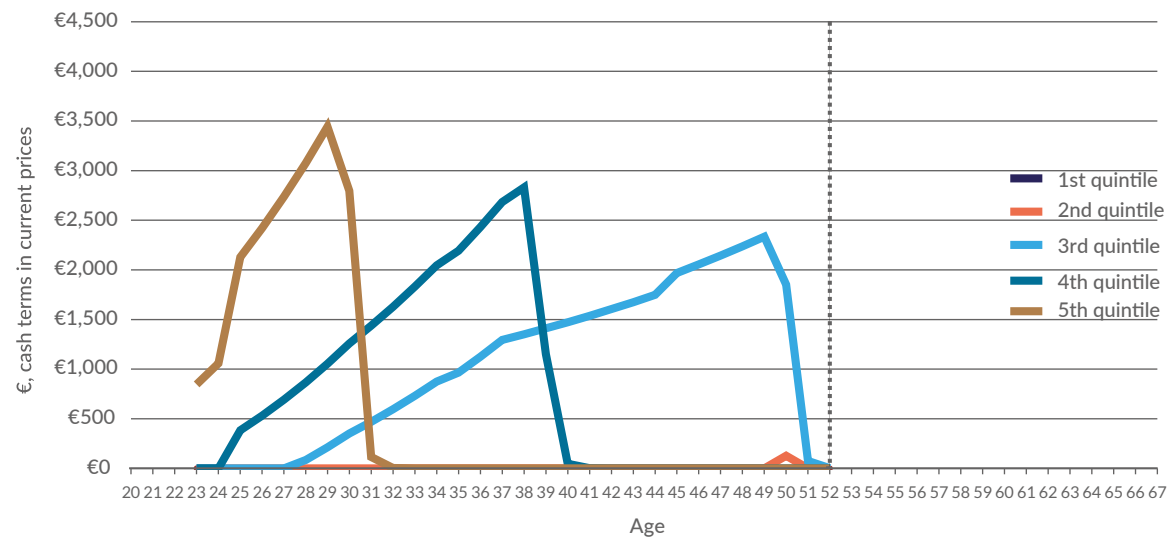
102 This is based on an assumed average study duration for full-time Honours Degree students of 3 years, a loan outlay of €5,000 per student in the first year (which is assumed to increase with inflation based on the Harmonised Index of Consumer Prices (HICP) in every subsequent academic year), and a nominal interest rate charged during study of 0% + HICP.

Figure 45. Lifetime loan repayments of Irish domiciled full-time Honours Degree graduates living in Ireland, by age, earnings quintile, and gender (cash terms in current prices)

Men



Women



Note: All values are presented in (undiscounted) cash terms in current prices. The analysis is based on an assumed average age at enrolment among full-time Honours Degree students of 20, with an average study duration of 3 years. As a result, the 30-year loan repayment period (before any outstanding loan balance is written off) is assumed to begin at the age of 23 and end at the age of 52 for these students.

Source: LE Europe analysis

As displayed in the upper panel of the figure, **male graduates in the 5th (i.e. highest) earnings quintile** would be expected to make repayments between the ages of 23 and 31 (at which point the loan is fully repaid). In the first five years post-graduation, the loan balance of these graduates would increase steeply (due to the accumulation of relatively high levels of loan interest), before reaching a maximum repayment of approximately **€4,300** (at the age of 28). Graduates in lower earnings quintiles would start repaying their loans later and contribute lower annual repayments (reflecting their lower post-graduation earnings), with male graduates in the **2nd income quintile** making payments between the ages of 30 and 49 (reaching a maximum of approximately **€3,200** at the age of 46). The average earnings of male graduates in the **1st (i.e. lowest) earnings quintile** are expected not to exceed the annual loan repayment threshold (of **€27,000** in 2019-20) at any point during the 30-year repayment period, so that these graduates would not make any repayments towards their loans.

For female graduates, a comparable picture emerges; however, reflecting the lower average earnings post-graduation as compared to men, female graduates would start repaying their loans later in life, repay over a longer period, and make lower average annual repayments than men. Female graduates in the **5th earnings quintile** would repay their loans between the ages of 23 and 32, with a maximum annual repayment of approximately **€3,400** at the age of 29. Graduates in the **3rd (middle) earnings quintile** would make repayments throughout most of the 30-year repayment period (between the ages of 28 and 51), with the maximum repayment reaching approximately **€2,300** at the age of 49. In contrast, graduates in the lowest two earnings quintiles are expected to make either very low (2nd quintile) or no repayments (1st quintile) towards their loans.

15.1.2 Total lifetime loan repayments

In Figure 46, we present information on the total lifetime loan repayments that would be made by Irish domiciled full-time Honours Degree graduates (living in Ireland post-graduation), again by income quintile and gender, under Option 3. The top panel presents this information in (undiscounted) cash terms (in current prices), while the lower panel presents the comparable information in net present value terms in constant 2019-20 prices.

In **cash terms**, male graduates in the 5th (i.e. highest) earnings quintile are expected to make **€18,200** in loan repayments, compared to **€23,400** for male graduates in the 3rd earnings quintile, and **€0** for male graduates in the 1st (i.e. lowest) earnings quintile. For female graduates, the corresponding estimates for graduates making repayments are higher, standing at **€18,600** for women in the 5th quintile and **€30,200** in the 3rd quintile (and again **€0** in the 1st quintile). Hence, despite the fact that women would make lower annual loan repayments than men, the fact that female graduates who make repayments would take much longer to repay their loans implies that the total lifetime repayments (in cash terms) for female graduates (in the 3rd, 4th, and 5th quintile) are higher than the repayments of their male counterparts.

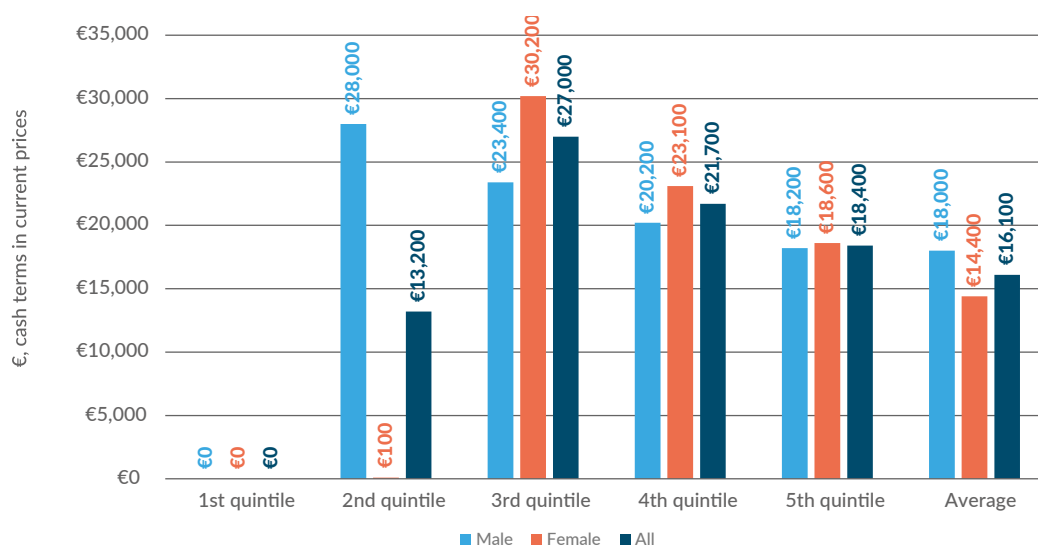
However, while the analysis presented in the top panel of Figure 46 takes account of the *duration* of time over which loan repayments are made, it does not reflect the **timing of repayments**. Once this timing is taken into account, a different picture emerges. In particular, the analysis presented in the bottom panel of Figure 46 suggests that the **net present value** of repayments (in constant 2019-20 prices, again for Irish domiciled full-time Honours Degree graduates living in Ireland post-graduation) stands at **€8,600** for male graduates, **€6,400** for female graduates (and **€7,400** overall), on average. In the 5th earnings quintile, the net present value of expected loan repayments stands at **€12,700** for men and **€12,600** for women, while the corresponding estimates for graduates in the 3rd quintile stand at **€10,700** for men and **€8,700** for women. In other words, in contrast to the above values in cash terms, in net present value terms, the repayments for graduates in the 3rd, 4th and 5th quintile are higher for men than for women. This is driven by the fact that women's repayments occur relatively later (and are thus discounted to relatively lower amounts in net present value terms). Again, for both male and female graduates in the 1st (lowest) earnings quintile, **no loan repayments** are expected to be made.

103 In turn, this is driven by the fact that the real interest rate charged on the loan balance post-graduation is means-tested. These graduates' earnings are expected to exceed the earnings threshold (€27,000 in 2019-20) above which a positive real interest rate of 2% is charged - in every year post-graduation. As a result, these high-earning graduates are expected to immediately incur the higher interest rate upon entering the labour market post-graduation.

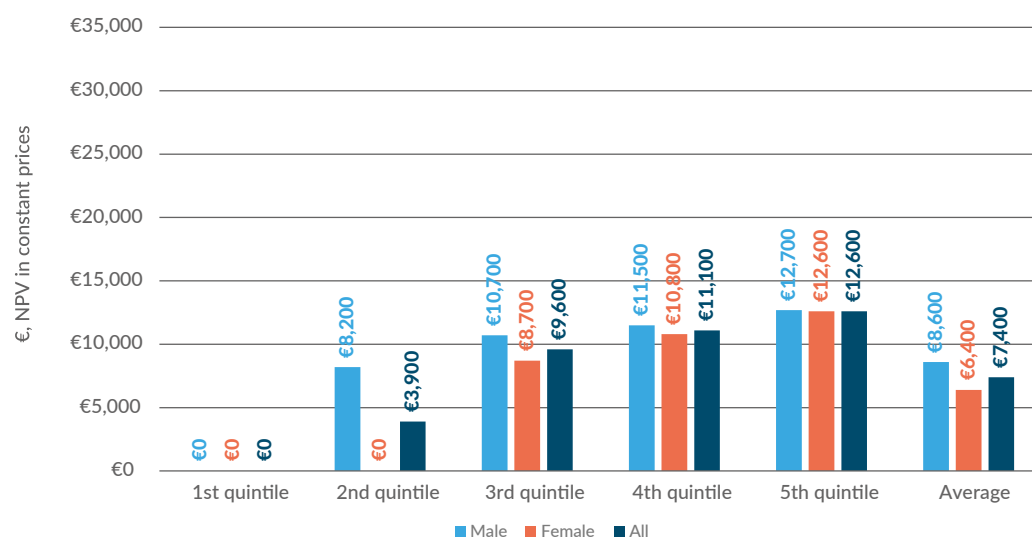
104 Again, this threshold is assumed to increase with average annual earnings growth in every subsequent year.

Figure 46. Lifetime loan repayments of full-time Irish domiciled Honours Degree graduates living in Ireland, by quintile and gender

Current prices, cash terms



Constant (2019-20) prices, NPV terms

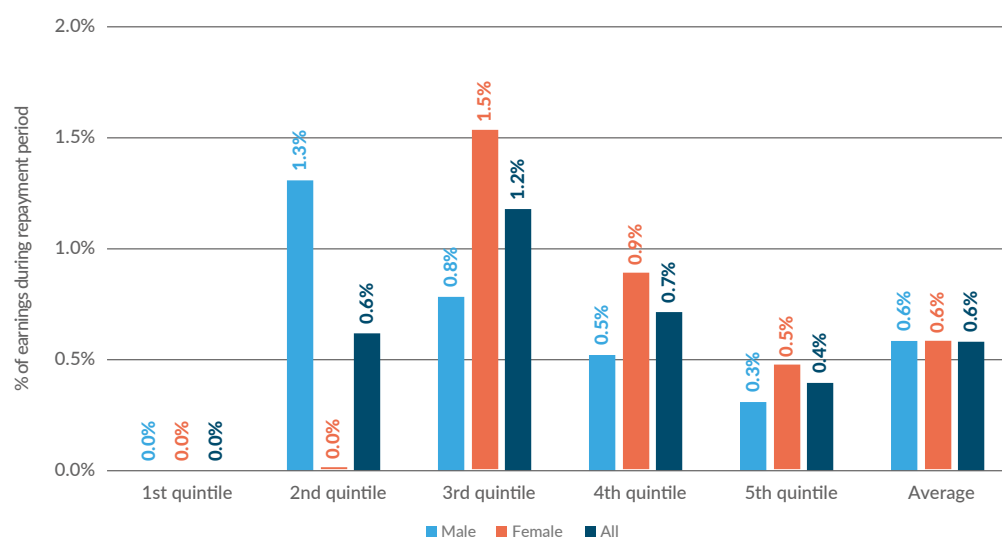


Note: Estimates in the top panel are presented in (undiscounted) cash terms in current prices. Estimates in the bottom panel are presented in (discounted) net present value terms in constant 2019-20 prices. All estimates are rounded to the nearest €100.
Source: LE Europe analysis

In Figure 47, the above total lifetime loan repayments (in cash terms in current prices (see top panel of Figure 46)) have been divided by graduates' total earnings throughout the 30-year repayment period (again focusing on Irish domiciled full-time Honours Degree students living in Ireland post-graduation).

