

Economic Impact Assessment of the University of Highland and Islands

A report to the University of the Highlands and Islands
September 2020





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1.

Executive Summary

The University of the Highlands and Islands' impact has grown over the last decade. It is helping to change the mindsets of young people about remaining in the area and it has become a vehicle for supporting key frontline services in the public sector. It offers infrastructure that is crucial in guiding the future economic and social direction of the Highlands and Islands, Moray and Perthshire¹ by responding to the needs of business, industry and the wider community.

The goal of the University and its academic partners is to act as a force for good, reducing the out-migration of young people by fundamentally transforming the offering of post-school learning. It is deeply aligned with regional needs and has become a respected anchor institution within local communities.

As it approaches the 10th Anniversary of receiving University Title, there is strong evidence to suggest it is making significant progress towards this goal. As well as its economic impact, it has become a distinctive organisation with a tertiary education offering that reflects the region it has grown from, encompassing past heritage, current needs and future evolution.

1.1 Scale of Impact

In 2019, the University and its academic partners had a combined income of £135 million, they employed almost 3,100 members of staff and had a student population of over 38,600 people on all further and higher education courses. As a large and dispersed organisation, it has a significant economic footprint in the region.

In 2019, the University generated £560 million GVA and supported 6,200 jobs throughout the economy in the Highlands and Islands, Moray and Perthshire.

Across Scotland, the University supports £653 million GVA and 7,200 jobs. It creates its impact through:

- **the lifetime earnings premium of its students:** the 12,360 people who qualified from the University in 2019 will generate an estimated lifetime earnings premium

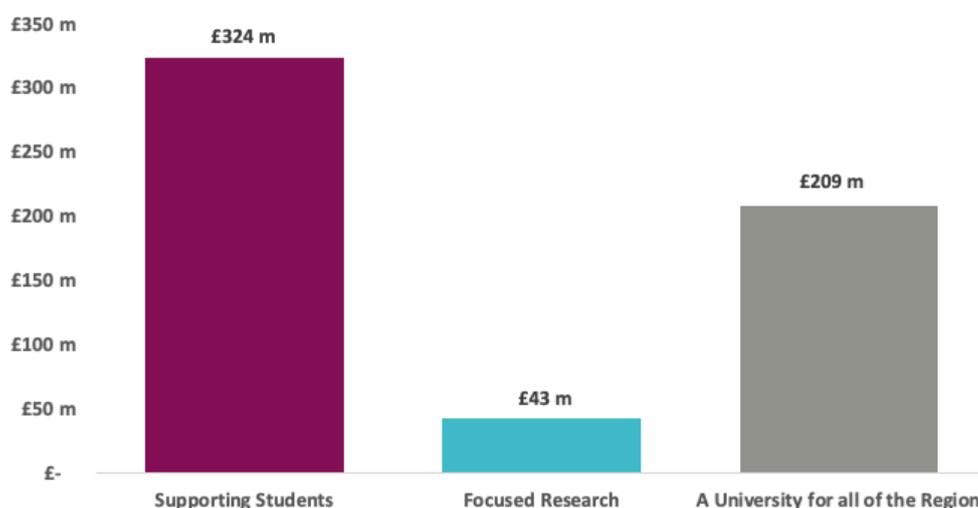
¹ Throughout this report, the terms "Highlands and Islands, Moray and Perthshire" and "study area" both refer to the seven local authority areas where the University has an academic partner: Highland, Argyll & Bute, Perth & Kinross, Moray, Eilean Siar, Orkney and Shetland.



of £324 million GVA in the economy of the Highlands and Islands, Moray and Perthshire². This relates to skills awarded at all 12 levels on the SCQF scale;

- **its research and knowledge exchange activity:** the University’s research work is grounded in the region’s natural, cultural, social and economic assets and is recognised globally for its quality. Combined with knowledge exchange activity, this supports £43 million GVA and 590 jobs throughout the Highlands and Islands, Moray and Perthshire; and
- **its physical presence in the region:** as a major employer spending money on staff, goods, services, and capital projects, and an organisation which attracts students and visitors into the area, the University supports £209 million GVA and 6,100 jobs³ in the Highlands and Islands, Moray and Perthshire.

Table 1-1: UHI’s Impact in the Highlands and Islands, Moray and Perthshire by Source, 2018/19



Source: BiGGAR Economics Analysis, * Part of the Research Impact has been estimated based on the research income received by the University and is also included in its core impact. This is estimated to amount to £16 million in the Highlands and Islands, Moray and Perthshire. However, this element has only been counted once in the total impact for the University to avoid double counting (Note: figures may not sum due to rounding.)

1.2 Growth and Change

During the 10 years since it was last measured, the University’s impact has grown by between 20% and 25% across Scotland. The main driver behind this growth has been a 56% increase in the number of degree-level graduates which has taken place since University Title was awarded in 2011. The University’s staff compliment and nominal income has also grown during this time.

Table 1-2: UHI’s Decade of Growth

	Nominal Income (£ million)	Staff	No. HE Graduates*
2011	108	1,990	2,350
2019	135	3,090	3,670
Change	+25%	+55%	+56%

² This source does not have an employment impact.

³ This includes £16 million GVA and 480 jobs that are supported by research work at the University.



Source: HESA (2020) Students in Higher Education * FE Students have not been included due to changes in funding arrangements over time. (Note: figures may not sum due to rounding.)

As the organisation has grown, the scale and nature of its offering has evolved. New curriculum areas have been added and new levels of education are available that did not previously exist. Most significantly, it delivers courses in teacher education, nursing and midwifery, allowing the region build its own capacity in these core frontline services. Its Masters provision has also grown and there are more full-time courses in its portfolio. Furthermore, its research portfolio has expanded over time and now includes more health topics as well as the longer-established specialisms in marine science, environmental science and language.

Younger people account for an increasing share of the University's student community: representing 41% of all students in 2019, up from 30% in 2011.

Significantly, research by HIE suggests that, within the Highlands and Islands, the views of young people towards the local tertiary education offering are changing and becoming more positive over time. The curriculum offering at the University is playing a leading role in changing this mindset. This was one of the guiding principles at the outset of the organisation and marks a significant achievement in its mission.

As a force for economic, social and cultural change across the region, the University responds to the needs of businesses, public and third sector partners and communities across the Highlands and Islands, Moray and Perthshire.

1.3 Distinctive Strengths

The University is fundamentally shaped by the region it serves and has several distinctive strengths which have been central in bringing about the growth in its impact.

It is a **technology-rich organisation**, built around connecting the region. Its virtual learning environment was ahead of its time when it was designed, and allows the networked delivery of courses across an area which is equal to the size of Belgium. Simultaneously, this makes courses viable for the organisation, and expands the curriculum offering for students in all parts of the Highlands and Islands, Moray and Perthshire. Its networked delivery has brought about a step change in the range of options available, particularly so for the most remote and rural parts of the region.

Its **blended approach to learning** is engaging and attractive and its reputation in this field has drawn interest from other countries that are interested in its delivery model.

It is the **only tertiary education provider in Scotland** and is able to offer qualifications at every level from NC and VQ qualifications up to Masters and PhDs. This is both unique and appealing, and partners in the network, both small and large, can provide learning at all 12 levels on the SCQF scale which is an impressive achievement for a young and widely dispersed organisation.

The **range of pathways** offered by the University through post-16 education is a major benefit to young people of all abilities, regardless of their level of prior



attainment. It also gives scope for older students to progress their careers or change their career path throughout their working lives.

The curriculum offers a range of **specialist courses** that are grounded in the fabric of the region. While 89% of the University's students are from the Highlands and Islands, Moray and Perthshire, the remainder are drawn in by a growing range of specialist courses, particularly in higher education, such as those offered by the School of Adventure Studies at West Highland College, archaeology studies in Orkney, environmental science in Thurso and marine science in Oban.

Courses have been developed to **respond to the identified needs of the region**. For example,

- for the first time in the Highland and Islands, students can train as nurses and midwives at the Centre for Health Science without having to leave the area. This fundamentally improves the capacity of the region to build self-sufficiency in these core services;
- CPD modules have been developed for frontline services in education, health and social care to meet shortages and gaps in service delivery and to allow career progression in these fields;
- degree courses have been designed by the University in Optometry and also in Applied Software Development to meet the needs of these sectors more closely; and
- a fish welfare course has been developed for the aquaculture industry that is delivered online to suit the needs of the sector.

Further developments are planned to support training in the aerospace industry and advanced manufacturing in a new, purpose-built facility (MAATIC) at Moray College UHI as part of the Moray Growth Deal.

Through a network of **curriculum development and employer engagement** officers for different subject areas, the University has an ability to closely align curriculum content with identified employer needs as well as build positive relationships with employers. This keeps existing courses relevant as well as helping to identify new course provision.

Complementing its degree courses, the University's offering includes work-based learning through **its suite of apprenticeships** at Foundation, Modern and Graduate level. These address the needs of sectors including health and social care, construction and engineering to better prepare young people for the world of work.

It is viewed as a **strategic and operational partner in economic development** as well as a service provider in education. The academic partners play an increasingly important civic role, forming an essential part of the fabric of the regions they operate in. The colleges are heavily involved in delivering the Growth Deals for their areas and are active members in their local communities, strongly focused on delivering what their local economies need. Their presence and the networked capacity of the University build economic resilience in to the region and provide a powerful vehicle for assisting in the economic recovery following the COVID-19 pandemic.

The **profile of the University's research work** in environmental science, health and humanities draws attention to the organisation and establishes its credibility at a national and international level. As this reputation has grown it has drawn in further research projects, staff and students. Its unique insight into rural healthcare, social care and health education is a valuable resource from within the region for developing sustainable solutions to delivering health and care services across the area.



Its approach to school engagement supports the **delivery of STEM education** to school-age children, particularly at the later stages of primary school and has connected with 100 schools and 10,000 pupils across the Highlands and Islands to highlight the opportunities offered by careers in these subjects.

Its curriculum offering along with its **approach to student engagement, support and tutoring**, is resulting in strong rates of student retention and satisfaction at the University. Its modern estates portfolio adds to its appeal for students and many campuses are key features of cities, towns and villages across the Highlands and Islands, Moray and Perthshire. Inverness College's move to a new purpose-built campus in 2015, for example, has boosted the profile of the organisation and encouraged greater student interest as well as enlivening a new area of the city.

1.4 Conclusion

The University and its academic partners are a distinctive educational partnership of colleges and research institutes that share the common goal of delivering an academic offering to support the people and the economy of the Highlands and Islands, Moray and Perthshire. It has a significant impact on its students and has developed its curriculum to address the needs of the community as well as the industries and organisations that are present in the region, building on the area's intrinsic strengths, natural assets and cultural heritage.

The University is having a transformational impact on the prospects of its students and presents a distinctive vehicle for economic recovery that is shaped by the region it serves.

The benefits of the University extend beyond the significant GVA and jobs measures. It supports sustainable and inclusive economic well-being and social development in the broadest sense, for people, communities and employers across the region. It supports heritage and culture, the economy, the environment, the regional health sector and it offers pathways through tertiary education that give routes to personal and collective growth and development.

Through the University, the region has greater control of its own economic and social future which will be especially important in helping its recovery from the COVID-19 pandemic.



2.

Introduction

This report describes the scale and scope of the economic contribution made by the University of the Highlands and Islands and its academic partners.

2.1 Study Purpose

The University was originally conceived to transform the economy of the Highlands and Islands, Moray and Perthshire, delivering a broad range of courses through virtual learning and blended learning to radically change the scope of tertiary education available in the region. Spanning an area similar to the size of Belgium, this is a significant mission for a single organisation.

The University and its 13 academic partners represent a distinctive educational partnership of colleges and research institutes, each with unique strengths and local roots, and a shared common mission to collectively support the people and economy of the Highlands and Islands, Moray and Perthshire. The education and research delivered by the University reflect the region's unique environment, landscape and culture, including marine science, agronomy, archaeology, sustainable development and Gaelic language and culture.

In 2021, the University marks the 10th anniversary of receiving its university charter. This study has assessed the economic contribution it makes across the Highlands and Islands, Moray and Perthshire as it approaches this important landmark, demonstrating how it has become a university that is in, of and for the region from which it has grown.

2.2 Theoretical Framework

The role played by universities in economic development has long been recognised. As generators of world-class research and development, they play a central role in supporting industry clusters and make a significant contribution to economic growth in this way.

A number of influential economists have published works that set out a theoretical and empirical case for the role that high-level skills and innovation play in boosting economic competitiveness and addressing inequalities in society. In the late 1950s Robert Solow published papers showing it was not the savings rate or increases in factors of production (labour and capital) that determined the long-run growth rate, but increases in productivity. In the early 1960s Kenneth Arrow published papers on research and development and on "learning by doing", which showed that almost all economic growth could be accounted for by innovation. This meant innovation from new ideas emerging from research, as well as improving productivity through "learning by doing" during the production process.

Building on this, the Nobel prize winning economist, Joseph Stiglitz, has argued that productivity is the result of learning and, consequently, a focal point of policy should be to increase learning within the economy. The observation is made that even within countries and within industries there can be large gaps between the most productive and the others.



The scale of knowledge, research and innovation that takes place is also important because there are dynamic effects that come into play. New knowledge and innovation (the diffusion of knowledge) are based on the foundations of prior knowledge, and high levels of investment give rise to an accelerating pace of innovation. In contrast, cutting levels of investment means the pace of innovation slows because underinvestment compounds over time.

Universities drive economic growth and boost competitiveness by diffusing knowledge which raises productivity.

In summary, knowledge and innovation are fundamental to economic growth, which is driven by productivity. Productivity growth is, in turn, driven by knowledge and its diffusion (innovation), putting the role of universities at the centre of UK economic development policy and practice.

2.3 Scope & Objectives

The scope of the study is to assess the economic activity supported by the University and its 13 academic partners that stem from

- its tertiary provision – higher and further education, access and progression pathways;
- its research, knowledge exchange and innovation activity;
- attracting and retaining research, HE and FE graduates;
- upskilling and increasing productivity of individuals, businesses and organisations;
- employing staff for teaching, research and professional services;
- supplier spending across the partnership;
- expenditure of staff and students;
- stakeholder and employer engagement for sector development through the city region and island deals; and
- drawing and retaining talent, supporting tourism and contributing to wider regional, social and cultural life.

These impacts have been identified and quantified at a local and regional level. A series of separate reports have been prepared to describe the impacts of the University in the relevant area covered by each academic partner.

A similar exercise was carried out for the University by BiGGAR Economics in 2011 and a short section is included in this study to highlight the change in impact that has taken place since then.

The outputs are structured around the three key themes of the University's current Strategic Plan for 2015-2020 which are:

- focused research;
- supporting students; and
- a university for all of the region.



2.4 Reference Year and Geography

Our analysis is intended to measure the impact created by the University and its academic partners over a given timeframe, in this case it is 2018/19, the most recently completed academic year for which data are available. Throughout the report this has been referred to as 2019. Graduate data relate to students who graduated in 2019.

The terms “Highlands and Islands, Moray and Perthshire” and, occasionally “study area” are used throughout this report to refer to the seven local authorities where the University has an academic partner: Highland, Argyll & Bute, Perth & Kinross, Moray, Eilean Siar, Orkney and Shetland.

2.5 Measurement and Method

The economic impacts are assessed in terms of two commonly used measures:

- Gross Value Added (GVA), which is a measure of economic output; and
- jobs.

GVA impacts are reported to nearest whole £ million and jobs are reported to the nearest 100, or nearest 10 depending on the scale of the impacts. Student numbers have been rounded to the nearest 10.

A detailed description of the metrics and the methods used to calculate impacts is provided in the Methodological Appendix at the end of this report.



3.

UHI: Origins and Objectives

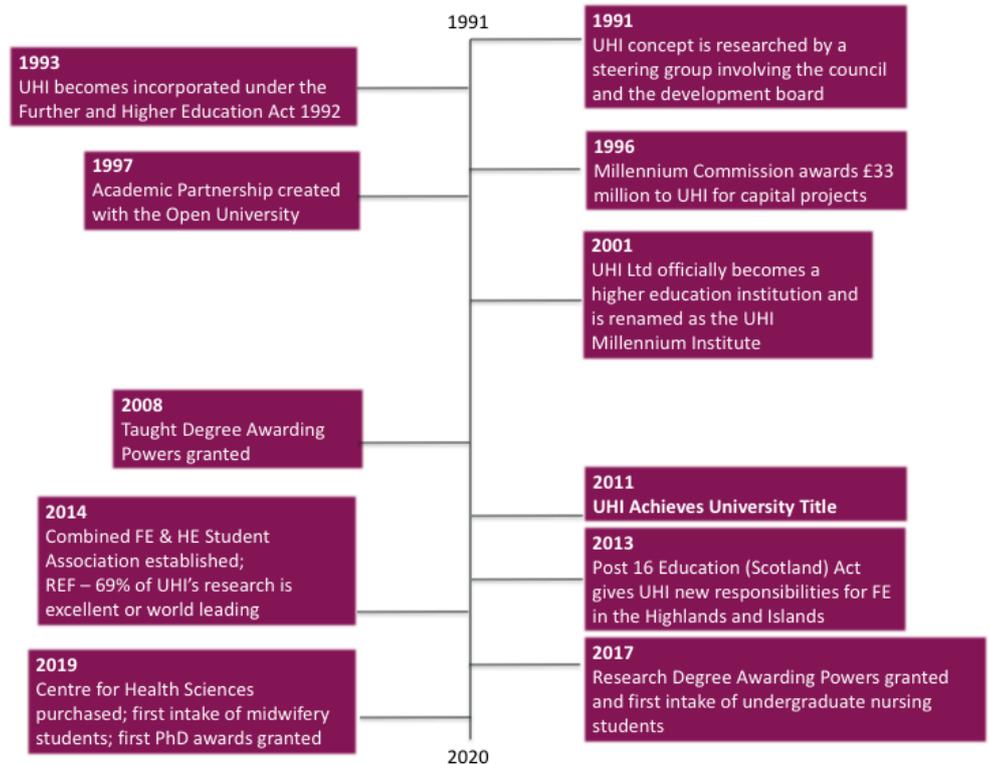
This section outlines the origins of the University, its mission, strategic plan, and the value creation model that describes its route to impact.

The University is an integrated university encompassing both further and higher education. It is part of a new breed of tertiary institutions, the only one in Scotland and one of only a few in Europe. It leads provision and co-ordinates the delivery of further and higher education for the Highlands and Islands.

3.1 Origins

In 1991, Highland Regional Council set up a steering group to examine the case for a University of the Highlands and Islands and this confirmed the scope for establishing a federal, collegiate university based on the area’s existing and long-established further education colleges. The UHI Project was born in earnest in 1992. The key milestones in the subsequent evolution of the University are illustrated Figure 3-1.

Figure 3-1: UHI Timeline



An award of £33 million from the Millennium Commission in 1996 supported the development of several capital projects to house the physical facilities of the University and soon after, UHI Ltd signed an academic partnership agreement with the Open University to validate their degrees. The UHI Ltd was confirmed as a higher education institution in 2000 and was renamed as the UHI Millennium Institute the following year. At this time its research in environmental and marine sciences was recognised as being of international significance in the UK-wide Research



Assessment Exercise (RAE). The University received taught degree awarding powers in 2008 and achieved University Title 2011.

In the 2014 Research Excellence Framework for 2014, it achieved significant endorsement of the quality of its research output and the scope of its Student Association was broadened to incorporate both further and higher education students. At this time the University was also given the role of co-ordinating further education in the Highlands and Islands through the Post 16 Education (Scotland) Act. In 2017, the University welcomed its first intake of undergraduate nursing students, representing a significant change in the ability of the region to train its own frontline healthcare staff within the area. It was also granted research degree awarding powers at this time.

The first PhD student graduated from the Scottish Association for Marine Science UHI in 2019 and also in this year, the university welcomed its first cohort of students into the postgraduate diploma in midwifery, which was developed in partnership with NHS Highland, NHS Western Isles and NHS Orkney. The addition of the Centre for Health Science in Inverness to the University's portfolio in this year has started a new chapter in the organisation's history.

The recent receipt of two major legacy gifts will further enhance the University's ability to make a significant and sustainable difference to its support for students and its specialist research impact.

3.2 Mission and Strategic Plan

The University's current Strategic Plan for 2015-2020 sets out a vision of being the leading integrated university in the UK encompassing further and higher education. It aims to be recognised for the quality of students' experience and achievement, with a worldwide reputation built on an innovative approach to learning and a distinctive research and curriculum enriched by the people, natural environment, economy, culture and heritage of the region and its communities. From a local base within a regional structure it aims to have national and international reach.

The UHI's Mission is "To have a transformational impact on the prospects of our region, its economy, its people and its communities."

UHI Strategic Plan 2015-2020

The Strategic Plan has three underpinning themes and sets out a series of critical performance indicators for each one as a basis for measuring progress.

3.2.1 Theme 1: Our Students

This theme puts students at the centre of the university, with the goal of meeting the needs and expectations of a diverse and geographically dispersed student body. It highlights the University's approach of facilitating greater access to a relevant curriculum that covers all 12 SCQF levels on the Scottish Credit and Qualifications Framework (SCQF), from access courses through pathways up to and including PhD level.



3.2.2 Theme 2: Focused Research

The University aims to produce research that is grounded in the region's natural, cultural, social and economic assets, serving the local economy and recognised globally for its quality and its contribution to transforming and enhancing lives, the environment and the economy. It has research strengths under three broad themes: environmental science, health and the humanities.

Over 69% of the University's work submitted for the 2014 Research Excellence Framework achieved the two top grades: internationally excellent and world-leading.

3.2.3 Theme 3: The University for all of our Region

The University acts as a force for economic, social and cultural change across the region, connecting and collaborating with businesses, public and third sector partners and communities.

The University plays an active role as a partner in community planning across the region, it contributes to tackling inequalities, it develops skills in the labour market, it engages with employers to best reflect their needs, and it works in schools to raise ambition. Each academic partner delivers this role in a way that meets the particular needs of its own community. This reflects an important civic role of the University.

3.2.4 Cross-cutting Themes and Enabling Strategies

The themes described above are underpinned by a set of cross-cutting themes: enterprise and innovation; internationalisation; and recognition, reputation and brand. These reflect the University's focus on embedding a culture of enterprise and entrepreneurialism, the international dimensions of learning and teaching and knowledge exchange, and the strength of its brand.

All of the University's activities are possible through three enabling strategies: people; infrastructure; and financial sustainability. These reflect the aspirations of the University to be an employer of choice, to have a physical estate and information technology equipped to deliver its vision, and to be financially strong to allow it to become a distinctive world-class institution.

3.3 The University's Value Creation Model

The University has developed a Value Creation Model that describes the socio-economic outcomes it aims to deliver. By using its reputation, networks, people, know-how, financial, physical and natural assets, it aims to achieve a set of 15 outcomes that strengthen and enhance the economy of the region, boost the prospects of its students and create impact through its research work.



