

University of Bath Economic Impact Assessment Report

A report to the University of Bath
November 2021





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1. Executive Summary

1.1 Economic Impacts

The University of Bath makes a significant contribution to Bath and North East Somerset and the wider regional and national economy.

In 2019/20, the activities of the University of Bath supported:

- £380 million Gross Value Added (GVA) and 5,950 jobs in Bath and North East Somerset;
- £440 million GVA and 6,660 jobs in the West of England Combined Authority area; and
- £1.2 billion GVA and 12,080 jobs in the UK.

In 2019/20 the University of Bath had a turnover of £300 million and over 20,000 staff and students. Across the UK, the economic value that the University created is over four times greater than its income. There were 3,580 people employed at the University and the University's activities supported an additional 8,500 jobs across the UK.

The University of Bath generated over £4 of GVA for the UK economy for every £1 it received in income.

The economic activity associated with this operation is most noticeable in Bath and North East Somerset. Operational impacts arise from multiple sources, including:

- the direct GVA and high-value employment it supports;
- spending by the University on goods and services;
- spending of staff and students within the economy;
- the contribution of students to the local labour market; and
- spending by visitors to staff, students and events hosted by the University.

Universities, such as the University of Bath, are of fundamental importance to the UK economy. They provide new knowledge and facilitate the diffusion of that knowledge, driving economic growth. This is particularly important as the focus of the economy moves to recovery from the Covid-19 pandemic and the transition to Net Zero. The creation and diffusion of knowledge are at the heart of the mission of the University of Bath, "to deliver world-class research and teaching". The purposeful activities of the University that drive these economic impacts include:

- the education that the students receive, which provides them with the knowledge and the skills to be more productive in future employment;
- the research that the University undertakes;



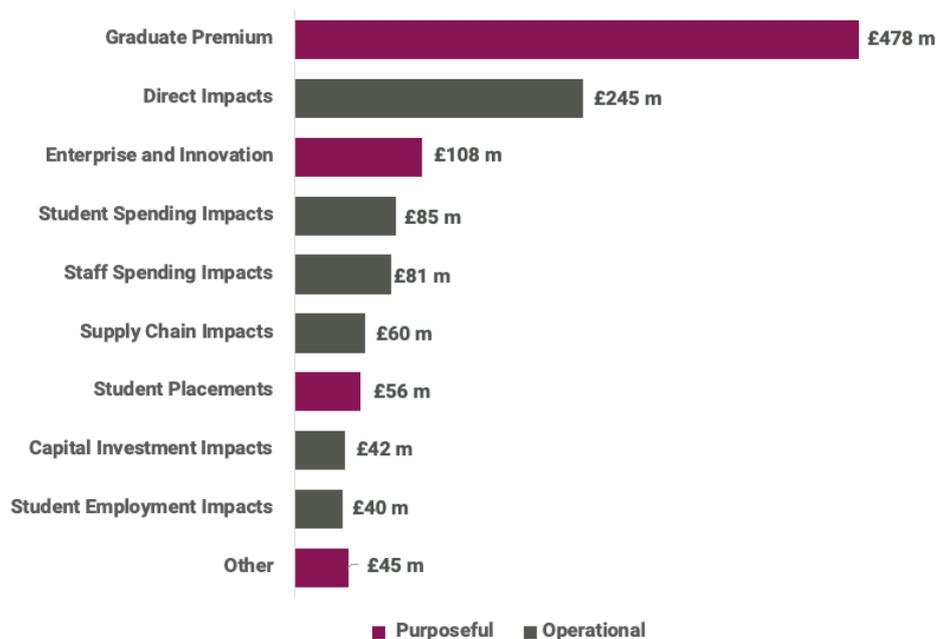
- the support for enterprise and entrepreneurialism that the University provides through partner programmes such as SETsquared; and
- the services the University provides to businesses, such as continuing professional development and the use of facilities.

Within Bath and North East Somerset, the vast majority of the economic impact of the University of Bath arises from its operational activities. The University directly employed 3,580 people and is the second largest employer in Bath and North East Somerset. In total, the operational activities of the University generated £340 million GVA for the economy of Bath and North East Somerset.

The University of Bath supported 1 in every 18 jobs in Bath and North East Somerset

Beyond the immediate local area, the purposeful impacts account for a higher proportion of the overall economic impact. The purposeful activities of the University of Bath generated £690 million GVA across the UK and supported 2,110 jobs. The enterprise support that is provided by the University of Bath serves clients across the UK and the University has supported companies nationwide. The graduates from the University of Bath find employment across the UK and tend to have better wellbeing outcomes and earn more than other graduates. The graduate premium is the largest source of economic impact across the UK.

Figure 1-1 Economic Impact of the University of Bath, UK GVA by source



Source: BiGGAR Economics Analysis



The economic activity generated by the University of Bath also delivers fiscal benefits for HM Treasury. The largest element of this is the additional taxes paid by graduates. In total, the activities of the University of Bath are associated with the generation of £390 million in taxes, equivalent to £6.50 for every £1 of public sector income received. This means that activities of the University of Bath have a net positive fiscal impact.

1.2 Wider Impacts

In addition to the sizeable quantitative economic footprint of the University of Bath, it delivers a wide range of social, cultural, environmental and economic development benefits. It does this through the efforts of its student community, through its institutional policies, practices and research strengths and through its alumni network. Collectively, these influences embed the University within Bath and North East Somerset and its wider region and highlight its role as a major asset to the area.

1.2.1 Social Contribution

The 16,600 full time students and 3,580 staff of the University of Bath combine to a total campus population which is the equivalent of 10% of the population of Bath and North East Somerset. The social contributions that this population brings to the area are wide ranging.

The student community makes a strong and positive social contribution to the local area through:

- **volunteering** their time to help local and national charities, listening to the needs of the local area and supporting third sector groups to deliver their services;
- a range of **environmental initiatives** which reduces the amount of waste going to landfill sites including donating items to benefit charities in Bath and North East Somerset;
- their approach to supporting student **safety, health and wellbeing** which benefits the collective student body and their place in the local community.

The University's institutional policies, practices and research deliver a positive social contribution, for example through the significant social impacts of widening participation in higher education. The University is aware that students from low participation neighbourhoods face financial and social barriers to attending University, and therefore is working to address these by encouraging and supporting students facing such barriers through its Access and Participation Plan, working on its own initiatives and engaging with charities and other organisations to support this aim. The University offers a range of scholarship programmes to support students from low income and other low participation backgrounds, providing a combination of financial and personal development support to the students involved. It also targets support to students in the refugee and asylum seeker community and has achieved the University of Sanctuary award.

The University welcomes the wider community to use its resources, including:



- opening its high-quality Sports Training Village to community groups and people outside the University, encouraging active living for people of all ages;
- developing its role as a Civic University by engaging with groups and organisations across Bath and North East Somerset and wider region to address identified local needs;
- supporting a positive culture of public engagement with research which enriches the quality of the research work it carries out and maximises its benefit to groups and individuals outside the University; and
- using its physical resources to support the local hospital during the Covid-19 pandemic by producing PPE and offering an unused accommodation block for hospital staff use.

1.2.2 Cultural Contribution

The University of Bath contributes to the cultural life of Bath and North East Somerset through the multi-cultural nature of its staff and student community and by enhancing the variety and quality of sports and cultural activities that are available in the area. This activity contributes towards the residents of Bath and North East Somerset having a significantly higher level of cultural engagement than the national average.

The University community increases the range of cultural opportunities in Bath and North East Somerset

The University is a multi-cultural organisation with a staff and student body that adds variety and cultural diversity to Bath and North East Somerset. It has an international student community of 5,400 students from around 130 countries and an active Students' Union which offers over 140 clubs and societies that enrich the student experience and bring an additional cultural vibe for visitors to and residents of Bath and North East Somerset.

The quality and range of facilities at the University's Sports Training Village draw in around 1.6 million visits each year, including more than 250 international-level athletes, and multiple national and regional squads in sports such as swimming, modern pentathlon, bobsleigh and skeleton, athletics, netball, triathlon, judo and badminton. It hosts annual events which bring athletes and audiences from the UK and beyond and it has strong external links with high profile organisations and clubs such as UK Sport, the British Olympic Association and the British Paralympic Association as well as local rugby, football and hockey clubs. Over 40 athletes associated with the University of Bath competed in events in the Tokyo 2020 Olympic and Paralympic Games, winning 21 medals between them.

The University offers a hub for arts and creative activities through The Edge which can host creative events, exhibitions and theatre performances on campus.



1.2.3 Environmental Contribution

The University is taking a whole institution approach to addressing climate change and has set out phased targets to become Net Zero by 2040 in its Scope 1, 2 and 3. This encompasses its physical facilities and its research work as well as through its teaching and its work in raising student awareness. It is implementing a Climate Action Plan to support its own transition and to assist in the wider transition to a low carbon society.

Between 2005 and 2020, the University reduced its carbon footprint by 45%

Through its Accommodation and Hospitality Services team, the University manages accommodation for over 4,700 students on and off-campus and it runs several campaigns to minimise any negative environmental impacts from this portfolio. It introduced the Student Switch off campaign in 2010 to encourage behaviour change in students and deliver energy savings for the environment.

Within the UK, the University was an early mover in introducing Vertically Integrated Projects (VIPs) which allow inter-disciplinary, multi-level teams to work together on research problems or grand challenges. Following a successful pilot stage, in 2020/21, around 150 students and 12 academic staff from across the University were engaged in VIPs with many focusing on sustainability and climate change.

The University is also directly involved with research into reducing the environmental impacts of the automotive sector through the Institute for Advanced Automotive Propulsion Systems (IAAPS). This includes projects with Ford that have reduced emissions from new Ford vehicles, equivalent to taking 109,000 cars off the road each year.

1.2.4 Economic Development Contribution

The University's high quality research outputs, support for innovation and talented alumni community make it a key driver of innovation and productivity growth which underpins regional economic development.

It is part of the Bath-Bristol Innovation Cluster, a globally significant innovation ecosystem. Its centres of excellence such as the Centre for the Analysis of Motion, Entertainment Research and Applications (CAMERA), and the (IAAPS) contribute strongly to the region's innovation capacity and draw for inward investment. In 2021, the Bath-Bristol area was reported to be one of the top 10 Fintech clusters in the UK and a Creative Cluster has also begun to form in the area.

In 2020, the University became a key partner in the Economic Recovery and Renewal Board, led by Bath and North East Somerset Council which aims to renew the economy and rebuild confidence in the region following the Covid-19 pandemic.



2. Introduction

This report assesses the University of Bath's economic, social and wider impacts on the local, regional and national economy.

2.1 Background

The University of Bath's Mission is to deliver world-class research and teaching, educating students to become future leaders and innovators and benefiting the wider population through research, enterprise and influence.

Bath University of Technology received its Royal Charter in 1966 having evolved over time from two older institutions. At this time, it moved to a newly designed campus, and its current home, at Claverton Down to the east of the city. It finally became the University of Bath in 1971. The campus has continued to develop its physical presence since then with major investments including the Sports Training Village which was opened in 2004, the Edge which was opened in 2015, and the Milner Centre for Evolutionary Studies which was opened in 2018.

Also in 2004, the University of Bath along with the Universities of Bristol, Southampton and Surrey launched the globally leading SETsquared partnership to develop new businesses, supported by academic collaboration. The University is also part of the GW4 Alliance which brings together four of the most research-intensive and innovative universities in the South West region to address major global and industrial challenges. In the 2014 Research Excellence Framework (REF), 87% of the University's submitted research activity was graded 4* or 3* which is defined as world-leading or internationally excellent and 32% achieved the highest possible classification of 4*.

In 2019, the University had around 16,600 full time students from over 130 nationalities; a staff complement of 3,580 people and an income of £298 million.

The University has built a strong academic reputation and is currently ranked within the top 10 universities in the UK in key national league tables:

- it is ranked 8th out of 121 universities in the Guardian University Guide, 2022;
- it is ranked 9th across 135 UK Universities in The Times and Sunday Times Good University Guide, 2022;



- it is ranked 10th out of 130 institutions in the Complete University Guide 2022; and
- it achieved 86% for overall student satisfaction in the 2021 National Student Survey¹.