On average, both male and female graduates contribute approximately **0.6%** of their earnings in loan repayments over the repayment period. However, there is some variation across earnings quintiles, with graduates in the 2nd/3rd income quintile (for men/women) making larger loan repayments as a proportion of earnings than graduates in higher earnings quintiles. On average across men and women, graduates in the 3rd earnings quintile contribute approximately **1.2%** of their earnings over the 30-year repayment period, compared to **0.7%** and **0.4%** for graduates in the 4th and 5th quintiles, respectively. These findings highlight that the repayment of the proposed student contribution loans under Option 3 would be regressive – with graduates in the middle of the earnings distribution repaying relatively *more* of their income throughout the repayment period than graduates at the top of the earnings distribution.

Figure 47. Lifetime loan repayments of full-time Irish domiciled Honours Degree graduates living in Ireland, as a proportion of total earnings throughout repayment period, by gender and quintile



Note: The percentages are calculated by dividing graduates' total loan repayments by their total estimated earnings over the 30-year repayment period (all in cash terms in current prices).

Source: LE Europe analysis

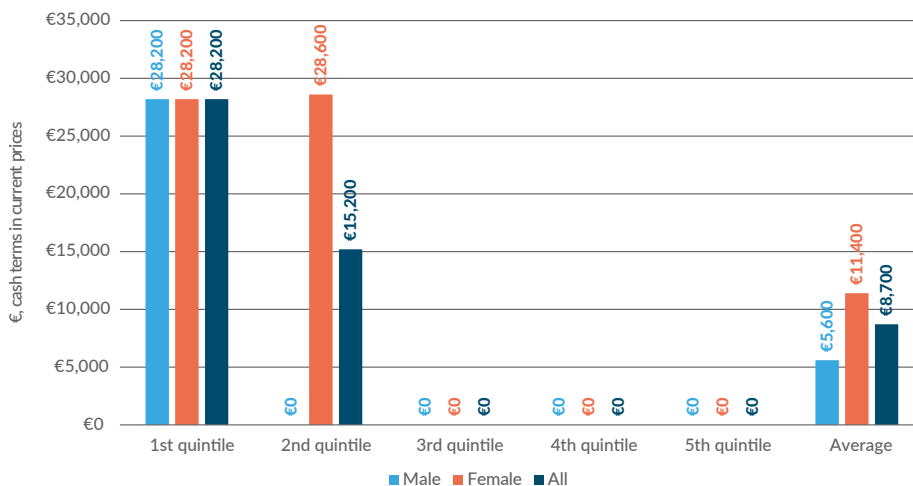
15.1.3 Loan write-off at the end of the repayment period

Turning from loan repayments to the loan balance written off, Figure 48 presents the expected loan write-off at the end of the loan repayment period (in cash terms and current prices, again for Irish domiciled full-time Honours Degree students living in Ireland post-graduation) under Option 3.

For male graduates, the average loan balance that would be expected to be written off at the end of the repayment period stands at **€5,600**, compared to **€11,400** for female graduates (and **€8,700** overall). The write-off varies considerably by earnings quintile, with male graduates in the top four earnings quintiles and female graduates in the top three quintiles having no loan balance written off¹⁰⁵. However, for both male and female graduates in the 1st earnings quintile (as well as female graduates in the 2nd quintile), approximately **€28,000** of loan balance would be expected to be written off by the Exchequer at the end of the 30-year repayment period (which reflects both the original principal as well as accumulated interest charges).

¹⁰⁵ This reflects the fact that these graduates would be expected to repay their entire loan before the end of the repayment period (again, see Figure 45).

Figure 48. Loan balance written off at the end of the repayment period, for full-time Irish domiciled Honours Degree graduates living in Ireland, by gender and quintile



Note: All estimates are presented in cash terms in current prices, and rounded to the nearest €100. The loan balance includes both the original loan outlay (i.e. principal) as well as any accumulated loan interest.
Source: LE Europe analysis

15.1.4 Resource Accounting and Budgeting charge

Another key measure relating to the proposed student loan system under Option 3 is the **Resource Accounting and Budgeting Charge** (RAB charge), capturing the proportion of the loan principal that is not repaid¹⁰⁶. It measures the estimated Government cost of providing student loans (expressed as a proportion of the initial loan outlay/principal), and is comprised of:

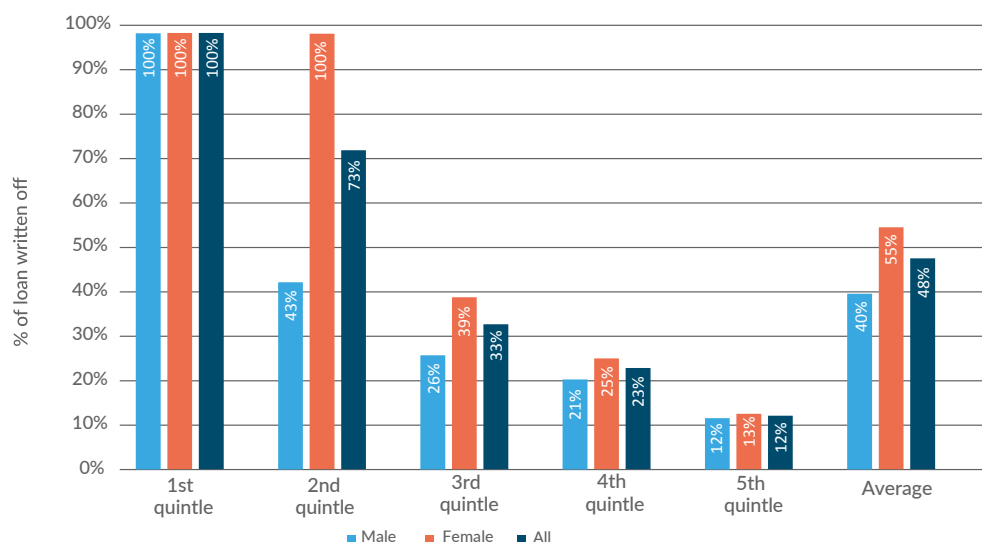
- An **interest-rate subsidy**, reflecting the fact that the Government would incur borrowing costs to fund the loans provided to students, and that these borrowing costs would be higher than the interest payments receivable from graduates; and
- A **write-off subsidy**, capturing the remaining difference between the principal borrowed and the repayment made by students, reflecting the fact that any outstanding loan balance would be written off after the end of the repayment period (of 30 years).

In Figure 49, we present information on the estimated RAB charge for full-time Irish domiciled Honours Degree students expected to live in Ireland post-graduation, again by gender and quintile. The average RAB charge across all of these graduates would stand at **48%**, with an estimate for male and female graduates of **40%** and **55%**, respectively.

As expected (based on the above information on loan write-offs), the estimated RAB charge declines when moving up the earnings distribution - from **100%** in the case of male graduates in the 1st (i.e. lowest) earnings quintile to approximately **12%** for male graduates in the 5th (i.e. top) earnings quintile¹⁰⁷. For male graduates in the 3rd (i.e. middle) earnings quintile, the corresponding estimate of the RAB charge stands at **26%**. For female graduates, the corresponding estimates stand at **100%** (1st earnings quintile), **39%** (3rd earnings quintile), and **13%** (5th earnings quintile).

¹⁰⁶ In mathematical terms, the RAB charge is calculated as $[\text{Loan principal} - \text{Repayments}] / [\text{Loan principal}]$ (where all of these measures are captured in NPV terms (in constant 2019-20 prices) over graduates' lifetimes).

¹⁰⁷ Note that the RAB charge for male graduates in the 5th quintile is positive (at 12%), despite the fact that these graduates repay their entire loan balance before the end of the repayment period (i.e. there is no loan write-off at the end of the repayment period (see Figure 45 and Figure 48 above). In this case, the estimated 12% RAB charge consists entirely of an interest-rate subsidy from the Exchequer to these graduates, given the fact that the Government's cost of borrowing to fund the loan outlay (captured by the assumed nominal discount rate) would be higher than the loan interest received from these graduates. Specifically, in this case, the average loan interest charge to these graduates between their initial enrolment (in 2019-20) and the end of the 30-year repayment period would stand at approximately 3.8% per annum. In contrast, the estimated Government cost of borrowing that would be incurred to finance the student loan outlay would stand at 5.8% per annum over the same period (again, based on the standard real discount rates recommended by the Public Spending Code (Department of Public Expenditure and Reform (2019)) plus HICP inflation). The same reasoning applies to other groups of graduates (e.g. male graduates in the 2nd, 3rd and 4th earnings quintiles).

Figure 49. RAB charge for Irish domiciled full-time Honours Degree graduates living in Ireland, by gender and quintile

Note: The RAB charge is calculated as $[\text{Loan principal} - \text{Repayments}] / [\text{Loan principal}]$, all measured in net present value terms in constant 2019-20 prices (and captured over the entire loan repayment period).

Source: LE Europe analysis

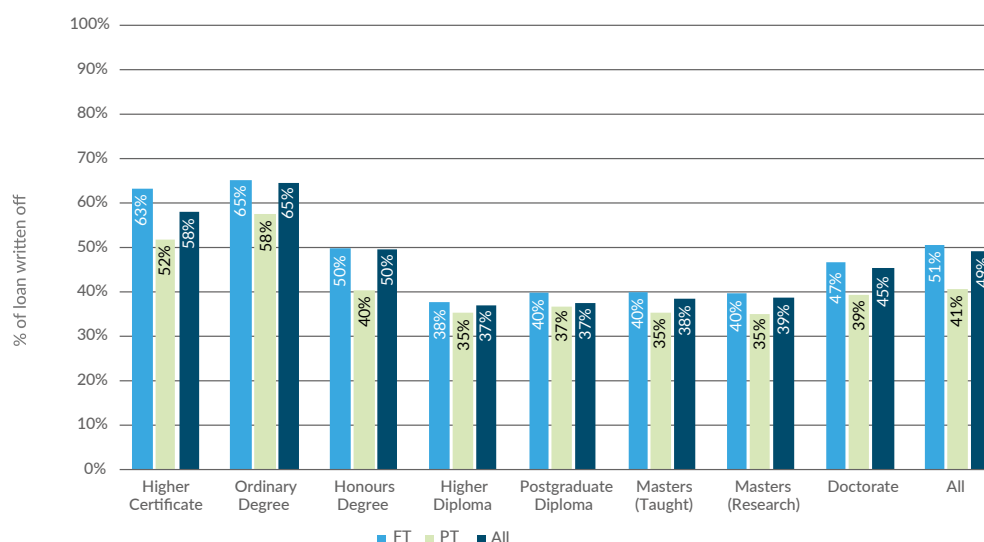
In Figure 50, we present information on the average RAB charge across *all graduates* (i.e. irrespective of student domicile or country of residence post-graduation) associated with all different higher education qualifications¹⁰⁸, separately by study mode. The average RAB charge across all graduates and HE qualifications was estimated at **49%**, suggesting that, based on the loan characteristics modelled here, the balance of contribution to the loan system between the Exchequer and graduates would be approximately equal. Reflecting the fact that part-time students typically undertake their qualifications later in life and combine their studies with employment (and thus already have relatively higher earnings upon graduation), the average RAB charge associated with part-time students would be approximately **10 percentage points** lower than for full-time students (**41%** compared to **51%**)

In terms of differences by qualification level, postgraduate qualifications are generally associated with a lower RAB charge than undergraduate qualifications. For instance, the average RAB charge associated with a taught Masters Degree was estimated at 38%, compared to **50%** associated with Honours Degrees¹⁰⁹ (though this in part reflects the larger loan balances for individuals completing Honours Degrees).

¹⁰⁸ i.e. the major higher education awards included within the analysis.

¹⁰⁹ Note that the (small) difference in the average RAB charge for full-time Honours Degree students between Figure 49 (48%) and Figure 50 (50%) arises from the fact that Figure 49 includes only Irish domiciled students living in Ireland post-graduation, whereas Figure 50 includes both Irish and EU domiciled students living in Ireland or overseas post-graduation.

Figure 50. Average RAB charge across all graduates, by study level and mode



Note: The RAB charge is calculated as $[\text{Loan principal} - \text{Repayments}] / [\text{Loan principal}]$, all measured in net present value terms in constant 2019-20 prices (and captured over the entire loan repayment period).