Figure 3-2: The UHI's Value Creation Model

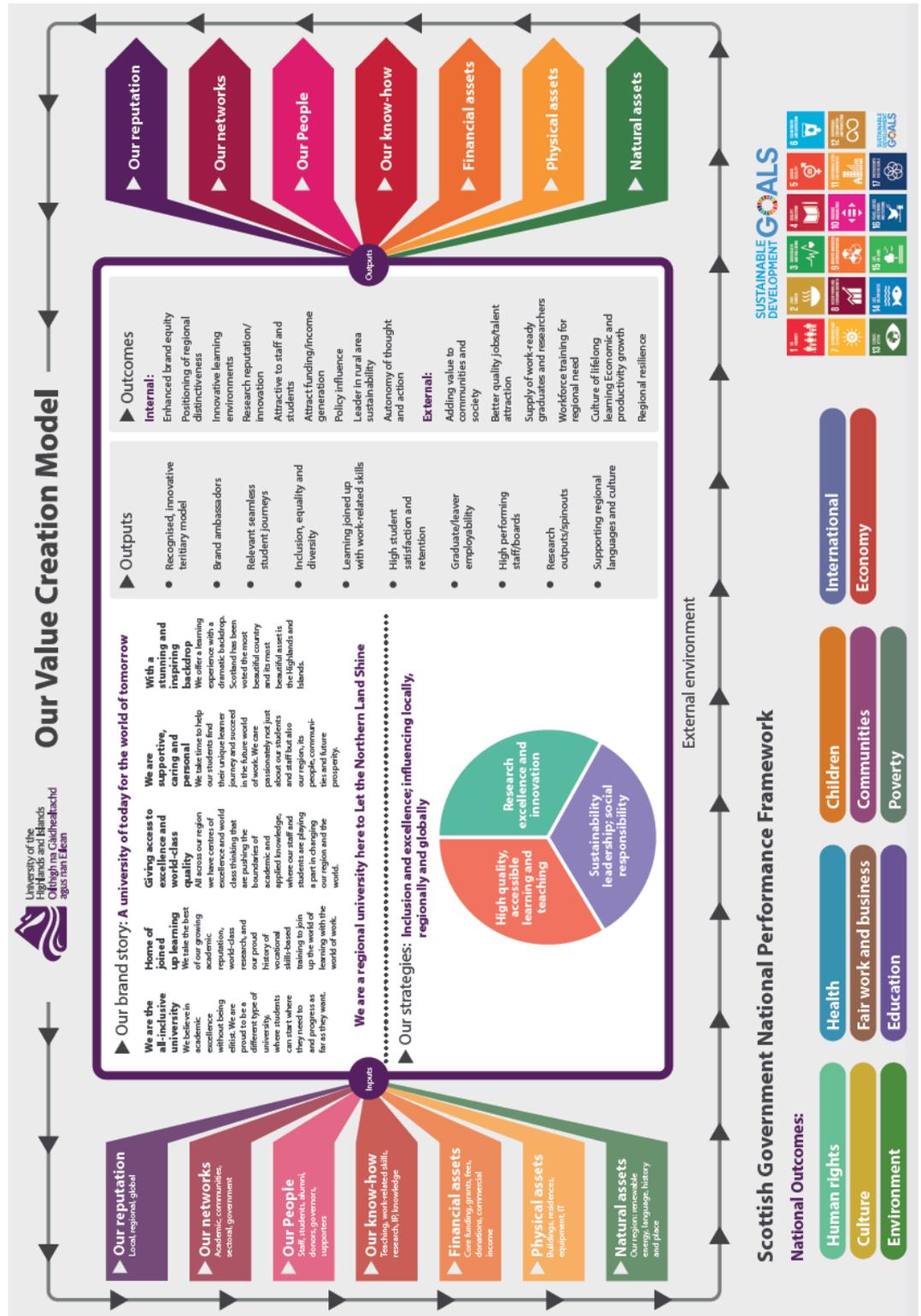




Figure 3-3 below maps how the 15 outcomes of the Value Creation Model relate to the three core themes of UHI's Strategic Plan for 2015-2020. Several of the outcomes support more than one theme and two in particular (attractive to staff/students and better quality jobs/ talent attraction) cut across the University for the Region theme and the Supporting Students theme. It can be seen how the University's value creation model and its strategic plan are broadly aligned. As these three themes capture the essence of University's intended outcomes, they have been used in this study as a structure for assessing its impact.

Figure 3-3: Strategic Plan Themes related to UHI Value Creation Outcomes

Theme 1: Supporting Students	Theme 2: Focused Research	Theme 3: University for all of the Region
<ul style="list-style-type: none"> • Innovative Learning Environments • Attractive to students • Better quality jobs/ talent attraction • Supply of work-ready graduates and researchers • Culture of lifelong-learning, economic and productivity growth 	<ul style="list-style-type: none"> • Enhanced Brand Equity • Research Reputation/ innovation • Attract funding/ income generation • Policy influence • Autonomy of thought and action 	<ul style="list-style-type: none"> • Positioning of regional distinctiveness • Leader in rural area sustainability • Adding value to communities and society • Workforce training for regional need • Attractive to staff • Better quality jobs/ talent attraction • Regional resilience
Cross-cutting themes		
Enterprise	Internationalisation	Recognition, reputation, brand
Enabling Strategies		
People	Infrastructure (Estates, IT, shared services)	Financial Sustainability

3.4 Rankings

The University has achieved significant recognition for its research output and for its student satisfaction, including:

- the Guardian University Guide 2020 which ranks the University in second place in Scotland and eighth in the UK for earth and marine sciences courses;
- the National Student Survey for 2020 reported an overall student satisfaction rate with the University's courses of 82% which is in line with the UK average;
- the University received 85% student satisfaction in Advance HE's Postgraduate Research Experience Survey, placing it 14th out of 103 institutions across the UK.

In a relatively short space of time the University has grown to reflect the distinctive social, economic, environmental and cultural features of the Highlands and Islands, Moray and Perthshire with a clearly defined strategy to guide its future development.



4.

Academic Partners

This section provides a brief overview of each of the University's 13 academic partners.

4.1 Argyll College UHI

Argyll College UHI opened its first learning centres in 2000 and now has ten centres throughout the region, in Campbeltown, Dunoon, Lochgilphead (2 centres), Oban and Helensburgh, and on the islands of Arran, Bute, Islay and Mull. As well as providing further and higher education, the college works closely with the region's schools, giving pupils access to college courses as part of their school curriculum. It works with businesses to provide a variety of certified training and professional development opportunities.

The college delivers its activity across a scattered and diverse geographical area, supported by video conferencing and other digital technologies, allowing it to bring education to otherwise isolated areas. It provides opportunities for residents and businesses in rural areas to receive further and higher education in their own communities.

In 2019, Argyll College UHI had over 170 staff, around 2,700 student enrolments and an annual income of almost £6 million.

4.2 Highland Theological College UHI

HTC began as the Highland Theological Institute in 1994. It is based in Dingwall, near Inverness, and offers degrees and postgraduate courses in the study of the Christian faith. It is a small college offering the opportunity to study courses at all levels, either on-campus or by distance learning, and it is an official training provider for the Associated Presbyterian Churches, the Church of Scotland and the United Free Church of Scotland.

In 2019, HTC had almost 30 members of staff, around 160 student enrolments and an annual income of around £700,000.

4.3 Inverness College UHI

A long-established college and one of the largest in the University's network, Inverness College was formed in 1960 and delivers a large range of tertiary education. The College provides the national skills development needs of the forestry industry and supports other industries that are key for the region, including engineering, construction, health and social care, computing and creative industries. Around 57% of new Modern Apprenticeships started at UHI in 2019 were based in Inverness.

In 2015, Inverness College UHI moved to a new purpose-built site to the east of the A9 near Raigmore Hospital. This has opened up a major new area of the city and has been designed to maximise the benefits of co-locating education, research and commercial facilities. The College has three centres of research: the Rivers and Lochs Institute, the Scottish School of Forestry and the Centre for Remote and Rural Studies.



In 2019, Inverness College UHI had around 360 members of staff, 7,500 student enrolments and an annual income of around £28 million.

4.4 Lews Castle College UHI

Established in 1953, the College sits in the grounds of Lews Castle in Stornoway and has three further learning centres throughout Eilean Siar in Benbecula, Lochmaddy (North Uist) and Barra. Its most popular courses, in terms of the number of students, are in health and social care and business. It delivers specialist courses in engineering, renewables, sustainable development, Gaelic language and culture and applied music. Over time it has attracted more young people into its degree courses, and more students are attending on a full-time basis.

In 2019, Lews College UHI had over 140 staff members, 2,200 student enrolments and an annual income of around £6 million.

4.5 Moray College UHI

Founded in 1971 as Elgin Technical College, Moray College is now the third largest partner of the University, teaching around 6,000 students. The College has two campuses in Elgin and is home to the Moray School of Art and the Alexander Graham Bell Centre for Digital Health.

In 2019, Moray College UHI had almost 540 staff members, 5,100 student enrolments and an annual income of around £13 million.

4.6 NAFC Marine Centre UHI

The NAFC Marine Centre UHI was established by the Shetland Islands Council in 1992 to support Shetland's fishing industry. Based in Scalloway, the centre contains an extensive set of resources and offers a range of courses in nautical, engineering and marine science. It carries out research projects in fields related to Shetland's aquaculture and fisheries industries. NAFC Marine Centre UHI works in close collaboration with Shetland College UHI and the two organisations are currently in the process of merging.

In 2019, NAFC Marine Centre UHI had around 40 members of staff, around 180 student enrolments and an annual income of around £2 million

4.7 North Highland College UHI

Formed in 1959, North Highland College UHI is based in Thurso and hosts courses that reflect the unique environment, landscape and culture of the far North of Scotland, offering courses in care, science, engineering, construction and land-based subjects. The Engineering, Technology and Energy Centre in Thurso delivers engineering and modern apprenticeship programmes for the engineering and renewable energy sector. Thurso also hosts the Environmental Research Institute which addresses contemporary environmental issues relating to environmental contamination, ecological health, carbon, water and climate, and renewable energy. It has three other campuses in Halkirk, Dornoch and Alness. Halkirk which each host specialist courses.

In 2019, North Highland College UHI had almost 160 members of staff, around 3,000 student enrolments and an annual income of £12 million.



4.8 Orkney College UHI

The Orkney College campus was built in 2002 on the outskirts of Kirkwall and serves a rural island community of around 22,000 people. The College offers a wide range of courses across the full range of the Scottish Credit and Qualifications Framework, up to and including PhD. It also offers training and vocational skills and is MCA and RYA certified. The College has strengths in archaeology, art and design, business administration and computer science and has several research areas, including Agronomy, Archaeology and Northern Studies. Scott's House in Kirkwall hosts the Institute for Northern Studies and Maritime studies are hosted at its second campus in Stromness.

In 2019, Orkney College UHI had almost 110 members of staff, 2,800 student enrolments and an annual income of £5 million.

4.9 Perth College UHI

The only College located out-with the Highlands Islands, Perth College UHI in Tayside became part of the University in 2010. It has a broad curriculum and offers many courses that deliver practical work experience to its students. Through online teaching it delivers courses in several overseas markets including China.

The College has strengths in business studies, STEM subjects, applied life studies and offers a range of National 5 and Higher-level qualifications and modern apprenticeships. It is also home to the Centre for Mountain Studies, offering courses that are unique in Scotland.

In 2019, Perth College UHI had 530 members of staff, 8,400 student enrolments and an annual income of £28 million.

4.10 Sabhal Mòr Ostaig

Sabhal Mòr Ostaig (SMO) was founded in 1973 near Sleat on the Isle of Skye. It has grown from its roots as a niche local college to become the National Centre for Gaelic Language and Culture and its core purpose is the linguistic and cultural renaissance of Gaelic in Scotland.

The College offers a range of Gaelic-related degree programmes and postgraduate qualifications as well as short courses. It delivers Gaelic education across 27 countries through the medium of distance learning and enjoys an international reputation that includes the history and literature of the Gàidhealtachd and community aspects of minority language maintenance and revitalisation. Crucially for the future of the Gaelic language, SMO offers postgraduate qualifications to train teachers in Gaelic language at primary and secondary school levels.

In 2019, SMO had almost 120 members of staff, around 430 student enrolments and an annual income of £6 million.

4.11 Scottish Association of Marine Science

Established in the 1880's in the Dunstaffnage peninsula, SAMS is the oldest marine research institute in the UK and one of the oldest in the world.



SAMS' research is focused primarily on understanding the marine environment and its sustainability, with findings being used to inform policy development and decisions at a local, national and international level. Around 75-80% of all the University's research comes from SAMS. SAMS operates a wholly owned subsidiary company: SAMS Research Services Ltd (SRSL), delivering SAMS' commercial activities providing consultancy services, and in 2012 it became the first marine research institute in the world to be appointed an association institution of the University of the United Nations (UNU).

In 2019, SAMS had around 180 members of staff, around 190 student enrolments and an annual income of £11 million.

4.12 Shetland College UHI

Based in Lerwick, Shetland College UHI provides education across a range of disciplines and operates several learning centres throughout the Shetland Islands.

The College is home to the Centre for Rural Creativity, which supports research and postgraduate level study and is a hub for knowledge exchange across the Highlands and Islands, Moray and Perthshire. Shetland College UHI works in close collaboration with the NAFC Marine Centre UHI and the two organisations are currently in the process of merging.

In 2019, Shetland College had almost 130 members of staff, 2,700 student enrolments and an annual income of £4 million.

4.13 West Highland College UHI

Established in 2010, West Highland College has a central campus in Fort William and a network of nine other learning centres throughout the West Highlands. It serves a population of 40,000 people scattered over an area which is half the size of Wales.

Its School of Adventure Studies encompasses outdoor adventure, leadership and education qualifications from NQ level up to honours degrees. These are practical courses that include placement opportunities and have become popular in recent years, attracting many students from outside the region. The Centre for Recreation and Tourism Research at West Highland College UHI, was set up in 2012 and provides opportunities to develop research concepts into business opportunities or joint ventures. It is a founding member of the Slow Adventure Co-operative, which aims to promote a more immersive brand of tourism.

In 2019, West Highland College UHI had around 240 members of staff, almost 2,700 student enrolments and an annual income of just under £6 million.



5.

Socio-economic Context

This section describes the socio-economic profile of the Highlands and Islands, Moray and Perthshire, providing important context for understanding the University's role and impact.

For the purpose of the economic analysis presented throughout this report, the area covered by the University and its academic partners includes the following local authorities:

- Argyll & Bute;
- Eilean Siar (Western Isles);
- Highland;
- Moray;
- Orkney Islands;
- Perth & Kinross; and
- Shetland.

This is termed the 'study area' in the sections that follow.

5.1 Population

5.1.1 Scale and Density

The study area accounts for around 57% of Scotland's landmass, stretching from Shetland in the North to Kintyre in the South and including the local authorities of Perth and Kinross and Moray: an area of 45,600 square kilometres. In 2019, its population was estimated at 641,400 people, or almost 12% of the Scottish population.

As a result, population density across the area is low at around 14 people per square kilometre, ranging from 9 people per square kilometre in Highland and Eilean Siar to 43 people per square kilometre in Moray. This compares to an average of 65 people per square kilometre in Scotland as a whole and 281 people per square kilometre in the UK. It represents the lowest population density in the UK and is among the lowest in Europe.

Approximately two-thirds (65%) of the population live in rural areas or smaller settlements and the remaining 35% live in towns, the largest of which is Inverness which has 63,000 people. The 2016 population estimates for Scotland show that 13 towns across the area have a population of around 5,000 people or more⁴.

5.1.2 Age Structure

The population of the study area is skewed towards the older age groups.⁵ On average,

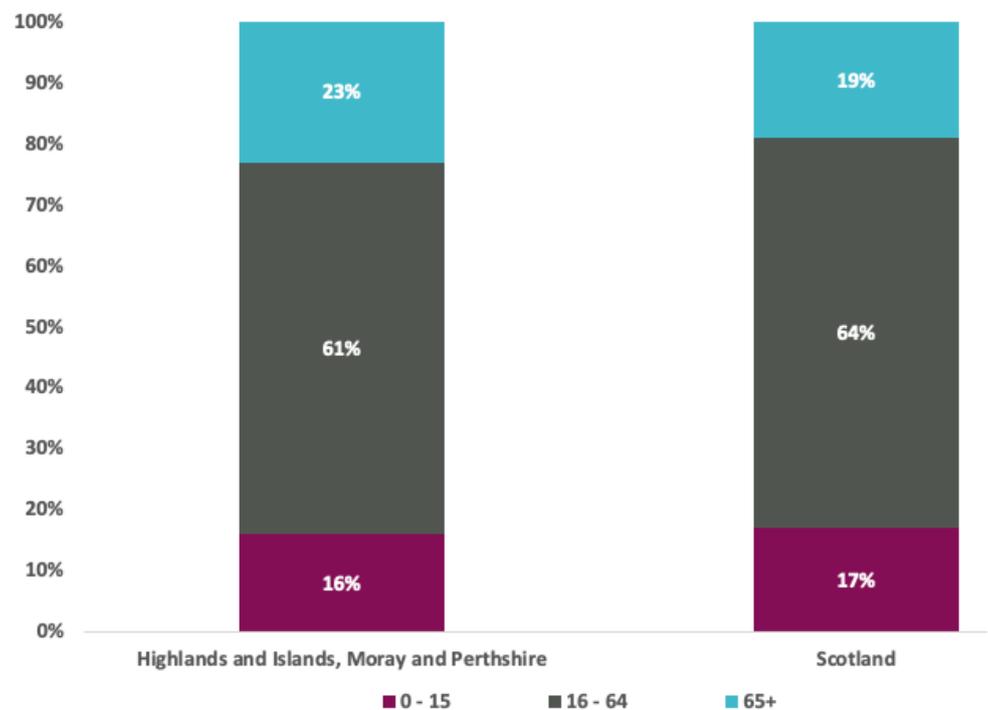
⁴ In order of size these are: Inverness, Perth, Elgin, Fort William, Forres, Nairn, Oban, Thurso, Stornoway, Kirkwall, Wick, Lerwick and Campbeltown. Source: National Records of Scotland, Mid-2016 Population Estimates for Settlements and Localities in Scotland

⁵ ³ Highlands and Islands Enterprise (2020) Our region in detail. Available at: <https://www.hie.co.uk/research-and-reports/our-region-in-detail/>

- the youth population in the Highlands and Islands, Moray and Perthshire is broadly in line with the Scottish average, representing 16% and 17% of the population respectively;
- 61% of the population in the study area are of working age which is lower than the average for Scotland as a whole of 64%; and
- a larger proportion of the population in the study area is aged 65 or more (23%) compared to the Scottish average (19%).

Recent work by Highlands and Islands Enterprise (HIE) notes that the region has long had an issue with net out-migration of younger people in search of education and work prospects who often return to the Highlands and Islands over time (HIE, 2020)⁶. It also points out that the region largely relies on positive net migration to sustain and grow the population.

Figure 5-1: Population Estimates, 2019



Source: National Records of Scotland (2020) Mid-Year Population Estimates 2019

A key age category for entering tertiary education is the 16-24 age group. In the study area, this represents 9% of the population, which is lower than the Scottish average of 11%.

5.1.3 Recent Change

In the last decade, (2010-2019), the population of the study area grew by 2%. This is less than the 4% growth experienced by the population of Scotland in the same time period.

Looking specifically at the local authority areas covered by the University, during the past decade, the population increased in four areas:

- Orkney (5%);
- Perth and Kinross (4%);



- Highland (2%); and
- Moray (2%).

It fell in the remaining three local authorities:

- Shetland (<1%);
- Argyll & Bute (-3%); and
- Eilean Siar (-3%).

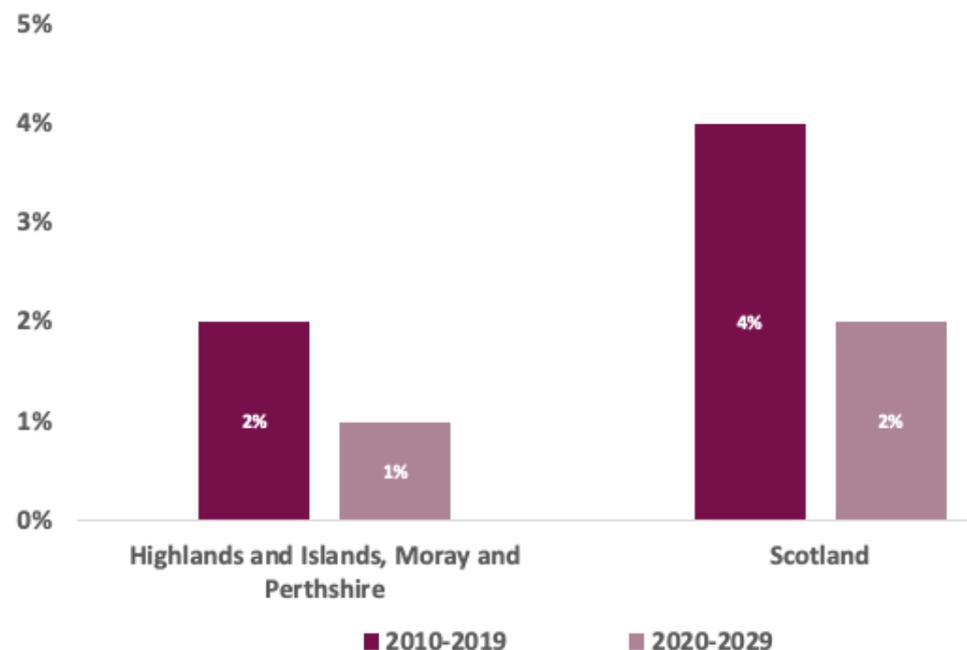
5.1.4 Projections

In the next decade, the population of the study area is expected to increase by 1% to 625,779 people. This rate is lower than the projection for Scotland as a whole of approximately 2%.

For the key age groups in the study area, the forecasts suggest that over the coming decade:

- the proportion of younger people aged 0-15 will decrease to 15%, which is 1% below the average forecast for Scotland;
- the population of working age will decrease across Scotland with a similar rate predicted in the study area, decreasing by approximately 3% between 2020 and 2029 in both cases; and
- there will be a much larger proportion of residents aged 65 and over in the study area, which is expected to account for 27% of the area's population by 2029, compared to 23% for Scotland as a whole.

Figure 5-2: Historic and Projected Future Population Increases (%)



Source: National Records of Scotland (2020) Mid-Year population estimates.

5.2 Economic Activity

The economic activity rate in the study area is higher than the average for Scotland, and the unemployment rate is lower, as illustrated in Table 5-1. The annual full-time wage for workers in the study area is similar to that for Scotland as a whole.

Table 5-1: Economic Activity Rates and Earnings, 2019

	Highlands and Islands, Moray and Perthshire	Scotland
Economic Activity Rate	81.5%	77.5%
Unemployment Rate	3.0%	3.5%
Median Annual Gross Wage – full time workers	£29,397	£30,000

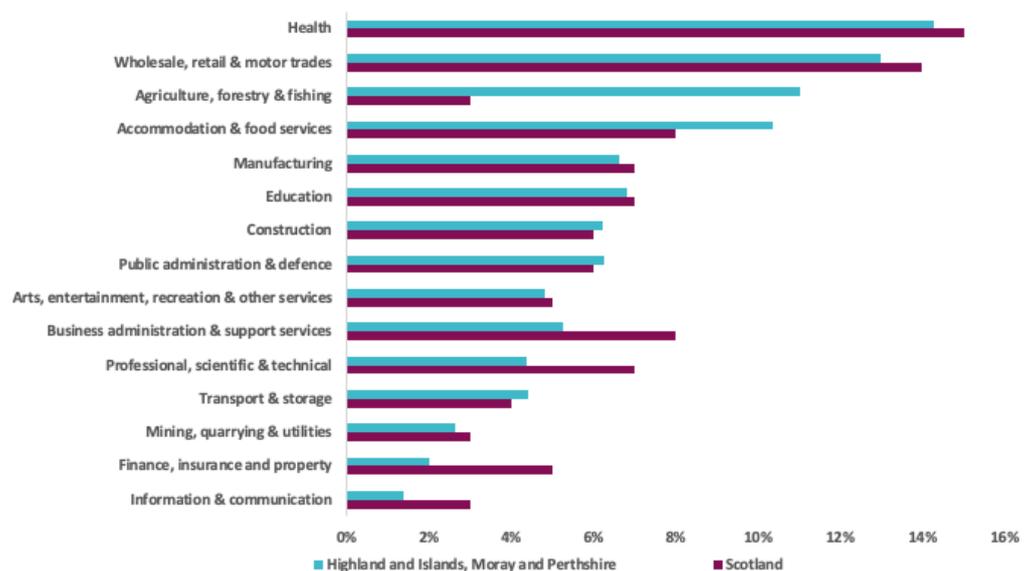
Source: ONS (2020) Annual Survey of Hours and Earnings - resident analysis.