2.2 University Strategy

The University of Bath's most recent University Strategy, published in 2021, outlines the objectives of the University to 2026. Together these have the potential to significantly contribute to the economic strength of the region and the UK. The four key pillars of the University's objectives are:

- **Driving excellence in education** - enhancing the skills of future generations and developing courses which support students into work;
- **Driving high-impact research-developing larger research initiatives, building on institutional research themes of Sustainability, Health & Wellbeing and Digital, and strengthening local, national and international engagement;**
- **Fostering an outstanding and inclusive community** - encouraging staff to develop their potential through support, training and mentoring; and
- **Enhancing strategic partnerships** - encouraging new research alliances with business and industry, developing our civic role in Bath and the region and forging partnerships to drive enterprise.

2.3 Report Structure

The remainder of the report is structured as follows:

- Section 3 describes the socio-economic context within which the University of Bath operates;
- Section 4 gives an overview of the economic policy context;
- Section 5 discusses the purposeful impacts created by the University of Bath through the learning it supports and its knowledge exchange activity;
- Section 6 discusses the operational impacts created by the University of Bath, through its staff, its supply chain expenditure on goods and services and its student community;
- Section 7 describes the fiscal impacts of the University of Bath;
- Section 8 summarises the total impact created by the University of Bath;
- Section 10 is an appendix of method and sources; and
- Section 11 presents an overview of the impacts in Wiltshire and Swindon.

¹ Bath University (2021), Rankings and Reputation



3. The University as a Driver of Local Economic Growth

This section describes the socio-economic profile of Bath and North East Somerset and the role of the University as an economic driver in the area.

3.1 Background

The local authority of Bath and North East Somerset was created in 1996 and has a total population of approximately 196,400 people.² The area is renowned for its picturesque landscapes and historic architecture. In 1987, Bath was granted UNESCO World Heritage Status and in 2021 was awarded its second World Heritage Status as one of the ‘Great Spas of Europe.’

3.2 Demographics

Bath and North East Somerset has a population structure largely in line with that of the UK as a whole, with a slightly above average working age population and slightly lower youth population than average. Of particular note is the share of 18 – 24-year-olds in the area (15%), which is almost double the national average (8%). This age bracket can typically be attributed to students and the significantly higher than average share of the population it accounts for reflects the presence of the University, and other education institutions such as Bath Spa University, and its role in attracting young people to the area.

Table 3-1 Population Structure of Bath and North East Somerset

Age Profile	Bath and North East Somerset	UK
Aged 0 – 15	17%	19%
Aged 16 – 64	64%	62%
...of which 18 – 24	15%	8%
Aged 65 and over	19%	19%

Source: ONS (2021), Population Estimates 2020

Over the past 10 years, the population of Bath and North East Somerset has increased by 13%, in comparison to the 7% population increase experienced across the UK as a whole. In particular, the number of 18 – 24-year-olds living in Bath and

² ONS (2021), Population Estimates 2020



North East Somerset over this time has increased by 32%. This is in stark contrast to the 5% decrease in the number of people aged 18 – 24 across the UK.

3.3 Activity, Unemployment and Earnings

The population of Bath and North East Somerset is more likely to be economically active, and less likely to be unemployed than the UK average. The economic activity rate is the share of working age population that either has a job or is looking for work. In Bath and North East Somerset 83.5% of the working age population is economically active, compared to 78.7% across the UK. Similarly, on average 3.5% of the population within Bath and North East Somerset was unemployed in the year to March 2021, compared to 4.9% across the UK.

In 2019, there were 108,000 jobs within Bath and North East Somerset³. Since 2014, the number of jobs in the area has increased by 7,000 jobs, equivalent 7% growth. In the same time period, the number of jobs at the University of Bath has increased by 19%. The University accounted for 11% of the total growth in jobs in the area in this time period.

The University of Bath accounts for 3,600 employees in Bath and North East Somerset, representing 4% of total employment in the area. Analysis by BiGGAR Economics found that this makes the University the second largest employer in the area after the Royal United Hospitals Bath NHS Foundation Trust, which employs around 4,500 members of staff (5% of total employment).⁴

Average earnings in Bath and North East Somerset are slightly below the UK average at £30,438 compared to £31,461. Within the University of Bath, the mean salary per head is approximately £39,000. This is 29% higher than the average for the area.

3.4 Industrial Structure

The University of Bath employs highly skilled workers to deliver services for students, and produces graduates for the local, and national, labour market. Both of these aspects can be attributed to a focus on knowledge-intensive activities and, as such, result in a higher concentration of local workers employed in knowledge-orientated sectors.

The OECD defines knowledge-orientated sectors as 'high technology manufacturing sectors and knowledge intensive services'⁵, and sets out the relevant industries under appropriate classifications.

Matching the sectors outlined in the OECD report to the UK SIC codes indicates that knowledge-orientated sectors account for 41,000 employees in Bath and North East

³ ONS (2020) Jobs Density

⁴ https://www.ruh.nhs.uk/about/index.asp?menu_id=1

⁵ OECD (2009), Regions at a Glance.

* Data excludes Northern Ireland.

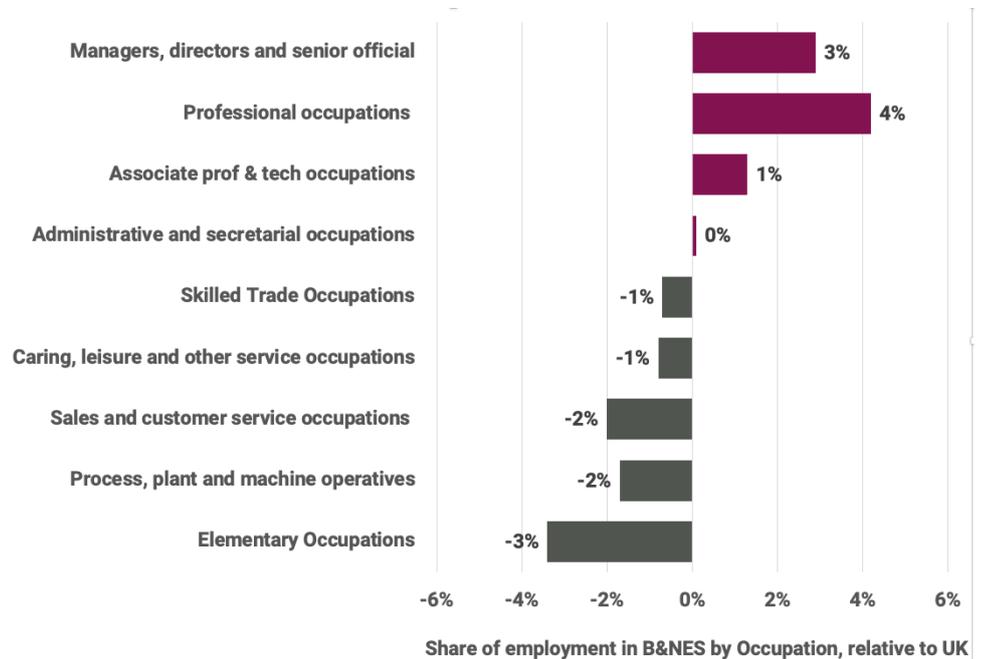


Somerset, 45% of the areas total employment. This is 6% greater than the average these sectors account for across total UK employment*.

Sectors specifically deemed to be 'knowledge-intensive' match to SIC codes associated with professional, scientific and technical activities, education, health, business, telecommunications, IT and transport. Employment in these sectors account for 39,100 employees in Bath and North East Somerset, 43% of total employment. Again, this is above average employment in these sectors across the UK* (36%).

The high presence of knowledge-intensive sectors is reflected in the occupational distribution of the workforce in Bath and North East Somerset. The annual population survey has found that the largest occupational classification of workers in Bath and North East Somerset is 'Professional Occupations'. This includes professions such as engineers, IT professionals, nurses and teaching and educational professionals. These account for 26% of the workforce in Bath and North East Somerset, compared to 22% of the UK workforce. Those occupations which have a lower skills requirement and lower levels of pay account for a smaller proportion of the Bath and North East Somerset workforce compared to the UK average.

Figure 3-1 Relative concentration of employment by occupation level (SOC)



Source: ONS (2021) Annual Population Survey – 12 Months to March 2020

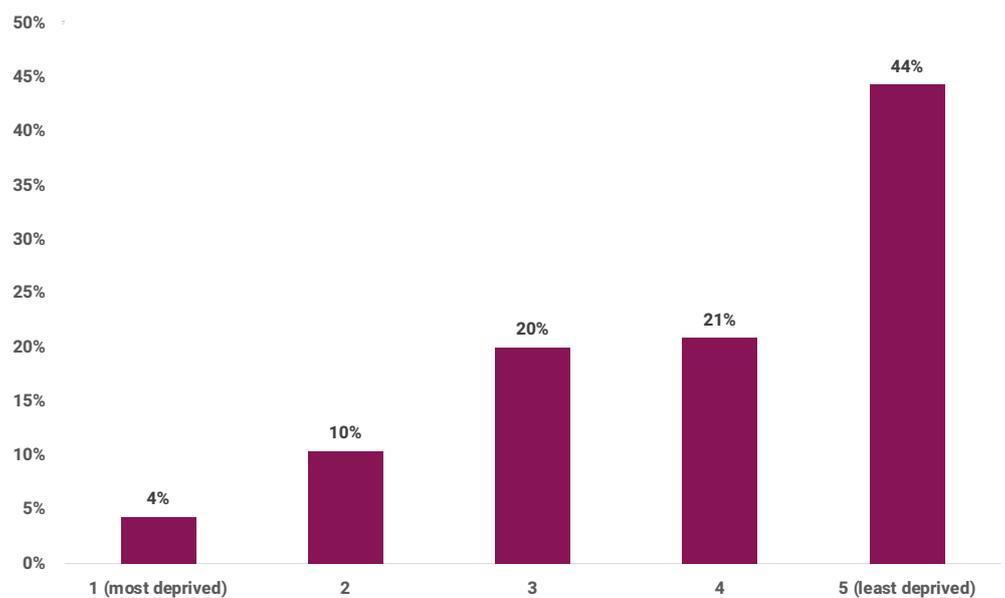


3.5 Deprivation

The English Index of Multiple Deprivation (IMD) is a qualitative measure of deprivation in each of the 32,844 neighbourhoods⁶ in England. It measures relative deprivation across seven dimensions: income, crime, employment, health, housing and the living environment. Of the 317 local authority districts in England, Bath and North East Somerset ranks 274th, placing the area at the lower end of the deprivation scale.

As shown in Figure 3-2, Bath and North East Somerset has a relatively low share of neighbourhoods ranking in the country's 20% and 40% most deprived areas, with only 4% and 14% respectively of neighbourhoods in these categories. In comparison, almost half (44%) of its neighbourhoods rank in the 20% least deprived in the country.

Figure 3-2 Percentage of Neighbourhoods by Quintile



Source: Ministry of Housing, Communities & Local Government (2020), English Indices of Multiple Deprivation, 2019

As described throughout this report, the University of Bath undertakes several initiatives designed to widen participation rates from students from less traditional backgrounds, including a wide range of scholarships and outreach activities. Data collected by HESA (2021) indicates that the University recruits less students from low participation neighbourhoods than the UK average⁷, and the socio-economic profile of the local area will contribute to this as students from low participation neighbourhoods are more likely to attend a University in their local area.

⁶ defined as lower layer super output areas

⁷ HESA (2021) Widening Participation: UK Performance Indicators 2019/20



3.6 Summary

Bath and North East Somerset has a productive economy, with a high share of the population being of working age and an increasing share of the population of student-age. The area is particularly skilled in knowledge-intensive sectors with an above average share of workers being employed in these sectors in high skilled occupations. This is in part as a result of the presence and impact of the activities of the University of Bath. The University is also one of the largest employers in the area and provides high-paid jobs and has been a significant driver of employment growth in recent years. Deprivation in Bath and North East Somerset is relatively low, with only 4% of households within the least deprived quintile for England.