In contrast to the numbers presented in Figure 49, the estimates presented here constitute average RAB charges across all students in the relevant 2019-20 cohort, i.e. irrespective of student domicile (i.e. Irish vs. EU domiciled students), country of residence post-graduation (i.e. Ireland vs. overseas), or study mode. Source: LE Europe analysis

15.1.5 Proportion of graduates who never repay anything/never repay full loan

Finally, in contrast to the previous analysis of the proportion of the loan outlay that is not expected to be repaid, in this section, we present information on the proportion of graduates who are expected never to repay their *full* loan (Table 42) and the proportion of graduates who are expected not to make *any* repayments towards their loan (Table 43). The results are presented for all higher education students¹¹⁰ expected to live in Ireland post-graduation, by gender, level, and mode of study. Note that the results for each qualification level and by gender are calculated across graduates in each of the different earnings quintiles considered, and therefore always correspond to a multiple of 20%. This does not necessarily apply to the averages across all study levels and both genders, which are weighted by the number of first-year students in the 2019-20 cohort in each group.

As presented in Table 42, the analysis suggests that, on average under Option 3, approximately **35%** of full-time higher education graduates (living in Ireland) would be expected *not* to repay their *full* loan (**24%** of male and **45%** of female graduates). Again, there is some variation across study levels, ranging between 58% of full-time Higher Certificate students and **29%** of full-time Masters Research Degree expected not to fully repay their loan. On average across all qualification levels, the proportions of full-time and part-time students expected not to repay their full loan are roughly equal (standing at **35%** and **36%**, respectively).

110 Including both Irish and EU domiciled students.

Table 42. Proportion of graduates (living in Ireland) who never repay their full loan, by gender, level, and mode of study

Level of study	Full-time			Part-time		
	Male	Female	All	Male	Female	All
Higher Certificate	40%	80%	58%	40%	60%	45%
Ordinary Degree	40%	80%	55%	40%	80%	56%
Honours Degree	20%	40%	31%	20%	40%	31%
Higher Diploma	20%	40%	32%	20%	40%	31%
Postgraduate Diploma	20%	40%	35%	20%	40%	33%
Masters (Taught)	20%	40%	31%	20%	40%	31%
Masters (Research)	20%	40%	29%	20%	40%	28%
Doctorate	20%	60%	42%	20%	60%	42%
All	24%	45%	35%	27%	44%	36%

Note: The results for each qualification level and by gender are calculated across graduates in each of the different earnings quintiles considered, and therefore always correspond to a multiple of 20%. This does not necessarily apply to the averages across all study levels and both genders, which are weighted by the number of first-year students in the 2019-20 cohort in each group.
Source: LE Europe analysis

In terms of the proportions of graduates living in Ireland that are never expected to make *any* loan repayment (because their earnings never exceed the repayment threshold (of €27,000 in 2019-20)), overall, these were estimated at approximately 20% of full-time male and 22% of full-time female graduates (see Table 43), with an average of 21% across all full-time students. There is limited variation by level or mode of study; however, there is a slightly larger proportion of graduates never expected to repay any part of their loan amongst those students undertaking Higher Certificates or Ordinary Degrees (between 25% and 29% overall).

Table 43. Proportion of graduates (living in Ireland) who never repay anything, by gender, level and mode of study

Level of study	Full-time			Part-time		
	Male	Female	All	Male	Female	All
Higher Certificate	20%	40%	29%	20%	40%	25%
Ordinary Degree	20%	40%	28%	20%	40%	28%
Honours Degree	20%	20%	20%	20%	20%	20%
Higher Diploma	20%	20%	20%	20%	20%	20%
Postgraduate Diploma	20%	20%	20%	20%	20%	20%
Masters (Taught)	20%	20%	20%	20%	20%	20%
Masters (Research)	20%	20%	20%	20%	20%	20%
Doctorate	20%	20%	20%	20%	20%	20%
All	20%	22%	21%	20%	23%	21%

Note: The results for each qualification level and by gender are calculated across graduates in each of the different earnings quintiles considered, and therefore always correspond to a multiple of 20%. This does not necessarily apply to the averages across all study levels and both genders, which are weighted by the number of first-year students in the 2019-20 cohort in each group.
Source: LE Europe analysis

15.2 Total costs/resource flows by stakeholder

15.2.1 Students/graduates

Given the extension of the fee support to part-time and postgraduate students, the more generous maintenance support package (as in Options 1 and 2), and the increase in the student contribution charge (backed by income-contingent loans), Table 44 illustrates that the total net cost to students in the 2019-20 cohort under Option 3 would stand at **€345 million** (or **18%** of the total system-wide resource costs of **€1,958 million** (Table 48)). Of this total, approximately **€271 million** would be contributed by full-time undergraduate students, **€14 million** by part-time undergraduates, **€37 million** by full-time postgraduates, and **€23 million** by part-time postgraduates.

In terms of the components of these net costs, the total notional fee costs (before accounting for public fee support) would stand at **€983 million**, with tuition fees and student contribution charges accounting for **€332 million** and **€635 million** respectively, and other levies amounting to **€16 million**. Offsetting this notional fee cost, the Exchequer would provide **€332 million** in tuition fee support through the Free Fees Initiative (as under Option 2). In addition, instead of receiving **€144 million** of grants to help with the cost of their student contribution charges (in the Baseline), students would instead receive **€319 million** per cohort in subsidies/write-offs associated with the introduction of income-contingent loans. Therefore, the total fee support associated with students in the 2019-20 cohort would increase by **€217 million** as compared to the Baseline (net of the loss of postgraduate fee contribution grant funding).

Of the total estimated maintenance costs of **€428 million** per cohort, under the improved maintenance support in Option 3 (as well as Options 1 and 2), again, approximately **€415 million** would be covered by Exchequer maintenance grants (which represents a net benefit to students of **€301 million** compared to the Baseline).

In total, under Option 3, students in the 2019-20 cohort would be approximately **€254 million** better off compared to the Baseline.

Table 44. Total student/graduate resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 3

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	(€285m)	(€4m)	(€28m)	(€15m)	(€332m)	€58m
Student contributions	(€524m)	(€26m)	(€54m)	(€32m)	(€635m)	(€321m)
Other levies	(€12m)	(€0m)	(€2m)	(€2m)	(€16m)	-
Total notional fee costs	(€821m)	(€30m)	(€84m)	(€48m)	(€983m)	(€263m)
Free Fees Initiative	€285m	€4m	€28m	€15m	€332m	€47m
Student contribution grants	-	-	-	-	-	(€144m)
Student contribution loan write-off	€273m	€12m	€23m	€11m	€319m	€319m
PG fee contributions - standard	-	-	-	-	-	(€2m)
PG fee contributions - special	-	-	-	-	-	(€3m)
Total fee support	€558m	€17m	€51m	€26m	€651m	€217m
Maintenance costs	(€362m)	(€17m)	(€31m)	(€18m)	(€428m)	-
Maintenance grants – standard	€234m	€11m	€22m	€14m	€281m	€222m
Maintenance grants – special	€120m	€6m	€5m	€3m	€133m	€78m
Total maintenance support	€354m	€17m	€26m	€17m	€415m	€301m
Total	(€271m)	(€14m)	(€37m)	(€23m)	(€345m)	€254m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

15.2.2 Exchequer

The comparable analysis of the net Exchequer cost of funding Option 3 is presented in Table 45.

Reflecting the above additional receipts for students with respect to the extension of fee support to all students, and the increase in the student contribution charge backed by income-contingent loans, under Option 3, the Exchequer cost of public fee support for the cohort was estimated at **€651 million** (a **€217 million** increase compared to the Baseline).

As in Options 1 and 2, reflecting the increased maintenance support for students, under Option 3, approximately **€415 million** of Exchequer maintenance grant support would be paid to students (of which **€281 million** is associated with standard maintenance grants and **€133 million** is associated with special maintenance grants). Again, compared to the Baseline, the improved maintenance package results in an increase in the Exchequer cost of maintenance funding of **€301 million** per cohort.

In terms of funding for higher education institutions, under Option 3, the Exchequer would contribute **€547 million** in block grants per cohort via the Higher Education Authority (of which **€464 million** is associated with full-time undergraduate students, with **€17 million** allocated for part-time undergraduates, **€41 million** for full-time postgraduates, and **€25 million** for part-time postgraduates). Overall, this represents a **€55 million** increase in HEA funding compared to the Baseline.

Finally, under Option 3, the Exchequer would again continue to receive approximately **€109 million** per cohort from large employers through their contributions to the National Training Fund (unchanged from the Baseline).

In total, under Option 3, the aggregate net Exchequer cost associated with the 2019-20 cohort of students would stand at **€1,504 million**. This represents an increase of **€572 million** compared to the Baseline, and **77%** of the total cohort cost of funding that would be included in the HE funding system under Option 3 (of **€1,958 million** (see Table 48).

Table 45. Total Exchequer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 3

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Free Fees Initiative	(€285m)	(€4m)	(€28m)	(€15m)	(€332m)	(€47m)
Student contribution grants	-	-	-	-	-	€144m
Student contribution loan write-off	(€273m)	(€12m)	(€23m)	(€11m)	(€319m)	(€319m)
PG fee contributions - standard	-	-	-	-	-	€2m
PG fee contributions - special	-	-	-	-	-	€3m
Total fee support	(€558m)	(€17m)	(€51m)	(€26m)	(€651m)	(€217m)
Maintenance grants - standard	(€234m)	(€11m)	(€22m)	(€14m)	(€281m)	(€222m)
Maintenance grants – special	(€120m)	(€6m)	(€5m)	(€3m)	(€133m)	(€78m)
Total maintenance support	(€354m)	(€17m)	(€26m)	(€17m)	(€415m)	(€301m)
HEA grants	(€464m)	(€17m)	(€41m)	(€25m)	(€547m)	(€55m)
NTF funding from employers	€85m	€7m	€9m	€9m	€109m	-
Total	(€1,291m)	(€44m)	(€110m)	(€60m)	(€1,504m)	(€572m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

15.2.3 Higher education institutions

Under Option 3 (as under Options 1 and 2), the total funding received by higher education institutions associated with the 2019-20 cohort would increase to **€1,531 million** (an increase of **€317 million** compared to the Baseline). In terms of funding components, approximately **€332 million** would be generated through tuition fees (a reduction of **€58 million**); **€635 million** through student contributions (an increase of **€321 million**); and **€16 million** through other (administrative) levies charged to students (same as in the Baseline). The remaining **€547 million** of funding would be received via Higher Education Authority block grants (an increase of **€55 million** compared to the Baseline). This is presented in Table 46.

Table 46. Total HEI resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 3

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Tuition fees	€285m	€4m	€28m	€15m	€332m	(€58m)
Student contributions	€524m	€26m	€54m	€32m	€635m	€321m
Other levies	€12m	€0m	€2m	€2m	€16m	-
Total fee income	€821m	€30m	€84m	€48m	€983m	€263m
HEA grants	€464m	€17m	€41m	€25m	€547m	€55m
Total	€1,285m	€47m	€125m	€73m	€1,531m	€317m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

15.2.4 Employers

Under Option 3, again, there would be no change to the current level of employer contributions to the National Training Fund. As in the Baseline (as well as Options 1 and 2), across the total 2019-20 cohort, this equates to approximately **€109 million** in total (see Table 47).

Table 47. Total employer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 3

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
NTF funding from employers	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-
Total	(€85m)	(€7m)	(€9m)	(€9m)	(€109m)	-

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

15.2.5 Total cost of funding the system

Table 48 presents the aggregate resource flows associated with the cohort of students commencing higher education qualifications in 2019-20 under Option 3. Again, as under Options 1 and 2, the total cost of funding the system would increase to **€1,958 million** per cohort (an increase of **€317 million** compared to the Baseline), but with a different split of these costs between the Exchequer and students/graduates. In particular, of the **€1,958 million** total cost, **€1,504 million** would be provided by the Exchequer (**77%**), compared to **€345 million** provided by students (**18%**), and the remaining **€109 million** contributed by employers (**6%**).

In terms of the relative resource flows associated with different groups of students, the Exchequer would contribute approximately **78%** of the total costs of higher education for full-time undergraduate students, compared to **68%** for part-time

undergraduate students, 70% for full-time postgraduate students, and 66% for part-time postgraduate students. As under Options 1 and 2, in contrast to the current system, under Option 3, the Exchequer would fund the majority of the costs of higher education for all groups of students.