5.3 Industrial Structure

Compared to Scotland as a whole, the industrial structure of the study area is broadly in line with the national average, however the following key differences are noted that reflect the area's rural nature and the importance of tourism and recreation to the economy:

- the agriculture, forestry and fishing sector accounts for 11% of employment in the study area which is significantly greater than the 3% average for Scotland as a whole;
- the accommodation and food services sector provides a more significant share of employment in the study area compared to the Scottish average at 10% compared to 8% respectively; and
- professional, scientific and technical services account for a smaller proportion of the workforce in the study area (4%) than they do for Scotland as a whole (7%).

Figure 5-3: Employment by Sector, 2018



Source: ONS (2020), Business Register and Employment Survey, 2018



5.3.1 Employment Change

The study area has experienced the following economic activity trends in the past 10 years:

- the economic activity rate remained steady at approximately 81%;
- the unemployment rate decreased by 1% between 2009 and 2019; and
- the employment rate increased by almost 1%, slightly behind the increase experienced across Scotland during this same time period.

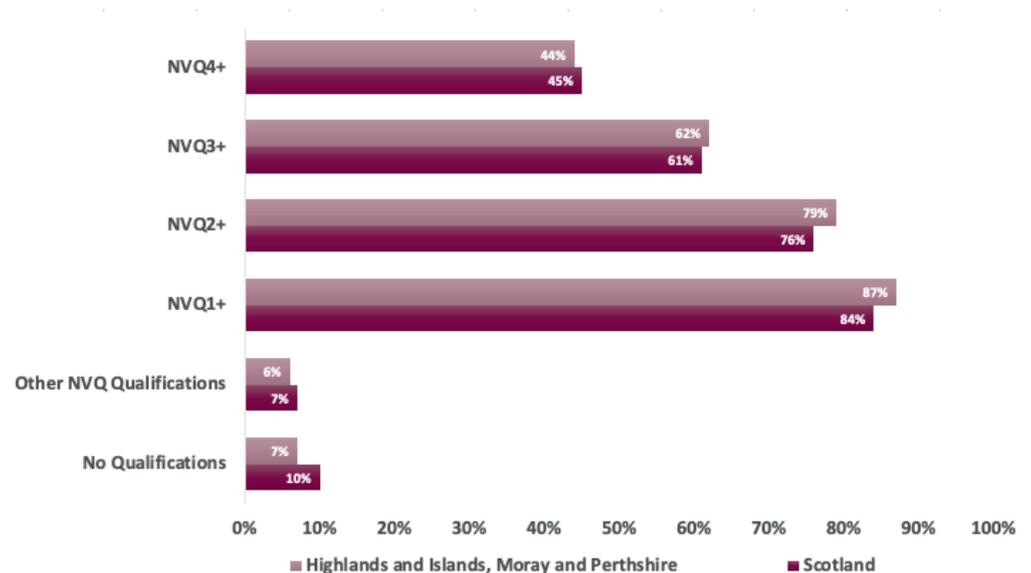
5.4 Skills/Qualifications

The skills profile of the population in the study area shows a relatively well qualified population compared to the Scottish average with two key points of note:

- the area's share of low or unskilled people is lower than the Scottish average; and
- the area's share of highly skilled/ qualified people with an NVQ4+ qualification or similar, is also lower than the Scottish average. An NVQ4 qualification is similar to an HNC.

At every other qualification level (NVQ3 (Highers), NVQ2 (National 5s), NVQ1(National 4s), the Highlands and Islands, Moray and Perthshire have a greater share of the working age population with these qualifications compared to the Scottish average.

Figure 5-4: Working Age Qualification Levels, 2019



Source: ONS (2020) Annual Population Survey, 2019

School leavers in the study area are more likely (95%) to go to a positive destination in further or higher education, training, voluntary work or employment, than the Scottish average (94%)⁷. This has increased since 2011/12 when the equivalent proportion was 92%.

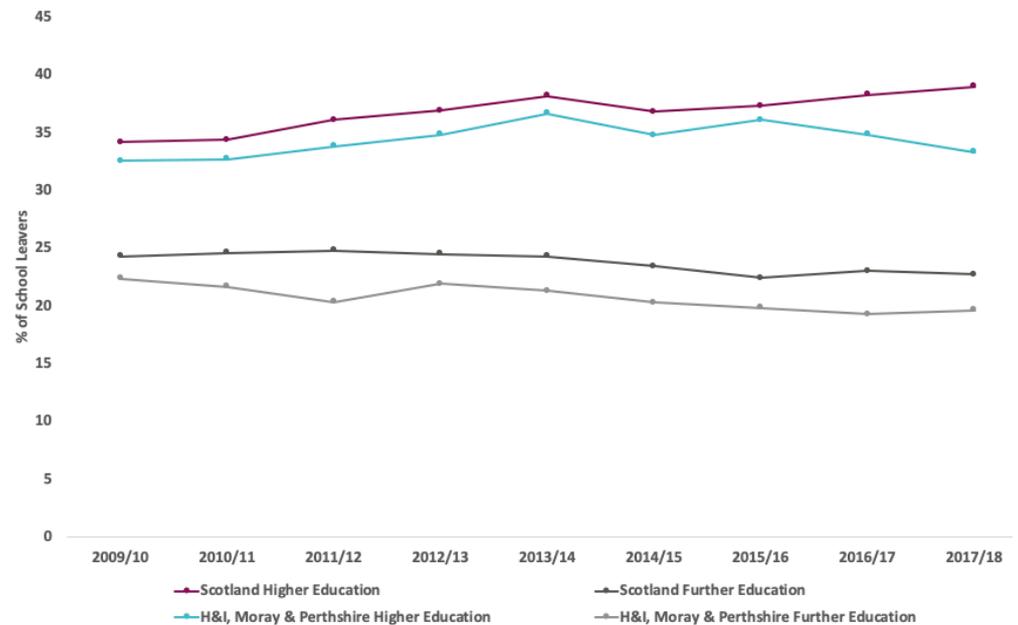
As Figure 5-5 shows, the percentage of school leavers progressing on to either higher or further education in the study area is consistently lower than the Scottish

⁷ Scottish Government (2018) Initial Destinations of Senior Phase School Leavers



average. School leavers in the study area are less likely to enter higher education (33% compared to 39% for Scotland) and more likely to enter directly into employment (34% compared to 28% Scotland).

Figure 5-5: Percentage of school leavers progressing on to Higher and Further Education, 2009 – 2018



Source: Scottish Government (2019) Summary Statistics for Follow-up Leaver Destinations, 2019 Edition.

5.5 Deprivation

The Scottish Index of Multiple Deprivation (SIMD) map highlights that the most deprived parts of the Highlands and Islands, Moray and Perthshire are distributed across the region’s towns. In this context, the distributed presence of the University and its academic partners brings opportunities for education and training to areas of greatest need.

However, the SIMD is a limited indicator of deprivation in remote and rural areas. Just 5% of the working age population in the Highlands and Islands, Moray and Perthshire region live in SIMD20 data zones and 21% live in SIMD40 data zones⁸. However, there are some recognised challenges of describing deprivation in sparsely populated areas, because SIMD “misses” deprivation in groups of people smaller than datazones. Consequently, rural deprivation is more dispersed in rural areas compared to urban areas.

Evidence suggests that people living in rural areas experience deprivation differently from those living in towns and cities. A Scottish Government report on rural deprivation in 2016⁹ reports on deprivation being compounded because of fuel poverty; lower than average wages; high levels of low-paid seasonal and part-time jobs; poor transport provision; and slow superfast broadband roll-out.

⁸ Source: UHI Outcome Agreement 2019-20, p9.

⁹ Scottish Government, SIMD Rural Deprivation Evidence Summary, 2016



5.6 Socio-Economic Profile Conclusions

The area served by the University hosts a geographically dispersed population that is growing and will continue to grow, but at a slower rate than the national average. Similar to national and global trends, the population is ageing, and this is forecast to happen at a faster pace in the study area.

The industrial structure of the area reflects its heritage and appeal, with strong land-based industries and tourism.

Unemployment is relatively low, economic activity is high and earnings are similar to the Scottish average. The qualifications profile compares well with the Scottish average but is slightly under-represented in the proportion of the population that are qualified to HNC level or greater.

School leavers are more likely to enter employment than higher or further education with take-up of both consistently less than the Scottish average.



6.

Supporting Students

This section describes how the University supports students to maximise their lifetime productivity through tertiary education pathways for post-school education.

“The university will continue to meet the needs of learners within the region, while targeting growth in our share of young entrants and students from beyond the region.” – Strategic Vision & Plan 2015-2020

6.1 Introduction

The University has a large student body with approximately 38,600 further and higher education student enrolments across 13 academic partners. The Strategic Plan for 2015-2020 puts students at the centre of the university, with the goal of meeting the needs and expectations of a diverse and geographically dispersed student body.

Its approach facilitates greater access to a relevant curriculum that offers pathways through tertiary education, delivering courses at all 12 SCQF levels from access courses up to and including PhD level. For all students, especially those living in communities where tertiary education was previously limited or non-existent, this represents a step change in the opportunities available. There is also evidence to suggest that the University is changing the mindsets of young people towards remaining in the area for tertiary education on leaving school¹⁰.

While the vast majority of the University’s students are from the Highlands and Islands region, especially so for further education, certain niche subject areas attract students from the rest of the UK and internationally. Over more recent years, the profile of the student body has changed and it now attracts more younger people than has been the case historically. The progress made in retaining young people in the region is a significant trend which relates to the core purpose of the organisation.

Students are supported by the University through an active approach to student engagement which has resulted in growing levels of student satisfaction, retention and employability. Ultimately, the qualifications gained through studying at the University have an impact on lifetime earnings and this is explained and quantified in this section.

6.2 Student Profile

The University and its academic partners had 38,630 student enrolments in 2018/19. Of which:

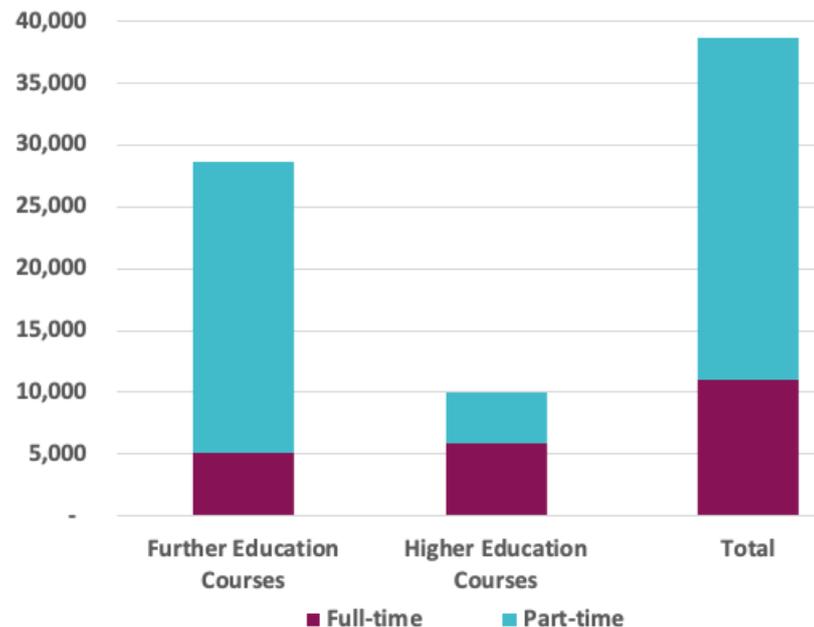
- 74% (28,700) were studying further education courses and 26% (10,000) were studying higher education or CPD courses;

¹⁰ HIE, 2018, Young People and the Highlands and Islands: Maximising Opportunities, p73



- most further education students (82% or 23,600 people) study part-time;
- in higher education, full-time study is more common with 59% of students studying on this basis compared to 18% of further education students;
- across both further and higher education, 72% (27,600) of students are studying part-time and 28% (11,000) are studying full-time. These points are illustrated in Figure 6-1.

Figure 6-1: Mode of Study by Level of Course 2018/19



Source: BiGGAR Economics Analysis

Of the 10,000 higher education student enrolments, 87% (8,700) are studying a first degree and 13% (1,200) are studying for a postgraduate or CPD qualification.

6.2.1 Student Origin

The vast majority of the University’s student body for all courses is from the Highlands and Islands, Moray and Perthshire:

- 98% (37,900 enrolments) are from Scotland;
- including 89% (34,400) from the Highlands and Islands, Moray and Perthshire;
- 2% of its total student enrolments are from the rest of the UK or overseas.

While most (94%) of its further education students are from the Highlands and Islands, Moray and Perthshire, the University’s higher education courses attract a larger proportion of students from outside the area. For these courses 81% of students are from the Highlands and Islands, Moray and Perthshire and 19% are from outside the area.

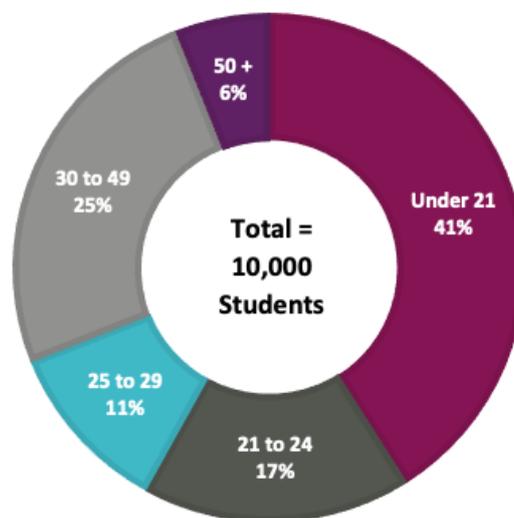
The wider draw of its higher education student profile is mainly driven by people from outside the area coming to study niche subjects such as marine biology in Oban, adventure studies in Fort William, golf in Dornoch, archaeology and Northern Studies in Orkney, environmental science in Thurso and health subjects in Inverness. The research institutes of the University, in particular, tend to attract a more international student profile. In recent times there has been a significant and rising demand for these niche subjects suggesting that the University is changing the perception of the region as a place to study.

This study considers the impact within Scotland of full-time students at the University on all further and higher education courses: a student body of 10,800 people. Part-time students are assumed to create less of an impact through their study as most of their time will be spent in employment. However, the impact of all qualifiers, from all modes of study is captured in the lifetime earnings premium at the end of this section.

6.2.2 Student Age

In 2018/19, people aged under 21 accounted for 41% of the higher education student population at the University. A further 28% were aged between 21 and 29 and 25% were aged between 30 and 49. The remaining 6% were aged 50 or over (Figure 6-2).

Figure 6-2: Age Profile of the University's HE Students, 2018/19



Source: The University of the Highlands and Islands, Higher education student numbers and demography 2018/19

6.2.3 Change in Student Profile Over Time

The University's student profile has changed over time in the level of study, the mode of study and the age of the student body. In 2010/11, the University had 7,100 higher education students. Of this group, half (50%) were enrolled on full-time courses and the remaining half were studying on a part-time basis. Towards the end of the decade in 2018/19, the number of higher education students had grown by 41% to almost 10,000 students, and the balance between full-time and part-time study had shifted in favour of full-time courses. At this point, 5,900 students (59%) were studying full-time and 4,100 were studying on a part-time basis (41%).

As shown in

Table 6-1, the age profile of the University's students has become younger over time. Whilst the younger generation currently accounts for around 41% of the student population, in 2010/11 this age group accounted for just 30% of all students. In contrast, the share of older students aged 30+ has fallen from 44% of the student population in 2010/11 to 31% by 2018/19. Therefore, as the proportion of younger students has increased (by 11%) over the past decade, the proportion of students aged 30+ has decreased (by 13%).



Table 6-1: The UHI Student Age Profile over time

Age Range	Number of Students 2010/11	% of students	Number of Students 2018/19	% of students
Under 21	2,105	30%	3,301	41%
21 – 24	1,835	26%	2,727	28%
30 and over	3,130	44%	3,956	31%

Source: HESA (2020) Students in Higher Education

6.3 Curriculum Offering

The University and its academic partners offer a large range of vocational and academic study options with a tertiary curriculum that spans all 12 SCQF levels. For those in employment, a growing range of flexible study options, apprenticeships and professional development modules are available to help with career progression or reorientation. For those leaving school, it means that they have an education route available to them regardless of their school performance.

Significantly, the University offers strong pathways through tertiary education in many subject areas, enabled by networked delivery of courses which broadens the offering to students, particularly at higher education levels and particularly to students in the more remote parts of the area where no provision existed at this level before the University was established.

Its offering falls into four categories:

- subjects that are locally relevant - such as engineering in Thurso and fish farming in Shetland. Mostly these will be courses at further education level;
- courses that are available across the region – such as business management, Gaelic language and culture;
- courses that draw in national and international students - such as, marine science and outdoor adventure tourism, archaeology, Gaelic language and culture; and
- bespoke courses for employers such as the NHS and SSE.

To fit with the nature of the economy in the Highlands and Islands, Moray and Perthshire, students are encouraged to develop a mindset where they can work either for themselves or in microbusinesses where core skills in management, organisation and accounting are important at an individual level.



Pathways

The University offers courses at all 12 SCQF levels with strong progression pathways in many subjects

The University's course portfolio includes Access courses, NCs, HNC/Ds, SVQs, BAs, BScs, Masters' qualifications, PhDs, PDAs, continuing professional development modules and apprenticeship awards. All are built around the economic needs of the area where gaps and shortages exist. It is a very well-rounded, integrated tertiary education offering from a single provider.

The qualification landscape has evolved over time to reflect the drive towards equality of access to education and the aim of fulfilling the potential of each individual learner. As a result, there are many entry and exit points for tertiary education giving learners the flexibility to pursue less traditional pathways that suit their individual needs and circumstances.

The pathways offered by the University and its academic partners take many forms and bring opportunities to those with few or no qualifications right through to students who want to pursue a course to degree level. The broadest pathways offered are in health and social care subjects, early years care and education, business administration, computing, hospitality, creative industries, music, engineering subjects and humanities. These are popular subject areas with strong connections to local employment.

For students with few or no qualifications, pathway courses are offered that include employability and enterprise skills to give tasters across selected vocational areas with a view to gaining entry level qualifications for mainstream courses at college.

As a technology-rich organisation, the education pathways offered by the University are greatly enhanced through networked delivery meaning that students across the Highlands and Islands, Moray and Perthshire have access to more options, particularly at higher education level. Through its virtual learning environment, the University delivers courses across the geography, catering for students in more remote areas where demand is not strong enough to support traditional face-to-face course delivery. The virtual learning environment includes meeting rooms and classrooms where students can interact with each other and the tutor in a self-directed way. In embracing this technology from the outset, the University was, in many ways, ahead of its time.

Networked delivery makes courses more viable to run while also greatly expanding the options available to students across the region. As a result, it is now more feasible for students to follow their chosen path of study while living and working in the same area: an option which was not available before the University existed when many young people had to leave the area to access higher education.

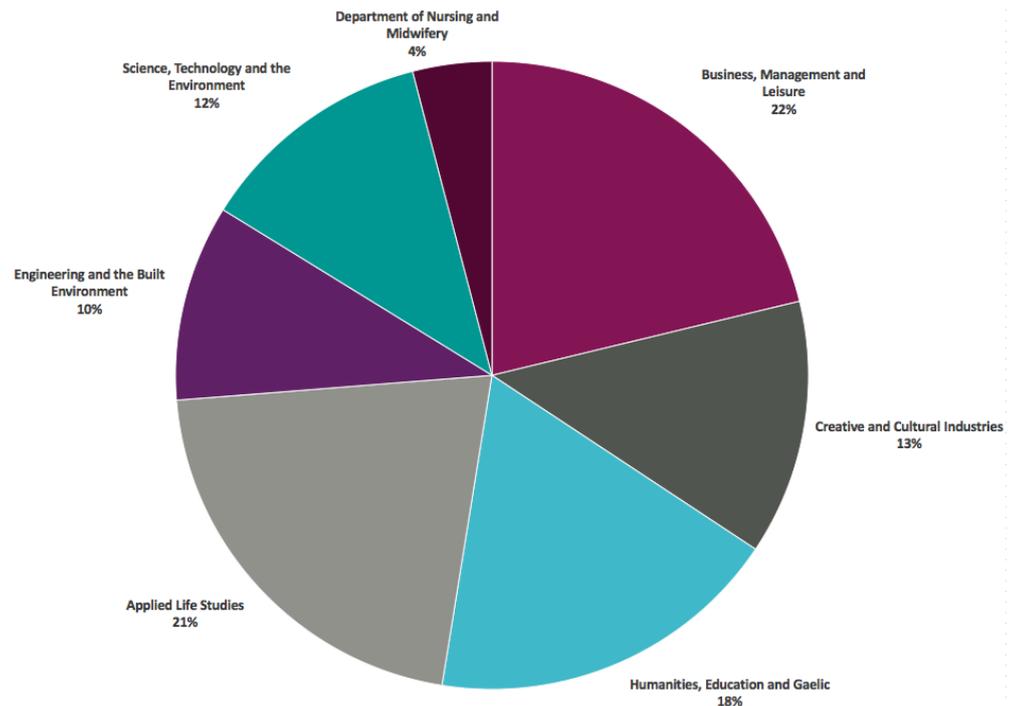
Over time, the expanded provision of tertiary education has encouraged more young people to remain in the Highlands and Islands, Moray and Perthshire area for tertiary education.

6.3.1 Subjects Studied

Significantly, the University's curriculum has evolved to meet the needs of its economy and the population of all ages, young and old. By 2019, for the first time,

there was no longer a net outmigration of people under 30 and the University's curriculum offering has played a role in bringing this situation about. As shown in Figure 6-3, the largest category of students study courses in Business, Management and Leisure subjects (22%) and Applied Life Studies (21%), closely followed by those studying Humanities, Education and Gaelic (18%). The newly established Department of Nursing and Midwifery, accounts for around 4% of all higher education students.

Figure 6-3: Subjects Studied by UHI Higher Education Students, 2018/19



Source: UHI, Higher education student numbers & demography 2018/19

6.3.2 Apprenticeships

The apprenticeship landscape in Scotland has grown in recent years and includes Foundation and Graduate Apprenticeships as well as the longer established Modern Apprenticeships which have been a mainstay of colleges for many years. As a tertiary education provider, the University is delivering opportunities for students at all of these levels:

- Foundation Apprenticeships are offered in 11 frameworks and attracted 310 young people in 2019;
- Modern Apprenticeships are offered in 30 frameworks and attracted 430 new starts in 2019; and
- Graduate Apprenticeships are offered by the University's academic partners in civil engineering and early learning and childcare.

Section 8.5.2 contains a fuller description of the University's apprenticeship offering, highlighting the important function it fulfils in delivering the skills that are demand by employers.

6.3.3 Schools Outreach

The University has a team of staff who work with schools to encourage interest in further and higher education and to promote interest in STEM subjects. As well as



secondary school pupils, the more extensive work in the STEM area takes place with pupils in upper primary school at a stage when there is greatest scope to influence subject choice, create interest and build a foundation of knowledge. So far, the team has worked with over 100 schools and 10,000 pupils across the Highland Council area.

Their work identified three main barriers to the uptake of STEM subjects: the capacity of schools and their access to materials; a culture where STEM is not embedded in all subjects and the confidence of primary school teachers in teaching STEM subjects. Their most recent effort has focused on working with influencers by improving teacher confidence in this subject area. They also work with the University's early learning and childcare students and those on the PGDE course to improve their confidence in teaching STEM subjects at these levels.

6.4 Student Engagement

Recognising that student engagement is key to academic success, the University's student strategy embeds the core features of the nationally established Student Engagement Framework for Scotland and, among other things, aims to ensure the curriculum offering better meets current and future local and regional needs and supports the expectations of its diverse student body.