4. Strategic Context

This section describes the economic role played by universities as drivers of growth and the social role they have as anchor institutions in their region. These are fundamentally important roles and the University of Bath is making an active contribution to both.

4.1 Theoretical Impact of Universities

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.

A number of influential economists have published work which sets 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's research showed 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's research on "learning by doing" 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, 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 scale of knowledge, research and innovation taking place is also important because of the dynamic effects which 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.

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



Therefore, 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), which puts the role of universities at the centre of economic development policy and practice.

4.2 Civic Impact of Universities

Due to their scale, their fixed location and their long-established roots, anchor institutions such as universities and colleges, local government and the NHS, are able to support the development of their localities and provide resilience for their economies through the employment they offer and through their supply chain patterns. Universities are especially unique in nature and their role in the local economy is much wider still, influencing an area's social capital, cultural vibrancy, its economic growth potential and its environmental wellbeing.

By designing and delivering on their Civic University Agreements (CUA), universities actively contribute to the wellbeing of their places.

An inquiry into the role universities play in their localities was carried out by the Civic University Commission in 2018⁸ and its key recommendation was that institutions should create civic agreements, in collaboration with their local communities, businesses and other organisations, outlining how they will contribute to the wellbeing of their places. While this was not a new concept and civic engagement activity has been ongoing for many years within universities, the Civic University Commission's work has reprioritised the importance of university connectivity with their places.

The University published a report in 2020,⁹ which highlights the scope it has to become an increasingly effective anchor institution in the local area by supporting local initiatives and leveraging place-specific resources and opportunities to support inclusive growth in the local economy.

⁸ UPP Foundation Civic University Commission (2018), Truly Civic: Strengthening the connection between universities and their place

⁹ Institute for Policy Research (2020), Bath Beyond 2020: Creating a Resilient Economy Together



Civic University Agreement



As one of the largest employers in Bath and North East Somerset, the University plays a significant role as an anchor institution and is actively working along with the local authority and others in Bath to identify and address key regional challenges. In January 2020, the University of Bath publicly announced its intention to pursue a Civic University Agreement and set up a new project team to take this forward. This was in response to the key recommendation of the Civic University Commission's inquiry into the role universities play in their localities which recommended that institutions create civic agreements, in collaboration with their local communities, businesses and other organisations, to outline how they will contribute to the overall wellbeing of their places.

There are many strong examples of pre-existing civic engagement work at the University of Bath, however the CUA takes this to a new level by setting out clear activities and measures of success which will significantly enhance the quality of life in Bath and the relationship between the residents and the University. Through wide consultation within the region, the University is reviewing how seven different aspects of university life can be repositioned to enhance its civic impact. These are:

- access and participation;
- teaching and learning;
- research and innovation;
- health and wellbeing;
- culture;
- local economic development; and
- local government and leadership of place.

Work on the project is well underway and already the University has introduced new initiatives. This includes reviewing how HR policies and procurement practices can be adapted to create more opportunities for local people and local suppliers. For example, the HR department has introduced a new work experience programme to create 6-month roles for 16- to 24-year-olds on Universal Credit and the University has introduced placements and makes financial donations to Women's Work Lab, a social enterprise which supports unemployed mothers into work. Staff who make civic contributions are appropriately recognised and rewarded for their efforts through a new Vice Chancellor's Award.



4.3 West of England LEP

The West of England LEP is a partnership between businesses, universities, the region's councils and Combined Authority. Its role is to guide the region's success by promoting an environment where businesses and communities can grow in a sustainable way. In 2015, the West of England LEP published its Strategic Economic Plan (SEP) for the region to 2030¹⁰. This describes five long-term objectives which guide its activities:

1. Creating the right conditions for business to thrive;
2. Ensuring a resilient economy which operates within environmental limits;
3. Creating places where people want to live and work;
4. Shaping the local workforce to provide people with relevant, useful skills; and
5. Ensuring all communities in the LEP share in the prosperity, health and well-being and reduce the inequality gap.

The Strategic Economic Plan demonstrates how the LEP plans to use the 'levers of growth', including investment, businesses and education providers, to achieve these objectives. It notes the significant contribution that higher education makes to the economic viability of the area, supplying higher level skills which are a commercial advantage for the region and can fuel economic growth. In particular, the Plan highlights the importance of universities in enabling up-skilling and re-skilling of an existing workforce to meet business needs and changes in the industrial structure, as well as providing the opportunity for innovative businesses which are created from university research. The LEP highlights that much of the research done by local universities, such as the University of Bath, support the LEP's identified priority sectors which are:

- Creative and Digital Media;
- Low Carbon;
- High Tech Industries;
- Advanced Engineering and Aerospace; and
- Professional Services.

Projects noted by the LEP strategy include the University of Bath's research collaboration in Advanced Automotive Engineering to reduce CO2 emissions which contributes to the LEP's aim of creating an economy which works within the limits of the environment. It highlights the Silicon South West network, supported by the University of Bath, which has developed the silicon design and micro electrics sector in the region. The University of Bath's Innovation Centre is noted as an important asset supporting high performing, high-growth potential start-ups in the region, which can develop and grow the economy in the West of England.

¹⁰ West of England Local Enterprise Partnership (2015), West of England Strategic Economic Plan 2015-2030



The West of England LEP's industrial strategy was published in 2019¹¹ and recognises the University of Bath's contribution to the region's industrial strength, both through improving skills and through the additional services it provides. The strategy includes a case study on the Productivity through People programme delivered by the University which enables partnerships across the region, to deliver 'mini-MBAs' for small business leaders, sponsored by large employers. Participants found that the course enabled them to empower their workforce, transforming businesses across the LEP area and contributing to the resilience of local firms.

4.4 Strategic Context Summary and Conclusion

The University of Bath is an asset for its region. It contributes to economic growth in its local area, the wider region and the UK as a whole. Through its work as a high-quality research institution, it is driving significant projects which support the goals of the West of England LEP and contribute to the development of the economy. In addition, the University is actively strengthening its civic role as an anchor institution, developing strategies in collaboration with other major institutions in the area to address local needs. This supports the growth and resilience of the local economy and delivers benefits on multiple levels for Bath and North East Somerset.

¹¹ UK Government (2019), West of England Local Industrial Strategy



5. Purposeful Impacts

This section outlines the economic impacts associated with the purposeful teaching and research activities of the University of Bath

The purposeful impacts generated by the University of Bath are those aimed at driving innovation and productivity growth within the economy. They are the results of the University working to achieve its objectives in teaching and research.

These impacts include:

- learning and teaching impacts: related to graduates, student placements and continued professional development (CPD) that the University delivers; and
- research, knowledge transfer: from services to businesses, knowledge transfer partnerships (KTPs) and student placements; and
- innovation and enterprise support, from services like licencing, spin outs and its incubator/accelerator activities.

5.1 Learning and Teaching Impact

5.1.1 Graduate Productivity

The education that the students receive at the University of Bath increase their skills, productivity and ability to earn after they leave the University. These graduates will also result in improved profitability for the companies that employ them and more effective service delivery for those employed in the public sector.

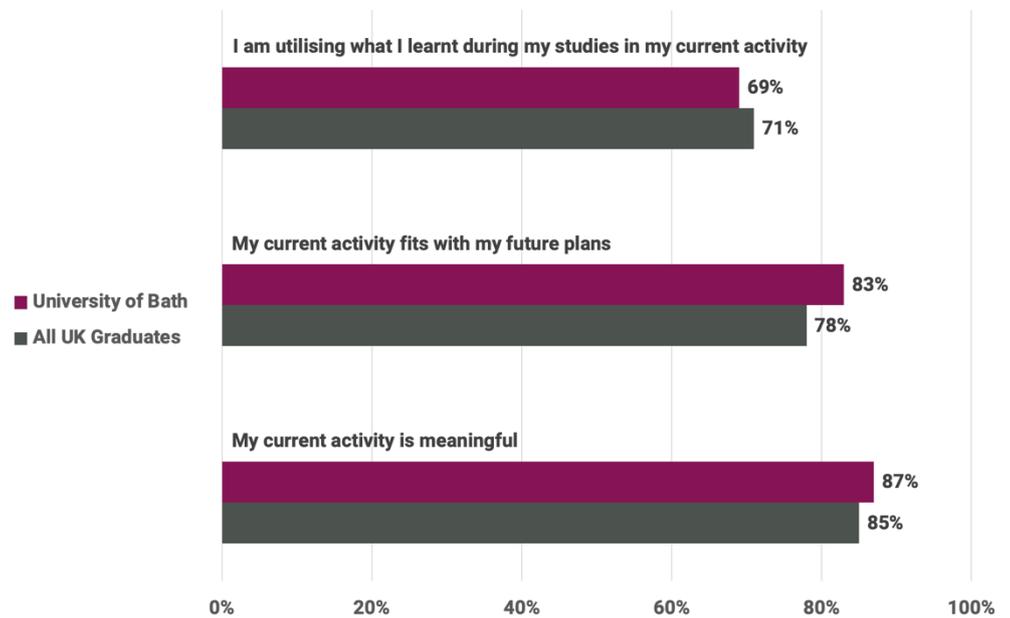
In 2019/20, there were 5,570 qualifications awarded by the University of Bath. This included:

- 3,300 undergraduate degrees;
- 2,010 taught postgraduate degrees; and
- 260 research postgraduate degrees.

The graduates of the University of Bath are likely to earn more than the graduates of other Universities and they are more likely to be happier with their employment. Survey data from the Graduate Outcomes Survey found that 83% of graduates from the University of Bath agreed that their employment fits with their future plans and 87% felt that it was meaningful. This is higher than the average for UK graduates.



Figure 5-1 Wellbeing in employment indicators of graduates

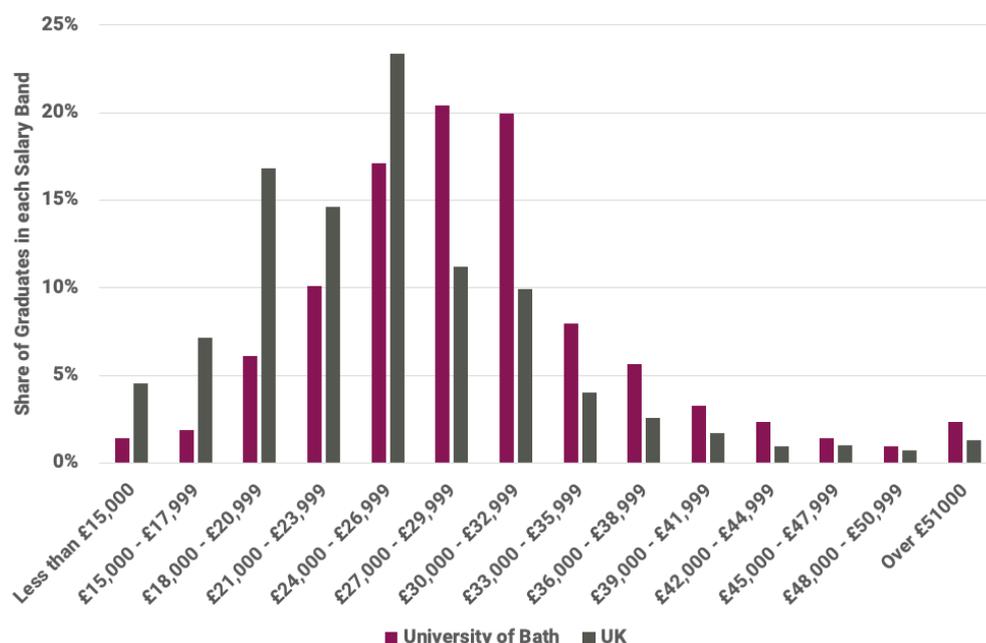


Source: HESA (2021) Higher Education Graduate Outcomes Statistics UK

Those who graduated from the University of Bath in the academic year 2018/19 for whom paid employment is an activity were less likely to make under £27,000 compared to university graduates across the UK. Just 1% of University of Bath graduates for whom work is an activity were categorized into the lowest salary band (less than £15,000), compared to 5% of all graduates across the UK. Graduates from the University of Bath for whom paid employment is an activity are more likely to earn between £27,000 and £44,999 compared to graduates across the UK as a whole. The proportion of University of Bath graduates earning between £45,000 and £50,999 (2%) is average compared to the UK as a whole (2%). The proportion of graduates categorized in the highest salary band, £51,000, is above average for University of Bath students, 2% of whom earn this salary compared to 1% of UK graduates.