Table 48. Total funding for higher education (by study level and mode), net present values in constant 2019-20 prices – Cassells Option 3

Stakeholder	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
€ million						
Exchequer	€1,291m	€44m	€110m	€60m	€1,504m	€572m
Higher education institutions*	-	-	-	-	-	-
Students/graduates	€271m	€14m	€37m	€23m	€345m	(€254m)
Employers	€85m	€7m	€9m	€9m	€109m	-
Total	€1,647m	€64m	€156m	€91m	€1,958m	€317m
% of total						
Exchequer	78%	68%	70%	66%	77%	
Higher education institutions*	-	-	-	-	-	
Students/graduates	16%	21%	24%	25%	18%	
Employers	5%	11%	6%	10%	6%	
Total	100%	100%	100%	100%	100%	

Note: * HEIs do not contribute to the cost of the higher education system funding system, but instead are net receivers of funds from students and the Exchequer. All monetary estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding.
Source: LE Europe analysis

15.3 Macroeconomic impacts

Before presenting the macroeconomic impact of the proposed higher education funding system under Option 3, note that, in contrast to public grant funding, the treatment of public income-contingent student loans in the National Accounting is more complex. We assume that, if such loans were introduced, the Irish Government would follow Eurostat's latest *Manual on Government Deficit and Debt*¹¹¹ by using a **hybrid approach to recording student loans** in the National Accounts, where:

- In terms of the **extension of student loans during the period of study**, the General Government Balance would record the proportion of the loan principal expected *not* to be repaid (i.e. written off) as upfront expenditure (i.e. a grant/capital transfer element) in each year of study (i.e. a decrease in the Balance)¹¹². The treatment of loans in General Government Net Debt would be relatively more straightforward, with Debt increasing with the *full* value of the loan outlay in each year of study (i.e. recorded as a liability).
- The remaining loan principal (expected to be fully repaid) would still be treated as a loan. The **interest accrued on this remaining loan element** would then be recorded as income adding to the General Government Balance in each year during the loan repayment period. Given that this loan element is expected to be fully repaid, there would be no more loan write-offs recorded at the end of the repayment period. The General Government Net Debt is *not* affected by the interest accrued on this loan element.

¹¹¹ See Eurostat (2019).

¹¹² Specifically, we multiply the loan outlay (i.e. the loan principal) by the proportion of the entire loan balance (including the loan principal plus accumulated interest) expected to be written off, based on cash terms (i.e. undiscounted) in current prices. In mathematical terms, this is calculated as $[\text{Loan principal} + \text{Interest} - \text{Repayments}] / [\text{Loan principal} + \text{repayments}]$.

Note that this proportion differs from the RAB charge (see Section 15.1.4), which was instead calculated as $[\text{Loan principal} - \text{Repayments}] / [\text{Loan principal}]$ (all captured in NPV terms and constant 2019-20 prices).

- Finally, **loan repayments and write-offs** would *not* directly affect the General Government Balance (but would only be used to calculate the above-discussed grant and loan elements of the loan outlay). In contrast, loan repayments would be recorded as a decrease in General Government Net Debt.

This hybrid treatment of student loans is summarised in Table 49¹¹³.

Table 49. Hybrid treatment of public student loan funding (under Option 3) in the General Government Balance and General Government Net Debt

Type of funding	General Government Balance	General Government Net Debt
Extension of student loans	Decreases by value of loans expected not to be repaid	Increases by full loan outlay
Interest accrual on student loan	Increases by interest accrued on loan value expected to be repaid	-
Student loan repayments*	-*	Decreases by full value of loan repayments
Write-off of outstanding loan balance*	-*	-

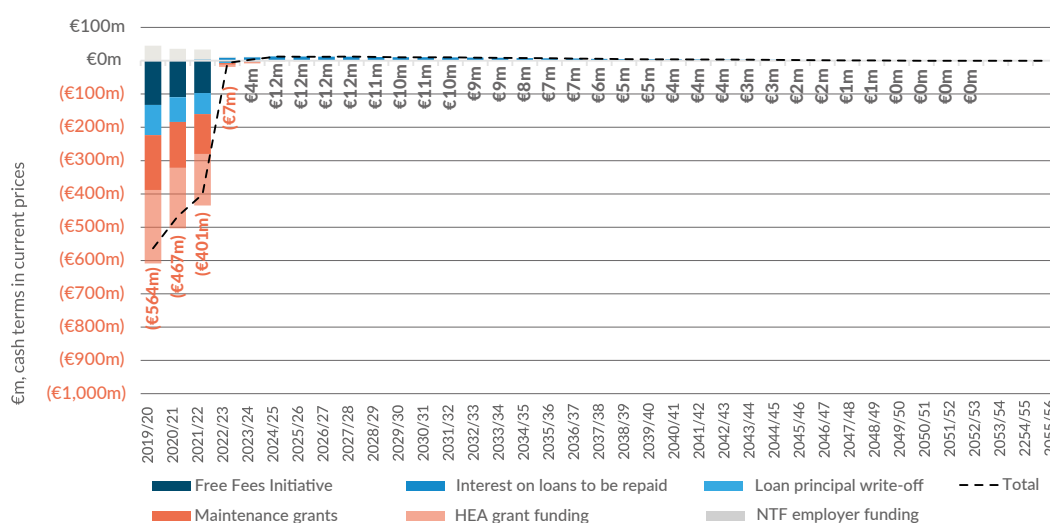
Note: * Used to estimate the loan value that is expected not to be repaid.

Source: LE Europe, based on Office for National Statistics (2018a and b) and Eurostat (2019)

15.3.1 Impact on the General Government Balance

In Figure 51, we present the impact of Option 3 on the General Government Balance in each year over the duration of the 2019-20 cohort's expected period of study. Again, the analysis provides an indication of the contribution of each of the different types of government funding to the public surplus/deficit.

Figure 51. Impact of the HE funding system on the General Government Balance (current prices in cash terms) – Cassells Option 3



Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.

Source: LE Europe analysis

113 For more information, see Deliverable 2.1 (LE Europe, 2020a).

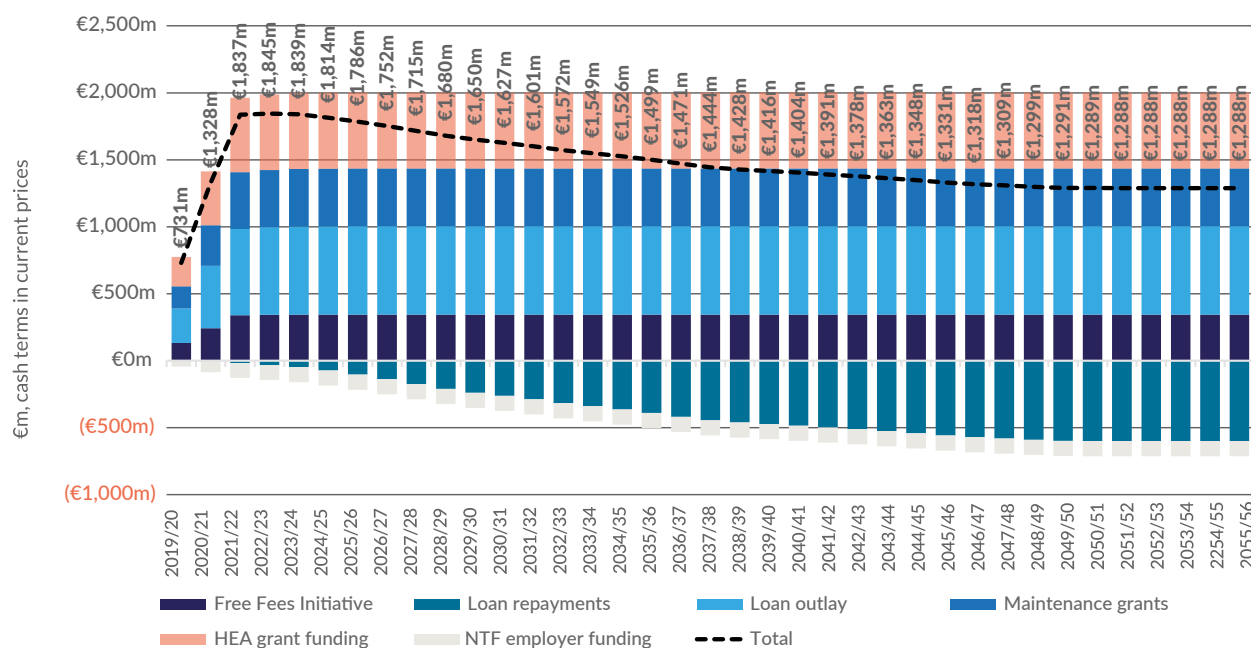
The analysis indicates that the system of higher education fees and funding under Option 3 would result in an overall deficit in the General Government Balance of **€564 million** in 2019-20, **€467 million** in 2020-21, and **€401 million** in 2021-22. This compares to deficits of **€359 million**, **€316 million**, and **€285 million** in the Baseline for the corresponding years (see Figure 39).

The major difference between the impacts of Option 3 and Option 2 relates to the substitution of some of the additional HEA funding paid to higher education institutions (under Option 2) with enhanced student contributions backed by income-contingent loans (under Option 3). During the period of study for the cohort, the General Government Balance only accounts for the proportion of the loan outlay that is expected not to be repaid (rather than counting the full loan outlay as expenditure). As a result, the public deficit between 2019-20 and 2021-22 under Option 3 would be approximately **€75-100 million** lower per annum than under Option 2 (see Figure 43).

15.3.2 Impact on General Government Net Debt

In Figure 52, we present the corresponding impact of Option 3 on General Government Net Debt associated with the 2019-20 cohort's expected period of study. Unlike the Baseline system and Options 1 and 2, the introduction of income-contingent loans results would imply that Net Debt would initially increase as loans are issued (during the cohort's period of study), reaching a maximum of **€1,845 million** in 2022-23, before gradually reducing over time as graduates in the cohort make loan repayments. In steady state (in this case, 2051-52¹¹⁴), the impact on Government Net Debt associated with the 2019-20 cohort of students under Option 3 was estimated to be **€1,288 million** per annum.

Figure 52. Impact of the HE funding system on General Government Net Debt (current prices in cash terms) – Cassells Option 3



Note: All estimates are presented in (undiscounted) cash terms in current prices, and rounded to the nearest €1 million.
Source: LE Europe analysis

114 i.e. following the end of the loan repayment period for all students in the cohort.

Supplementary ‘hybrid’ option

Derived from Option 2 proposed by the Cassells Review, we modelled an additional hybrid option that incorporated more **modest increases in maintenance grant support**, alongside an **Income-Contingent Maintenance Fund (ICMF)**. The ICMF would offer ‘top-up’ maintenance support, such that all students would be eligible to receive a **total level of maintenance support** equal to the maximum of the new special rate maintenance grant. The ICMF would be repayable contingent on graduates’ earnings, under identical terms as assumed for Cassells Option 3. In addition, under this hybrid option, **employers would be expected to make a larger contribution via the National Training Fund** compared to the Baseline (approximately 0.6% compared to 0.3%). A summary of this hybrid option is presented in Table 50.

Table 50. Overview of hybrid funding scenario

Type of funding	Baseline (current system)	Option 2: Increased state funding with continuing fees	Hybrid option Expanded funding within current system + ICMF
Fees (tuition fees, student contribution charge & other levies)	Fees charged to all students UG FT fees include €3,000 student contribution charge. This charge does not apply to UG PT, PG FT or PG PT students.	Fees charged to all students All students are charged a student contribution of €3,000 (pro-rata for PT), with FFI covering tuition fees.	As per Option 2
Free Fees Initiative (FFI)	For UG FT students only (covering tuition fee element)	Extended to all students (covering tuition fee element)	
Student contribution element of fee grant	UG FT students only (covering student contribution)	Extended to all students (covering student contribution)	
PG fee contribution (standard rate)	PG FT students only	All students funded through FFI	
PG fee contribution (special rate)	PG FT students only	All students funded through FFI	
Standard rate maintenance grant	UG FT students from Ireland only	Increased grant levels (c.3.3 times Baseline rates) extended to cover UG PT and PG PT students from Ireland (PT pro-rata)	Increased grant levels (2.0 times Baseline rates) extended to cover UG PT and PG PT students from Ireland (PT pro-rata)
Special rate maintenance grant	UG FT and PG FT students from Ireland only	Increased grant levels (c.2.2 times Baseline rates) extended to cover UG PT, PG FT and PG PT students from Ireland (PT pro-rata)	Increased grant levels (c.1.5 times Baseline rates) extended to cover UG PT, PG FT and PG PT students from Ireland (PT pro-rata)
Income-Contingent Maintenance Fund (ICMF)¹	-	-	ICMF available to all students to top up any maintenance grants received (i.e. all students receive total maintenance support equal to special maintenance grant)
Core recurrent HEA grant	Current funding per student per year. All students.	Increase in funding to align more closely with costs of institutional delivery, historic benchmarks, and jurisdictions operating predominantly state-funded systems	As per Option 2
Employer funding (through NTF)²	Current funding per student per year. All students.	As per Baseline	Increased employer funding per student per year.