The Highlands and Islands Students' Association (HISA) represents all higher and further education students across the university partnership and works with external organisations such as NUS Scotland. The University of the Highlands and Islands was the first university in Scotland to launch a new Student Partnership Agreement (SPA) in 2016-17, which sets out how students and staff can work together to improve the student experience. It focuses specifically on themes voted on by the student body and includes learning resources, student mental health and sustainability.

6.5 Student Satisfaction, Attainment and Employability

The University's collective effort through its curriculum offering and its approach to student engagement is reflected in the successful results it achieves for student satisfaction, attainment and employability.

6.5.1 Student Satisfaction

In 2018, the University achieved its best NSS results to date with an overall satisfaction score of 85%, a 6% improvement, bringing it up to fifth in the sector in Scotland and above any of the post-92 institutions. It also achieved its strategic plan critical performance indicator of 2% above the benchmark. In the most recent survey, for the academic year 2019/20, the overall satisfaction rate at the University was 82% with report analysis suggesting that results bared no significant impact from the COVID-19 pandemic.

FE student satisfaction is reported through the student satisfaction and engagement survey. In 2018/19, the overall satisfaction rate for further education students at the University was above the Scottish average at 94% compared to 93% respectively.

6.5.2 Student Attainment

As a region, the Highlands and Islands, Moray and Perthshire performs well against national benchmarks for attainment in further education in recent years. In 2016/17,



68% of full-time and 85% of part-time further education students successfully achieved a recognised qualification. This compared to a national benchmark of 65% of full-time and 77% of part-time learners (SFC College Performance Indicators 2016/17).

Data for 2018/19 shows that the Colleges in the region continued to perform above the Scottish average with 69% of full-time further education students and 82% of part-time further education students achieving a recognised qualification. This compares to national benchmarks of 65% of full-time learners and 80% of part-time learners respectively.

6.5.3 Employability

The region also performs well in terms of positive post-course destinations for further education students with 96% of full-time leavers going to a positive destination 3-6 months after qualifying, compared to 95% nationally (College Leavers Destination survey 2017/18). Of these leavers, 64% go on to further study and 32% are employed. The employment rate is 11% above the national average of 21%.

6.6 Lifetime Earnings Premium

The University and its academic partners offer a significant slate of courses to potential learners. By completing any course of study, students will increase their labour market productivity and earnings potential over their working lives. This section quantifies the lifetime productivity benefits associated with the qualifications awarded to students at the University and its academic partners.

In 2018/19, the University and its academic partners awarded 17,700 qualifications to its full-time and part-time students. Within this total, 5,400 students achieved more than one award and most students within this group were part-time qualifiers. To avoid double counting, the lifetime earnings premium was only applied to the highest level of award achieved by each student. As a result, the earnings premium relating to 12,300 qualifiers has been assessed.

The table below shows the highest qualification achieved by students at the University and its academic partners in 2018/19. Qualified undergraduates were considered to have achieved Level 10 on the SCQF scale, which assumes they have completed an honours qualification.



Table 6-2 Qualifiers from UHI by SCQF Level, 2019

SCQF	Number of Qualifiers	Examples of Awards Included
Level 1	210	National 1 Awards
Level 2	150	National 2 Awards, National Certificate, National Progression Award
Level 3	300	National 3 Awards, Skills for Work National 3, National Certificate, National Progression Award
Level 4	1,510	National 4, Skills for Work National 4, National Certificate, National Progression Award, SVQ 1
Level 5	3,370	National 5 Awards, Skills for Work National 5, Modern Apprenticeships, National Certificate, National Progression Award, SVQ 2
Level 6	2,830	Higher Awards, Skills for Work Higher, National Certificate, National Progression Award, Foundation Apprenticeships, Professional Development Award, SVQ 3
Level 7	1,940	Advanced Higher Awards, Scottish Baccalaureate, Modern Apprenticeships, HNC, Professional Development Award, SVQ 3
Level 8	620	Diploma of Higher Education, Technical Apprenticeship, HND, Advanced Diploma, Professional Development Award, SVQ 4
Level 9	100	Bachelors/ Ordinary Degree, Graduate Diploma, Technical Apprenticeship, Professional Development Award, SVQ 4
Level 10	970	Honours Degree, Graduate Diploma, Graduate Certificate, Graduate Apprenticeships, Professional Development Award
Level 11	340	Masters' Degree, Post Graduate Diploma, Professional Apprenticeship, Professional Development Award, Graduate Apprenticeship, SVQ 5
Level 12	20	Doctoral Degree, Professional Apprenticeship, Professional Development Award
Total	12,360*	All Award levels (highest qualification only is counted)

Source: [SCQF](#) (2020); BiGGAR Economics Analysis of Data from UHI. *Totals may not sum due to rounding

The analysis considers the productivity impacts associated with qualifications at Level 4 and above. Three different methodologies have been used to suit available data on earnings premia associated with different levels of education. The groupings used and a brief description of the methodology applied in each case is described below. A full description of the methodologies used is contained in the methodological appendix.

6.6.1 Qualifiers at SCQF Levels 4 to 6

SCQF Levels 4 to 6 represent qualifications gained in the senior phase of formal education (typically, ages 16-19) and in the initial stages of employment up to



National Certificate and SVQ3 level. Foundation Apprenticeships are included as a Level 6 qualification. Based on the data received from the University and its academic partners, it was estimated that 7,710 people received Levels 4 to 6 qualifications in 2018/19 as their highest qualification.

The methodology applied uses data from a study for the Department for Business Innovation and Skills¹¹ that measured the lifetime productivity impacts realised in England from achieving qualifications that are equivalent to SCQF Levels 4 to 6 in Scotland. The resulting productivity premium applied to qualifiers at these levels is shown in Table 6-3. The economic impact associated with each study area was estimated based on qualifiers' term-time address.

Table 6-3 Productivity Premium Assumptions, SCQF Levels 4 to 6

RQF Level	Equivalent SCQF Level	Productivity Premium
Level 1	Level 4	£8,667
Level 2	Level 5	£22,444
Level 3	Level 6	£29,444

Source: BIS (2011), Measuring the Economic Impact of Further Education and BiGGAR Economics Analysis

6.6.2 Qualifiers at SCQF Levels 7 and 8

SCQF Levels 7 and 8 represent higher education qualifications such as modern apprenticeships, some professional development awards, SVQ Level 3/4, HNCs and HNDs. Based on the data received from the University and its academic partners, it was estimated that 2,570 people received awards at Levels 7 and 8 in 2018/19.

To estimate the impact for qualifiers at this level, the analysis relied on a study by London Economics on the returns from RQF Level 4 and 5 qualifications for STEM and non-STEM subjects¹². Based on European Commission guidance, these correspond with SCQF Levels 7 and 8 in Scotland. The study found that the premium realised was different for STEM and non-STEM subjects and also for full-time and part-time qualifiers. This is because many part-time students undertake courses at a later stage in their working lives and have less time in which to realise the benefits.

The premiums applied are shown in Table 6-4. The appropriate rate of return was applied to the University's qualifiers according to the courses they graduated from and the mode of study. Impacts were allocated to each area according to where students lived.

Table 6-4 Productivity Premium Assumptions, SCQF Levels 7 and 8

Study Mode	STEM Subjects	Non-STEM Subjects
Full-time	£78,500	£28,500
Part-time	£45,200	£13,500

Source: London Economics (2017), Assessing the economic returns to Level 4 and 5 STEM-based qualifications and BiGGAR Economics Analysis

¹¹ BIS (2011), Measuring the Economic Impact of Further Education and BiGGAR Economics Analysis

¹² London Economics (2017), Assessing the economic returns to Level 4 and 5 STEM-based qualifications.



6.6.3 Qualifiers at SCQF Levels 9 to 12

SCQF Levels 9-12 represents degree level higher education awards including Bachelors' degrees, Masters' degrees, PhDs and other equivalent qualifications such as Professional Development Awards. Based on the data received from the University and its academic partners, it was estimated that 1,420 awards were achieved at Levels 9 to 12 in 2018/19.

The approach towards estimating the productivity premium associated with higher education graduates is based on research carried out by the Department for Business Innovation and Skills (BIS)¹³. This considers the lifetime earnings premium accruing to a graduate compared with others whose highest formal qualification is an A-level or equivalent qualification. This study also gives a breakdown of graduate premia by subject studied and highlights the considerable variation in the returns from different degree subjects. Their research implies that the average graduate premium for all first-degree qualifiers is estimated to be £108,100 over their working lives. The study also estimates the returns from postgraduate and research degrees.

The total productivity impact associated with the students who achieved Level 9 to 12 qualifications was estimated by multiplying the returns associated with each degree type and subject by the number of graduates who qualified in that subject and degree type in 2019.

To estimate the economic impact generated in each study area, it was necessary to estimate where graduates would work on completion of their course. Based on the Destination of Leavers from Higher Education Survey¹⁴, it is estimated that around 79% of graduates from UHI remain in Scotland and around 54% stay within the Highlands and Islands, Moray and Perthshire. The total graduate premium across the Highlands and Islands, Moray and Perthshire and Scotland was then estimated by summing up these impacts.

6.6.4 Summary Productivity Impacts

It was estimated that the productivity impact associated with students receiving awards from the University in 2019 was £323 million GVA in the Highlands and Islands, Moray and Perthshire and £368 million GVA across Scotland. A breakdown by qualification level is in Table 6-5.

Table 6-5 Earnings Premia by Level of Qualification – UHI Summary Impact

	GVA (£ million)	
	Highland & Islands, Moray & Perthshire	Scotland
SCQF Levels 4-6 (Further Education)	164	172
SCQF Levels 7-8 (Higher Education)	93	100
SCQF Levels 9-12 (Higher Education)	66	96
Total	323	368

Source: BiGGAR Economics Analysis (Note, figures may not sum due to rounding)

¹³ Department for Business Innovation & Skills (BIS) (2011), The Returns to Higher Education Qualifications.

¹⁴ Higher Education Statistics Agency (HESA) (2018), Destination of Leavers from Higher Education 2016/17.



6.7 Changing Attitudes of Young People

Over time, the efforts made by the University and its academic partners and others have begun to change young people's views of the tertiary education offering in the region. An insight into these changing attitudes is given in HIE's survey of Young People in the Highlands and Islands which was carried out in 2018¹⁵. This gathered the opinions of more than 3,100 young people on living, working and studying in the region and was designed to draw comparison with attitudes in 2015¹⁶ and earlier work in 2009. The key findings of these studies in relation tertiary education are reflected below.

A study of 4,400 young people aged 15-30, which was carried out in 2015, found that young people in the Highlands and Islands had an overwhelmingly positive view of the region, but a significant number still felt that there was a need to move away to access employment and education opportunities. Also at this time, the growing presence of the University in the Highlands and Islands, and its further and higher education offering had resulted in the area being rated more positively than in 2009.

In the 2018 survey, the views towards tertiary education provision had become even more positive. The headline findings at this stage from a survey of over 3,100 young people in the Highlands and Islands aged 15-30 were:

- 60% of young people felt the region had a good overall educational offering, up from 56% in 2015. The expansion in provision at Inverness College and the offering available at Inverness Campus were thought to have influenced this opinion;
- 62% agreed there was a good range of further education courses available in the Highlands and Islands, up from 54% in 2015;
- 54% felt there was a good range of HE opportunities in the Highlands and Islands, up from 45% in 2015. The expanded provision at the University and other institutions was thought to have had an impact on this finding;
- 41% of young people felt there was a wide range of postgraduate opportunities available, up from 35% in 2015, although awareness of postgraduate opportunities was lower than awareness of FE and HE opportunities;
- 62% reported there were sufficient opportunities to learn remotely in 2018, compared to 49% in 2015;
- the availability of courses was viewed more positively by students living in fragile areas such as the Outer Hebrides, Shetland, Lochaber, Skye and Wester Ross.
- Initiatives for curriculum expansion and improving access were having a positive effect; and
- networking programmes in FE and HE widened the variety of courses on offer to students in more remote areas, bringing more career choices to local people.

Importantly, 55% of young people living in the Highlands and Islands reported that they intend to remain in the area, or would prefer to stay in the region in 2018 compared to 43% in 2015. In its conclusions on the 2018 survey, the report acknowledged the University's expanded and developed curriculum since 2015 and recognised its increased relevance to industry and the region's future growth sectors. This has resulted in increased student numbers and contributed to young people viewing the education offering in the Highlands and Islands more positively in the short time since the 2015 study¹⁷.

¹⁵ HIE, 2018, [Young People in the Highlands and Islands](#)

¹⁶ HIE, 2015, [Our Next Generation](#)

¹⁷ HIE, 2018, [Young People in the Highlands and Islands](#), p73



7.

Focused Research

The University has developed a strong and growing portfolio of research and knowledge exchange activity which is embedded in the region it serves.

The University's research will be recognised internationally, nationally and regionally for its quality and for its contribution to our remit of transforming and enhancing lives, the environment and the economy.

Strategic Vision & Plan 2015-2020

7.1 Introduction

The growing slate of research and knowledge exchange activity at the University differentiates it as a university, reinforcing its original purpose of creating a transformational impact on the economy and communities of the Highlands and Islands, Moray and Perthshire. It aims to produce research that is both grounded in the region's natural, cultural, social and economic assets, and also recognised globally for its quality and contribution.

The University's research income for 2018/19 was £30 million, of which £17 million (13% of the University's total income) relates to research and around £12 million relates to knowledge transfer. It has research strengths under three broad themes:

- environmental science – both the blue and the green environment, marine science and aquaculture, rivers and lochs, carbon and forestry;
- health – with specific strengths in remote and rural health and provision into remote and rural communities; and
- humanities – Gaelic, history, language and culture.

In addition, it has formed seven knowledge exchange groups to provide an interface with business. These cover energy, tourism, creative economy, aquaculture, Scottish rural health partnership, active health and well-being and water quality innovation.

7.1.1 2014 REF

The University performed well in the context of other post-92 universities in the 2014 REF¹⁸ with over 69% of the work it submitted achieving the two top grades and being classed as either internationally excellent (3*) or world-leading (4*). Submissions were made in six categories:

- Area Studies (72% of submissions meeting 3* or 4*)

¹⁸ The REF assesses the quality of research output from publicly funded higher education institutions in the UK. It replaces the Research Assessment Exercise which was last carried out in 2008. The next REF results will be published in 2021.



-
- Allied Health Professions, Dentistry, Nursing and Pharmacy (joint submission with Robert Gordon University) (70%)
 - Earth Systems and Environmental Sciences (80%)
 - Geography, Environmental Studies and Archaeology (44%)
 - History (67%)
 - Modern Languages and Linguistics (61%)

This is a significant achievement for a young organisation that received its university title just three years before the exercise took place.

Since the 2014 REF, when there were 68 FTE research staff, further investments have been made in research leadership across a range of disciplines to strengthen the University's offering. At present (mid-2020), it has almost 170 research degree students, around 117 FTE research staff¹⁹ and it has submitted seven units of assessment for REF 2021, including all previous units plus education.

Almost 70% of the University's submissions for the 2014 REF were graded as internationally excellent or world-leading.

The key elements of the University's research activity and the economic impact it supports are discussed below.

7.2 Environmental Science and Energy

This is the most established discipline at the University and is closely connected to the physical characteristics of the region. It includes both the "green" and "blue" environment which have tangible and enduring impacts on the regional economy. Its principal strengths are in marine science, aquaculture, agronomy, environmental studies and energy and engineering. Examples of the University's work under this theme are described below.

7.2.1 Marine Science

The University's marine science research is carried out at the Scottish Association of Marine Science (SAMS) in Oban and at the NAFC Marine Centre UHI in Shetland. Established in 1880s, SAMS is the oldest marine research institute in the UK and in the last research assessment exercise, 75-80% of the research submitted by the University was from SAMS. Its research work focused on three themes with around 60 staff and students working in each field:

- **ocean systems** – with topics including Arctic science, large-scale oceanography, climate change, ecosystem function and marine plastics. Its polar scientists have developed a product to estimate the thickness and condition of sea ice;
- **dynamic coast** - with research providing the underpinning biological, ecological and sociological knowledge to support the developing relationship between society and the sea; and
- **blue economy** - developing industry solutions and regulatory tools, channelling SAMS' expertise in fundamental and applied marine science to support

¹⁹ This figure excludes research assistants, postdocs and technicians.



commercial users of the marine environment to gain wealth from the oceans without degrading the marine environment.

SAMS is carrying out cutting edge work to support the aquaculture sector and it also offers a sea-lice monitoring service for Scottish fish farmers. In addition, it has two experimental seaweed farms and operates at the heart of this new industry to develop consistent and efficient seaweed supplies from Scottish waters.

NAFC Marine Centre UHI collaborates closely with maritime industries and other interested parties to answer key questions, and to develop knowledge, technology or best practice, through applied research and development projects. Its specialist areas include demersal fisheries, pelagic fisheries, shellfish fisheries, aquaculture, marine spatial planning and statistics on fish stocks and landings.

7.2.2 Aquaculture

NAFC Marine Centre UHI in Shetland provides specialist training, education and research services in response to industry needs. This is a crucial sector for the Islands with roughly 40% of the economy based on the marine industry. Specialisms at the Centre include research in fisheries science which contributes to the assessment, management and sustainable harvesting of important marine species, commercially important finfish and shellfish species, marine planning, policy and advice.

Through engagement with industry, the centre has developed an online fish welfare course for staff in the UK aquaculture sector to help them maintain high standards of fish welfare and meet the training and compliance requirements of various certification schemes and codes of practice, including the RSPCA welfare standards for farmed Atlantic salmon and GLOBALG.A.P.

The University's environmental research is deeply connected with the region's green and blue natural assets and is strongly linked to the economy.

7.2.3 Agronomy

The Agronomy Institute was opened at Orkney College UHI in 2002. Its mission is “to establish an internationally recognised centre for the research, development and promotion of northern temperate plants and their products which contributes significantly to the sustainable economic, social and environmental well-being of the Highlands and Islands of Scotland”.

The Institute's research programme focusses on areas that underpin many niche products in the food and drink industry, particularly bere barley which is used in the production of beer and malt whisky. They have achieved their mission of contributing across the Highlands and Islands and beyond. Activity includes identifying and screening crops and plants with potential for commercialisation in the Highlands and Islands, taking into account their potential impact on the environment and biodiversity. There is significant collaboration with growers and end-users, with active development of supply chains and stimulating demand. They also work in partnership with the Hutton Institute on crop research issues.



7.2.4 Environmental Science

Environmental science research at the University is led by the Environmental Research Institute (ERI) which is part of North Highland College and is based in Thurso. It seeks to address contemporary environmental issues relating to climate change and renewable energy and advance society's understanding of the sustainable use of the Earth's natural resources. It is internationally recognised for its distinctive research and innovation in environmental science. For example, its research work on the restoration of peatlands in the far North of Scotland drew global attention through recent publication in the journal Nature²⁰.

Its location gives easy access to significant and outstanding natural resources in the Pentland Firth and the Flow Country, Europe's largest area of blanket bog. Its recent research programmes include multi-million-pound marine renewable energy programmes; bioenergy projects funded by EU Northern Periphery Programme, and development of a multi-disciplinary peatland research hub.

7.2.5 Mountain Studies

The Centre for Mountain Studies (CMS) was established at Perth College UHI in 2000 to create a centre of excellence for work in mountain areas within the UHI region. The Centre hosts the UNESCO Chair in Sustainable Mountain Development which is the first UNESCO Chair in Scotland. It is led by Professor Martin Price, a Nobel Peace Prize winner (2007) for his work with the Intergovernmental Panel on Climate Change. Its research activity influences policy and practice including sustainable mountain development, biodiversity and protected areas, global and climate change, managing Scotland's uplands, and understanding and managing ecosystems.

7.2.6 Energy and Engineering

The university is uniquely placed to make an important contribution to global research into new energy sources. Located in an environment that boasts internationally important landscapes and seascapes, the Highlands and Islands, Moray and Perthshire can be considered the primary European geography for renewable energy developments. The University has world-class facilities at the Engineering, Technology and Energy Centre (ETEC) in Thurso, with multi-disciplinary teams focusing on energy research.

7.3 Health

The Highlands and Islands, Moray and Perthshire face major challenges in delivering affordable, safe and effective care to a population with increasingly complex medical needs. To address the issue, health research at the University has expanded significantly with the recently established Centre for Health Science, adjacent to Raigmore Hospital in Inverness. (which opened in 2019. It has state-of-the-art facilities incorporating the University's pre-existing Health Research Cluster and greatly enhances the University's ability to carry out world-leading research. It has a current portfolio of around 85 projects in health and life sciences. Its three key research strengths are described below.

7.3.1 Biomedical Sciences

The Division of Biomedical Sciences has set out a mission to undertake world class research into the causes and treatment of diabetes and the cardiovascular diseases that the condition precipitates. It conducts extensive research into the causes and consequences of diabetes, and a wide range of other clinical conditions; most notably cardiovascular diseases, inflammatory diseases and cancer. It is home to the

²⁰ [Nature, February 2020, How peat could protect the planet](#)



Free Radical Research Facility and has research expertise in genetics and immunology, lipidomics and proteomics. It includes an Active Health Exercise Lab and together the departments undertake a range of activities related to active health and are able to support commercial work.

In February 2019 almost 100 cardiovascular experts from across the UK and Ireland took part in the Scottish Cardiovascular Forum at the University's Centre for Health Science in Inverness.

7.3.2 Rural Health and Well-being

The Division of Rural Health and Well-being has research interests in Digital Health and user engagement in the design and delivery of rural health services and community well-being. It collaborates with other University researchers in Inverness, Moray and Lews Castle Colleges as well as being a member of the Digital Health Institute and a Robert Gordon University -UHI collaboration.

It contributes to the knowledge base on preventing ill-health and promoting well-being and its research enhances the understanding of patterns and experiences of health, illness and their underlying drivers. It also contributes to the development of health services policy and how to deliver these functions as effectively and appropriately as possible for staff, patients and families. Its unique insight into rural health care, social care and health education is a valuable resource from within the region for developing sustainable solutions to delivering health and care services across the region.

The University's health research is rooted in issues relating to rural health and delivering health services to remote and rural communities.

7.3.3 Nursing and Midwifery

The Nursing and Midwifery Department specialises in patient and public involvement in research. Its work compliments the expertise available across the Institute of Health Research and Innovation with key research themes focusing on:

- remote and rural health;
- nursing workforce, education and pedagogy;
- rehabilitation and physical activity;
- quality improvement;
- older people and dementia;
- adolescent health; and
- palliative care.

7.4 Humanities

The University's humanities research preserves and promotes the heritage, history, literature, language and culture that belongs to the Highlands and Islands. As well as protecting the Gaelic language, its work has strong links to supporting sustainable tourism across the region and representing the Highlands and Islands, Moray and Perthshire to an international audience. The examples described below draw out the University's key research strengths in humanities.



7.4.1 Archaeology

The Orkney Islands have more world-class archaeology sites per sq metre than anywhere else in the world. They provide evidence of human settlement on Orkney for at least 8,500 years and attract strong international interest. Orkney College hosts the University's Archaeology Institute, which has research and teaching staff in Orkney, Shetland and the Western Isles. It has attracted a world class archaeological team producing academic research, teaching, commercial applied research and consultancy. It also has active research projects in the Hebrides, Easter Island, the Cook Islands, Nepal and Sri Lanka, extending the international profile of the Highlands and Islands, Moray and Perthshire.

7.4.2 History

The University's Centre for History in Dornoch and is committed to research that impacts civil society, cultural life, public discourse and public policy in the Highlands and Islands region and Scotland more broadly. Through close collaboration with cultural heritage bodies, policy makers, schools and local communities, the Centre for History disseminates its research to a wide range of audiences and aims to influence public understanding of the past in the region and its diaspora. The Centre's research aims to have impact in three key areas: museums within the Highlands and Islands; Highland schools; and public policy debate about land reform and community ownership in Scotland.