Figure 5-2 Distribution of Graduate Earnings



Source: HESA (2021), UK domiciled graduates who obtained first degree qualifications and entered full-time paid employment in the UK by provider and salary band

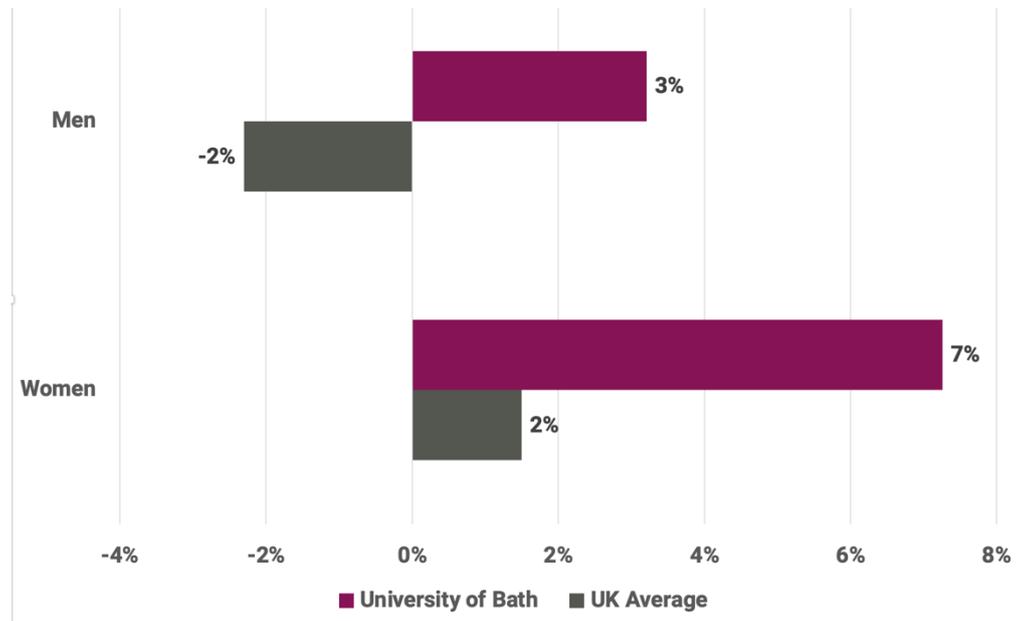
The earnings potential of graduates has been well documented, in particular for those with undergraduate degrees. In total it is estimated that a university graduate will earn £106,000 more over the course of their lifetime as a result of obtaining an undergraduate degree. As a result of the mix of subjects studied, the particular education that the students receive and the background of the students, it is estimated that the average graduate of the University of Bath will earn £139,000 more. This is 31% higher than the UK average¹².

The earnings premium of postgraduate degrees is less than that of an undergraduate degree. For many subjects, the net earnings premium for students is not significantly greater for those with either an undergraduate or postgraduate degree. However, the University of Bath is one of the few institutions in the UK in which both male and female students would earn more as a result of their postgraduate education. In particular, the average male Master's graduate from the University of Bath would earn 3% more by the age of 35 than if he had not studied at a postgraduate level. Across the UK, male Master's degree graduates actually earn 2% less than if they had chosen not to pursue a Master's degree. The earnings premium for female graduates of the University of Bath is 7%, while the UK average for female Masters' degree holders is a 2% premium by the age of 35.

¹² More details on this calculation are provided in Appendix A



Figure 5-3 Earnings Premium of Masters Degree by age 35



Source: Institute for Fiscal Studies (2020) The earnings returns to postgraduate degrees in the UK

Using this data, it was estimated that the average postgraduate earnings premium was approximately £29,000.

The students who graduated from the University of Bath in 2019/20 are therefore estimated to earn around £478 million more throughout their working lives as a result of the education that they have received at the University of Bath.

The graduates of the University of Bath find work across the UK and beyond. Data from leavers at the University of Bath shows that 10% remain within the West of England Combined Authority Area. The South West of England remained the most popular region of the UK for graduates from the University of Bath, with 33% working in the area after graduation. This was followed by Greater London, which accounted for 20% of graduates and the South East which attracted 16% of graduates.

In total it was estimated that the graduate cohort of the University of Bath would earn an additional £478 million during their working lives in the UK. Of this, £49 million would be earned by graduates living in the West of England Combined Authority Area and £23 million for graduates in Bath and North East Somerset.

Table 5-1 Graduate Premium Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	23	49	478
Employment		-	-

Source: BiGGAR Economics Analysis



5.1.2 Continued Professional Development

In 2019/20, the University of Bath delivered Continuing Professional Development courses for UK companies and individuals with a value of £760,000. Just under half of these courses were delivered to local organisations within Bath and North East Somerset.

These courses help individuals and organisations to develop their skills and enable them to deliver higher valued outputs.

The economic value of this increased output would be realised through additional productivity and wages. It was estimated that this would be worth £2 million to the economy of Bath and North East Somerset and £6 million across the UK. The employment that this would support would be associated with the increased supply chain activity within these organisations and through the higher spending power of the trained staff.

Table 5-2 Continuing Professional Development Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	2	2	6
Employment	>10	10	40

Source: BiGGAR Economics Analysis

5.1.3 Student Placements

Students at the University of Bath also contributed to the economy through the placements that they undertake as part of their studies.

In addition to offering the students new practical workplace skills and experience, they also assist the companies that the students are placed with. They support these organisations by:

- adding capacity;
- identifying potential recruits from those placed with the organisation;
- diffusion of new knowledge and ideas from students actively participating in academia; and
- identifying future potential opportunities to work with the University of Bath.

The value of placements to students is well understood by the University of Bath. It offers placements, internships, or study abroad options for all undergraduate degrees and these last between 6 and 12 months. The placement team at the University will support students to make the most of the opportunities that a placement can provide. They will provide support on developing CVs and personal objectives and matching the student with the best placement provider.



The placement programme was impacted in 2019/20 as a result of the Covid-19 pandemic. However, 2,400 students did a placement in this year, equivalent to 14% of the total full time student population. Most placements covered 2 semesters.

Students were placed with a range of organisations, from household names such as Innocent Smoothies and the Metropolitan Police to smaller SMEs within Bath and North East Somerset. The placement providers were located across the UK and reflected the final destinations of graduates. Around 10% of students were placed with organisations in the West of England Combined Authority and half of these were within Bath and North East Somerset.

It is estimated that these students generated £2 million GVA and support the equivalent of 20 jobs in Bath and North East Somerset, £4 million GVA and 50 jobs in the West of England Combined Authority and £56 million GVA and 730 jobs across the UK.

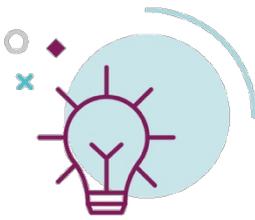
Table 5-3 Student Placement Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	2	4	56
Employment	20	50	730

Source: BiGGAR Economics Analysis



Bath-Bristol Innovation Cluster



A study by SQW in 2018 found that the Bath-Bristol city region has one of the most active innovation clusters in the UK and is well placed to rival top innovation cities across the world in the future. A particular driving force behind its capacity for innovation is the region's high concentration of education, research and innovation centres which is significant at a UK level. As well as its pool of highly educated staff, its talented graduates and its role in the SETSquared partnership which supports business start-ups and their growth, the University of Bath contributes to the region's capacity for innovation through centres of excellence such as:

- **CAMERA** the Centre for the Analysis for Motion, Entertainment Research and Applications which is funded by the EPSRC and the University to accelerate the impact of fundamental research in the Departments of Computer Science, Health and Psychology. It explores motion capture and VR in gaming and health applications; and
- **Institute of Advanced Automotive Propulsion Institute** which supports the future direction of the automotive industry through its research, innovation, enterprise and education. Its systems-based research is acknowledged internationally and it works with industry, inventors, researchers and academics to deliver innovation that will accelerate the transition from low carbon to zero carbon vehicles.

The study showed a number of other factors behind the city-region's success:

- its concentration of talent which has built the area's reputation in high-value product design, virtual reality, games technology, computer science and engineering, animation, digital design and publishing, TV and film and finance and business technology;
- the high quality of life in the region and its mix of cultural and creative assets which helps to retain talented people and graduates in the area; and
- its culture of collaboration between specialist sector bodies and local networks which bring people together.

Early in 2021, a review of the UK's Fintech sector which was commissioned by HM Treasury reported that the Bath-Bristol region is one of the top 10 leading fintech clusters in the UK. A Bath-Bristol Creative Cluster has also begun to form, representing a £6.8 million regional collaboration to develop the existing cluster.



5.2 Knowledge Exchange Impact

The knowledge exchange and research activities of the University of Bath has a presence across the region which adds value and helps to lever in further investment. For example:

- Centre for Digital Entertainment with the University of Bournemouth;
- the Institute for Advanced Automotive Propulsion Systems (IAAPS) in Bath;
- the Bristol and Bath Science Park in South Gloucestershire which is jointly owned with South Gloucestershire Council; and
- the Building Research Park at Wroughton Airfield, Swindon which is part of the University's BRE Centre for Innovative Construction Materials.

Beyond this it also takes an active role in economic development and is represented on the board of neighbouring LEPs, the MURS renewal programme and the CBI.

In 2020 the University became a key partner in the Economic Recovery & Renewal Board, led by Bath and North East Somerset Council and includes representatives from tech, culture, manufacturing, services, tourism and education. The partnership aims to rebuild confidence in Bath as a safe, sustainable and green place in which to live, visit, study and work.

5.2.1 Support Services for Business R&D

The University of Bath also makes an economic contribution through its activities in support of businesses. These include:

- consultancy;
- contract research; and
- facilities hire.

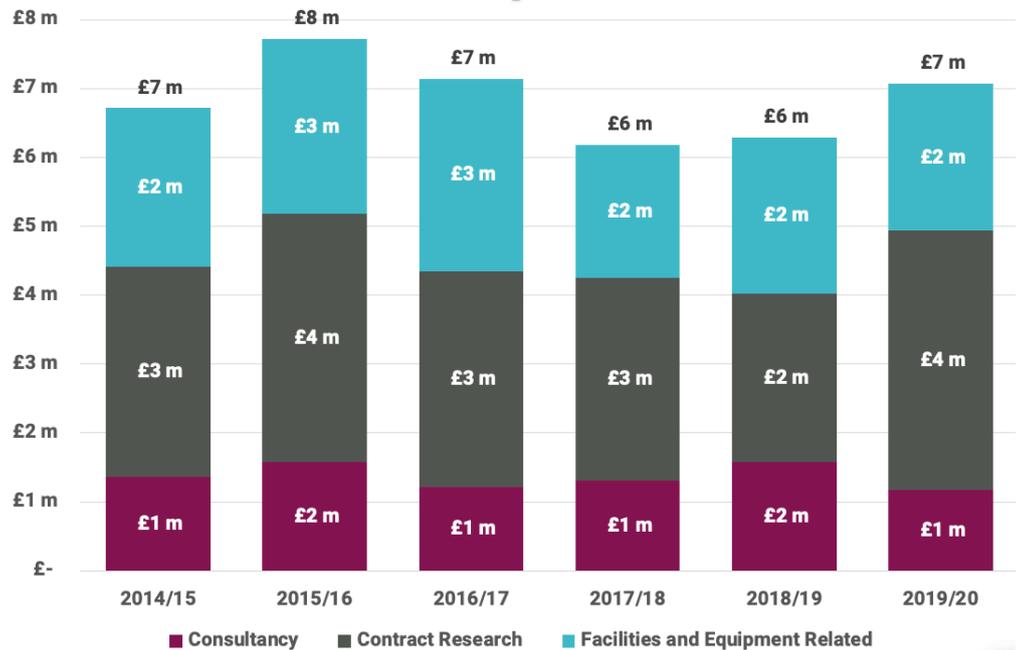
Between the academic years 2014/15 and 2019/20, the average number of business and community services provided each academic year by the University of Bath was 977. The average value of these annual services was £7 million.