Note: 1 As with the student contribution loans proposed under Cassells Option 3, the analysis assumes that full-time students first become liable to repay their ICMF (depending on their income) in the year post-graduation. For part-time students, the model assumes that these students become liable to repay their ICMF 3 years after they first enrolled, or in the year post-graduation – whichever comes first. 2 While the rate of NTF contribution in the Baseline and Option 2 stands at 0.3%, this would increase to approximately 0.6% in the hybrid option.
Source: LE Europe, based on proposals put forward by the DFHERIS

In Table 51, we present information on the estimated Exchequer costs associated with this hybrid option, both in absolute terms and relative to the Baseline. As this hybrid option mirrors Option 2 with respect to the structure of fees and fee support, the Exchequer costs associated with this element of support again stands at **€536 million**. Similarly, the costs associated with enhanced HEA grants stand at **€810 million** per cohort (and are again identical to the estimates for Option 2 (see Table 38 in Section 14.1.2)).

In terms of maintenance support, given the more modest levels of maintenance grant available, the costs associated with the standard and special maintenance grants proposed under the hybrid option were estimated to be **€169 million** and **€92 million** respectively (representing an increase of **€110 million** and **€37 million** compared to the Baseline). The introduction of the ICMF would be expected to result in a cost to the Exchequer of approximately **€119 million** per cohort, resulting in a total maintenance support cost of **€380 million** per cohort to the Exchequer. Crucially, this assumes that only 50% of eligible students would take up the additional maintenance support available through the ICMF¹¹⁵ (in contrast to an assumed 100% take up of the student contribution loans modelled under Cassells Option 3).

Against these costs, the contribution from employers through the NTF would increase to **€225 million**, which represents an increase of **€116 million** compared to the Baseline (and all Cassells Options). In aggregate, the total Exchequer costs associated with the hybrid option were estimated to be **€1,501 million** per cohort, which represents an increase of **€568 million** compared to the Baseline.

Table 51. Total Exchequer resource flows associated with the 2019-20 cohort (by study level and mode), net present values in constant 2019-20 prices – Hybrid option

Type of funding	UG FT	UG PT	PG FT	PG PT	Total	Diff. to Baseline
Free Fees Initiative	(€285m)	(€4m)	(€28m)	(€15m)	(€332m)	(€47m)
Student contribution grants	(€175m)	(€4m)	(€16m)	(€9m)	(€204m)	(€60m)
PG fee contributions - standard	-	-	-	-	-	€2m
PG fee contributions - special	-	-	-	-	-	€3m
Total fee support	(€460m)	(€8m)	(€44m)	(€24m)	(€536m)	(€101m)
Maintenance grants - standard	(€140m)	(€7m)	(€13m)	(€8m)	(€169m)	(€110m)
Maintenance grants - special	(€82m)	(€4m)	(€3m)	(€2m)	(€92m)	(€37m)
ICMF	(€102m)	(€5m)	(€8m)	(€5m)	(€119m)	(€119m)
Total maintenance support	(€324m)	(€15m)	(€25m)	(€15m)	(€380m)	(€266m)
HEA grants	(€674m)	(€36m)	(€63m)	(€38m)	(€810m)	(€317m)
NTF funding from employers	€175m	€14m	€18m	€18m	€225m	€116m
Total	(€1,283m)	(€45m)	(€114m)	(€59m)	(€1,501m)	(€568m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt (or improvement compared to the Baseline), while estimates in red indicate a net contribution.

Source: LE Europe analysis

As with Cassells Option 2, higher education institutions would receive **€1,531 million** in funding per cohort (an increase of **€317 million** compared to the Baseline). Students/graduates would contribute **€233 million** per cohort, which compares to **€600 million** per cohort in the Baseline, and **€198 million** per cohort under Option 2.

¹¹⁵ In addition, we assume that there is no difference in the characteristics of those students taking up the ICMF as compared to those that do not, nor that there is any difference in the repayment characteristics of graduates depending on household income during study.

16. Comparison of the strengths and weaknesses of all options

16.1 Total costs and resource flows associated with each system

Comparing the net Exchequer costs associated with the current fees and funding arrangements in Ireland (Baseline) and the three options proposed by the Cassells Review, Table 52 illustrates that **all three Cassells options would result in an increase in funding provided by the Exchequer**. Compared to the net Exchequer cost of **€932 million** associated with funding the 2019-20 student cohort under the current system, this net cost would increase to **€1,820 million** under the predominantly state-funded system proposed under Option 1, **€1,652 million** under the increase in state funding with continuing fees under Option 2, and **€1,504 million** under the combination of increased state funding with student loans proposed under Option 3.

Table 52. Total Exchequer resource flows associated with the 2019-20 cohort in the Baseline and under all Cassells Review options, net present values in constant 2019-20 prices

Type of funding	Baseline	Option 1 (Predominantly state-funded)	Option 2 (Increased state funding with continuing fees)	Option 3 (Increased state funding with income-contingent loans)
Free Fees Initiative	(€285m)	-	(€332m)	(€332m)
Student contribution grants	(€144m)	-	(€204m)	-
Student contribution loan write-off	-	-	-	(€319m)
PG fee contributions - standard	(€2m)	-	-	-
PG fee contributions - special	(€3m)	-	-	-
Total fee support	(€434m)	-	(€536m)	(€651m)
Maintenance grants - standard	(€59m)	(€281m)	(€281m)	(€281m)
Maintenance grants - special	(€55m)	(€133m)	(€133m)	(€133m)
Total maintenance support	(€114m)	(€415m)	(€415m)	(€415m)
HEA grants	(€493m)	(€1,514m)	(€810m)	(€547m)
NTF funding from employers	€109m	€109m	€109m	€109m
Total	(€932m)	(€1,820m)	(€1,652m)	(€1,504m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.
Source: LE Europe analysis

The corresponding information on resource flows from the perspective of students/graduates (see Table 53) indicates that **all three Cassells options would imply a reduction in the total net cost to students/graduates in the 2019-20 cohort compared to the current Baseline system**. Specifically, compared to a total net cost of **€600 million** in the Baseline, students' net costs (per cohort) would decline to **€29 million** under Option 1, **€198 million** under Option 2 and **€345 million** under Option 3. In other words, across the different Cassells options, the introduction of student contribution loans under Option 3 would imply a relatively high net cost incurred by students/graduates, while the largely state-funded system proposed under Option 1 would require relatively low resources from students.

Table 53. Total student/graduate resource flows associated with the 2019-20 cohort in the Baseline and under all Cassells Review options, net present values in constant 2019-20 prices

Type of funding	Baseline	Option 1 (Predominantly state-funded)	Option 2 (Increased state funding with continuing fees)	Option 3 (Increased state funding with income-contingent loans)
Tuition fees	(€390m)	-	(€332m)	(€332m)
Student contributions	(€314m)	-	(€372m)	(€635m)
Other levies	(€16m)	(€16m)	(€16m)	(€16m)
Total notional fee costs	(€720m)	(€16m)	(€720m)	(€983m)
Free Fees Initiative	€285m	-	€332m	€332m
Student contribution grants	€144m	-	€204m	-
Student contribution loan write-off	-	-	-	€319m
PG fee contributions - standard	€2m	-	-	-
PG fee contributions - special	€3m	-	-	-
Total fee support	€434m	-	€536m	€651m
Maintenance costs	(€428m)	(€428m)	(€428m)	(€428m)
Maintenance grants - standard	€59m	€281m	€281m	€281m
Maintenance grants - special	€55m	€133m	€133m	€133m
Total maintenance support	€114m	€415m	€415m	€415m
Total	(€600m)	(€29m)	(€198m)	(€345m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.

Source: LE Europe analysis

As presented in Table 54, **under all Cassells options, there would be no change to employer contributions to the National Training Fund** as compared to the Baseline (given that the recommended increase in the NTF levy has already been implemented since the Cassells Review). As in the Baseline, across the 2019-20 cohort, this levy contribution to support the funding of higher education would stand at approximately **€109 million**.

Table 54. Total employer resource flows associated with the 2019-20 cohort in the Baseline and under all Cassells Review options, net present values in constant 2019-20 prices

Type of funding	Baseline	Option 1 (Predominantly state-funded)	Option 2 (Increased state funding with continuing fees)	Option 3 (Increased state funding with income-contingent loans)
NTF funding from employers	(€109m)	(€109m)	(€109m)	(€109m)
Total	(€109m)	(€109m)	(€109m)	(€109m)

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.
Source: LE Europe analysis

In relation to the funding received by higher education institutions (see Table 55), compared to the Baseline funding of **€1,213 million** per cohort, the **level of HEI funding would increase to €1,531 million per cohort under each of the Cassells Review options**. Hence, as intended, all three Cassells options would increase the level of funding available to HEIs by the same amount – though with significant differences in the source of this funding across each option.

Table 55. Total HEI resource flows associated with the 2019-20 cohort in the Baseline and under all Cassells Review options, net present values in constant 2019-20 prices

Type of funding	Baseline	Option 1 (Predominantly state-funded)	Option 2 (Increased state funding with continuing fees)	Option 3 (Increased state funding with income-contingent loans)
Tuition fees	€390m	-	€332m	€332m
Student contributions	€314m	-	€372m	€635m
Other levies	€16m	€16m	€16m	€16m
Total fee income	€720m	€16m	€720m	€983m
HEA grants	€493m	€1,514m	€810m	€547m
Total	€1,213m	€1,531m	€1,531m	€1,531m

Note: All estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding. Estimates presented in black indicate a net receipt, while estimates in red indicate a net contribution.
Source: LE Europe analysis

Specifically, of the total funding resources associated with the system (of **€1,641 million** per cohort in the Baseline (see Table 56)), the Exchequer currently contributes approximately **57%** in the Baseline. This would increase to **93%** under Option 1, **84%** under Option 2 and **77%** under Option 3 (with the total resource cost of each system standing at **€1,958 million** per cohort). In contrast, while the proportion of the total system funding provided by students/graduates currently stands at approximately **37%** in the Baseline, this would decline to **2%** under Option 1, **10%** under Option 2 and **18%** under Option 3. Employers provide the remaining **7%** of the total system of funding in the Baseline, and **6%** under each of the Cassells options, through their contributions via the National Training Fund.

Table 56. Total funding for higher education in the Baseline and under all Cassells Review options, net present values in constant 2019-20 prices

Stakeholder	Baseline	Option 1 (Predominantly state-funded)	Option 2 (Increased state funding with continuing fees)	Option 3 (Increased state funding with income-contingent loans)
Exchequer	€932m	€1,820m	€1,652m	€1,504m
Higher education institutions*	-	-	-	-
Students/graduates	€600m	€29m	€198m	€345m
Employers	€109m	€109m	€109m	€109m
Total	€1,641m	€1,958m	€1,958m	€1,958m
Exchequer	57%	93%	84%	77%
Higher education institutions*	-	-	-	-
Students/graduates	37%	2%	10%	18%
Employers	7%	6%	6%	6%
Total	100%	100%	100%	100%

Note: * HEIs do not contribute to the cost of the higher education system funding system, but instead are net receivers of funds from students and the Exchequer. All monetary estimates are discounted to net present value terms, presented in constant 2019-20 prices, and rounded to the nearest €1 million. The estimates may not add up precisely to the totals due to this rounding.

Source: LE Europe analysis

16.2 Macroeconomic impacts associated with each system

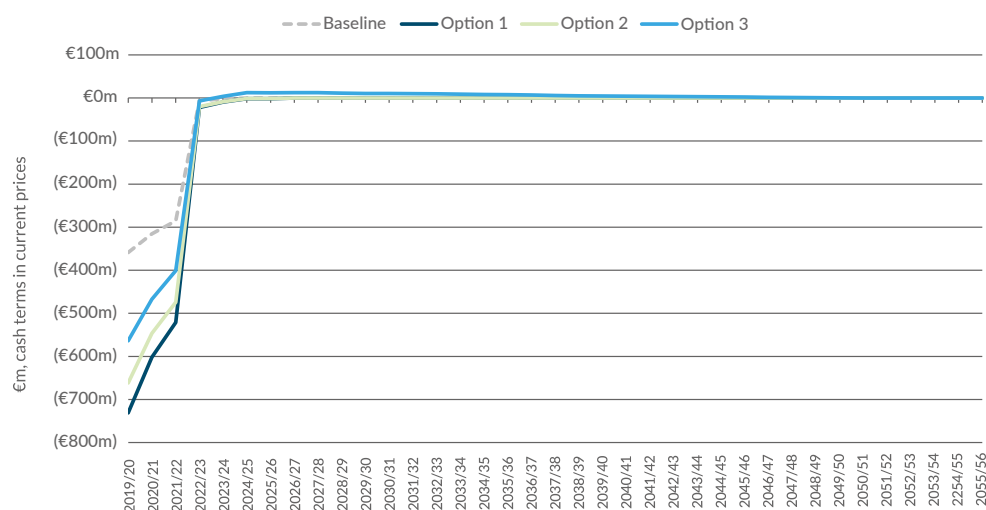
Figure 53 presents the estimated impact of each system (again including the current Baseline system and each of the three Cassells options, associated with the 2019-20 cohort) on the public surplus/deficit (i.e. the General Government Balance).