7.4.3 Gaelic Language and Culture

The University's academic partner, Sabhal Mòr Ostaig (SMO) on Skye, is dedicated to supporting the development of research into the Gaelic language and culture. In addition, the University has developed the Language Sciences Institute with the aim of strengthening the Gaelic language research, learning and developmental portfolios of the University in collaboration with the National Gaelic College, Sabhal Mòr Ostaig UHI, public bodies and the Gaelic speaking community.

Over 90% of the College's research output was classified in the two highest bands in the 2014 REF. It is involved in a number of leading research projects including Ionad Nàiseanta na h-Imrich, the National Centre for Migration Studies, and Soillse, a collaborative research initiative with the University and the Universities of Aberdeen, Glasgow and Edinburgh. SMO research themes include: modern Gaelic literature and other literatures; the media and minority languages; language planning and language policy; linguistics, traditional music; folklore and material culture; education and learning methods; community development and the arts. SMO's library houses a rich resource of Gaelic, Celtic and Highland-related books.

The University's humanities research preserves the culture, heritage and Gaelic language that defines the social history of the Highlands and Islands and supports the region's tourism industry.

7.4.4 Northern Studies

The Institute for Northern Studies is an interdisciplinary research centre focused on preserving, rediscovering and interpreting the cultural heritage of Scotland and the wider Northern world. It is hosted at Orkney College UHI with other bases at Shetland and Perth Colleges. It has specialisms in archaeology, medieval history,



literature and art, placename studies and the history and culture of the North Atlantic regions.

As well as world-leading research, the Institute provides consultancy services including translations, along with course development, training and certification for tour guides across Scotland, supporting Scotland's tourism sector. It has attracted international interest in the region, particularly from the United States, through post graduate education and investment in Scottish heritage. It is focused on being "arctic facing", looking to strengthen commercial and cultural links with the Nordic countries in a post-Brexit economy.

7.5 Knowledge Exchange

In addition to its research work, the University has seven knowledge transfer groups representing its work in health (two groups - remote rural health networks and active health and well-being), energy, aquaculture, tourism (including archaeology), the creative economy, water quality and entrepreneurship. Prior to the COVID-19 pandemic, momentum was building for the University to play a significant role in enhancing the economic performance of these sectors and this aim will continue in the longer term.

Most knowledge exchange groups have been working together for around four years although some groups are younger. Their overarching aim is to increase commercial income for the University to match or exceed what they receive in grant support and all groups have achieved this goal. Examples of key successes under this approach are:

- **NewDEPOMOD** - a predictive toolbox developed by UHI-SAMS that underpins environmental regulations in global aquaculture by modelling the waste impact from aquaculture activity. It is the only software that is accepted by Scottish Environmental Protection Agency (SEPA) and it is used by the Scottish Salmon Producers' Organisation for farm expansion and new license applications. The approach is relevant globally and a related tool, TROPOMOD, has been developed for the aquaculture sector in Asia;
- **Heritage Tourism in Orkney** - archaeological research has supported the growth of a valuable tourism market in Orkney. Recent excavations at the Ness of Brodgar have drawn a significant increase in visitors to the Islands specifically to visit the site. The niche appeal has encouraged the local whisky distillery, Highland Park, to launch a limited-edition product under the Ness of Brodgar brand;
- **Norse Spirits** - the Institute of Northern Studies was approached by a distillery on Orkney to provide case studies on Norse Gods that were used to create a successful new range of themed whiskies reflecting the Viking heritage of the Islands. Three new brands were launched named Thor, Loki and Freya with marketing that reflected the distinctive characteristics of each God;
- **Agronomy Institute** – the Agronomy Institute at Orkney College UHI has also worked with Highland Park distillery to cultivate bere barley, which was brought to the Islands by the Vikings, for use in distillation. The product has also been sold to breweries and distilleries throughout the UK;
- **Anti-cancer Blood Test** – a blood test has been developed at the Centre for Health Science to detect the presence of natural antibodies that prevent the development of liver and other cancers. Plasma isolated from healthy donors can be used in to establish a new type of cancer therapy which would have significant clinical and economic implications. A patent for the test is pending and clinical trials are ongoing in China; and



- **Slow adventure tourism** – working with other universities across northern Europe, the slow adventure was developed by the University as a marketing concept to promote longer, more immersive tourism experiences in the Highlands and Islands. The project worked with SMEs to improve the clustering and marketing of slow adventure to attract new customers and develop new businesses in peripheral areas.

7.6 Quantifiable Research Impact

Several aspects of the research and knowledge exchange work carried out by the University and its academic partners can be quantified. This includes the portion of its core employment and GVA that is accounted for by research staff, its quantifiable medical research work, and a range of other knowledge exchange activity such as start-ups and knowledge transfer partnerships and its services to businesses more widely. These are described below.

7.6.1 Research Staff

The University and its academic partners received £30 million in research and knowledge exchange income in 2018/19. Of this, research income amounted to £17 million which represented 13% of the University's income in that year. This supports research employment which, in turn, supports staff spending and purchases of goods and services more widely throughout the economy and without it, the University's core income would be smaller. Therefore, 13% of the University's core impacts can be attributed to its research activity. For 2018/19 this is estimated to generate £16 million GVA and support 480 jobs in the Highlands and Islands, Moray and Perthshire and £19 million GVA and 540 jobs across Scotland²¹.

7.6.2 Medical Research

The medical research taking place at the University has economic and social impacts within the Highlands and Islands, Moray and Perthshire and across Scotland. It was estimated that in 2018/19, medical research taking place through the University's Centre for Health Science generated around £3 million in income. The social and economic impact this creates was estimated by applying the rates of return from medical research with respect to health gains and GDP from a study for the Medical Research Council, the Wellcome Trust and the academy of Medical Science²². This results in an impact of £11 million GVA in the Highlands and Islands, Moray and Perthshire and £16 million in Scotland.

7.6.3 Knowledge Exchange Activity

The University's range of services to businesses generate further economic contributions for the local economy. These include contract research and consultancy services, hiring facilities, continuing professional development training and hosting science park tenants. This engagement improves business performance, resulting in increased productivity through interaction with the University. It was estimated that, the University and its academic partners generated £15million GVA and supported 80 jobs in the Highlands and Islands, Moray and Perthshire through these activities in 2018/19.

²¹ These figures are also included in the core impacts section but have been counted only once in the overall total impact of the University and its academic partners.

²² Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK, For the Medical Research Council, the Wellcome Trust and the Academy of Medical Science, November 2008.



7.6.4 Start-Ups

The University and its economic partners make an economic contribution through the start-ups they support. In 2019, there were four start-ups operating across the University and its academic partners in the tourism, manufacturing and food and drink sectors. By 2020, one further University start-up had been established, however this fell outside the reference period for the study and could not be considered. It was estimated that the four University start-ups supported 20 jobs across the Highlands and Islands, Moray and Perthshire.

7.6.5 Knowledge Transfer Partnerships

The University is an academic participant in the Knowledge Transfer Partnership (KTP) programme. The KTP programme recruits graduates to work on joint industry-academic projects with companies benefitting from the research expertise of universities to overcome identified challenges. These placements last for approximately three years. Analysis of the KTP Online database suggests that in the last six years the University has completed three KTPs and is currently involved with two ongoing projects. The completed KTPs were all carried out with businesses and organisations from the Highlands and Islands, Moray and Perthshire. Of the two ongoing KTPs one is with a business from the Highlands and Islands, and the other is with a business that operates elsewhere in Scotland.

7.6.6 Summary of Quantifiable Research Impacts

Summing the impact generated by the University's research and knowledge exchange activity, it is estimated that this generates £43 million GVA and supports 590 jobs in the Highlands and Islands, Moray and Perthshire and £55 million GVA and 660 jobs across Scotland.

Table 7-1 Quantifiable Research Impacts – UHI Summary

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
Core Research Activity	16	19
Medical Research	11	16
Knowledge Exchange Activity	15	20
Start Ups	1	1
KTPs	<1	<1
Total	43	55
	Employment	
Core Research Activity	480	540
Knowledge Exchange Activity	80	90
Start Ups	20	20
KTPs	10	10
Total	590	660

Source: BiGGAR Economics Analysis (Note, figures may not sum due to rounding)

7.7 Summary of Research Impact

Building research strength and credibility takes time, especially in the field of health. The University is very young and draws on the strengths of its longer-established



research institutes for significant outputs, but it is also creating other, valuable research outputs through its collective efforts and niche specialisms. This work distinguishes it as a university and highlights its role as a source of higher-level education. Through knowledge exchange work it also presents a way in which the economy of the Highlands and Islands, Moray and Perthshire can benefit from the innovation and knowledge that it produces. Along with its curriculum and skills offering, this brings an opportunity for communities within the Highlands and Islands, Moray and Perthshire to develop solutions and grow industries for themselves, giving them greater control over their own destiny.



8.

A University for All of the Region

The University makes a substantial and growing contribution to the region, through both its physical presence and its deep connections with sectors that are key to the economy.

The university will act as a force for economic, social and cultural change across the region by connecting and collaborating with businesses, public and third sector partners and communities. Strategic Vision & Plan 2015-2020

8.1 Introduction

The University's academic partners are anchor institutions with long-established presence in the communities they serve. As the University has grown over time it has become a major employer across the region, generating significant employment impacts through the people it employs, its supply chain, its capital investments and from the students who attend its courses.

Beyond these quantifiable impacts, it plays a significant role in delivering skills and training for employers throughout the region and creating a vehicle for economic development and regeneration. It also delivers courses designed to address gaps in frontline health and education services, giving the region the ability to become more self-sufficient in training, educating and developing its own frontline staff and supporting the sustainability of key services.

Its significant contribution to the Highlands and Islands, Moray and Perthshire is quantified and described throughout this section.

8.2 Core Impact

The core impact of an organisation is measured by the economic contribution it makes through its main activities. The core impacts associated with the University and its academic partners include its:

- direct impact;
- supply spending impact;
- staff spending impact; and
- capital spending impact.



8.2.1 Direct Impact

The direct impact of an organisation is the value that it adds to the economy through its own operations. In the context of the University and its academic partners, this can be estimated as the difference between total income and total supply spending.

In 2018/19, the University and its academic partners generated £135 million in total income. This was mainly through teaching and research activities, with the rest coming from other sources, including, catering services, interest on investments and commercial training activity. Over the same period, the University and its academic partners spent £42 million on goods and services. The University employed almost 3,100 staff to deliver the collective services it provides as an organisation.

8.2.2 Supply Spending Impact

Spending on goods and services contributes to economic activity throughout the associated supply chains. In addition to supporting the University's own activities, this benefits the supplier organisations by contributing to their turnover and supporting their employment, in turn.

It was estimated that the University spent £33 million on goods and services in 2018/19. This excludes expenditure grants and bursaries to students, which are considered as part of student expenditure. Around 36% of supply spending was made within the Highlands and Islands, Moray and Perthshire, and a further 26% was made elsewhere in Scotland. More than half of the combined expenditure on supplies is spent on office administrative activities, cleaning, security and renting or leasing vehicles and machinery.

8.2.3 Staff Spending Impact

Staff employed by the University and its academic partners support further economic activity by spending their salaries and wages in the areas where they live. This benefits businesses where the expenditure takes place, supporting their activities and employment, in turn.

It was estimated that the University's 3,100 staff received around £100 million in salaries and wages in 2018/19. Over the same period, around 93% of those working for the University and its academic partners lived in the Highlands and Islands, Moray and Perthshire, with the remainder living elsewhere in Scotland.

8.2.4 Capital Spending Impact

Capital spending by the University contributes to economic activity by supporting businesses in the construction sector. In recent years, a number of important capital investments have been made by the University and its academic partners, most significantly the new Centre for Health Science and the new campus for Inverness College in Inverness. Both new facilities send an important message that the knowledge economy is developing in the area.

As capital spending fluctuates from year to year, an average value was derived based on actual capital spending for the past five years and forecast capital spending over the coming five years.

By this method, it is estimated that the University and its academic partners spend around £16 million on capital goods, including buildings, machinery and IT infrastructure in an average year. Approximately 90% of this is spent on building construction and maintenance. The remainder is almost equally split between expenditure on IT and non-IT equipment. Around 40% of capital spending benefitted



businesses in the Highlands and Islands, Moray and Perthshire, and a further 31% was spent with businesses elsewhere in Scotland.

8.2.5 Total Core Impact

Summing up the economic impact generated by core activities, it is estimated that, in 2018/19, the University and its academic partners supported £126 million GVA and 3,800 jobs in the Highlands and Islands, Moray and Perthshire. Across Scotland, the organisation created an economic impact of £147 million GVA and 4,250 jobs²³. A summary of impact by source is provided in Table 8-1.

Table 8-1 Summary of UHI's Core Impact

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
Direct Impact	93	93
Supply Spending Impact	8	16
Staff Spending Impact	20	29
Capital Spending Impact	4	9
Total	126	147
Employment		
Direct Impact	3,100	3,100
Supply Spending Impact	220	420
Staff Spending Impact	410	600
Capital Spending Impact	70	140
Total	3,800	4,250

Source: BiGGAR Economics Analysis (Note: Figures may not sum due to rounding)

8.3 Student Community

This section considers the economic impact of the day-to-day spending and working habits of students attending courses at the University and its academic partners. The focus is on full-time students, as part-time students' spending patterns and labour market contribution are mostly driven by their work rather than their study.

8.3.1 Student Spending Impact

Students at the University and its academic partners make an economic contribution through their spending habits during term time. This supports turnover and employment in the businesses where purchases are made.

In 2018/19, there were 11,000 full-time students enrolled at the University and its academic partners on all further and higher education courses. Based on students' term-time domicile, it was estimated that around 89% lived in the Highlands and Islands, Moray and Perthshire, and the remainder lived elsewhere in Scotland.

²³ A 13% portion of the University's core impact, has been attributed to its research work which is equal to the share of total income that is accounted for by research income. This amounts to £16 million GVA and 480 jobs in the Highlands and Islands, Moray and Perthshire and £19 million GVA and 540 jobs in Scotland. These figures have been included in the core impacts section and also in the research impact section but have been counted only once in the overall total impact of the University and its academic partners.



Student spending is estimated based on where students live and on their spending patterns which are informed by the “Student Income and Expenditure Survey 2014 to 2015”²⁴ which is published by the Department for Education (DfE). The institution-maintained property at the University and its academic partners hosted just over 300 students. It was estimated that the rest of the full-time students considered lived either in their parental/guardian accommodation or in rented accommodation. Collectively, their living costs amounted to £111 million in 2018/19.

8.3.2 Student Part-Time Work Impact

Students also make an economic contribution by working part-time during their studies and often these jobs are in the hospitality and retail sectors. Based on national data it was estimated that around 33% of full-time students worked during term time²⁵. Of this group, around 150 work for the University and its academic partners and their impact was estimated as part of staff spending estimate. Based on the existing evidence, it is further estimated that students in part-time jobs work for around 14 hours per week²⁶.

8.3.3 Student Placements Impact

Students at the University and its academic partners contribute to local employment by carrying out work placements. These provide students with valuable skills and support the activities of businesses and organisations where they are placed. Data provided by the University indicate that around 840 students took part in placements in 2018/19. These were across a range of subjects, including nursing and other health-related areas, social sciences, teaching and hospitality. They also tended to have different durations, ranging from around three working weeks (100 hours) in counselling and psychotherapy to full year industry placements in forestry. The analysis only considered placements longer than 12 weeks, as shorter placements are mainly observational in nature. Around 680 University students were engaged in placements of 12 weeks or more in 2018/19.

8.3.4 Student Volunteering Impact

Student volunteering makes an economic contribution to a range of organisations and helps to make services possible that may not happen otherwise. Based on the evidence from a study by the National Union of Students²⁷ (NUS), it was estimated that around 31% of students took part in volunteering activities and that each volunteer spent around 44 hours volunteering each year. As with part-time work, it was assumed that students volunteered in the areas where they lived.

8.3.5 Summary Student Community Impact

By summing the economic impacts generated by the University’s student community, it is estimated that in 2018/19 they contributed £82 million GVA and supported 2,270 jobs in the Highlands and Islands, Moray and Perthshire and £99 million GVA and 2,740 jobs across Scotland.

²⁴ Department for Education (2018), Student Income and Expenditure Survey 2014 to 2015.

²⁵ Office for National Statistics (2019), Labour Force Survey.

²⁶ National Union of Students (2010), Still in the Red: Student finance in 2010.

²⁷ National Union of Students Connect (2014), The Student Volunteering Landscape.



Table 8-2 Summary of Student Community Impact - UHI

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
Student Spending Impact	55	68
Student Part-Time Work Impact	24	27
Student Placements Impact	2.0	2.0
Student Volunteering Impact	2.0	2.0
Total	82	99
Employment		
Student Spending Impact	1,240	1,530
Student Part-Time Work Impact	960	1,130
Student Placements Impact	70	80
Total	2,270	2,740

Source: BiGGAR Economics Analysis (Note: Figures may not sum due to rounding)

8.4 Tourism

The University and its academic partners draw people to the area to visit its students and staff and to attend conferences and events.

8.4.1 Visiting Friends and Relatives

Friends and relatives who visit staff and students at the University and its academic partners make an economic contribution by drawing people to the Highlands and Islands, Moray and Perthshire. Based on the total number of staff and students living in the Highlands and Islands, Moray and Perthshire and on the ratio of overnight international and domestic visitors, it was estimated that around 18,100 visits take place each year in this way, split between domestic and overseas visits. It was further estimated that this group spends a total of £2.8 million in the local economy.

8.4.2 Conferences, Events and Graduations

Conferences, events and graduations hosted by the University also generate short-term economic impacts by drawing visitors to the area. This includes residential conferences and other cultural events organised by the University and its academic partners. Most of these take place at Moray, Inverness and Perth Colleges.

8.4.3 Summary of Tourism Impact

It is estimated that in 2018/19, the economic impact associated with tourism-related activities at the University was £2 million GVA and 60 jobs across the Highlands and Islands, Moray and Perthshire.



Table 8-3 Summary of Tourism Impact - UHI

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
VFR Impact	1	2
Conferences and Events Impact	<1	1
Total	2	2
Employment		
VFR Impact	40	50
Conferences and Events Impact	20	20
Total	60	70

Source: BiGGAR Economics Analysis (Note: Figures may not sum due to rounding)

8.5 Support for Employers and Communities

The University is in, of and for the Highlands and Islands region.

The University’s tertiary education offering is a unique and valuable resource for employers and communities throughout the region, delivering both vocational and academic skills for small and large employers. Its approach to curriculum development engages with the employer community to design courses that are relevant and appropriate to the needs of the workplace and, in addition, the University and its academic partners play a wider role in supporting local economic growth through their involvement in City Region and Island Deals. These aspects are described below and highlight how the organisation is embedded in the future economic direction of the region.

8.5.1 Curriculum Development and Employer Engagement Officers (CDEEO’s)

To develop and strengthen links between the University and the business community, the University has appointed a team of curriculum development and employer engagement officers (CDEEO’s) to align course content across all subject networks with business needs. Their role also includes a requirement to scope out opportunities for joint working and student placements and to integrate employability skills within the University’s courses. The team is funded through an ESIF project with a target of delivering 450 employer interventions over the project’s lifetime. By February - April 2020 the project had been running for two and a half years and had achieved 114% of its target activity level.

As well as adding value to existing employer relationships, their role is to build new employer contacts across all sectors of the economy including the private, public and third sectors.

8.5.2 Apprenticeships

The colleges within the University network have long roots and deep connections with local economies for apprenticeships and skills. As a tertiary education provider, the University is delivering apprenticeships at all three levels, Foundation, Modern and Graduate, which is a significant offering from one organisation.



Apprenticeship Suite

The University's Foundation, Modern and Graduate Apprenticeships strengthen work-based learning for students and employers in core subjects.

The apprenticeship landscape in Scotland has grown in recent years and includes Foundation and Graduate Apprenticeships as well as the longer established Modern Apprenticeships which have been a mainstay of colleges for many years. As a tertiary education provider, the University is delivering opportunities for students and employers at all of these levels.

Across Scotland, 50% of school leavers do not follow an academic pathway and few gain industry relevant vocational qualifications while still at school²⁸. Meanwhile, many employers consider the content of courses delivered from schools and colleges to be out of date and want to recruit people with a more enhanced set of softer, employability skills. The Scottish Government commissioned a study in 2013 to address the issue and create a framework for supporting school leavers to become more work-ready by enhancing the provision of work-based learning. As a result, a portfolio of Foundation Apprenticeships was developed by Skills Development Scotland to be delivered in schools for pupils in the senior phase who attend college for one day each week. They have quickly become popular with young people across the University network with numbers growing steadily year on year since 2016.

Foundation Apprenticeships are offered in 11 frameworks across the University's academic partners, the most popular being those for children and young people; healthcare; business skills; creative and digital media; and engineering subjects. These five areas accounted for 95% of Foundation Apprenticeship started through the University's academic partners in 2019, attracting around 310 young people onto the courses.

Modern Apprenticeships mainly cover traditional trades subjects, health and social care, engineering and energy and hospitality. In 2019, there were 434 new starts for Modern Apprenticeships across the 27 frameworks offered by the University's academic partners. Four frameworks accounted for 76% of this intake: construction; sport, health and social care; engineering and energy; and hospitality and tourism. The intake of Modern Apprenticeships has grown in recent years with three new frameworks becoming available for the first time from 2020 in veterinary nursing, aviation and distilling. Almost six in ten Modern Apprenticeships are with employers in the Highland Council area.

Graduate Apprenticeships are offered by the University's academic partners in civil engineering and early learning and childcare. In 2020, the planned delivery is for 16 places in the civil engineering (BEng Hons) programme and 20 places in early learning and childcare.

²⁸ Scottish Government, June 2014, Education Working for All! Commission for Developing Scotland's Young Workforce, p3



8.5.3 Responding to Local Needs

The University continues to develop a curriculum that responds to skills gaps and shortages identified by local employers, delivering courses that are regionally significant while also remaining locally relevant. In recent times, several courses have been developed through close consultation with employers that illustrate this important role:

- **BSc Applied Software Development** (launching in 2020) –employer feedback reported that many graduates from traditionally-taught software engineering courses were ill-prepared for the realities of the job. In response, the University worked in collaboration with IBM to design a new degree which is structured to replicate modern software development practices. Students work in teams throughout the programme which is delivered entirely online, and daily team meetings are used to set priorities. Students develop a portfolio to appeal to employers which is also used by tutors to assess individual contributions to each project. Team work is supported by an annual boot camp and students have access to world-class technical input from professional mentors and guest speakers;
- **Fish Welfare in Aquaculture** – around 75% of aquaculture apprentices are delivered through NAFC Marine Centre UHI in Shetland which has close relationships with large international aquaculture companies. The Centre has designed an online course in fish welfare for the industry that meets the training and compliance requirements of various certification schemes and codes of practice, including the RSPCA welfare standards for farmed Atlantic salmon;
- **Diploma in Engineering** – working with SSE, Perth College UHI has developed a new 3-year academic programme for trainee engineers with an initial intake of nine students in 2019. The company is also working with North Highland College UHI to deliver a similar programme in Thurso to supply trained engineers for the nearby offshore wind energy sector with training accredited by the Global Wind Organisation. The creation of this course is being funded by the Energy Skills Partnership who are supporting the establishment of a Wind and Marine Training Network across Scotland's colleges;
- **Leadership, Management, HR and Accounting Modules** – a shortage of accountancy and HR skills has been identified as an issue for some larger Highland companies. In response, a series of short courses have been developed in leadership, management and HR, particularly for the food and drink and hospitality sector;

Significantly, the University is making a large and growing contribution towards educating frontline staff to deliver fundamental health, care and education services across the Highlands and Islands, Moray and Perthshire. The structure and scope of these courses reflect service delivery issues identified by the NHS and local authority education and social work departments (see case study below).