During this period, the University of Bath provided the largest number of business and community services in 2015/16, when 1,048 consultancy, contract research and facilities and equipment related services were provided to SMEs, other commercial businesses and non-commercial organisations. The value of business and community service contracts was also highest in 2015/16, when services were valued at £8 million.

Since 2014/15 on average, contract research was valued at £3 million annually, accounting for 46% of the average total value of contracts. Facilities and equipment related contracts were valued at £2 million and consultancy contracts were valued at £1 million on average each year, accounting for 34% and 20% of the average total value of contracts respectively.



Figure 5-4 Value of Contracts to Deliver Services, University of Bath over time



Source: HESA (2021), Business and community services by HE provider

A significant proportion of the facilities hire that is captured in the HE-BCI¹³ returns relates to non-academic facilities at the University of Bath. This includes the hiring of the sports facilities and the Students’ Union centre. These hiring facilities are not considered as part of this analysis as it was assumed they did not form part of a research and development project.

In total, the income to the University of Bath that supported the R&D activities of businesses and other organisations was worth £5.1 million in 2019/20.

Table 5-4 Support for Businesses R&D Income

	Income
Consultancy	£1.2 m
Contract Research	£3.8 m
Academic/Technical Facilities Hire	£0.1 m
Total	£5.1 m

Source: BIGGAR Economics Analysis

The focus of the market for these services is the UK, which accounted for 83% of this income. Of this, around 3% of the organisations which funded this research were based within Bath and North East Somerset.

¹³ HESA (2021) Higher Education Business and Community Interaction Survey



The GVA impact of this business collaboration activity at the University of Bath was estimated in line with the methodology outlined in the Appendix. In this way it was estimated that this activity supported £35 million GVA across the UK and supported 60 jobs.

Table 5-5 Services to Business Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	1	1	35
Employment	>10	>10	60

Source: BiGGAR Economics Analysis

5.2.2 Knowledge Transfer Partnerships

The University of Bath also has an economic impact on knowledge exchange through its knowledge transfer partnerships (KTPs). These initiatives aim to improve businesses' productivity by creating a partnership between them, an academic or research organisation, and a graduate.

In estimating the impact generated by KTPs, only those KTPs completed within the last six years were considered. This covers 35 partnerships. To estimate the impact from these, the analysis relied on a study by Regeneris Consulting¹⁴, which considered the returns from KTPs. The study found that on average each partnership supported three jobs and that on average a KTP in the UK generated £826,000 GVA.

As with the other knowledge transfer activity, the businesses that were supported as part of the KTP programme were located across the UK. This is including 5 that were located within the West of England Combined Authority Area.

Considering the impacts associated with those KTPs completed in the six years before 2019/20, it was estimated that this activity generated £5 million GVA across the economy of the UK in 2019/20 and supported 110 jobs.

Table 5-6 Knowledge Transfer Partnership Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	>1	1	5
Employment	10	20	110

Source: BiGGAR Economics Analysis

¹⁴ Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review.



5.3 Innovation and Enterprise Impact

The University of Bath also supports business to start, grow and expand. It does this through;

- Spin-outs and start-ups;
- Incubation and Accelerator programmes – Such as SETsquared;
- Licencing technologies; and
- Bristol and Bath Science Park.

5.3.1 Spin-Out and Start-Ups

Research undertaken by the University can be commercialised directly through the creation of a spin-out company to bring a new product, technology or service to market.

In 2019/20, the University of Bath had 16 active spin-out companies with an estimated employment of over 600 people. The largest of these, Vectura Ltd, has over 500 employees and has expanded significantly and merged with other companies since it was spun out of the University of Bath in 1997. Of the 16 active spin-out companies, 7 were based in Bath and North East Somerset.

In 2019/20, three new companies were formed though the University of Bath. This included:

- one formal spin-out with some University ownership;
- one staff start-up; and
- one graduate start-up.

The level of company formation varies between years. In 2018/19, there were seven companies formed and in 2017/18 there were 2.

Table 5-7 Newly formed companies by year

	2017/18	2018/19	2019/20
Spin-outs with some University ownership	0	2	1
Staff start-ups	1	1	1
Graduate start-ups	1	4	1
Total	2	7	3

Source: HESA (2021) HE-BCI Survey

5.3.2 Incubation and Accelerators (SETsquared)

The University of Bath was one of the founding members of the SETsquared Partnership. This is a collaboration between the Universities of Bath, Bristol, Cardiff, Exeter, Southampton and Surrey.



It has been ranked as the leading University Business Incubator in the world¹⁵ for the support that it provides to incubating companies and the economic value that it represents. This includes metrics such as:

- **business survival rate** – companies that have passed through SETsquared at Bath have greater than 90% survival rate;
- **total investment attracted** – the 1,000 companies that have been supported by SETsquared at Bath have raised more than £1 billion of investment; and
- **services offered** – the companies that are supported by SETsquared in Bath have access to ‘advisors in-residence’ for support with legal, IP, accounting and tax issues. The residents also have access to support for writing applications for grants and engaging with potential investors.

The support and services that are provided by SETsquared enable the companies to grow at a faster rate, attract more funding and employ more people than they would otherwise be able to do. This additional economic activity is a quantifiable impact of the University of Bath.

In 2019/20, SETsquared at Bath supported 427 companies. Analysis from the University of Bath estimated that this support created 267 jobs in this time period¹⁶. The number of companies supported increased during the Covid-19 pandemic however, the number of jobs created decreased compared to the same period in 2018/19. It is suggested that the Covid-19 pandemic had a negative impact on the scale of job creation. However, the increase in virtual engagements has improved the ability of SETsquared to reach a wider audience. The impact from SETsquared is likely to grow as the economy recovers from the initial shock of the Covid-19 pandemic.

There is a core of companies who are located at the Innovation Centre, however the majority of the companies that have been supported are based outside of Bath and North East Somerset.

5.3.3 Licencing

The University of Bath also supports enterprise and innovation by licencing the use of technologies that are developed through its research. This enables other organisations to bring the benefit of these research developments to the market.

In 2019/20, the University of Bath received £274,000 of income from licencing agreements. This included £183,000 from software licences, the majority of which were held by non-commercial organisations. The non-software licences were almost exclusively held by SMEs in the UK.

¹⁵ UBI Global (2019) UBI Global World Rankings of Business Incubators and Accelerators 2019 - 2020

¹⁶ The methodology that BiGGAR Economics has used to estimate the economic impact of SETsquared is slightly different and has used a more refined definition of sectors, based on the SIC codes of the companies engaged. It also considered the indirect and induced effects of this activity



5.3.4 Bristol and Bath Science Park

The University of Bath partnered with South Gloucestershire Council to purchase Bristol and Bath Science Park in 2018. As part of this collaboration, different tenants on the Science Park entered contracts with either the University or the Council.

In 2019/20 the University of Bath had a contractual arrangement with a limited number of the tenants and all of these were organisations that were previously located on the park, prior to its purchase by the University and the Council in 2018.

Therefore, the quantifiable economic impact of the University’s activities at the Bristol and Bath Science Park in 2019/20 are minimal and included as part of the core operational activities of the University.

The economic benefits that will occur from the involvement of the University of Bath with the Science Park will take time to realise. This will include;

- attracting organisations and companies to establish at the Science Park;
- increase the level of industrial collaboration with academia and business lead research and development; and
- bring relevant tenants together to co-operate on research and development projects.

These impacts will be realised over time, and the location of the IAAPS at the site in 2020 is an example of how this impact will be achieved. It is estimated that IAAPS will generate £221 million GVA for the UK economy between 2020 and 2025 and support up to 1,900 jobs¹⁷.

5.3.5 Quantifiable impact from Innovation and Enterprise

In total, the innovation and enterprise support provided by the University of Bath generated:

- £15 million GVA and supported 180 jobs in Bath and North East Somerset
- £15 million GVA and supported 190 jobs in the West of England Combined Authority; and
- £108 million GVA and 1,170 jobs across the UK.

Table 5-8 Enterprise and Innovation Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	15	15	108
Employment	180	190	1,170

Source: BIGGAR Economics Analysis

¹⁷ West of England Investment Board (2017) Full Business Case for the Purchase of Bristol and Bath Science Park



Most of the economic impact generated from the enterprise and innovation support activities provided by the University of Bath are realised elsewhere in the UK. The University of Bath has recognised that there is an opportunity to tailor the support that is provided and build on local funding opportunities to increase the impact of this activity within Bath and North East Somerset. As a result, it has appointed a head of Regional Development, to work in this area. This approach is developing new projects, such as the iStart programme, which will establish a facility in the Bath Quays area in partnership with Bath Spa University and Bath and North East Somerset Council. This facility will offer research, innovation and enterprise support for businesses and skill development for residents.

5.4 Quantifiable Purposeful Contribution

In total, the quantifiable purposeful economic impact of the University of Bath in 2019/20 was:

- £42 million GVA and 220 jobs in Bath and North East Somerset;
- £72 million GVA and 270 jobs in the West of England Combined Authority Area; and
- £687 million GVA and 2,110 jobs across the UK.

Table 5-9 Quantifiable Purposeful Contribution, GVA (£m)

	Bath and North East Somerset	West of England Combined Authority	UK
Graduate Productivity	23	49	478
Continuing Professional Development	2	2	6
Student Placements	2	4	56
Services to Business	1	1	35
KTPs	0	1	5
Innovation and Enterprise	15	15	108
Total GVA	42	72	687

Source: BiGGAR Economics Analysis



Table 5-10 Quantifiable Purposeful Contribution, Employment

	Bath and North East Somerset	West of England Combined Authority	UK
Graduate Productivity	-	-	-
Continuing Professional Development	>10	10	40
Student Placements	20	50	730
Services to Business	>10	>10	60
KTPs	10	20	110
Innovation and Enterprise	180	190	1,170
Total GVA	220	270	2,110

Source: BiGGAR Economics Analysis



6. Operational Impacts

This section summarises the economic impact created through the central activities of the University of Bath, including employing staff, buying in goods and services and the impact created by its student community.

Operational impacts arise from any employer, regardless of the purpose of its work, and mainly reflect the scale of the organisation. The University of Bath is the second largest employer in Bath and North East Somerset, and as such, creates a sizeable economic footprint. It is through its operational impacts where the University creates the most impact in the local area.

Operational impacts of the University of Bath arise from the:

- direct GVA and high-value employment it supports;
- spending of the University on goods and services;
- spending of staff and students within the economy;
- capital investment projects pursued by the University;
- contribution of students to the local labour market; and
- spending of visitors to the staff, students and events hosted by the University.

6.1 Core Impacts

The core economic impacts generated by the University of Bath are those which occur as a result of its day-to-day activities and those of its staff and students. It includes its direct impact, supply chain spending impact, staff spending impact and capital investment.