Given that each of the options proposed by the Cassells Review would imply an increase in funding provided by the Exchequer, compared to the current system, each of these options would imply a **decline in the General Government Balance** during the cohort's period of study – i.e. a worsening of the public deficit associated with the current system.

Given the level of public resource committed, the predominantly state-funded system proposed under Option 1 would result in the lowest balance (or, conversely, the highest deficit), ranging between **€521 million** and **€731 million** per annum in the first three years (i.e. between 2019-20 and 2021-22). The continuation of fees with an increase in grant funding provided to students and HEIs under Option 2 would result in somewhat lower deficits, of **€474 million** to **€622 million** between 2019-20 and 2021-22. Under Option 3, the replacement of student contribution grants with loans implies that, during the cohort's period of study, the General Government Balance would only record the proportion of the loan principal expected to be written off (rather than the full loan outlay) as upfront expenditure. As a result, under Option 3, the public deficit between 2019-20 and 2021-22 would be approximately **€75-100 million** lower per annum than under Option 2, ranging between **€401 million** and **€564 million** per year.

In addition, the Baseline systems and Options 1 and 2 result in small additional deficits in subsequent years until 2025-26 (associated with relatively longer (e.g. part-time) programmes), with no further impact on the Balance thereafter. In contrast, the student loans proposed under Option 3 would result in small surpluses from 2023-24 onwards, driven by the level of interest accrued by the Exchequer on the proportion of student loans expected to be repaid (during the loan repayment period).

Figure 53. Impact of the HE funding system in the Baseline and under each Cassells Review option on the General Government Balance (current prices in cash terms)



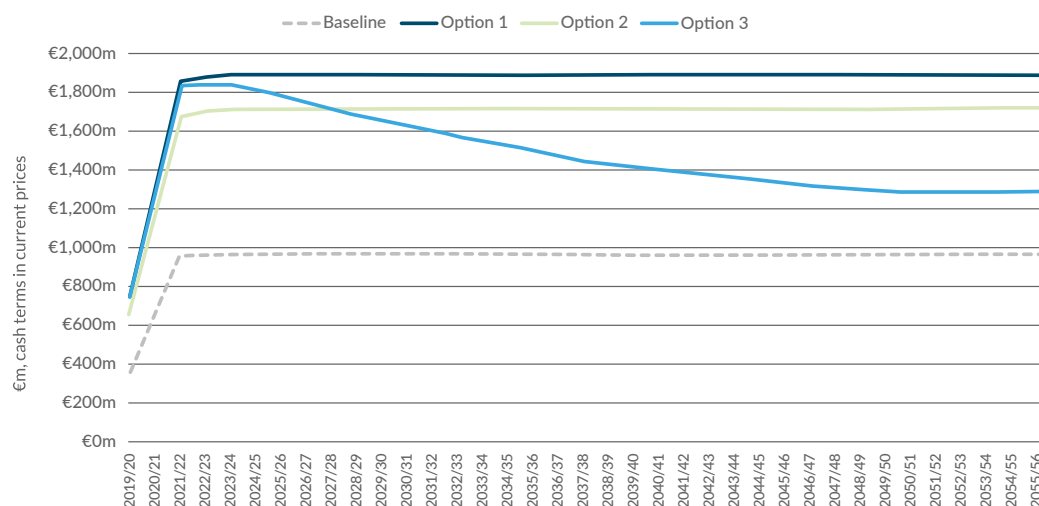
Note: All estimates are presented in (undiscounted) cash terms in current prices.
Source: LE Europe analysis

Figure 54 presents the corresponding impact of each system (again associated with the 2019-20 cohort) on General Government Net Debt. For each Cassells option, the increase in public funding provided for higher education would result in an **increase in General Government Net Debt**. For Options 1 and 2, following large increases in debt during the cohort's period of study, in steady state (from 2025-26 onwards), the debt impact of the public funding associated with the cohort was estimated at **€1,889 million** and **€1,714 million** per annum, respectively. This compares to **€968 million** in steady state under the current system. Given the proposed introduction of student loans, under Option 3, General Government Debt would first increase (by the total loan outlay) as loans are issued (during the cohort's period of study), reaching a maximum of **€1,845 million** in 2022-23¹¹⁶, before gradually reducing over time as graduates in the cohort make loan repayments. In steady state (in this case, 2051-52¹¹⁷), the impact on Government Net Debt under Option 3 was estimated to be **€1,288 million** per annum.

¹¹⁶ Note that, throughout the first three years considered (i.e. between 2019-20 and 2021-22), the debt impact of Option 3 follows an almost identical path as the corresponding debt impact under Option 1. This is given the fact that, under both options, tuition fees and student contribution charges would effectively be fully funded by the Exchequer at the point of access – with Option 1 abolishing tuition fees and student contributions (and replacing them with additional HEA grant funding), and Option 3 instead providing full funding for tuition fees through the Free Fees Initiative and non-means-tested student contribution loan funding for all students.

¹¹⁷ In contrast, the debt impact of Option 2 during the first three years would be slightly smaller. Under this option, the student contribution grant funding provided would be means-tested, so that the Exchequer would not fund the student contribution charges of those students with reckonable income in excess of the relevant reckonable income thresholds. As a result, the impact on General Government Net Debt under this option would be somewhat lower than under Options 1 and 3.

Figure 54. Impact of the HE funding system in the Baseline and under each Cassells Review option on General Government Net Debt (current prices in cash terms)



Note: All estimates are presented in (undiscounted) cash terms in current prices.
Source: LE Europe analysis

16.3 Wider strengths and weaknesses associated with the Cassells Review's proposals

The above analysis focused on the quantitative aspects of the three options proposed by the Cassells Review. In this section, based on the above findings and the lessons learned from the evolution of higher education funding in other jurisdictions of relevance to Ireland (see Section 10), we analyse some of the potential wider economic and societal impacts associated with the different Cassells Review options.

16.3.1 Access to higher education and implications for social mobility

One of the Cassells Review's guiding principles in developing the three proposed funding options was to ensure higher education access, participation, and progression among all socio-economic groups.

In this respect, the current higher education fees and funding regime offers significant fee support to full-time undergraduate students, through the provision of tuition fee funding (through the Free Fees Initiative) and means-tested student contribution grants. However, a significant proportion of full-time undergraduate students (from households with annual incomes in excess of approximately **€60,000** per annum) are obliged to pay their student contribution upfront. In addition, part-time undergraduate and postgraduate students currently typically receive no fee support.

Instead, **under Options 1 and 3, higher education would become effectively free at the point of entry** for all students (irrespective of study level and mode), while **Option 2 would result in a significant increase in fee support as compared to the Baseline**. Option 1 would involve the abolition of tuition fees and student contribution charges. Under Option 3, students' tuition fees would continue to be covered by the Free Fees Initiative, while their (higher) student contribution charges would be covered by non-means tested (income-contingent) student loans, with deferred repayment. Under Option 2, while tuition fees would again be funded through the Free Fees Initiative, as in the Baseline, student contribution charges would continue to be covered by means-tested grants (so that large proportions of students would still be obliged to pay their student

contribution upfront). In addition, **all of the options proposed by the Cassells Review would involve a significant increase in maintenance grant support provided for the least well-off students.**

Given these increases in student support, and the resulting improvement in access to higher education, the implementation of any of these options would likely result in an increase in the demand for higher education in Ireland. Given that they currently receive limited support, the increased demand would likely be particularly strong amongst part-time undergraduate and postgraduate students. However, the proposed improved maintenance support package would potentially also increase the demand for full-time undergraduate programmes from students from lower to middle income households (and in other jurisdictions (such as Wales), increased maintenance support has proven to be the most influential determinant in university demand – especially amongst those individuals from non-traditional higher education backgrounds). In the interest of securing a balance between HE and FET, it would therefore be important to ensure that prospective students are suitably informed and guided in their choices by comprehensive and detailed information on the benefits, value and opportunities from different programmes, both in HE and FET.

16.3.2 Higher education continuation/completion rates

Related to the issue of access and social mobility, **continuation rates and completion rates** are a core measure of the efficiency higher education systems. There is extensive evidence of the impact of students' socioeconomic backgrounds on continuation rates, completion rates, as well as the ultimate grade achieved by students. Completion rates will also be influenced by the extent to which effective pathways between further education and training and the higher education sector are developed.

The additional maintenance support proposed as part of all three Cassells Review options would reduce the financial pressure facing the least well-off students – and their families – and is likely to result in improved system-wide outcomes. This relates not only to continuation and completion rates, but also to progression to higher levels of study. In addition, the removal of tuition fees and student contribution charges (under Option 1) or the provision of additional fee support during study (under Options 2 and 3) would further reduce the financial burden on students and families – again with likely increases in continuation, completion and progression rates across the higher education sector, and further improvements in social mobility. These benefits would again support the Cassells Review's guiding principles, as the implementation of any of the proposed funding options would improve higher education access, participation, and progression among all socio-economic groups, but also - through the continued reform of HE provision - support the national ambition to achieve high quality education outcomes that support Ireland's national development.

16.3.3 Which groups of students are affected by the different options?

With each of the Cassell Review options resulting in the same increase in the total funding for higher education, in addition to differences in the balance of contribution between the Exchequer and students (discussed above; see Section 16.1), a key difference relates to which particular groups of students would benefit from the enhanced Exchequer funding provided under each option. As stated in the Cassells Review's guiding principles, any new funding system should promote fairness and balance between the public and private benefits of higher education, as well as between students with different levels of family income.

The current system of public higher education funding in Ireland is relatively focused on the 'traditional' full-time undergraduate model, with almost **99%** of public fee and maintenance student support directed at full-time undergraduate students. In contrast, there are relatively limited funds provided to part-time or postgraduate students. In addition, and in spite of the current public student support provided, the costs to full-time undergraduate students of attaining higher education qualifications are substantial. All three alternative systems proposed by the Cassells Review options would require significant additional taxpayer funding to remedy this, and would result in large declines in the aggregate net costs to students associated with their higher education attainment.

Taking a closer look at the impact of each option on different groups of students, under **Option 1**, the proposed increase in the level of standard and special rate maintenance grants and the associated reckonable income thresholds under all three Cassells options would benefit students from the least well-off backgrounds and those from middle-income families (irrespective of

study mode or level). In addition, the elimination of tuition fees and student contribution charges would benefit all part-time and postgraduate students (who currently receive very limited support), as well as full-time undergraduate students from middle- or high-income households (who are not eligible for student contribution grants currently).

Under **Option 2**, again, students from low- or middle-income households would benefit from the enhanced maintenance support package. In addition, the extension of the Free Fees Initiative and means-tested student contribution grants would result in additional benefits for part-time and postgraduate students (particularly those from low- or middle-income households who would be eligible for means-tested student contribution grants). Some full-time undergraduate students would also benefit from the assumed increase in the reckonable income thresholds associated with student contribution grants¹¹⁸, though this would only affect students from middle-income households (i.e. a smaller group than under Option 1).

Under **Option 3**, again, the enhanced maintenance package would benefit students (full-time and part-time, at all levels) from low- or middle-income households. In terms of fees, the combination of Free Fees Initiative funding and non-means-tested student contribution loans would make access to higher education effectively free at the point of entry. However, the assumed increase in the student contribution charge per student (resulting in an increase in the total fee charged) implies that, in aggregate, students would face an overall increase in their net tuition fee costs¹¹⁹ as compared to the Baseline (of approximately **€46 million** across the cohort¹²⁰) – but with very different effects across different groups of students.

Specifically, both full-time and part-time postgraduate students would see a *reduction* in their net fees (of **€37 million** per cohort) as compared to the Baseline (since the benefit from the receipt of Free Fees Initiative funding would outweigh the cost of their student loan repayments). In contrast, full-time undergraduate students would face a significant increase in their net fee costs (of **€81 million** compared to the Baseline). This is entirely driven by high-earning graduates, who would be expected to repay the majority or all of their student contribution loan. Finally, undergraduate part-time students would also face a small *increase* in their net fee costs (of **€3 million** compared to the Baseline).

16.3.4 Institutions' financial resources for research provision

All three options proposed by the Cassells Review would result in additional institutional income of **€317 million** per cohort compared to the current Baseline¹²¹. If the implementation of one of the Cassells Review options resulted in an increase in demand (as discussed in Section 16.3.1, over and above any demographic changes), then it is likely that institutions would accrue additional income beyond this estimate.