The University also carries an important cultural role which is crucial to region. It is a key vehicle for promoting regional strengths and resources including its culture, heritage, environment, Gaelic language, history, archaeology, Nordic Studies, textiles, music. Many of these features draw tourism into the local economy.



Support for Frontline Services

The University delivers a programme of courses addressing local needs in health, care and education

Health - Courses offered through the University's Centre for Health Science represent a significant step forward for the region, allowing it scope to become more self-sufficient in training key workers and bringing opportunities for staff to progress their careers while remaining in the Highlands and Islands, Moray and Perthshire.

- **Nursing** – the University offers undergraduate courses that can lead to Registration as an Adult or Mental Health Nurse and students can study the course in either Inverness or Stornoway;
- **Midwifery** - working in partnership with NHS Highland, Western Isles, Orkney and Shetland, the University has brought midwifery education to the Highlands and Islands for Registered Adult Nurses to become Registered Midwives within 20 months. The first cohort began in 2019 and a second is planned for 2020;
- **Advanced Nurse Practitioner** – designed in partnership with expert clinical partners, this is a practice-led and research-based course which is relevant to a variety of healthcare settings, including remote and rural contexts;
- **CPD Modules and PDA Awards** – a number of short courses are offered including professional leadership and resilience; complex symptom management; dementia practice; minor injuries; and palliative care; and
- **BSc (Hons) Optometry** (launching in 2020) –the Federation of Dispensing Opticians and Specsavers identified 135 optometry vacancies in the North of Scotland. Working together with the NHS, Boots and Specsavers, the University has developed an honours degree to help address the issue. The course is based on a blend of clinical and hospital settings and community practice.

Adult Care – a suite of HNC, SVQ and PDA awards are delivered through the University to support the adult care sector in the Highlands and Islands, Moray and Perthshire from practitioner level through to supervision and care services leadership and management.

Education – students living in the Highlands and Islands, Moray and Perthshire are able to train as primary and secondary school teachers without having to leave the area: this was not possible before the University existed. In 2019 the University enrolled around 90 students for **primary teaching** and 50 for **secondary teaching**. Through SMO the University also trains teachers in the **Gaelic Language**. Other key areas where the University is helping to address identified gaps in teaching provision is the **Additional Teaching Qualification for Computing** award. A shortage of computing teachers across the region means that pupil choice is limited in some areas for this subject and the University is working with Highland Council to develop a series of four CPD modules that will allow existing teachers to extend their skills to address this need. Other areas of known teacher shortages are being explored. The University is also delivering a programme to promote **STEM Teaching**, giving teachers the skills, confidence and materials to deliver STEM teaching at upper primary school level. So far, they have worked with over 100 schools and 10,000 pupils across the Highland Council area.

Early Years Childcare and Education – the University delivers core education to train staff to work in childcare settings. An additional CPD Award in **Forest Practice** allows existing practitioners to organise and supervise regular off-site visits to green spaces.



8.5.4 Supporting Economic Development

As well as offering a valued education service, the University is viewed by stakeholders as a strategic and operational partner in economic development. This is evidenced by the roles held by the University and its academic partners in delivering their respective City Region and Island Deals (see case study).

The examples in 8.5.3 above illustrate the important role it plays in giving the Highlands and Islands, Moray and Perthshire the ability to adapt to fit the needs of industry and local employers. This is especially important in the context of supporting the region's ability to recover from the economic effects of the COVID-19 pandemic. As unemployment is expected to rise, people will need to adapt and reskill and short-form courses, especially in further education and continuing professional development, offer a way in which this can be done. The University has shown its ability to do this well.

Rather than viewing education in a linear way, the University's tertiary nature means it can offer a circular approach to learning with courses that allow individuals to re-direct their career over the course of their working lives as their circumstances evolve and as economic needs dictate. This is particularly prescient for the post COVID-19 recovery, with short term reskilling opportunities being seen as a key mechanism to support the labour market.

8.5.5 Philanthropic Support

Finally, the University attracts philanthropic support which plays a vital role in shaping its development and positively impacting on students. This aspect is vital in helping the University to continue with its key role in the economic transformation of the region. In the current funding climate, the University's ambition to create new opportunities, knowledge and skills for a better future exceeds the government's funding ability, therefore, complementary and alternative funding sources such as philanthropic support has become more important.

In recent years the University has increased the number of new donors, deepened its relationships with existing donors and met a growing demand for support from its student population. Most recently it has benefited from two major legacy gifts, one six-figure sum and one seven-figure sum, both of which make a major and sustainable difference to the development of higher education and specialist academic research. Donations received help to ensure that:

- students have access to much needed extra financial help through grants, bursaries and scholarships;
- researchers can embark on projects that make positive regional, national and global impacts;
- students and staff have state-of-the-art facilities, right across the Highlands and Islands, Moray and Perthshire;
- aspirations are raised, unlocking the potential of talented young people; and
- the University creates economic impact in the Highlands and Islands, Moray and Perthshire through higher education.



8.6 Summary

The University delivers an enormous amount for the region it is has grown from and continues to respond to, giving the Highlands and Islands, Moray and Perthshire a significant element of control over its own economic destiny. The Highlands and Islands, and Inverness in particular, has become a different place over the last 20 years, evidenced through the improved quality of infrastructure and the quality of life. The University and the opportunities it brings has been a part of this transformation and plays an important role in supporting regional economic resilience. In short, the University makes the Highlands and Islands, Moray and Perthshire a stronger region.

The impact of its physical presence in the region is summarised in Table 8-4. It is estimated to generate £209 million GVA and support 6,130 jobs across the Highlands and Islands, Moray and Perthshire in 2018/19. This excludes its research impact and the lifetime productivity premium associated with its annual cohort of graduates.

Table 8-4 University for All of the Region, Total Impact

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
Core	126	147
Student Community	82	99
Tourism	2	2
Total	209	248
	Employment	
Core	3,800	4,250
Student Community	2,270	2,740
Tourism	60	70
Total	6,130	7,070

Source: BiGGAR Economics Analysis (Note: Figures may not sum due to rounding)



City Region and Island Deals

The University plays a major role in delivering the projects outlined in the City Region and Island Deals

Every college is an essential part of its local community's planning system, sitting alongside the councils, health services and local stakeholders to identify, plan and deliver the foundations for sustainable and inclusive economic growth.

Inverness: The University's Centre for Health Science was part-funded through the Inverness City Region Deal to fulfil one of its core objectives of developing and commercialising the health and life sciences sector in the City. Opened in 2019, this brings together health education, life sciences research, innovation and medical training facilities and attracts inward investment in health.

Moray: the Moray Growth Deal consists of eight projects, four of which will depend on the University and its academic partners for successful delivery, including the Moray Aerospace, Advanced Technology and Innovation Campus (MAATIC), housing an Aviation Academy to deliver aviation and engineering training, an Advanced Technologies Lab and a Manufacturing Innovation Centre and the Business and Enterprise Hub to improve business resilience and increase the average business survival rate for SMEs in Moray.

Perth: Perth College UHI is leading the Aviation Academy for Scotland, one of the projects in the Tay Cities Deal providing specialist training and skills to the global growth industries of aviation, emerging clean technologies and low carbon transport sectors.

The University also plays an important role in supporting and driving future growth in Orkney, Shetland and the Western Isles through the recently confirmed **Islands Growth Deal** (July 2020). Working with the three academic partners and councils in the Islands authorities, the Deals have been designed to address issues such as healthcare, depopulation, affordable housing, employment creation and tourism.

Beyond this, academic partners play other strategic roles in supporting the regeneration and development of their local communities. For example, North Highland College sits on the Caithness and North Sutherland Regeneration Partnership (CNSRP) which was formed to support the local economy's transition following the decommissioning of the Dounreay Nuclear Power Plant.

The University's tertiary offering can provide the necessary scale and range of skills required by transformative place-making and sector growth initiatives such as these.



9.

Contribution to Well-being

The contribution made by the University can be reviewed against the National Performance Framework, which assesses well-being in Scotland.

Scotland's National Performance Framework (NPF) is an approach to measuring the well-being of Scotland's economy that goes beyond the limitations of traditional GDP measures. With this more inclusive approach the well-being of the people of Scotland is measured against 11 National Outcomes. A well-being economy is a concept which promotes economic resilience by maintaining, investing in and growing four capitals – human, natural, social and economic – that are critical to protect and grow for current and future generations²⁹.

The contribution made by the University towards the outcomes of the NPF is outlined below.

9.1 Children and Young People

The creation of the University has vastly improved access to education for children and young people in the Highlands and Islands, Moray and Perthshire. Young people have been granted a wider range of National 5 and Higher-level subject choices, foundation apprenticeships and pathway programmes through the University that weren't available to previous generations. Providing greater opportunities for young people to live and work in the Highlands and Islands, Moray and Perthshire has an impact on levels of well-being in the region. Additionally, the University offers childcare studies at many of its campuses thereby contributing to the quality of children's services in the area. Child material deprivation may also be reduced as a result of educational opportunities for adults who want to further their career, and income opportunities.

9.2 Communities

The University has a presence in each of the local areas in which it operates, with the academic partners being part of the fabric of the communities they serve. The campuses have become a focal point in local communities.

The University also provides physical investment into local communities through their campus buildings and facilities. For example, in 2015, Inverness College UHI moved to a new, state-of-the-art, campus in the area. Investments like these are important additions to assets that heighten the quality and appeal of the Highlands and Islands, Moray and Perthshire, and a factor in preventing outward migration, particularly of young people.

9.3 Culture

The University is actively encouraging growth in the cultural economy through its faculty of arts, humanities and business, which include a focus on the creative and cultural industries and Gaelic. The three main campuses for the creative industry are the Moray School of Art, the Centre for Rural Creativity based at Shetland College

²⁹ Ibid, p11.



UHI and the Perth Music, Audio Engineering and Business Research facility located at Perth College UHI.

Gaelic culture is also embedded in the foundation of the University to preserve and enhance the culture of the language in the region. The Gaelic Language Plan 2019 – 2022 encourages the active use and expansion of Gaelic within the University's operations. SMO UHI plays a central role in protecting and promoting Gaelic language and culture.

9.4 Economy

The University is focused on training the future workforce through academic and vocational education and workplace learning. It is fundamental to the effectiveness of the labour market and so underpins productivity of the Highlands and Islands, Moray and Perthshire.

Through the modern apprenticeship programme and facilities such as the Engineering, Technology and Energy Centre (ETEC) at North Highland College, the University works closely with industry to help students gain the skills desired by employers. Moray College UHI has a particular role in supporting small businesses within the local area and tailors training to local business needs, including helping small and micro businesses to understand employment law and accounting to ensure effective and sustainable local businesses. In Moray, there is recognised potential for the aerospace industry to grow and, as such, the University is supporting this growth by leading on the Moray Aerospace Advanced Technology and Innovation Campus (MAATIC). This project is designed to increase the skilled workforce for the aerospace industry, increasing inward investment in advanced technologies and research, and reduce inequalities.

Through its very nature, the University contributes significantly to spending on research and development, which has numerous benefits for the economy. Additionally, the University is a technology-rich organisation and has vastly improved broadband access within the region.

9.5 Education

As a unique tertiary education provider, the University delivers education across all 12 levels of the SCQF, making it accessible to individuals at any level of study. The pathway programmes offered by the University also provide an avenue for students to progress from an access course right through to a post graduate degree. This creates opportunities particularly for those who choose a non-academic route after school, or for those who decide to re-enter education later in life to change careers.

This structure embodies the features of a lifelong learning approach - educational opportunities at the University are not only a linear pathway but also circular in nature. Providing such an array of opportunities increases the educational attainment of those living in the region.

The University is actively engaged in promoting workplace learning and works closely with industry partners particularly through their modern apprenticeship schemes and work placements, and also by providing short courses and professional development opportunities.

The University addresses skill shortages in the region. For example, through the BSc (Hons) in Optometry and BSc (Hons) in Applied Software Development. CPD



modules for existing teachers in computing address the shortfall of computing teachers in the area to facilitate teaching of the subject to a higher level.

9.6 Environment

Much of the University provision is focused on the natural environment. Of particular note in this area are SAMS UHI, focused on the sustainability of the marine environment, and the NAFC Marine Centre UHI, supporting the sustainability of fish stocks. North Highland College UHI is also home to the Environmental Research Institute (ERI), which seeks to produce unique insights into environmental science and address the challenges the natural environment faces. It has easy access to an abundance of natural resources such as the Pentland Firth and Flow Country.

Perth College UHI hosts the Centre for Mountain Studies (CMS), which hosts the UNESCO Chair for Sustainable Mountain Development. It delivers research, consultancy and knowledge exchange, with impacts in Scotland, Europe and around the world.

9.7 Fair Work & Business

Key indicators under the outcome of fair work and business are the number of businesses, innovation and economic participation. The University contributes to these in several ways.

For example, the business and research hub at Moray College UHI is key to the creation of innovative businesses in the area. The hub seeks to increase the resilience of existing businesses in Moray through providing bespoke training to strengthen productivity and retain employment opportunities for young people.

Economic participation is also likely to increase as a result of the employability of those who have studied at the University through qualifications gained and the employability skills taught across all provision.

9.8 Health

The University contributes to health in many ways, including research, teaching and supporting and sustaining the workforce.

Located beside Raigmore Hospital in Inverness, the University's Centre for Health Science. The centre was purchased by the University in 2019 and conducts world-leading research into major health problems, such as diabetes and cardiovascular disease. The Centre also seeks to increase the knowledge of health services within the region's rural areas.

The Department of Nursing and Midwifery was created to bring these core services to the local area. And in Argyll, the University helps address skills shortages that would be faced by the health and care sector without local provision. In this rural area, with geographically dispersed communities, these sectors struggle to attract labour from elsewhere in Scotland, and so the college provides an opportunity for Argyll to "grow its own" health and social care workers, allowing its residents to move into the sector during their life course. The sustainability of the labour market in this sector is of fundamental importance to the future of Argyll. Without nurses and care workers the viability of rural hospitals in Dunoon, Lochgilphead and Campbeltown might be questionable.



9.9 Human Rights

A key indicator of the human rights outcome is the quality of public services. The University, as the sole tertiary education provider in the Highlands and Islands, is the main provider of post school education.

9.10 International

The University produces internationally respected research, with 70% of its research being regarded as internationally significant. The University has strong links with many international partners and research groups and is seeking to expand its international networks.

In 2012, SAMS UHI became the first marine research institute in the world to be appointed an association institution of the University of the United Nations (UNU). This provides SAMS with opportunities to work and promote research internationally, with a particular focus on the challenges faced by developing nations. The Centre for Mountain Studies is also home to the UNESCO Chair in Sustainable Mountain Development, an international group of scientists, and the first UNESCO chair to be based in Scotland.

The University's global research and activities attracts international attention and establishes the University, and the region, as a place to study, work, live and visit.

9.11 Poverty

The University provides a range of options to individuals seeking to better their education and employment opportunities. Increasing qualification levels and employability skills are linked to better employment outcomes which strive to lift people out of poverty through higher wages. In this way, wealth inequality and persistent poverty are certainly addressed by the University.

10.

Summary of Impacts

This section summarises the total economic contribution made by the University and its academic partners in 2019.

The University and its academic partners generate a sizeable economic impact. In 2019, across the Highlands and Islands, Moray and Perthshire it is estimated to contribute:

- **£ 560 million GVA; and**
- **support 6,230 jobs.**

Across Scotland as a whole, it is estimated to contribute:

- **£ 653 million GVA; and**
- **support 7,180 jobs.**

The University's total income in this year was £135 million suggesting that every £1 income generates a GVA impact of £5 across Scotland.

Table 10-1: UHI Total Impact by Theme, 2019

	GVA (£ million)	
	Highland and Islands, Moray and Perthshire	Scotland
Supporting Students: Lifetime earnings premium of 2019 graduates	324	368
Focused Research*: Research and knowledge exchange activity	43	55
University for all the Region: Core employment and expenditure, student community, events and tourism	209	248
Total	560	653
	Employment	
Supporting Students	-	-
Focused Research*	80	90
University for all the Region	6,130	7,060
Total	6,230	7,180

Source: BiGGAR Economics Analysis, * The Focused Research impact includes the portion of the University's core income that comes from research (13%). Across the Highlands and Islands, Moray and Perthshire this amounts to £16 million GVA and 480 jobs. Therefore, to avoid double counting, this has only been counted once in the overall totals shown in this table. (Note: Figures may not sum due to rounding.)

The University's impact comes from the lifetime earnings premium it creates for students who qualify from its courses; from its research and knowledge exchange



work and from its organisational core activities as an employer and educator, running its services and managing its estates.

The majority of its impact comes from the lifetime earning premium of the University's annual cohort of qualifiers and graduates. This accounts for 58% of the total GVA impact and supports the organisation's goal of having a transformational effect on its student community.

The University accounts for almost 4% of GVA and 2% of employment in the Highlands and Islands, Moray and Perthshire.

10.1 Change in Impact

An economic impact assessment of the University and its academic partners was carried out by BiGGAR Economics in 2011. Due to refinements in the methodology over time and new data sources that have become available, it is not possible to directly compare the results of the two studies. However, the broad direction of change is worthy of note.

After taking account of changes in methodology, analysis indicates that the economic impact of the University has grown by between 20% and 25% in the last ten years. This has primarily been driven by an increase in the number of higher education graduates, which has grown by 56% during this time.

This is a highly significant achievement for a young organisation which is delivering a broad curriculum over a large geography and one that would not have been possible without the change in its status.

10.2 Comparison

This report has highlighted the University's uniqueness in terms of its origins, geographic coverage, curriculum offering and method of course delivery. It is also a relatively young organisation, having achieved University title in 2011. For these reasons it is not useful to draw a direct comparison with other organisations.

The closest comparators in the UK that have recently been studied by BiGGAR Economics are three other post-92 institutions which are similar to the University in terms of the scale of income. In two cases, they generated a ratio of income to GVA impact of £1: £5 at a UK level, which is the same as the result observed for the University of the Highlands and Islands and in the remaining case it was £1: £7. The latter organisation serves an area that is more densely populated which may explain part of the difference in impact. On this basis, the University's GVA impact compares well with other modern universities in the UK, which, again is an impressive result for a unique and young organisation.



11.

Conclusions

The University has a positive and growing economic impact, offering real choice in tertiary education in the Highlands and Islands, Moray and Perthshire and facilitating tailored and sustainable development in its communities.

The University and its academic partners are central resources in their communities, they are partners in economic development and offer a huge range of education options for people in the area, both in terms of subject choice, level of study and mode of study. It is a distinct and unique education organisation which has been shaped by the community it serves. It has grown significantly since achieving university title in 2011.

As an organisation it is capable of fully networked course delivery across the Highlands and Islands, Moray and Perthshire, yet it also remains locally relevant and responsive to student and employer needs. It does this through blending its newer capabilities in higher education with its long established further education roots and, as a result, it has achieved a great deal for a young university by becoming a truly tertiary education provider.

11.1 Value for Money

The University's total income in 2019 was £135 million and it generated a GVA impact across Scotland of £653 million, suggesting that every £1 income received by the University generates a GVA impact of £5 across Scotland.

An estimated 86% of the University's GVA impact is retained within the Highlands and Islands, Moray and Perthshire, giving a local GVA multiplier of around £4 for every £1 income received.

Regional GVA in the Highlands and Islands study area (defined as the local authorities of Argyll & Bute, Highland, Moray, Na h-Eileanan Siar, Orkney Islands, Perth & Kinross, Shetland Islands) in 2018 was £16.8 billion. This implies that, at its current (2019) scale, the organisation represents around 3.3% of regional GVA in the Highlands and islands³⁰.

11.2 Growth

The scale and nature of the University has grown and changed in the last decade. Its nominal income has grown by 25% from £108 million in 2011 to £135 million at present, while over the same time, its economic impact has grown by between 20% and 25% across Scotland.

The increase in the University's volume of degree-level graduates has been the main contributor to its growth in impact and a key driver for this is the University's strengthened reputation through achieving University title in 2011. Its expanded

³⁰ Source, ONS, 2019, Regional gross value added (balanced) by industry: local authorities by NUTS1 region



multi-level curriculum, its range of delivery methods and its evolving approach to knowledge exchange have also played a role in bringing this about.

The organisation's student profile has changed over time and it now attracts more younger people and more full-time learners than in 2011:

- the proportion of young students, aged 21 and under, studying courses at the University has grown from 30% in 2011 to 41% in 2019; and
- for higher education courses, the proportion of full-time students has grown from 50% in 2011 to 60% in 2019.

11.3 Education Transformation

The University and its academic partners have brought about a step change in the range of education options that are open to people in the Highlands and Islands, Moray and Perthshire, without the need to leave the area. Through networked delivery using a virtual learning environment and a blended approach to teaching and learning it, has brought choice to learners that did not previously exist, transforming the opportunities open to many in remote and rural communities.

As a tertiary provider it brings choices for all learners regardless of their previous level of attainment, age or personal circumstances.

Its approach to delivering courses and the student support it offers have resulted in high levels of student retention, satisfaction and employability rates that are, in many cases, above national averages.

11.4 Regional Transformation

The evidence gathered during the study suggests that the University is facilitating a transformation in:

- the economic structure and future direction of the region;
- the educational opportunities available to people who live there; and
- placemaking in the region's towns and localities.

11.4.1 Economy

The University aims to deliver courses reflecting the people, society, the environment and the economy of the Highlands and Islands, Moray and Perthshire. Through a team of curriculum development and employer engagement officers, courses are designed and refined to meet the identified needs of employers. Most recently, its offering in medical subjects through the Centre for Health Science has given the health service in the Highlands and Islands the ability to train and develop staff to meet identified shortages and inform the approach to serving the healthcare needs of rural and remote communities. Other examples cover a variety of sectors that are key to the economy including: the range of subject choices offered through the School of Adventure Studies; the new Applied Software Development degree course; the continuing professional development modules to address gaps in teaching services; and the planned delivery of training courses for staff working on offshore windfarms.

The University and its academic partners' role in city region and island growth deals acknowledge their respective abilities to contribute to economic development, helping to shape the future economic direction of the areas they represent.



11.4.2 People

The University is playing a positive role in changing the perceptions of young people, resulting in more young people choosing to study at the University and more positive attitudes about the tertiary education offering in the Highlands and Islands, Moray and Perthshire.

The broad nature of the University's curriculum offers pathways through many subject areas to suit learners of all ability levels, regardless of previous attainment. Its professional development awards and CPD modules allow career progression options that did not previously exist within the region, transforming the future careers for those involved. It can also accommodate people who wish to return to work or education, or change direction over the course of their working lives.

The UHI also attracts talented people to the region for study and for employment, particularly for its range of specialist courses that are highly regarded at a national and international level.

Its further and higher education offering is complementary, serving different audiences and delivering what is needed, where it is needed and for whom it is needed.