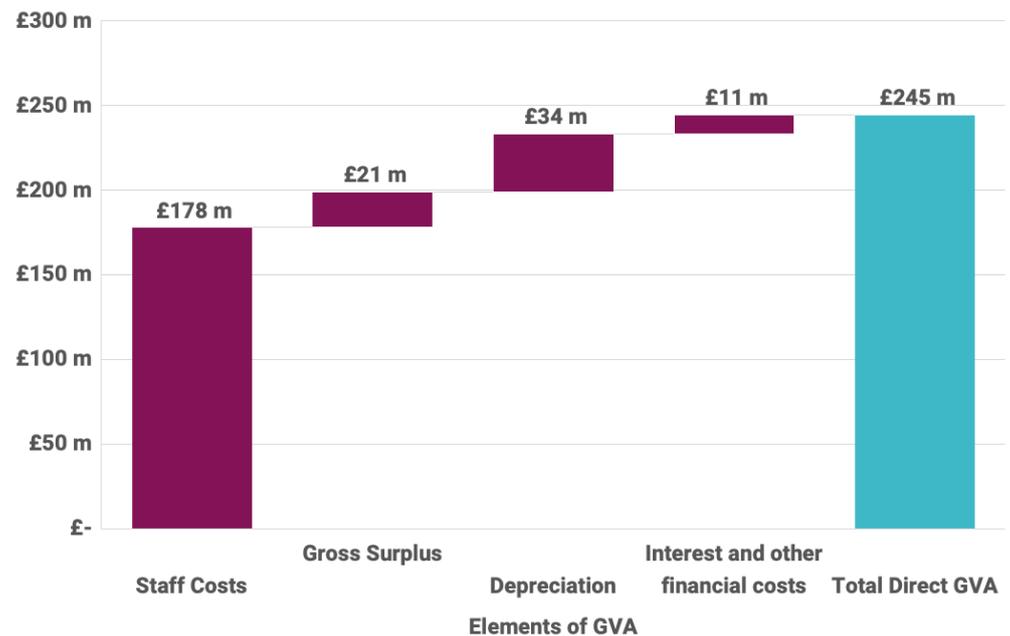
6.1.1 Direct Impact

The direct economic impact of an organisation is the value it adds to the economy through its operations. It is measured in terms of Gross Value Added (GVA), calculated by subtracting supply chain spending from total income, and employment directly supported.

In 2019/20, the University of Bath had a turnover of £298 million and spent £54 million on supplies of goods and services. In addition, the University directly employed 3,580 staff, equivalent to 3,210 FTEs.



Figure 6-1 Elements of Direct GVA



Source: BiGGAR Economics Analysis

Consequently, it was estimated that the University generated a direct impact of £245 million GVA and supported 3,580 jobs in 2019/20.

Table 6-1 Direct Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	245	245	245
Employment	3,580	3,580	3,580

Source: BiGGAR Economics Analysis

6.1.2 Supply Spending Impact

The University of Bath generates an economic impact through its spending on goods and services. Its supply chains have an impact on the wider economy and through the University’s spending, it supports turnover and employment within supplier businesses.

The University of Bath spent £54 million on goods and services in 2019/20, around 9% of which was spent in Bath and North East Somerset, 20% in the West of England Combined Authority and 100% within UK businesses. The value of goods and services that the University has purchased from companies in Bath and North East Somerset has increased from £3.3 million in 2014/15 to £4.6 million in 2019/20.

To estimate the economic impact generated from the University’s spending on supplies it was necessary to assign each category of expenditure to one of the industrial sectors in the UK’s Standard Industrial Classification (SIC) codes. To estimate the direct GVA and employment for each category, the additional turnover



in each sector and study area was divided by the relevant turnover/GVA and turnover/job ratios gathered from the Annual Business Survey (ABS).

This initial expenditure on goods and services stimulates further economic activity throughout the wider supply chain (indirect impact). In addition, employees of the University's suppliers also create a further economic impact by spending their salaries in the economy (induced impact).

In order to estimate the indirect and induced impacts arising as a result of spending on supplied, the calculated direct GVA and employment were multiplied by the UK GVA and Employment Type 1 and Type 2 multipliers, as found in the UK Input-Output tables.

In this way, it was estimated that supply chain spending by the University of Bath in 2019/20, generated £3 million GVA and supported 80 jobs in Bath and North East Somerset, £8 million GVA and 220 jobs in the West of England Combined Authority and £60 million GVA and 1,220 jobs across the UK.

Table 6-2 Supply Spending Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	3	8	60
Employment	80	220	1,220

Source: BiGGAR Economics Analysis

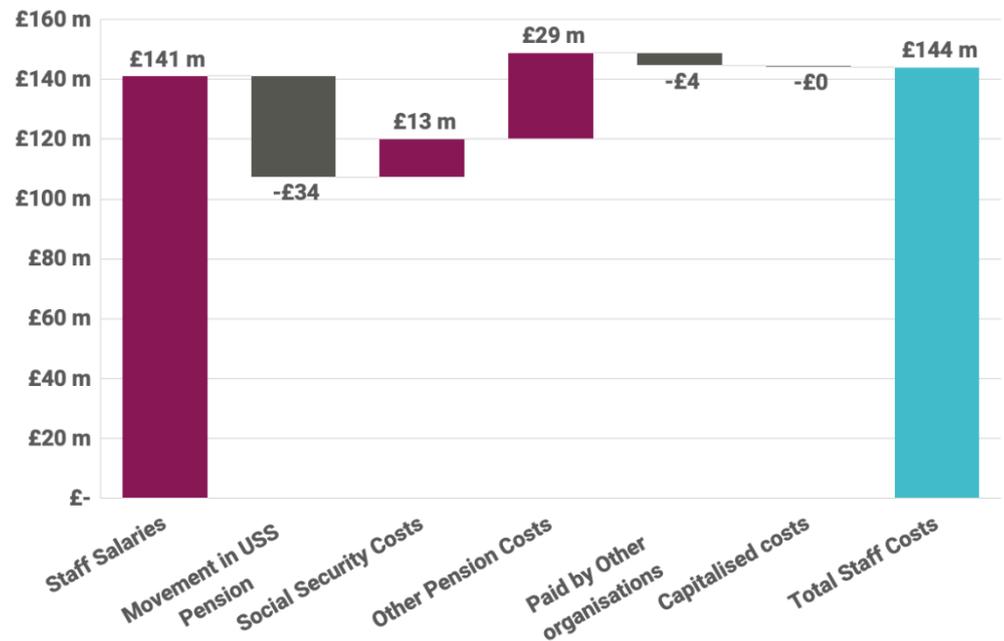
6.1.3 Staff Spending Impact

By spending their salaries and wages, staff employed at the University of Bath support further economic activity in the areas where they live. This increases turnover in the businesses where they spend their money, resulting in higher economic activity and employment.

Staff at the University of Bath received £141 million in wages, salaries and other staff costs in 2019/20.



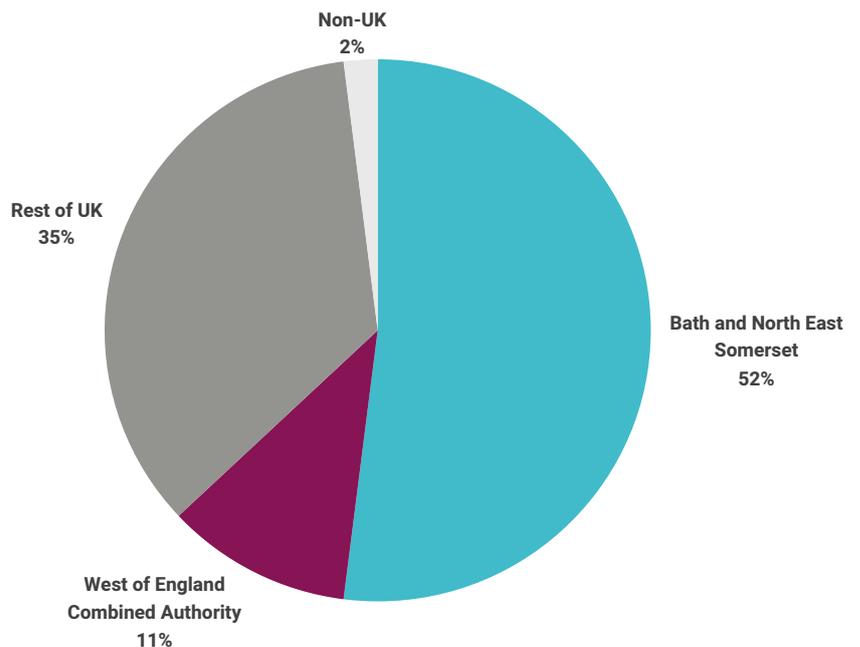
Figure 6-2 Elements of Staff Costs



Source: BIGGAR Economics Analysis

The economic impact of this depends on where staff spend their salaries, which in turn depends on where they live. Data provided by the University indicated that 52% of staff live in Bath and North East Somerset, 63% in the West of England Combined Authority and 98% in the UK. A further 2% live out-with the UK.

Figure 6-3 Location of Staff



Source: BIGGAR Economics Analysis



Based on an analysis of the Input-Output Tables and household spending patterns¹⁸, it was assumed that members of staff living in Bath and North East Somerset and West of England Combined Authority spent 95% of their income within the UK, of which 50% would be spent within the Combined Authority and, of those living within Bath and North East Somerset, 33% would be spent in the local area (£23 million).

Applying these shares to the expenditure arising in each study area, it was possible to estimate the total expenditure, and resulting economic impact, occurring in each study area. In this way, it was estimated that the spending of staff employed at the University of Bath contributed £9 million GVA and 190 to the economy of Bath and North East Somerset and £18 million GVA and 380 jobs to the West of England Combined Authority. Across the UK, this impact totalled £81 million GVA and 1,720 jobs.

Table 6-3 Staff Spending Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	9	18	81
Employment	190	380	1,720

Source: BiGGAR Economics Analysis

6.1.4 Capital Investment

Capital investments by the University of Bath have an impact on the construction sector, and others which supply capital equipment. As capital spending fluctuates from year to year, an average has been taken of spending over the last five years (2016-2020), and planned expenditure for the next five years (2021-2025). On this basis, average capital expenditure is estimated at £45 million per year.

Data provided by the University of Bath showed that 6% of recent capital spending has been secured by companies based in the Bath and North East Somerset and 59% is secured by companies in the West of England Combined Authority. This spending was converted into GVA and employment impacts by applying appropriate GVA and employment ratios and multipliers.

Table 6-4 Capital Investment

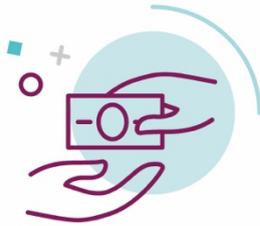
	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	1	15	42
Employment	20	210	620

Source: BiGGAR Economics Analysis

¹⁸ ONS (2021) UK Input-Output Analytical Tables



Gold Scholarships



As part of the University's Access and Participation Plan, students from low-income backgrounds have the opportunity to apply for a Gold Scholarship. This opens up an avenue into higher education for those who would otherwise struggle to financially afford to attend university.

To be eligible for the Gold Scholarship, students must have a student loans household income assessment of £25,000 or less and meet at least one of the University's widening participation criteria. These include coming from an area where the progression rate of young people into higher education is low; living in a disadvantaged area according to the Indices of Multiple Deprivation; or other indications of financial difficulty. The scholarship provides £5,000 per year of study for up to 50 students a year, to reduce the financial pressure they face and to fund living and course expenses. New first year undergraduates receive a payment of £500 before starting at university to help with the cost of any necessary technology or equipment at the outset of their studies.

In addition to the financial benefit for scholarship students, they also have access to personal and professional development opportunities which can enhance their skills and career prospects. This is offered through a range of activities associated with the scholarship including: completing 50 hours of volunteering; taking part in fundraising or outreach activities; having access to a dedicated mentor; attending personal development, networking and skills building sessions; accessing support with placements and internships; and having access to pastoral support networks. Scholars can also work within peer groups where they have the opportunity to develop their leadership skills.

The Gold Scholarship students regularly provide blogs about their experience on the University's website and have produced an online video for future scholars. Feedback is very positive and suggests that the Scholarship not only enables them to move away from home and focus on their studies without worrying about their finances, but it helps them to settle in to university by developing skills and making friends from similar backgrounds through a professional and friendly network of Scholarship students. Being awarded the Gold Scholarship also helps in their future job search activity. In 2019, the Gold Scholarship Opportunities Fund was initiated by the University of Bath using crowdfunding to provide more opportunities to scholars on the program including travel to conferences or events and it has enabled some students to visit new countries and volunteer abroad. In 2020, the fund raised a total of £5,116 from 23 donors.



6.2 Student Impacts

In 2019/20, there were 16,605 full-time students, 1,325 part-time students and 1,480 distance learners enrolled at the University of Bath. Of total students enrolled, 70% were enrolled as undergraduates and 30% as postgraduates.