Clearly, it is at institutions' discretion how this potential additional resource would be allocated in a manner consistent with national objectives for HE set under the Systems Performance Framework¹²², but it is likely that a significant proportion would be allocated to research activities. Any additional revenues allowing research-intensive higher education institutions to support and enhance their domestic research capacity would likely also enhance institutions' ability to attract world-leading researchers. In consequence, this would potentially improve the ability of Irish higher education institutions to secure further research funding from external sources (including Horizon Europe¹²³, which is the EU's key funding programme for research and innovation) and support the Cassells Review's guiding principle of promoting a high quality student experience based on excellent teaching, research and scholarship across a broad spectrum of disciplines.

118 For example, under the Baseline, full-time undergraduate students with less than 4 other dependent children living in the same household, one additional 'relevant person' undertaking full-time further or higher education in the household (which is the average across the cohort), and with a reckonable income of less than €54,670 are eligible for a grant covering 100% of their student contribution charge. This threshold would be assumed to increase to €67,390 under Option 2.

119 i.e. nominal fees charged by higher education institutions net of any public fee support provided by the Exchequer.

120 This is calculated by comparing the nominal fee costs (€720 million) and public fee support receipts (€434 million) of students in the cohort under the Baseline, implying a net fee cost of €286 million (see Table 27 in Section 12.1.1), with the corresponding nominal fee costs (€983 million) and public fee support receipts (€651 million) of students in the cohort under Option 3 (i.e. a net fee cost of €332 million, see Table 44 in Section 15.2.1).

121 Again, see Table 55 for reference.

122 See Higher Education Authority (2017b).

123 For more information on Horizon Europe, please see https://ec.europa.eu/info/horizon-europe_en#:~:text=What%20is%20Horizon%20Europe%3F,the%20EU's%20competitiveness%20and%20growth

16.3.5 The quality of higher education provision

Related to the Cassells Review's guiding principle of promoting quality, adequate resources are a prerequisite to enabling higher education institutions to provide high quality education (including the student experience, qualifications, learner outcomes, and competencies). The continued failure to put in place a sustainable funding model for higher education will inevitably impact the quality of provision, particularly against the backdrop of demographic developments over the next decade.

The Cassells Review discusses the actions required to put in place what it terms a virtuous circle of investment, quality, and verification. To ensure this, the Review discusses how increased resources need to be combined with an enhanced focus on quality, flexibility, and responsiveness across the HE system, alongside a more "fine-grained" specification and verification of outcomes achieved. The Review also discusses and sets out the steps recommended to secure a vital renewed focus on the quality and relevance of students' educational experience. To ensure the optimal use of resources in this context, the Review draws attention to the need to examine such measures as a greater scope for more co-ordinated and effective academic planning and provision across the HE sector, particularly within regions, as well as introducing greater flexibility in managing human resources.

The quality of higher education cannot be defined through simple metrics such as student-staff ratios, student satisfaction scores, or league table positioning. In reality, the quality of higher education might be more accurately measured based on the core teaching and research activity undertaken within higher education institutions, but, equally importantly, through the civic role of higher education institutions locally, regionally, and nationally. Higher education institutions – irrespective of their core mission – are hugely important to the economic, social, cultural, and environmental wellbeing of the places in which they are located.

There is no guarantee that the additional funding that would be made available to institutions under each of the three Cassells options (if implemented) would result in an increase in the quality of the higher education delivered by higher education institutions – unless there is a clear and realistic strategy to do so (both nationally and at institutional level). To improve the quality of provision, the additional resources will need to be targeted to deliver the greatest educational and social benefit, which, depending on the institution, might mean increasing research activity, increasing teaching activity, widening participation and access activities, or improving engagement and collaboration with businesses, all against the backdrop of a continuing process of reform and innovation in HE provision.

16.3.6 Graduate labour market access and long-run economic growth

All three Cassells Review options are based on the assumption that the cohort of students entering higher education in Ireland each year remains unchanged – both in terms of size and composition. As outlined above, the potential improvement to the maintenance offer under all three options may result in a fundamental change in the demand for higher education, with individuals from less well-off backgrounds more likely to enter higher education. In addition to the change in cohort composition, with fewer credit constraints, students are less likely to face restrictions in terms of their choice of where and what to study (e.g. undertaking longer duration undergraduate courses, postgraduate study, or living away from home). It is also likely that continuation and completion rates will improve – with all of these changes potentially resulting in significant improvements in social mobility – providing there is a continued focus on improving the quality of HE provision, the support provided to students, as well as ensuring that the programme choices that students make are more fully informed and guided than occurs at present.

Fundamentally, under all three options, the additional financial support provided to students would result in more graduates entering the labour market every year, a greater diversity within the graduate population, and ultimately, a more highly qualified population, assuming that the quality of HE continues to be enhanced and strengthened. Given the fact that higher qualification and skills levels are key drivers of long-term economic growth, all options considered here support the long-run economic prosperity of the nation, in line with the guiding principles underlying the Cassells Review. Improved economic growth is likely to lead to a deeper and broader labour market for graduates, resulting in a virtuous circle between these two core economic outcomes.

16.3.7 Meeting skills needs throughout the Irish labour market

Clearly, higher education is a key driver in meeting the skills needs of the economy, and in this respect, Ireland excels. Approximately **56%** of individuals aged between 30 and 34 in Ireland have tertiary level qualifications, which is the 3rd highest in the EU and **5 percentage points** higher than the UK¹²⁴. However, conversely, approximately **44%** of individuals in this age group – and **61%** of all individuals aged between 15 and 64 – have qualifications below tertiary level.

As identified in Part I of this report¹²⁵, the skills requirements of the Irish economy are multi-faceted, and, in the context of finite taxpayer receipts, need to be appropriately balanced to ensure national prosperity. The analysis indicates that there is a misalignment between the output of the HE and FET systems in terms of specific skills, and current and potential future labour market requirements; that effective pathways between further and higher education remain underdeveloped (despite a significant policy focus), so that there is only limited progression from FET to HE; that changes in future labour market demand (e.g. for emerging sectors and technologies including AI) will require the entire education and training sector to be flexible and responsive to change; and that, as a result of the unprecedented impacts of the COVID-19 pandemic, major adjustments to the HE and FET systems will be required to provide a greater focus on online/blended and part-time learning, and to ensure that the FET sector responds to the rise in youth unemployment caused by the pandemic. While the funding proposed by the Cassells Review focus predominantly on the Irish higher education funding system, all of these options should be considered within the wider system of education and training qualifications and skills and human capital development in Ireland (to ensure that a system-wide perspective is adopted, as highlighted in the Cassells Review's guiding principles).

16.3.8 Complexity of the student support system

The current student support system operating in Ireland is already complex, and includes a range of different grants available to different groups of students, each subject to a variety of eligibility criteria in terms of students' level of study, domicile, their reckonable income, the receipt of qualifying payments to receive any special rate grants, students' distance (i.e. adjacency) from their higher education institution, the number of other dependent children living in the same household, and the number of other relevant persons in the household in full-time further or higher education (among others). Therefore, a final consideration with respect to the potential implementation of any of the Cassells Review proposals relates to the extent to which these options might further increase the intricacy of the Irish public funding system for students. This also reflects one of the Cassells Review's guiding principles, taking a system-wide perspective with respect to sustainability, certainty, and *simplicity*.

Options 1 and 2 constitute variations of the current funding system, with Option 1 abolishing tuition fees and student contributions, Option 2 extending the current full-time undergraduate fee support to part-time and postgraduate students (with the same total fees charged as currently), and both options operating a similar maintenance grant package as the current system¹²⁶. However, given the introduction of student contribution loans and an increase in the student contribution charge, Option 3 would instead involve a significant deviation from the current funding system, considerably increasing the complexity of the system from the perspective of both students/graduates and the Exchequer.

For students, the introduction of income-contingent student loans would make it significantly more difficult to understand the true cost of attaining higher education qualifications. Since future loan repayments and the amount of loan interest charged would depend on students' earnings post-graduation, the actual cost of HE enrolment would only crystallise at the end of the 30-year loan repayment period, but would be unpredictable to students until then. This is exacerbated by the fact that graduate earnings and loan interest charges would be highly dependent on the overall strength of the Irish economy in terms of earnings growth and inflation (to which loan interest rates would be tied).

124 See Central Statistics Office (2019).

125 Also see Deliverable 1.2 submitted as part of this study (see Indecon (2020)).

126 Though with higher levels of support, and extended to part-time and postgraduate students.

The same applies to the Exchequer, where the above factors would make it challenging to predict the net public cost (in terms of loan write-off) associated with providing student loans¹²⁷, as well as the macroeconomics impact on the National Accounts. The implementation of a loan system would also impose a large additional administrative burden on the Exchequer, given the need to access and track graduates' earnings information through the PAYE system, trace their loan repayments, and chase up potential non-compliance of repayment obligations. This could be a particularly challenging issue for Ireland given the extent and scale of international graduate mobility. This would also be particularly burdensome with respect to EU students studying in Ireland, many of whom move back to their home countries post-graduation, necessitating a complex loan administration system that flexibly adjusts to different graduates' circumstances.

As a result of all of these considerations, the introduction of student loans under Option 3 would make the Irish higher education system substantially more complex than it already is. The true costs associated with the system would become markedly more difficult to assess – to both students and the Irish Exchequer – and the system's operation would be challenging (since, as seen in other jurisdictions operating loan systems¹²⁸, any ad-hoc changes to student loan conditions often have significant unintended economic consequences).

127 For example, in terms of the volatility of the cost of the system with respect to the overall state of the economy, in England, we recently estimated that a 1 percentage point increase in UK average earnings growth would reduce the expected Exchequer cost of the English higher education funding system by almost £900 million per cohort (in terms of the public funding provided to English domiciled students studying anywhere in the UK, and EU domiciled students studying in England (all at undergraduate level)). For more information, see London Economics (2019).

128 Again, see Section 10, and Deliverable 3.1 submitted as part of this study (see LE Europe, 2020b).

PART III: **Recommendations**



17. Proposals and recommendations for further consideration by the Irish Government

Finally, based on the range of evidence presented in this report, this section outlines our recommendations for a major reform programme designed to improve the co-ordination between the skills demand and supply in the Irish economy, and to increase the sustainability of higher education and further education and training provision in Ireland. Table 57 provides a summary of the proposals.

The recommendations are designed to build on and accelerate the reforms which are currently underway. Significant changes have already been introduced by the HEA, SOLAS, and other agencies, as well as by individual educational and training institutions. There have also been significant policy reforms introduced.

Table 57. Summary of recommendations

1	Measures should be implemented to reduce underutilisation of human capital while also tackling under-education in certain groups in Irish society.
2	The HE and FET systems should be strongly encouraged and supported to continue to respond to the significant shift in future labour market requirements towards high skilled employment and the rapidly changing needs of emerging sectors and technologies.
3	Resources should be allocated to further strengthen predictions of demand for skills and qualifications on an integrated and cohesive basis.
4	Investment and a strong additional emphasis should be given to putting in place seamless pathways between and further and higher education.
5	Flexible and responsive education and training measures should be introduced as a priority to reskill those who have lost employment during the COVID-19 pandemic.
6	Employers should have an enhanced role in shaping and delivering the education and training system to reflect the prioritisation of human capital development and to secure greater socio-economic equality.
7	A sustainable model of financing for the HE and FET system should be prioritised to support the future development of the HE and FET systems in meeting the economy's human capital and skills needs.
8	The Irish Government should ensure that the appropriate level of HE provision is determined with sustainable and adequate resources available to support high quality higher education in Ireland.
9	The Government should decide how the funding gap will be addressed.
10	The Government should increase and extend maintenance and fee support.
11	Consideration should be given to a 'hybrid' model of higher education fees and funding in Ireland.
12	The application of means-testing for the provision of student support should be improved.
13	The student support system should be simplified.
14	The Government should develop and implement a rigorous long-term data strategy and infrastructure for the collection of higher education data.

Source: Indecon and LE Europe

1. Measures should be implemented to reduce under-utilisation of human capital while also tackling under-education in certain groups in Irish society.

The evidence presented in this report shows some under-utilisation of human capital in Ireland. The HE and FET systems, in collaboration with employers, employees, and other stakeholders, should identify ways in which to maximise the use of skills and human capital in the labour force. This could be supported by measures to ensure that school leavers make the correct choices, and this will require ongoing reform to career guidance, and greater exposure of students to the range of options (including tester courses at secondary level). Collaboration between FET and HE at a regional level involving the enterprise sector, the National Skills Council, The National Training Fund Advisory Group, Regional Skills Fora and Skillnet Ireland, would be of value in reducing any under-utilisation of skills. Employer work placements and high-skilled apprenticeship programmes should continue to be prioritised. There is also a need to tackle low levels of educational attainment in certain groups in Irish society. Outreach and support programmes which have proven successful in Ireland including foundation courses should be expanded. These should target geographic areas and social groups with low tertiary admissions. The objective of these measures is to fully utilise the skills base in the labour force, and to ensure that those with low skills are not left behind.