11.4.3 Place

The University and its academic partners have a presence in the main towns and villages throughout the Highlands and Islands, Moray and Perthshire with estates that offer modern and welcoming learning environments. Their presence brings a sense of place, making the communities places in which to live, work and study and this is a new dimension for many localities. They have become an essential part of the fabric of the places they belong to with individual strengths that reinforce the identity of the area and the region from which they have grown. Their individual specialisms reflect a blend of past heritage, current needs and future evolution:

- **Argyll College UHI** – with a network that delivers tertiary education in areas where none previously existed, it brings a curriculum that addresses gaps in key public health, care and education services as well as construction skills;
- **Centre for Health Science** – based in Inverness with the ability to train nurses, midwives and other health professionals, it is helping to address shortages in healthcare staff and allow career development within the field, within the region;
- **Highland Theological College** – preserves tertiary education in the study of the Christian faith;
- **Inverness College UHI** – provides the national skills development needs of the forestry industry and supports key regional sectors such as engineering, construction, health and social care, computing and the creative industries;
- **Lews Castle College UHI** – with specialist courses in engineering, renewable energy and maritime subjects, Gaelic language and culture, music and the creative sector;
- **Moray College UHI** – with its ambition to transform Elgin into a university town, it plays a central role in the Moray Growth Deal, planning new facilities to support the growth of the local aerospace sector and the region's food and drink sector, as well as support for microbusinesses which are prevalent in the area;
- **North Highland College UHI** – as well as housing the Environmental Research Institute, it hosts the engineering, technology and energy centre (ETEC), the Rural Studies centre, and has other strengths in history, music, golf and professional cookery;
- **NAFC Marine Centre UHI & Shetland College UHI** – long-established strengths in fisheries and aquaculture and delivering courses that reinforce the Islands' creative and cultural sectors;



- **Orkney College UHI** – with strengths in agronomy for northern climate crops, archaeology and the Viking heritage of the Islands;
- **Perth College UHI** – strengths in business studies, STEM subjects, aviation training, music, applied life studies and home to the Centre for Mountain Studies;
- **SAMS** – an acclaimed research institute for the marine environment and economy;
- **Sabhal Mòr Ostaig (SMO)** – the national centre for Gaelic Language with a focus on promoting the renaissance of the native Gaelic language and culture;
- **West Highland College UHI** – delivering tertiary education to a scattered population and offering courses built on the region's reputation for outdoor adventure and tourism.

11.5 Vehicle for Economic Recovery

The economic impacts set out in this report are based on data for 2018/19, the most recently completed academic year at the time of writing in mid-2020. The analysis has been prepared in a significantly changed economic environment as a result of the COVID-19 pandemic which has created challenges on a scale that our economy and people have not seen in our lifetimes. It is clear from the findings set out in this report that the University is a significant economic player, giving the region an important piece of infrastructure to assist in its economic recovery.

Scottish Government analysis suggests that the most-exposed sectors are prevalent in rural local authorities, given their greater reliance on micro and small businesses and self-employment, the seasonal nature of many businesses, particularly in tourism, and the loss of both export markets and domestic food service markets³¹.

As a provider of skills for key workers, the University and its academic partners have already played a role in the early stage of the pandemic with their underpinning support for the health and care sector across the Highlands.

The planned recovery from the current crisis brings scope to build a greener, fairer and more equal society: a well-being economy. A well-being economy is a concept which promotes economic resilience by maintaining, investing in and growing four capitals – human, natural, social and economic – that are critical to protect and grow for current and future generations³².

Universities in general, and the University of the Highlands and Islands in particular, have much to offer to assist this process. The University is a tertiary education provider, offering a broad curriculum for all learners and is responsive to local employer needs. Its many strengths in environmental science and renewable energy offer a great deal towards informing the green recovery and supporting the development of zero carbon technology. Combined with its long-established track record in delivering education through blended learning using virtual learning environments, the University and its academic partners have much to offer for a sustainable, green and inclusive recovery.

³¹ Scottish Government, August 2020, [Economic Recovery Implementation Plan, p7](#)

³² Ibid, p11.



12.

Methodological Appendix

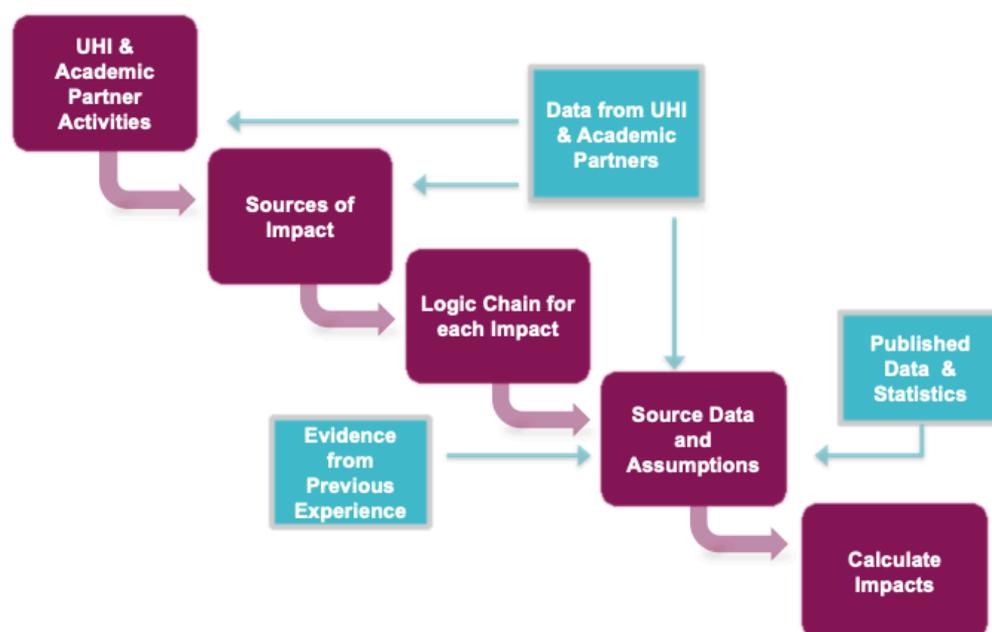
This Appendix provides more technical detail of the methods used to estimate the economic impacts of the University across its activities.

12.1 Approach

The starting point for our analysis is to consider the various activities undertaken by the University and its partner institutions and to identify those that are likely to generate an economic contribution.

Logic chains are then developed to describe how each type of activity generates economic value and these are used to build an economic model that estimates the economic contribution of the University.

Figure 12-1 Economic impact Assessment: Study Approach



Source: BIGGAR Economics

The next step was to consider how the value generated by each type of activity might be measured and what data were required to do this. For most types of activity two types of information were used: source information about the scale of the activity and data that could be used as the basis for assumptions to measure the economic value generated by this activity.

The data required for the general assumptions used in the model were obtained either from published reports, official statistical sources or based on BiGGAR Economics' previous experience within the higher and further education sectors. The key statistical sources to estimate economic impacts were the Scottish Input-Output³³

³³ Scottish Government (2020), Scottish Input Output Tables 2016.



Tables and the Scottish Annual Business Statistics³⁴. These were weighed to reflect local impacts.

The data collected alongside the assumptions made were then used to populate an economic model that estimated the value of each source of contribution from the University. This were aggregated in order to produce an overall estimate of the total contribution.

12.1.1 Measures of Economic Impact

When expressing the economic value generated by the University and its academic partners, two widely accepted measures of economic contribution were adopted: gross value added (GVA) and employment.

- Gross Value Added (GVA) measures the monetary contribution that an organisation adds to the economy through its operations. In its simplest form, the GVA of an organisation is its turnover minus its expenditure; and
- employment, which is measured in headcount jobs supported.

One of the reasons that these measures are so widely used is because they provide a convenient way of capturing the entire economic contribution of an organisation in a single number.

12.1.2 Direct and Wider Economic Impacts

The total GVA and employment impacts of an organisation are derived from three sources: the direct, the indirect and the induced effects.

The direct impact captures the contribution to economic activity that an organisation can claim as being exclusively its own. It is given by an organisation's direct GVA, which is represented by its income less its non-staff operating expenditure, and the number of people it employs. This is estimated by multiplying the turnover it generates by the 2020 Scottish Annual Business Statistics (ABS) turnover/GVA and turnover/job ratios for the industry where the impact took place. Given that impacts vary across sectors, where possible, turnover was attributed to a given industry matching spending to an appropriate Standard Industrial Classification (SIC)³⁵ code.

Economic activity generators do not exist in a vacuum and, as a result, they have an impact on other economic entities. This is captured by an organisation's indirect and induced contribution and is measured using economic multipliers from the Scottish Input- Output Tables.

The indirect impact captures the contribution made by an organisation through spending within its supply chain, which supports employment and contributes to value added within supplier organisations.

Type 1 multipliers capture the total direct and indirect GVA and employment effect generated by £1 of turnover. Thus, to estimate only the indirect contributions, the Type 1 multiplier is subtracted by 1 and multiplied by the direct GVA and direct employment. To take account of the location of supply chains, indirect impacts are then multiplied by the share of impact that is assumed to occur in a given study area. This assumption was based on data provided by the University and its academic partners relating to the location of their suppliers.

³⁴ Scottish Government (2020), Scottish Annual Business Statistics 2018.

³⁵ Office for National Statistics (ONS) (2009), Standard Industrial Classification of Economic Activities 2007.



In addition to purchasing supplies, businesses also need to employ staff to transform these inputs into their final products and pay them salaries and wages. The induced impact of an organisation captures its contribution to economic activity arising from its workforce spending their wages and salaries in the economy.

Type 2 Multipliers capture the total GVA and employment impacts arising from £1 of turnover. Thus, in order to single out the induced contribution, it is necessary to subtract the Type 1 multiplier from the Type 2 multiplier and then multiply what is left by the direct GVA and employment contributions. The induced impacts are then weighted by the relative share of household expenditure that is assumed to take place at local level. This is based on analysis of the Household Expenditure Survey³⁶.

The Scottish Annual Business Statistics do not include Value Added Tax (VAT) in the reported industry turnovers and so when considering the economic impact of expenditure focussed activity, such as staff spending, student spending or tourism, it was necessary to remove the VAT component of this expenditure.

12.2 Supporting Students Impacts

This sub-section outlines the approach taken to quantifying the impact from improved labour market outcomes for students and graduates of the University.

12.2.1 Economic Impact of Qualifications at SCQF Levels 4 to 6

The analysis of the productivity premium associated with students achieving qualifications at SCQF Levels 4 to 6 was based on a study published by the Department for Business and Innovation (BIS)³⁷ which looked at life-time productivity impacts from achieving Regulated Qualifications Framework (RQF) levels 2 and 3 in England. This also considers the productivity returns associated with Foundation Apprenticeships.

In particular the report considered the returns from the following qualifications:

- Basic Skills;
- Developmental Learning;
- Apprenticeships Level 2;
- Work-based NVQ L2;
- Provider-based NVQ L2;
- Apprenticeships Level 3;
- Work-based NVQ L3; and
- Provider-based NVQ L3.

Among these, basic skills and developmental learning qualifications, broadly include literacy and numeracy qualifications and qualifications below RQF level 2. For this reason, they were considered as providing a suitable proxy for estimating the returns from RQF Level 1 qualifications.

As well as the costs associated with achieving the qualifications (Government funding, fees and foregone income), the study considered three types of benefits:

- wage returns;
- employment returns (improvement in the likelihood of being employed); and

³⁶ ONS (2019), Family Spending in the UK: April 2017 to March 2018.

³⁷ Department for Business and Innovation (2011), Measuring the Economic Impact of Further Education



- spillover effects (e.g. benefits not captured by qualifiers themselves).

To account for benefits at the individual level, it was necessary to discount the total premium by a third, since spillover effects were estimated to be twice as large as wage effects. It was then necessary to average the Net Present Value associated with the achievement of each qualification.

Using guidance from the European Commission³⁸, an RQF Level 2 qualification in England equates to an SCQF Level 5 qualification in Scotland. Further equivalences between the RQF and the SCQF are mapped out in Table 12-1 along with the associated premium at each level.

Table 12-1 Productivity Premium Assumptions, SCQF Levels 4 to 6

RQF Level	Equivalent SCQF Level	Productivity Premium
Level 1	Level 4	8,667
Level 2	Level 5	22,444
Level 3	Level 6	29,444

Source: BIS (2011), Measuring the Economic Impact of Further Education and BiGGAR Economics Analysis

The economic impact associated with each study area was estimated based on qualifiers' term-time address.

12.2.2 Economic Impact of Qualifications at SCQF Levels 7 and 8

To estimate the impact from SCQF Level 7 and 8 qualifications, including those from Modern Apprenticeships, the analysis relied on a study by London Economics on the returns from RQF qualifications 4 to 5 for STEM and non-STEM subjects³⁹.

Based on the European Commission conversion tables, RQF Levels 4 and 5 correspond to SCQF Levels 7 and 8. Furthermore, given the profiles of students studying Level 7 and 8 qualifications, the returns from these qualifications were modelled based on those for HNC/HND qualifiers from the London Economics study.

The data in the London Economics report were also based on the distinction between STEM and non-STEM qualifications and between male and female students. To obtain a figure applicable to all students, it was necessary to take an average of the male and female earnings premia. This average was weighted by the relative share of male (67%) and female (33%) studying within the Science, Technology and the Environment (STE) subject network at UHI⁴⁰. In addition, it was necessary to assess the share of further education students that studied STEM and non-STEM subjects at the University and its academic partners. Based on data from Colleges Scotland⁴¹, it was assumed that around 25% of students studied STEM subjects.

In their research, London Economics found that the outcomes of part-time students tend to be consistently different from those of their full-time counterparts. This is mainly because qualifications are undertaken at different points in life, with part-time students tending to be older than full-time students and, as a result, they experience a lower return over their lifetime from the qualifications they study. The average

³⁸ European Commission (2019), National Qualifications Framework, available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/national-qualifications-framework-93_en

³⁹ London Economics (2017), Assessing the economic returns to Level 4 and 5 STEM-based qualifications.

⁴⁰ UHI (2017), Gender Action Plan 2017-20.

⁴¹ Colleges Scotland (2018), Keyfacts 2018.



premium across the qualifications considered for STEM and non-STEM students and full-time and part-time students are shown in Figure 12-2.

Figure 12-2 Productivity Premium Estimates SCFQ Level 7 and 8



Source: London Economics (2017), Assessing the economic returns to Level 4 and 5 STEM-based qualifications.

Using these estimates, it was possible to estimate the impacts associated with students achieving SCQF Level 7 and 8 qualifications at the University and its academic partners. Finally, the returns from these qualifications were assumed to accrue to the geographic area where students lived.

12.2.3 Economic Impact of Qualifications at SCQF Levels 9 to 12

Based on the data received from the University and its academic partners, it was estimated that in 2018/19 a total 1,400 awards were made at Levels 9 to 12, including:

- 100 SCQF level 9 awards;
- 970 undergraduate degrees;
- 340 postgraduate taught degrees; and
- 17 postgraduate research degrees.

A breakdown of student numbers based on the subject and degree type studied as well as their status is shown in Table 12-2.



Table 12-2 UHI Undergraduate and Postgraduate Students

Subject Area	UK	Non-UK
Undergraduate		
Agriculture	0	0
Architecture, Building & Planning	17	1
Biological Sciences	73	4
Business & Administrative Studies	135	7
Creative Arts & Design	128	10
Education	60	0
Engineering	77	114
European Languages	0	0
Historical & Philosophical Studies	79	1
Languages	0	0
Law	0	0
Linguistics, Classics & related	19	3
Mass Communication	0	0
Mathematical & Computing Sciences	36	0
Medicine & Dentistry	10	0
Non-European Languages	0	0
Physical/Environmental Sciences	44	5
Social Studies	123	1
Subjects Allied to Medicine	11	0
Technologies	0	0
Veterinary Sciences	12	2
Combined	0	0
Total	824	148
Postgraduate		
Postgraduate Taught	291	36
Postgraduate Research	10	7
Total	311	43

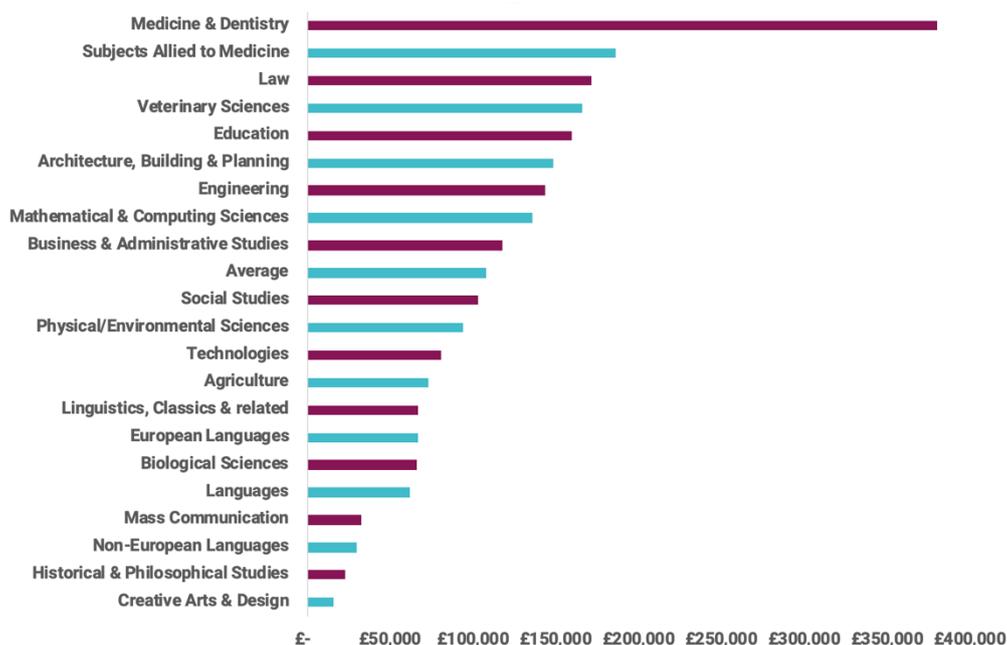
The approach towards estimating the productivity premium associated with higher education graduates is based on research carried out by the Department for Business Innovation and Skills (BIS)⁴². This considers the lifetime earnings premium accruing to a graduate compared with someone whose highest formal qualification is an A-level or an equivalent qualification.

⁴² Department for Business Innovation & Skills (BIS) (2011), The Returns to Higher Education Qualifications.



The BIS study also provides a breakdown of graduate premia by subject studied and highlights the considerable variation in the returns from different degrees (Figure 12-3). For instance, the study found that the lifetime premium for people with a degree in medicine and dentistry was £380,600, whereas for graduates from creative arts and design courses it was £16,200. The average graduate premium was estimated to be £108,100. Based on these premia, the study also provides estimates on the returns from a taught postgraduate and research degrees.

Figure 12-3 Graduate Premium by Subject



Source: BIS (2011), The Returns to Higher Education Qualifications

To estimate the total productivity impact associated with the students who achieved Level 9 to 12 qualifications, it was necessary to multiply the returns associated with each degree type and subject by the number of graduates who qualified in that subject and degree type in 2019.

To estimate the economic impact generated in each study area, it was necessary to consider where graduates would work following the completion of their degree. Based on the Destination of Leavers from Higher Education Survey⁴³, it is estimated that around 79% of graduates from Scottish UHI remain in Scotland on completion of their course and around 54% in the Highland and Islands, Moray and Perthshire. Non-UK qualifiers were assumed to be as likely to stay in each study area as UK-qualifiers.

The total graduate premium across the Highlands and Islands, Moray and Perthshire and Scotland was then estimated by summing up these impacts.

⁴³ Higher Education Statistics Agency (HESA) (2018), Destination of Leavers from Higher Education 2016/17.



12.3 A University for all the Region Impacts

This sub-section outlines the approach taken to quantifying the impact from the core activities of the University, its student community and the tourism activity that it stimulates.

The core impact has four elements which are each explained below:

- Direct Impact
- Supply Chain Spending Impact
- Staff Spending impact; and
- Capital Spending Impact

12.3.1 Direct Impact

The direct economic impact of an organisation is given by its employment and by the economic value that it adds through its activities. The direct Gross Value Added (GVA) can be estimated as the difference between income and the value of the inputs used in production.

It was estimated that in 2018/19 the University and its academic partners generated £135.3 million. Over the same period, the spending on supplies of goods and services amounted to £42.3 million. Consequently, the University and its academic partners generated £93 million direct GVA in 2018/19.

The University also made an economic contribution by directly employing staff. In 2018/19, the University directly supported 3,076 jobs across its executive office and academic partners.

12.3.2 Supply Chain Spending

It was estimated that in 2018/19, the University spent £33 million on goods and services. This excludes the spending in grants and bursaries to students, which are considered as part of student expenditure.

To estimate the economic impact supported by this expenditure, it was then necessary to allocate the spending to those industrial sectors where it occurred. This was done based on the classification of industrial activity provided by the Office for National Statistics' (ONS) Standard Industrial Classification (SIC) codes. Where data on spending by sector or a breakdown of spending was not provided, a split of supply expenditure was imputed based on the data available for the other academic partners.

Having allocated expenditure to the industrial sectors where it took place, it was then necessary to split it according to the local area where it occurred. Based on data from the University and its academic partners, it was estimated that around 36% of spending benefitted businesses in the Highlands and Islands, Moray and Perthshire and 26% went to Scottish businesses.

To estimate the direct GVA and employment supported by supply spending, it was then necessary to divide the sectoral turnover generated in each study area by the relevant turnover per GVA and turnover per job ratios from the Scottish Annual Business Statistics.

To estimate indirect impacts, it was necessary to apply Type 1 GVA and employment multipliers from the Scottish Input-Output Tables (I-O) to direct GVA and employment impacts, as described in section 12.1.2, Induced impacts were estimated in a similar way by applying Type 2 GVA and employment multipliers.



12.3.3 Staff Spending Impact

In 2018/19, the University and its academic partners employed 3,076 people. Around 93% of the staff lived in the Highlands and Islands, Moray and Perthshire, whereas almost everybody else lived within Scotland. The staff employed by the University and its academic partners received a total £99.7 million in salaries and wages (including pension contributions), of which £99.1 was paid to staff living in Scotland.

In order to estimate the impact from staff spending, it was necessary to make assumptions on how much of their income staff spent in each study area. It was assumed that staff living in the Highlands and Islands, Moray and Perthshire spent 55% of their salaries in the Highlands and Islands, Moray and Perthshire and around 67% in the Scottish economy. Members of staff living elsewhere in Scotland were assumed to spend 10% of their salaries in the Highlands and Islands, Moray and Perthshire and 67% in the Scottish economy, as shown in Table 12-3.

Table 12-3 Staff Spending Matrix – University of the Highlands and Islands

Where Staff Live...	Where Staff Spend...	
	Highlands and Islands, Moray and Perthshire	Scotland
Highlands and Islands, Moray and Perthshire	55%	67%
Scotland	10%	67%

Source: BiGGAR Economics Analysis

Since the data from the SABS exclude taxation, it was then necessary to discount staff earnings by 8%, the share of households' income spent on Value Added Tax according to a 2013 study carried out by the European Commission⁴⁴.

In this way, it was estimated that staff spent a total £84.9 million in the Highlands and Islands, Moray and Perthshire and £91.3 million in Scotland. To calculate the direct GVA and employment supported by this expenditure, it was then necessary to divide the spending by the turnover per GVA and turnover per job ratios for the Household Expenditure sector from the SABS. Type 1 and Type 2 GVA and employment multipliers were then applied as described above to estimate indirect and induced impacts.

12.3.4 Capital Spending Impact

The University and its academic partners also make an economic contribution through their spending on capital. This type of expenditure includes both expenditure on durable goods (e.g. IT equipment and other equipment) and on buildings. Capital expenditure by the University and its academic partners benefits those businesses where spending takes place, their employees and supply chains.

Compared to operational expenditure, this type of spending is subject to larger fluctuations, as it depends on when a given project is financed. For this reason, the analysis considered, where possible, a ten-year average of capital expenditure over the period between 2015 and 2024. In this way, it was estimated that on average the University and its academic partners spend a total £16.1 million each year on capital projects.

To estimate the economic impact from capital spending, it was first necessary to estimate the share of expenditure that was devoted to equipment and buildings. This was based on the data provided by the academic partners and, when these were not

⁴⁴ European Commission (2013), A study on the economic effects of current VAT rate structures.



available, on an average of spending shares for the available partners. In this way, it was estimated that on average 90% of this spending was devoted to buildings and the remainder to the purchase of goods, with similar shares for IT and non-IT equipment spend.

Spending was then allocated based on the location of the companies which provided the capital goods and services to the University and its academic partners, with 40% of spending taking place within the Highlands and Islands, Moray and Perthshire and 71% across Scotland.