Students at universities generate economic impacts through their day-to-day spending and through undertaking part-time work during their course of study. The focus of the analysis is on full-time students as the spending patterns and labour market contributions made by part-time students is predominately driven by their work as opposed to their study.

6.2.1 Student Spending Impact

Students at the University of Bath make an economic contribution through their term-time spending habits, supporting turnover and employment in the businesses where they make their purchases. Many students may not otherwise have come to Bath if it were not for the University and therefore their spending is additional to the local area.

To estimate the economic impact arising from student expenditure, it was necessary to establish how much students spend and what they spend their money on. Based on survey evidence on student expenditure, conducted by the Department of Education, it was estimated that on average, students living in England (excluding London) spend £11,347 per year on living costs.¹⁹ Adjusting for inflation between 2014 and 2019, expenditure was estimated to be £12,800 per student.

The type of accommodation students occupy during their studies influences their expenditure. For example, students living in their parental or guardian home are unlikely to spend money on housing costs and will spend significantly less on food and household goods. The accommodation expenditure of students in institution-maintained properties has also been excluded from the student spend analysis as it has already been accounted for in the direct income of the University. Adjustments have also been made to account for reduced spending and time spent on campus as a result of the Covid-19 pandemic.

On this basis, it was estimated that students at the University of Bath spent £98 million in 2019/20. Data provided by the University indicates that 94% of students live in Bath and North East Somerset, a further 1% live elsewhere in West of England Combined Authority and the remaining live elsewhere in the UK. Therefore, it was estimated students spent £92 million within Bath and North East Somerset.

It was therefore estimated that the expenditure of students at the University of Bath contributed £48 million GVA and supported 840 jobs in Bath and North East Somerset, £52 million GVA and 910 jobs in West of England Combined Authority and £85 million GVA and 1,460 jobs across the UK.

¹⁹ Department for Education (2018), Student Income and Expenditure Survey



Student Community Partnership



The University of Bath is a member of the Student Community Partnership (SCP) which was established in 2002 as a collaborative network between Higher Education Providers in Bath and North East Somerset, their students and the local community. By facilitating positive relationships, the partnership aims to improve the perceptions of students as neighbours in the city through a series of initiatives to enhance their local impact. The purpose of the SCP is to generate a 'Shared City' approach to creating a stronger, more sustainable local economy and it has identified four key areas to address: Green Issues, Personal Safety, River Safety and Housing.

A number of campaigns have been initiated to address the environmental impacts generated by students, staff and visitors to the local economy. For example, the 'Leave no Trace' campaign is a recycling and waste management initiative aiming to minimise the amount of rubbish sent to landfill. The 'Pack for Good' campaign is a British Heart Foundation initiative to encourage students to donate their unwanted household items to the charity. Since the scheme began in 2012, it has raised a total of £597,250 for projects and services in the local area.

The 'Student Switch Off' competition educates and incentivises students in university accommodation to manage their energy use efficiently with prizes awarded to the hall using the least amount of energy. The University of Bath is a leading institution in the scheme and has secured high levels of student engagement, saving 740,000kWh (327 tonnes of CO₂) of energy over the past 11 years.

Personal Safety is another key issue for the SCP to promote a safe night-time economy for residents in Bath. Initiatives includes the #NeverOK campaign and Safe Taxi Scheme to safeguard the wellbeing of students in the city. The partnership is also working with the Students' Union to improve street lighting in areas of the city where students have reported not feeling safe. River Safety is also endorsed by the SCP through the #GotYaBack campaign, providing information and advice on safe routes home after a night out to avoid deaths from young people in the River Avon.

The above initiatives work to ensure that students, the University and local community work together to create a safe and sustainable environment for all.



Table 6-5 Student Spending Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	48	52	85
Employment	840	910	1,460

Source: BiGGAR Economics Analysis

6.2.2 Student Part-Time Work Impact

Students at the University of Bath make an economic contribution through the part-time work they undertake during their degree, providing an important source of additional labour for companies in the area to deliver their services.

The Labour Force Survey (LFS) indicates that 34% of those aged 16 to 24 who were in full-time education were also working in 2019. Research from the National Union of Students (NUS)²⁰ also estimates that those students who are in employment tend to work an average of 14 hours per work, often in the hospitality and retail sectors.

Not all of the jobs attributed to students can be classified as additional as some may displace non-students who would otherwise have held these jobs. Therefore, an adjustment was made to take account of the relatively low unemployment rate in each of the study areas.

The impact of student employment was converted into GVA and employment impacts by applying sector appropriate ratios based on the number of students employed in each sector of the economy. As with student spending, an adjustment was made to account for the effects of Covid-19 and the impact it had on student employment during the year.

On this basis, it was estimated that the part-time work undertaken by the University’s students generated £28 million GVA and supported 970 jobs in Bath and North East Somerset, £30 million GVA and 1,040 jobs in West of England Combined Authority and £40 million GVA and 1,370 jobs across the UK.

Table 6-6 Student Part-Time Work Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	28	30	40
Employment	970	1,040	1,370

Source: BiGGAR Economics Analysis

²⁰ National Union of Students (2010), Still in the Red: Student finance in 2010



Student Volunteering



During 2020/21, students at the University of Bath completed more than 2,700 hours of volunteering and several of the University's students have been runners up for national awards for their contributions. At a local level, 68 student volunteers were awarded a volunteer recognition star by Bath and North East Somerset's Third Sector Group (3SG) for their participation in its 'Compassionate Community' scheme over Christmas 2020 to support people who felt isolated during the pandemic.

The Students' Union advertises volunteering opportunities through its website and last year it posted opportunities from over 50 different charities. A total of six student-led volunteering groups were available to join in 2020: V Team, RAG, Enactus, BUBT, STAR and Marrow, which raised funds for the Anthony Nolan Charity that improves lives for people who need a stem cell transplant. SU groups collectively raised over £10,500 for local and national charities in 2020/21.

The V Team is one of the largest student groups at the University. It is free for students to join and seeks to embed a culture of volunteering across the University, enabling students to make meaningful contributions to the local community. In 2020/21, the V Team volunteered over 300 hours of their time and offered around 15 projects for students to get involved with, including:

- V Run, which raised £310 from the Santa Dash Run to support V Team projects;
- V Trees, working with More Trees B&NES to plant trees in the community;
- V Heart Start, to train students, who then train others, in administering CPR;
- V Clean, which organised 3 litter picks, to help keep plastics out of the water; and
- V Twerton, which organised a virtual Christmas party in 2020 and other activities throughout the year for school children in a local area of social deprivation.

Bath RAG (raise and give) is a volunteer group based at the University which helps students to fundraise for local and national charities. The group attracts over 400 members each year to fundraise for four student-chosen charities. The 'Big 4' in 2020/21 were: Julian House which provides homeless services and accommodation in the city, Bath Mind which provides mental health services, Guide Dogs South West and First Steps, which provides community nurseries and early years support to families in Bath. The group also supports students at the University who want to fundraise individually or as part of their own student group for a charity of their choice. The SU won the Bath Life Award in the People Category for its work during the pandemic.



6.2.3 Student Volunteering

The University’s students also make an economic contribution by volunteering their time and skills to local organisations, often enabling charities to undertake activities and provide services that would otherwise not have been possible.

The contribution that students make to the organisations and communities they support through volunteering can not be directly measured through the value of transactions, as the activity is non-market. Therefore, in order to quantify this activity it is necessary to estimate using other proxies of value.

A UK-wide study by the NUS on student volunteering estimates that around 33% of students volunteer at some point during their degree and that they volunteer for an average of 44 hours per year.²¹ Applying this to the total number of full-time students at the University of Bath implies that approximately 5,480 students at the University volunteered throughout the year, contributing a total of 241,105 hours. Based on the location of students, it was estimated that 227,093 hours (94%) were spent helping charities in Bath and North East Somerset.

Applying the minimum wage for 21–24-year-olds (£7.70) to the number of hours volunteered estimated that volunteering activities undertaken by students at the University of Bath contributed £2 million GVA to the economy.

Table 6-7 Student Volunteering Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	2	2	2

Source: BIGGAR Economics Analysis

6.3 Visitor Impacts

The University of Bath supports the local tourism economy by attracting visitors to the area. Friends and relatives who visit students and staff spend money in the economy and this spending, in turn, increases turnover and supports employment in local tourism, retail and hospitality business. The University also attracts visitors to its open days, conferences and events, who then spend in the local economy.

To estimate this impact, it was necessary to estimate the number of visits from friends and relatives (VFR) that students and staff receive. Information on the number of domestic and overnight VFR (divided by the population of the area) and estimated spend was sourced from tourism statistics.²² The number of VFR trips per person was then multiplied by the number of staff and students to provide an

²¹ NUS (2014), The Student Volunteering Landscape, Key Findings

²² Kantar (2020), GB Day Visitor Survey. Kantar (2020), GB Tourist Annual Report. ONS (2020), International Passenger Survey 2019



estimate of the number of visits stimulated by the University of Bath, to which additionality assumptions were then applied. An adjustment was then made to take account of the restrictions introduced in March 2020 as a result of Covid-19. Data provided by the University indicated that 9,677 visitors attended open days and applicant days at the University in 2019/20.

In this way, it was estimated that visitors to the University contributed £1 million GVA and supported 50 jobs in Bath and North East Somerset.

Table 6-8 Visitor Impact

	Bath and North East Somerset	West of England Combined Authority	UK
GVA (£m)	1	1	<1
Employment	50	55	0

Source: BIGGAR Economics Analysis

6.4 Summary of Operational Impacts

The operational impacts generated by the University of Bath during 2019/20 amounted to a total of;

- £338 million GVA and 5,730 jobs in Bath and North East Somerset,
- £371 million GVA and 6,390 jobs in West of England Combined Authority; and
- £555 million GVA and 9,970 jobs across the UK.

Table 6-9 Quantifiable Operational Contribution, GVA (£m)

	Bath and North East Somerset	West of England Combined Authority	UK
Direct Impacts	245	245	245
Supply Chain Impacts	3	8	60
Staff Spending Impacts	9	18	81
Capital Investment Impacts	1	15	42
Student Spending Impacts	48	52	85
Student Employment Impacts	28	30	40
Student Volunteering Impacts	2	2	2
Tourism and Visitor Economy	1	1	0
Total Operational GVA	338	371	555

Source: BIGGAR Economics Analysis



Table 6-10 Quantifiable Operational Contribution, Employment

	Bath and North East Somerset	West of England Combined Authority	UK
Direct Impacts	3,580	3,580	3,580
Supply Chain Impacts	80	220	1,220
Staff Spending Impacts	190	380	1,720
Capital Investment Impacts	20	210	620
Student Spending Impacts	840	910	1,460
Student Employment Impacts	970	1,040	1,370
Student Volunteering Impacts	-	-	-
Tourism and Visitor Economy	50	50	-
Total Operational Employment	5,730	6,390	9,970

Source: BIGGAR Economics Analysis



7. Wider Impacts

The University contributes a broad range of social, cultural, environmental and economic development benefits which make a positive difference at a local level and throughout the UK.

In addition to the sizeable quantitative economic footprint created by the University of Bath, it delivers a wide range of other benefits which extend its impact on society and the economy. Examples which illustrate the scope and nature of the wider benefits it creates are described below under these four themes. In practice, some of these illustrations have cross-cutting impacts.

7.1 Social Contribution

In 2019/20 16,600 full-time students attended the University of Bath. The students, and the programmes that support them, are key drivers of the University's social impact within the city.

7.1.1 Social Contribution through Students

This includes activities by students, which are described in Section 6.2 such as:

- student volunteering – student volunteering is an important source of social benefits in Bath and North East Somerset and is described in Section 6.2;
- the Student Community Partnership – an initiative to facilitate positive relationships between students and other local residents and is described in Section 6.2

Student Health and Wellbeing

The University and its Students' Union (SU) has launched several initiatives to protect the physical and mental wellbeing of its students. This includes the:

- NeverOK Campaign which focuses on empowering people to speak out against harassment of any kind and promotes a culture of respect and safety for staff and students on and off campus;
- The GotYaBack campaign, inspired by the City of Bath College, to encourage students to look after themselves and their friends on nights out and return home using safe routes; and
- Nightline - a student-run, confidential and non-judgemental peer-to-peer listening support service for students which is similar to the Samaritans.