2. The HE and FET systems should be strongly encouraged and supported to continue to respond to the significant shift in future labour market requirements towards high skilled employment, and the rapidly changing needs of emerging sectors and technologies.

Securing substantial reforms in the HE and FET systems to meet the future skills demands of the economy will require significant policy and financial measures. These measures should be designed to ensure greater flexibility, agility, and responsiveness of the sector to changing needs, and a commitment to reform and transformation. Mutual support between FET and HE will also be essential in adjusting to changes in labour market requirements. This should take into account the fact that the requirements from the HE and FET sectors will be very different in the future. This will require a combination of apprenticeships, FET courses, as well as undergraduate and postgraduate degrees. It will also require continuous lifetime engagement in learning. The transformation of the HE landscape in Ireland currently underway through the establishment of technological universities can play a role in supporting the achievement of these objectives.

In this context, it is important to avoid seeing the balance between FET and HE as a binary choice, as FET as well as HE will have a critical role in responding to the shift to medium and higher skill needs. Lifelong learning will also require adjustments in course design and delivery methods, and active participation by employers and learners. Of note is that as people exit HE and FET and others retire from the labour force, Ireland will see a continued evolution in the levels of skills and human capital development. Even without any new reforms, the number of individuals with lower education levels will decline. Further work could be considered to inform policymakers of what will be the quantified level of the gap in skills and human capital which will need to be met through upskilling, reskilling and inward migration.

3. Resources should be allocated to further strengthen predictions of demand for skills and qualifications on an integrated and cohesive basis.

Very important work has been undertaken by the National Skills Council and Skills, SOLAS, and the Expert Group on Future Skills Needs in examining future skills gaps. Significant academic and policy research has also been undertaken into potential areas of education mismatches, including vertical mismatches in terms of over-education. Less empirical research has been undertaken on under-education, and this needs to be addressed. Some of the research on vertical skills mismatches for Ireland has been based on small sample surveys as part of wider international surveys. The testing of the results with larger Irish surveys would be useful. More emphasis is needed on future demand for qualifications and skills, and this has been a relatively underdeveloped area in Ireland. While there are inevitable uncertainties inherent in any predictions of future occupations and skills, additional econometric modelling should be a key area for further research. This proposed work is directly aligned with the European Skills Agenda, and in particular Action 2 which is focused on strengthening skills intelligence. We

also recommend that the type of detailed analysis and quantitative modelling completed for this study should be updated periodically. This would provide a benchmark against which to measure progress.

4. Investment and a strong additional emphasis should be given to putting in place seamless pathways between and further and higher education.

Standardisation of entry requirements to higher education for FET awards, including integration with the CAO points system to achieve a more level playing field, should be implemented, as well as greater flexibility in access in terms of location, mode and timing of participation. To facilitate this, short-cycle flexible co-provision within higher education institutions in co-operation with FET providers should be introduced. Shortened and elongated programmes to suit the differential needs of FET graduates should be expanded. A particular focus should be to ensure flexible modular HE and FET programmes yielding 'stackable' micro-credentials meeting the skills needs for the future world of work. In terms of flexible provision, short modular courses already introduced in Ireland are proving to be very successful. We also support an expansion in micro-credential provision to increase the provision of flexible short courses in a responsive manner to meet demand. In addition to FET's important ongoing role in meeting medium and higher skill needs, an enhanced role for FET in improving skills for those with lower education attainment and requiring support prior to entering higher education should be a focus of investment. A seamless pathway to transfer non-completing HE course participants to FET should also be introduced. This would enhance the efficiency and cost effectiveness of higher education. Specific targets should be set for learner access numbers between FET and the HE sectors.

5. Flexible and responsive education and training measures should be introduced as a priority to reskill those who have lost employment during the COVID-19 pandemic.

The further and higher education sectors in Ireland have responded very well to the many immediate challenges which have arisen from COVID-19. Particular focus will be needed in the future to assist those in sectors or demographic or social groups most impacted by COVID-19 to obtain the skills needed in emerging high-growth and high-productivity sectors and occupations. Targeted access pathways into higher education, including a focus on flexible modular programmes, should be designed to assist individuals who have lost jobs and who have potential for upskilling to transition into growth sectors. This should include measures targeted at youth unemployment. An early action and a proactive approach are required in order to maximise the probability of returns to employment on a sustained basis. The co-ordination of the labour market activation system with education and training opportunities will be critical. This should be aimed at reducing long-term unemployment.

6. Employers should have an enhanced role in shaping and delivering the education and training system to reflect the prioritisation of human capital development and to secure greater socio-economic equality.

Developing deeper collaboration between enterprise and the further and higher education systems should be a key objective of future reforms and would facilitate work-based learning to be leveraged. Successful models in place in a number of Irish and multinational companies in Ireland which deliver quality training outcomes jointly with the education and training system should be identified and implemented more broadly across the SME sector of the economy. A national target should be set for investment in training by employers and an examination undertaken of the supports that could underpin the achievement of these national targets. The use of increased National Training Fund resources or funding arising from Pay Related Social Insurance income should be also considered. Work-based learning with the support of the HE and FET systems should be strongly promoted and encouraged. Measures to assist employers to facilitate work placements and apprenticeship programmes should be supported by the National Training Fund. Ongoing policy inputs and insights from employers should continue to be facilitated. We note that the National Training Fund Advisory Group has provided a much-needed voice to employers, and this reform is welcomed.

7. A sustainable model of financing for the HE and FET system should be prioritised to support the future development of the HE and FET systems in meeting the economy's human capital and skills needs.

Careful evidence-based consideration by policymakers of the impacts of various alternative funding models is needed. The extensive work undertaken as part of this study on developing a model to test the impact of alternative funding approaches will assist in this work. It is essential that the HE system is not expected to accommodate additional students in the absence of putting in place a sustainable funding model, as this creates significant risks in terms of standards and the quality of provision. A sustainable model of funding should be underpinned by examination of the appropriate mix of HE and FET provision in meeting future skills and human capital needs, and ensuring alignment of HE and FET provision with labour market requirements.

8. The Irish Government should ensure that the appropriate level of HE provision is determined with sustainable and adequate resources available to support high quality higher education in Ireland.

The analysis confirms that a funding gap exists to meet the requirements for a high quality higher education sector in Ireland. Providing sustainable and adequate Government funding for higher education is critical to realising the potential of the Irish population, and is required to underpin the needs of the Irish economy. The growth in student numbers as experienced in recent years and predicted in future years has impacted on the level of resources provided by the Government on a per student basis. To reflect the national ambitions driving the principles of the Cassells Review, we recommend that:

- Consideration be given to increasing the levels of recurrent grant resource allocated per student to higher education institutions to support core provision;
- Any additional funding, and the recurrent grant funding model, should ensure that the resources available to higher education institutions align more closely with the cost of delivery;
- The recurrent grant funding model is updated regularly to support core higher education provision, while also incentivising course provision in key areas of skills needs, as well as research activities;
- The wider tertiary system be utilised effectively to support learners to upskill in a flexible way through lifelong learning, and ease demographic pressures on the full-time higher education system; and
- These steps should be taken in parallel with an intensified focus on a more fine-grained specification and verification of outcomes achieved from HE, as well as a more systematic approach to timely data collection on the HE cost base, to allow for meaningful comparison and benchmarking of costs across the sector.

9. The Government should decide how the funding gap will be addressed.

The research demonstrates that there are a range of policy options that would increase the sustainability of higher education provision in Ireland. While there are advantages and disadvantages associated with all the different policy options, the detailed evidence should help inform long-term policy decisions. A key recommendation is that clear and consistent decisions are not delayed, and that implementation takes place as soon as is practicable. The sustainability of the higher education sector could be achieved by a mix of policies, including:

- Changes in the balance between higher education and further education, by increasing both the proportion of students attending further education, as well as providing additional financial support to students undertaking further education and training;

- Changes in the balance between full-time education and part-time or flexible learning, by increasing the proportion of students learning through flexible means, as well as providing additional financial support to students undertaking flexible or part-time tertiary education; and
- Increased levels of direct Exchequer funding to higher education institutions for both research and teaching activity; measures to attract a greater balance of contribution between the Exchequer and graduates (for instance via effective income-contingent maintenance funding); and/or enhanced contributions from employers through the National Training Fund.

10. The Government should increase and extend maintenance and fee support.

Maintenance support: To promote access to higher education and social mobility, we recommend that consideration be given to:

- Increasing the maximum level of maintenance grants currently provided to undergraduate full-time students;
- Introducing income-contingent maintenance funding to provide additional maintenance support to complement maintenance grants;
- Maintaining the principle of means-testing, increasing the reckonable income thresholds used to assess students' eligibility for maintenance grants, thereby increasing the number of students eligible for funding;
- Extending the coverage of maintenance grants to be made available (on a comparable basis) to part-time undergraduate students; and
- Extending the coverage of the current maintenance package to postgraduate students.

Fee support: To promote equity, transparency, and access, we recommend that consideration be given to:

- Extending the current fee structure that applies to full-time undergraduate students (i.e. combining a tuition fee, a student contribution charge, and other levies) to part-time undergraduate students;
- Correspondingly, extending the current fee support regime for full-time undergraduate students to cover part-time undergraduate students. This would result in all undergraduate students having access to the Free Fees Initiative (covering their tuition fees), as well as a means-tested grant to cover their student contribution charge; and
- Subject to similar eligibility criteria as those facing undergraduate students, extending the current fee structure and support regime that currently applies to full-time undergraduates to both full-time and part-time postgraduate students.

11. Consideration should be given to introducing a 'hybrid' model of higher education fees and funding in Ireland

Combining the previous recommendations, consideration should be given by the Government to introduce a hybrid option to address the funding gap in higher education.

There is strong merit in the Government considering a new hybrid option to address the funding gap in higher education. This would involve increasing Exchequer funding, as well as increasing the level of employer contributions. The increased commitment of resources by the Exchequer would underpin the critical role of both teaching and learning and research in higher education, which is central to the achievement of the Government's objective to build Ireland's knowledge economy. The increased employer contribution would help fund skills development and education, equipping workers with the essential transversal skills for the future world of work. It would also recognise the contribution of human capital development to current and future enterprise productivity, which will be crucial to securing Ireland's long-term economic and social sustainability. This increased funding from employers would also reflect the labour force skill benefits which would be achieved through the proposed extension of the funding mechanism to part-time students. This would make an essential contribution to meeting national objectives for lifelong learning.

Apart from increased funding for the provision of higher education, we also recommend an increase in maintenance grants and a broadening of eligibility, such that expenditure in this area would double. Consideration could also be given to introducing an income-contingent maintenance support fund. In our modelling we assume that 50% of potentially eligible students would take up this discretionary income-contingent maintenance support. An alternative to this fund would be to further increase the level of maintenance grants.

Under this hybrid option, we assume that the current student contribution element of €3,000 remains static. We accept, however, that this is a policy decision, and that the current amount simply represents the level which has evolved over time. There are, therefore, options to either increase or reduce this student contribution element, which would have implications for other aspects of funding requirements.

12. The application of means-testing for the provision of student support should be improved.

To promote equity and consistency, we recommend that consideration be given to introducing smoother means-testing of maintenance grants and student contribution grants. Introducing a more gradual taper across reckonable incomes would remove the possibility of significant reductions in funding for students whose reckonable incomes marginally exceed the current SUSI thresholds, but also limit the possibility of large fluctuations in support for those students whose reckonable income is more variable.

13. The student support system should be simplified.

The current system of higher education fees and funding in Ireland is very complex, as it includes a range of different types of grants available to different groups of students, each subject to a wide variety of different eligibility criteria. This complicates both the administration of the system by SUSI, as well as students' understanding of the support available to them. As outlined in Recommendation 3, we therefore recommend removing the current differential treatment of students depending on the mode and level of study, by extending the fee structure and student support regime (including the Free Fees Initiative) that currently applies to full-time undergraduates to part-time undergraduate students as well as full-time and part-time postgraduates.

We also recommend that consideration also be given to simplifying and aligning the student support system as much as possible across the entire student body, for instance, by removing some of the variation in eligibility depending on the number of children in the household, or the number of other relevant dependents in the household who are in third-level education.

14. The Government should develop and implement a rigorous long-term data strategy and infrastructure for the collection of higher education data.

To facilitate more informed policy making, and to allow for ongoing monitoring and evaluation, a more comprehensive data infrastructure covering all aspects of higher education fees and funding needs to be developed. Encompassing all the current major higher education stakeholders (such as SUSI, the HEA, higher education providers and the DFHERIS) as well as external stakeholders (such as the CSO), this will involve the identification and timely collection of comprehensive and consistent information across all types of higher education students and institutions. We recommend that consideration should be given to the development and implementation of a long-term data strategy that meets the needs of the entire Irish education and skills sector, alongside an appropriately rigorous data infrastructure to deliver the strategy.

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