To estimate the direct GVA and employment supported by capital spending, the turnover by location was then divided by the turnover per job and turnover per GVA ratios of the construction sector, the manufacture of computer, electronic and optical products sector (IT equipment) and the wholesale trade, except of motor vehicles and motorcycles sector (Non-IT Equipment).

As in previous sections, Scottish GVA and employment Type 1 and Type 2 multipliers were then applied to the direct GVA and employment to estimate indirect and induced impacts.

Next we consider the student community impacts. There are four in this category:

- Student Spending
- Student Part-time Employment
- Student Placements; and
- Student Volunteering

12.3.5 Student Spending

Students at the University make an economic contribution through their spending during term time. In this way, they support the businesses where money is spent and their employment. This section considers the economic impact generated by the expenditure of full-time students. Part-time students were not considered, as it is assumed that their spending patterns are different and are mostly driven by their participation in the labour market.

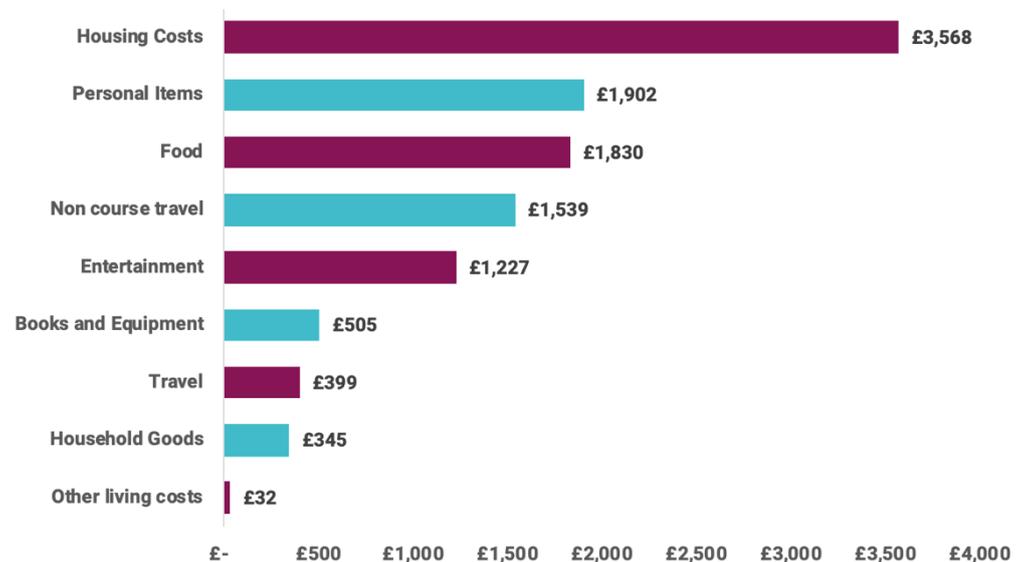
The first step in assessing the economic contribution made by students' expenditure was to estimate the total number of full-time students at the University and its academic partners. Based on the data received from the University, it was estimated that 10,767 students were studying full-time at the University and its academic partners.

It was then necessary to estimate how much a student may spend during an academic year. This relied on the Student Income and Expenditure Survey 2014 to 2015 carried out by the Department for Education⁴⁵. The study sets out student expenditure for students living in different parts of the country and across different accommodation types. Since data were not available for Scotland, the analysis was based on data for Non-London England. As shown in Figure 12-4, the largest expenditure incurred by students was housing costs, on which on average students spent £3,568.

⁴⁵ Department for Education (2018), Student Income and Expenditure Survey 2014 to 2015.



Figure 12-4 Average Annual Student Expenditure in Non-London England, 2014/15



Source: DoE (2018), Student Income and Expenditure Survey 2014 to 2015.

Prior to estimating total student expenditure, it was necessary to adjust figures for inflation. Then, student expenditure was discounted by Value Added Tax (VAT) to account for the fact that data from the Scottish Annual Business Statistics⁴⁶ (SABS) are exclusive of VAT.

Students were then allocated across the type of accommodation where they lived. Based on the data received, it was estimated that 312 students lived in university-maintained accommodation. It was further assumed that around 48.8% of students lived in parental accommodation⁴⁷. The remainder were assumed to live in rented accommodation.

Splitting students based on accommodation type was necessary, as students living in different accommodation face different types of expenditure. For instance, those students living in parental accommodation are likely to face significantly lower accommodation costs than those renting in the private sector.

It was then necessary to account for the length of time that students spent at the University and its academic partners. It was assumed that students spent around 31 weeks at their education provider.

In order not to double count the expenditure on university provided accommodation (already considered as part of the university's income), the housing costs of students living in university-maintained accommodation were not considered. To estimate the direct GVA and direct employment supported by student expenditure, the turnover generated by student expenditure was divided by the turnover per GVA and turnover per job ratios of the relevant industrial sectors. Indirect and induced impacts were estimated by applying the relevant GVA and employment Type 1 and Type 2 multipliers to the direct GVA and employment estimates.

⁴⁷ Higher Education Policy Institute (2018) Homeward Bound: Defining, understanding and aiding 'commuter students'



12.3.6 Student Part-Time Employment

In order to estimate the impact generated by students involved in part-time employment, it was necessary to make a series of assumptions. Based on evidence from the ONS Labour Force Survey⁴⁸, it was assumed that around 33% of students work part-time during their studies. This means that a total 3,521 students at the University and its academic partners were in part-time employment during the academic year 2018/19. From this total, it was necessary to subtract the number of students that worked for the University and its academic partners. The remainder of the students worked on average 14.2 hours every week⁴⁹. It was assumed that part-time work took place where students lived during term time and that the sectors that typically employ students in a part-time capacity include catering, retail, private education (e.g. tutoring) and residential care activities.

It was then necessary to estimate to what extent the student part-time was additional. This was done based on previous experience by BiGGAR Economics and on the unemployment rate of those aged 16 to 24 years old in each study area. The higher the youth unemployment in a given area, the lower the additionality of student employment. This is because students, in a similar context, are likely to be replacing the unemployed and, as such, those jobs, if not by students, would be performed by somebody else.

Having estimated the number of students working part-time, it was then necessary to estimate the number of full-time equivalent jobs that they performed in each sector. This was done by estimating the total number of hours worked each week and then multiplying this by the share of students working in each sector. Using the number of average hours worked in each sector of the economy each week, it was then possible to estimate the number of FTE supported by student part-time employment.

To estimate the direct GVA supported by these jobs, it was then necessary to multiply the number of FTE jobs supported by the sectoral GVA per job from the Scottish Annual Business Statistics. To estimate indirect impacts, Type 1 Scottish GVA and employment multipliers were applied to the estimates of direct impact. Induced impacts were not estimated to avoid double-counting, as student expenditure had already been considered elsewhere in the analysis.

12.3.7 Student Volunteering

Students at the University and its academic partners also make an economic contribution by engaging in voluntary activities. By being able to rely on student voluntary work, the businesses where students volunteer are able to expand their operations. Participation in voluntary activities brings also benefits to the volunteers, as they learn a series of soft and hard skills that are going to benefit them throughout their studies and beyond.

According to a study by the National Union of Students⁵⁰, around 31% of students take part in voluntary activities. Each student volunteer on average volunteers for 44 hours each year⁵¹. In this way, it was estimated that 3,338 students at the University and its academic partners volunteered throughout 2019 and spent a total 146,862 hours doing so. As for student part-time work, it was estimated that volunteering activities took place where students lived.

⁴⁸ Office for National Statistics (2018), Labour Force Survey, Table A06: Educational status, economic activity & inactivity of young people: People aged 16 to 24 by educational status, economic activity and inactivity (seasonally adjusted)

⁴⁹ National Union of Students (2010), Still in the Red: Student Finances in 2010.

⁵⁰ National Union of Students (NUS) Connect (2014), The Student Volunteering Landscape.

⁵¹ Ibid.



To estimate the value from volunteering activities, the number of hours worked by students was multiplied by £11.72, the value of an hour spent volunteering, based on data from the Office for National Statistics⁵².

12.3.8 Student Placements

Students at the University make also an economic contribution by supporting the activities of those businesses where they are placed. Participation in placements also provide them with valuable skills. It was assumed that students would make an economic contribution after the first 12 weeks spent in the placement, as shorter placements were considered mainly observational in nature.

In order to estimate the economic impact associated with placements, it was first necessary to allocate each placement to the economic sector that it supported. Then the number of weeks spent on a placement was by the number of FTEs weeks in a year to estimate the total number of FTE jobs supported by students. A discount factor of 33% was then applied to account for the lower productivity that could be expected from a student in a placement as compared to someone in a given job.

Direct GVA was then estimated by multiplying the number of jobs supported in each sector by the relevant GVA per job. Indirect impacts were then estimated by applying sectoral Type 1 GVA and employment multipliers, as elsewhere in the report. As for student part-time work, induced impacts were not estimated to avoid double-counting the impact of student spending, which had already been estimated in its standalone chapter.

Finally in this sub-section we consider the Tourism Impacts. There are two elements in this estimate:

- VFR Tourism Impact; and
- Conferences, Events and Graduations

12.3.9 VFR Tourism Impact

The University and its academic partners support the local tourism economy by attracting visitors to the Highlands and Islands, Moray and Perthshire. Friends and relatives who visit students and staff spend money in the economy and this spending increases turnover in local tourism, retail and hospitality businesses, which in turn supports local employment.

To estimate this impact, it is necessary to estimate the number of visits from friends and relatives (VFR) that students and staff receive. Information on the number of domestic and overseas overnight VFR trips to the Highlands and Islands, Moray and Perthshire was sourced from tourism statistics and divided by the population of the area. The number of domestic and overseas VFR trips per person was then multiplied by the number of students and staff at the University to provide an estimate of the number of visits stimulated by the University and its academic partners.

This total number of visits is multiplied by the average spend of tourists on a trip to visit friends and families. Tourism data indicates that on average domestic visitors to the Highlands and Islands, Moray and Perthshire spend £159 per trip⁵³ whereas overseas visitors spend £312 per trip⁵⁴.

⁵² Office for National Statistics (2017), Changes in the value and division of unpaid volunteering in the UK: 2000 to 2015.

⁵³ Kantar (2019), The GB Tourist 2018 Annual Report. Kantar (2019).

⁵⁴ Kantar (2019), The GB Tourist 2018 Annual Report and ONS (2018), International Passenger Survey.



The total visitor spending stimulated by VFR visitors to the Highlands and Islands, Moray and Perthshire was attributed to the sectors in which tourism spending takes place. The UK Tourism Satellite Account (UKTSA) provides a breakdown of tourism spending by category which was applied to total VFR spending. VAT was deducted from the sectors in which VAT is applied.

Turnover to GVA and turnover per job ratios for each sector were then applied to estimate the direct GVA and employment contribution made by VFR. In addition, induced and indirect effects were estimated by applying the relevant multipliers to the direct employment and GVA impacts.

12.3.10 Conferences, Events and Graduations

The University also attracts visitors by hosting conferences and events either at its headquarters or at one of the academic partners. Visitors were classified as either day visitors, domestic overnight visitors and as overseas overnight visitors. For instance, a visitor coming from within Scotland for a one-day event was considered as a day visitor. Visitors attending conferences lasting more than one day were considered as either domestic or overseas visitors.

Number of participants to graduations was based on the number of graduates from each academic partner, unless specific data were provided. The number of visitors attending conferences and other events for those academic partners for which data were not available was imputed.

Having estimated the total number of visitors belonging to each category, it was then possible to estimate their total expenditure based on the data from the Great Britain Tourism Survey, the International Passenger Survey and the Great Britain Day Visitor Survey⁵⁵.

The impact of the spending from overnight visitors was then estimated as above based on the UK Tourism Satellite Accounts breakdown of spending. Daily visitors spend was all assumed to benefit businesses from the food and beverage activities sector.

The turnover generated by businesses in the sectors considered was then divided by the turnover per GVA and turnover per job ratios for the relevant industrial sectors. Employment and GVA Type 1 and Type 2 multipliers were then applied to direct impacts to estimate indirect and induced impacts.

12.4 Focused Research Impacts

This section outlines the approach taken to quantifying the impact from the research and knowledge exchange activities of the University.

12.4.1 Knowledge Exchange Activities

Services to Business

The University generates economic value by providing services to business. Through collaboration with the University, businesses benefit from the latest research findings and best practice coming from academia and this can lead to increased productivity and higher profits. A more productive workforce is likely to benefit from higher wages which will support the economy when spent.

⁵⁵ Kantar (2019), The Great Britain Day Visitor 2018 Annual Report.



This section considers the following services that the University provides to businesses:

- contract research;
- consultancy;
- continuing professional development (CPD) courses; and
- facilities and equipment related services.

In 2018/19, the University received £5.2 million in income from these services, with 44% taking place in contract research. Consultancy and CPDs accounted for similar shares of income, 27% and 28% respectively, whereas facilities and equipment accounted for around £40,000.

Research and development projects paid for by industry can have an impact on the economy in several ways. They can increase the productivity of staff employed by the company, enable the company to offer a new product or service that supports growth, or allow them to improve an existing product or service.

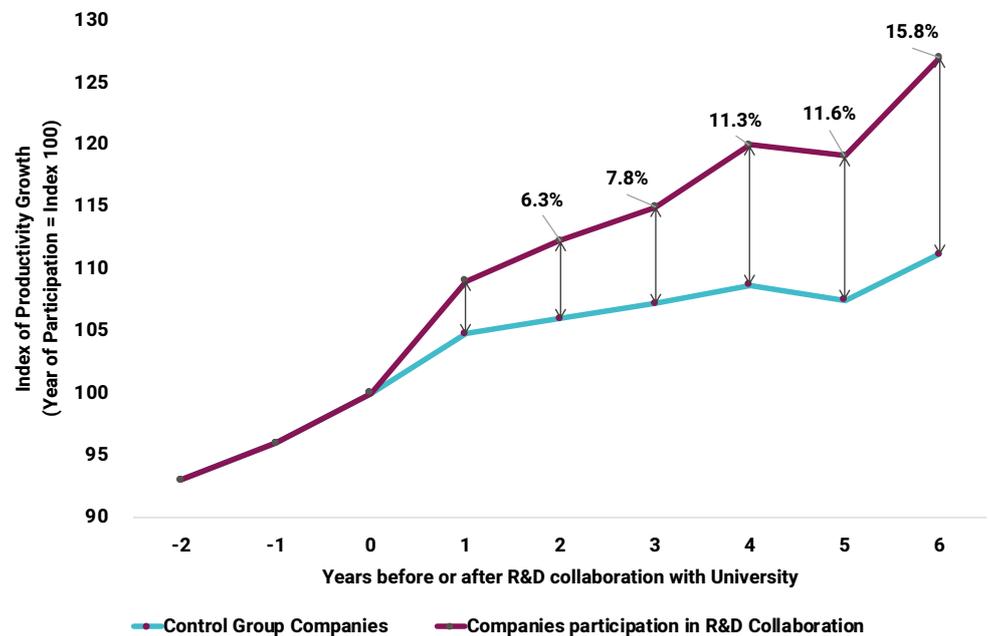
Impacts from an interaction with the University are not realised instantly or even within the first year afterwards. In 2012, Danish consultancy DAMVAD⁵⁶ conducted a study on the economic impact of companies collaborating with the University of Copenhagen. The availability of company level economic data for Danish companies enabled them to consider the productivity benefits associated with University collaboration. The results on productivity are given in Figure 12-5, which shows that impacts are realised gradually and that by year 6, companies that collaborated with universities on research and development projects were 15.8% more productive than equivalent companies who had not.

This study for the University similarly assumes that GVA impacts associated with services to business are realised over a 6-year time period.

⁵⁶ DAMVAD (2012), Measuring the Economic Effects of Companies Collaborating with the University of Copenhagen.



Figure 12-5 Timing of Impacts from University interaction on company productivity



Source: Damvad (2012)

The value to an individual business of collaboration with the University will vary considerably between projects, based on the type of work done, the stage in the development process that the project relates to and the capacity of the company to absorb the knowledge and developments that result from the collaboration. However, in order to quantify this impact, it is necessary to estimate what this value would be to a company based on typical returns from these collaborations.

BiGGAR Economics undertook an evaluation of Interface, the agency responsible for brokering relationships between businesses (and other organisations) and universities in Scotland⁵⁷. The connections that Interface has made have covered a range of different types of engagement from small consultancy projects and access to university equipment and facilities through to company sponsored PhDs. The BiGGAR Economics evaluation found that the costs to Interface's clients of participating was £12.9 million and the direct benefit to these organisations was £46.4 million GVA. Therefore, the direct return to investment was 360%. In other words, every £1 invested by businesses generated £3.60 GVA in direct economic benefits.

This finding is similar to conclusions drawn by other studies in comparable areas. A study for the Department of Business, Enterprise & Regulatory Reform⁵⁸ considered the impact of Regional Development Agency spending. One aspect considered in this report was the GVA returns to business development and competitiveness interventions between 2002 and 2007. This found that interventions in Science, R&D and innovation infrastructure had achieved cumulative GVA equivalent to 340% of the cost of the projects and that this could increase to 870% if the long-term benefits were considered. This suggests that the 360% multiplier estimated by BiGGAR Economics could be conservative. The economic impact of the University's services to businesses was estimated using the lowest of the possible multipliers, i.e. 340%.

⁵⁷ BiGGAR Economics (2013), Evaluation of Interface, the knowledge connection for industry.

⁵⁸ PriceWaterhouseCoopers, Impact of RDA spending – National report – Volume 1 – Main Report, March 2009, DBERR.



Businesses Hosted at Premises

The University and its academic partners also create an economic impact by providing space where businesses can conduct their activities. The ability of these businesses to operate, generate revenue and support employment can be enhanced by their association with, and proximity to, the University.

In particular, in 2018/19, 14 businesses were hosted at the European Centre for Marine Biotechnology adjacent to SAMS near Oban, and all were involved in marine related work. In order to estimate the economic impact it was assumed that all of the businesses operated in the technical and professional activities sector. The businesses hosted were assumed to employ around 50 people. To estimate the direct GVA associated with their activities, the employment they supported was multiplied by the GVA per job associated with this sector. By applying the relevant Scottish Type 1 and Type 2 multipliers, it was then possible to estimate indirect and induced impacts.

12.4.2 Quantifiable Research Impact

Economic Impact Supported by Research Work

To estimate the impact associated with research activity, it was first necessary to calculate the income associated with it. It was estimated that in 2018/19, the research income generated by the University and its academic partners amounted to £17 million, which represented 13% of the University's income in that year.

This income supports research employment which, in turn, supports staff spending and purchases of goods and services more widely throughout the economy and without it, the University's core income would be smaller. To estimate the impact of the turnover from research activity, its share as part of the University's income (13%) was multiplied by the University's core employment and GVA impacts.

Since these were also counted as part of the core impacts, they were only included once when considering the total GVA and employment impact of the University and its academic partners.

Returns to Health and Medical Research

The University has also an economic and social impact through its medical research. All of this is conducted at the University's executive offices.

While many of the economic contributions of health and medical research are qualitative in nature, there have been attempts to quantify their impact. Research by the Wellcome Trust on the value of medical research in the UK considers two types of return: health gains (net of the health care costs of delivering them) and economic gains⁵⁹. This section considers the value of both.

The value of health gains was assessed by the Wellcome Trust using the quality adjusted life years (QALY) method⁶⁰. This is a widely used method developed by health economists to assess how many extra months or years of life of a reasonable quality a person might gain as a result of treatment. The Wellcome Trust research considered two areas of medical research expenditure, for cardiovascular disease and mental health.

The value of the health benefit was presented as a return on initial expenditure on the research (IRR). This varies slightly between the two areas of study, and more widely between different scenarios for each of the study areas. The best estimate for

⁵⁹ Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK, For the Medical Research Council, the Wellcome Trust and the Academy of Medical Science, November 2008.

⁶⁰ Ibid.



the IRR in cardiovascular disease research is 9.2%, although the research also considered high and low expenditure scenarios that ranged from 7.7% and 13.9%. Similarly, the best estimate for the IRR for investment in mental health research was 7.0%. The high and low estimates for this area of study had a slightly broader range and varied between 3.7% and 10.8%.

In order to apply these IRRs to the medical research undertaken at the University, the average of the two best estimates was used. In this way, it was assumed that every £1 invested in medical research would result in health gains with a value of £0.08 each year in the UK for perpetuity.

Following the approach used by the Wellcome Trust, the Net Present Value (NPV) of medical research was estimated by applying the Treasury approved 3.5% discount rate. In this way, it was estimated that the £ million income for health and medical research received by the University would have a total impact of around £ million over the next twenty years across Scotland. The impact in the Highlands and Islands, Moray and Perthshire is assumed to be proportional to the size of its population.

The Wellcome Trust also considered the effect of medical research expenditure on GDP. It considered the impact this would have in stimulating investment in the private R&D sector and social returns to private investment stimulated by publicly funded medical research. This found that a £1 investment by a public body in medical research and development stimulated an increase in private R&D investment of between £2.20 and £5.10. The Wellcome Trust research also found the social rate of return to private sector R&D funding was approximately 50%.

As with the estimates for the Quality of Life IRR, the research finds that there is a range of estimates for the IRR for GDP impacts. The lowest estimate for IRR is 20% and the highest is 67%. The best estimate given is 30%. Unlike the Quality of Life research, no estimates were given for the GDP impacts associated with mental health research and therefore the 30% estimate is assumed to apply to all types of medical research. Therefore, every £1 invested in medical research results in £0.30 in GDP each year in the UK in perpetuity.

As with the previous calculation, the Net Present Value (NPV) of medical research on GDP was estimated, applying the Treasury discount rate of 3.5%. Over a 20-year period, it was estimated that medical research would result in £12.2 million across the Scotland. It was assumed that the economic impact would arise for the most part in the Highlands and Islands, Moray and Perthshire (75%) and that in Scotland (90%).

Knowledge Transfer Partnerships

The University and its academic partners are an academic participant in the Knowledge Transfer Partnership (KTP) programme. The KTP programme recruits graduates to work on joint industry academic projects, in which companies use the research expertise of universities to overcome certain challenges that they are facing. These placements last for approximately three years.

The impact of KTPs has been considered in this study as they provide an example of successful collaboration between universities and businesses. KTPs are also an important mechanism for supporting academics to engage with businesses and in developing their understanding of industry. KTPs generate significant positive impacts on business performance. There is detailed research available on the business performance effects of KTPs making it possible to quantify their economic impact.



The economic impact of a KTP is normally realised by the organisation after the period of the project has finished. This is when the company would be able to implement the learning and development that emerged from the project. Studies⁶¹ into the economic value of the Knowledge Transfer Partnerships have found that in the 6 years after a KTP has been completed in Scotland, a total of £713,000 additional GVA has been added to the economy and three permanent jobs have been created. The annual GVA contribution of completed KTPs in Scotland was therefore £119,000.

In the last six years the University has completed three KTPs and is currently involved with two on-going projects. All the completed KTPs took place in the Highlands and Islands, Moray and Perthshire, whereas of the ongoing KTPs one is with a company based in the Highlands and islands and one with a company operating elsewhere in Scotland.

Start-Ups

Start-ups are another way in which the research conducted at the University has an economic impact. In 2018/19, there were four start-ups at the University (in 2020, another one was founded, though given the study's time frame, it is not considered here). These were in a range of sectors including manufacturing, tourism and tourism.

The starting point in estimating the economic activity supported by start-ups was to consider the employment they supported. It was estimated that in 2018/19, the four start-ups considered supported ten jobs and were located at West Highland College, SAMS and Inverness College. The next stage in estimating the impact of these start-ups was to multiply their employment by the SABS' GVA per job ratios for the relevant economic sectors. As in previous sections, Type 1 and Type 2 Scottish multipliers were then applied to the direct GVA and employment impacts to estimate indirect and induced GVA and employment impacts.

⁶¹ Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review.

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