The SU Bath Community was launched during the pandemic to support student mental health by offering online activities to students which reduced isolation and improved connectivity. More widely, student safety and wellbeing are supported



through Students' Union services such as Peer Mentors, Student Minds and the Hall Reps. The University also has a dedicated accommodation security team who are trained to identify and support students in need. This benefits the wider student community by creating a culture of caring and support.

Widening participation

HESA data show that, in 2019/20, 5.6% of all undergraduates at the University of Bath were from low participation neighbourhoods, compared to an average for all universities in England of 11.8%. Although this proportion has increased slightly in recent years, it remains at around half of the national level, therefore, encouraging more students from non-traditional backgrounds is an active priority for the University.

It has developed a multi-layered approach to the issue by accessing, supporting and encouraging people from non-traditional backgrounds to consider the advantages of higher education.

The University's Access and Participation Plan (APP) outlines the measures and outcomes it seeks to achieve by encouraging applicants from less traditional backgrounds. Its own work and its partnership with other organisations support social mobility among under-represented groups such as those from low-income households and/ or low participation areas, BAME backgrounds, care leavers, carers, people with a disability and those from an armed forces background. It works with charities such as Into University, Brilliant Club, Villiers Park, Rare Recruitment and Brightside and other organisations such as Uni Connect and the Western Vocational Progression Consortium to help support this aim.

Through the APP it offers 15 bursary support programmes to students with a background of financial or other hardships with payments typically ranging from £500 to £10,000 per academic year. To be eligible, students must meet at least one of the University's wider participation criteria.

The University also engages with local schools and sports clubs to promote the University as a destination for education and sport to encourage student applicants from wider participation backgrounds. For example, the Judo Diploma in Sporting Excellence (DiSE) encourages 16- to 19-year-old judo practitioners from wider participation backgrounds to apply to the University of Bath after completing the course, whilst continuing to train. Two students from wider participation backgrounds who took part are now students at the University.



University of Sanctuary



The University of Bath was awarded University of Sanctuary Status on World Access to Higher Education Day in November 2020 for its continued efforts to support the refugee and asylum seeker community. The University is one of 24 in the UK which holds this title, highlighting its efforts in research, teaching and financial support to those seeking sanctuary and extending access into higher education for this group. There are 23 students at the University with refugee or asylum seeker status.

Supporting refugee and asylum students is embedded across the University with the Students' Union, the local branch of the University and College Union, staff, student societies and faculties all engaged in initiatives to ensure a welcome and transparent environment for students arriving on campus.

In 2018, the Bath Student Action for Refugees (STAR) society was formed with the primary aim of supporting refugee and asylum seekers in the local community. They run local campaigns and fundraising events to raise awareness of the hardships faced by refugees. It also hosts a weekly homework club to support refugee children.

To enable more students with an asylum seeker background to enter higher education, the University provides two Sanctuary Scholarships which are available to asylum seekers living in the UK who want to study a taught postgraduate degree. The Sanctuary Scholarships provide eligible students with a non-repayable bursary worth up to £15,285 and tuition fees are waived by university departments. Students can use the bursary to cover course-related and accommodation expenses.

As well as providing financial and community support, the University has invested in new research and teaching approaches. This includes the recently introduced part-time, distance learning MSc course in Humanitarianism Conflict and Development through which students draw on case studies from the Middle East, Africa and South Asia. The University's education department also work closely with the Queen Rania Teacher Academy in Jordan to provide courses to Jordanian teachers, enabling them to achieve a PG certificate in Educational Studies. Over 20 Jordanian teachers have benefited from the scheme so far.

The Healthy Housing for Displaced People project at the University is a three-year collaborative project which aims to improve living conditions for those living in refugee camps throughout the world. The project uses the University's expertise in architecture and engineering to develop designs for new shelters based on optimising social well-being, health and thermal comfort.



7.1.2 Affordable Student Accommodation

The University is working to make 25% of its accommodation “affordable” in line with the aims set out by the National Union of Students. This means that room rent is equal to no more than half of the maintenance loan. So far 22.7% of the University of Bath’s bed stock is offered on an affordable basis through shared rooms and subsidy schemes. For example, they offer 200 x £1,000 bursaries each year to benefit students from widening participation backgrounds where their household income is between £25,000 and £42,000.

7.1.3 Social Contribution through Community Engagement

Outside its work with the student body, the University of Bath as an organisation allocates resources to maximise its positive social impact within Bath and North East Somerset. Examples of its corporate work in this area are given below.

Temporary Accommodation for the NHS

During the pandemic the University offered one of its accommodation blocks in the city to the Royal United Hospital Bath for staff use. John Wood Building, which has 81 rooms, was used by the hospital to accommodate newly graduated nurses who had relocated to the city to work during the pandemic and by medical staff who needed to isolate from family members while off-duty due to the risk of spreading Covid-19.

Civic University Agreement

Bath is in the process of designing its Civic University Agreement which maps out how it engages with others to address identified priorities in the local area. This is discussed in more detail in Section 4.2.

Public Engagement with Research

In 2012, the University introduced a specialist team to support a positive culture of public engagement with research and embed this throughout the research lifecycle. The team became a core funded unit in 2018. In this context, the “public” are people and communities in non-academic settings who contribute to and benefit from research. High-quality public engagement has a mutual benefit to public groups and to researchers at the University for whom it brings new skills, insights, perspectives and ideas. Researchers can access funding to support their public engagement work. The key benefit from public engagement with research is that it can enrich the focus and clarity of the research, by refining the questions asked and making the outputs more relevant and relatable for a wider audience. This can positively impact society and the economy. The following selected examples illustrate how this has been applied in practice and the impact it has had:

- **Young Researchers** – a mentoring scheme for young people aged 13 – 17 in partnership with early career researchers from the University. It delivered an informal programme of events, workshops and activities for young people and their families in Science, Technology, Engineering and Maths with the aim of developing their skills of scientific enquiry. The evaluation identified benefits for young people through increased confidence in their abilities and for the researchers it improved their practical skills in working with young people.



- **Community Matters** – a programme which ran from 2016 to 2018 and resulted in five community groups, which were facing challenges, being paired with appropriate academics from the University who designed a community-based participatory research process to address the challenges identified. The programme’s evaluation highlighted positive benefits for community organisations and academics alike. Working on “live” projects developed skills and understanding in new ways and working “with” as opposed to “in” communities brought a new perspective. The community groups felt listened to and better placed to evidence their work to influence policy making and funding bids. The project has since led to further collaborations.
- **Engaging People with ADHD** – a research programme to investigate the potential link between ADHD and financial risk-taking activities. The project enhanced the researcher’s experience in identifying terminology issues in advance that might affect participants’ willingness to engage, and to choose appropriate interview methods to maximise the value of the engagement. For participants the research findings supported people to make more informed financial decisions.

Alumni Community

The University’s alumni community of 130,000 former students across over 130 countries supports its aims around employability and widening access to higher education by providing scholarships and bursaries to support undergraduate, postgraduate and doctoral level students. It has developed a mentoring platform and alumni members speak at events to encourage potential students to apply to Bath. The alumni members also advertise job vacancies to current students through the University’s careers database and they finance innovation awards through the SETsquared partnership which benefit new start businesses stemming from academic research.

7.2 Cultural Contribution

Residents of Bath and North East Somerset have a significantly higher level of arts and cultural engagement than the national average²³. The University of Bath contributes to the cultural life of Bath and North East Somerset through the multi-cultural nature of its staff and student community and by enhancing the variety and quality of sports and cultural activities that are available in the area.

7.2.1 Student Community

The student body and its community of over 5,500 international students from around 130 countries brings a social and cultural vibrancy to Bath which extends the City’s appeal for residents and visitors alike and adds to its diversity. There is an active Students’ Union at the University which offers over 140 clubs and societies that enrich the student experience during their time at Bath.

²³ Arts Council England (2018) The Active Lives Survey 2015 - 2017



7.2.2 Sports Training Village

The University's on-campus £30 million Sports Training Village (STV) is an integrated multi-sports environment that is accessible for elite athletes, staff, students and local community groups to support active living, health and fitness and wider participation in sport. Built largely in 2003/04 through lottery funding, University and Lawn Tennis Association investments, it has become home to several national sports squads as well as being open to the local community.

Team Bath is the brand name for the activities and services supported on site by the Department of Sports Development and Recreation which also offers service teaching across a number of topics and engages regularly with the wider University on research and other collaborations. Team Bath offers a wide range of on-site and outreach programmes which not only engage young people from widening participation backgrounds but also encourage children and young people through Team Bath Tribe (after-school and holiday activities), Futures (talent development) and school visits to create and maintain their interest in sport and healthy living.

The University has a reputation for supporting elite athletes through the facilities environment and services it offers, in tandem with the English Institute of Sport who are based on site, at the STV. More than 250 international-level athletes and multiple national and regional squads in sports such as swimming, modern pentathlon, bobsleigh and skeleton, athletics, netball, triathlon, judo and badminton have based themselves at the STV. Competitions take place at its facilities each year, drawing in athletes and spectators from around the UK and beyond.

- 20 University of Bath-based sportspeople and 13 graduates competed at the Tokyo 2020 Olympics, winning 11 medals; and
- 8 sportspeople who train at the University and one graduate took part in the Tokyo 2020 Paralympic Games, winning 10 medals between them.

Team Bath has strong external links with high profile organisations and clubs such as UK Sport, the British Olympic Association, the British Paralympic Association, Bath Rugby, Team Bath Buccaneers Hockey Club, Bath City Football Club and Southampton FC. Team Bath is active commercially and partners with various local and regional businesses to support its activities in netball, tennis and rugby as well as overall partners. This generates an income of around £80-100k per annum. Commercial income from gym/fitness sales and facility hire is supported by investment from the University to underpin the activity of Team Bath in the community.

The QS World University Rankings for 2021 ranked the University of Bath in 2nd position in the UK and in joint 7th position in the world as a place to study sports-related subjects.

7.2.3 The Edge

Next door to the Sports Training Village, the Edge is the University's hub for arts and creative activities with performance venues, rehearsal spaces and a café. It hosts events, exhibitions and theatre on campus and came under the management of the



Students' Union during 2020. It can offer dedicated student spaces for arts, wellbeing and social activities.

7.2.4 Alumni Network

As well as being ambassadors for the University, its alumni network provides practical support through scholarships and raise finance for research projects and the physical development of the University's facilities.

The alumni and development work of the University manages major gifts from local businesses and philanthropists to support entrepreneurship which has the potential to drive innovation in the local economy. Close working with corporate partners benefits programmes at the University such as JP Morgan's sponsorship of the autism summer school and Santander's funding for the Institute of Coding.

7.3 Environmental Contribution

As one of the largest organisations in the area, the University of Bath is responsible for a considerable environmental impact, through its direct activities and also those which it stimulates. It is working towards reducing any negative direct and indirect environmental impacts which can control or influence and is making a positive contribution towards the UK's transition to Net-Zero. Examples of its approach towards improving the environment are given below.

7.3.1 Climate Action Project

The University of Bath has an institution-wide approach to climate change. It declared a climate emergency in May 2020 and has set out phased targets to becoming Net Zero Carbon in all emissions by 2040. It has developed and is implementing a Climate Action Project which outlines 11 principles through which it aims to transition to a low carbon University and assist in the transition to a low carbon society.

7.3.2 Our Shared Future

Our Shared Future is a joint initiative between the University and the local authority which was launched in January 2020 to explore and address major challenges in Bath and the region. Three themes were initially identified by Bath and North East Somerset as priorities:

- cohesion and inclusivity;
- infrastructure; and
- climate change.

This produced timely research to help find solutions that can make a difference quickly and help the City's recovery from the pandemic.



Vertically Integrated Projects



Vertically Integrated Projects (VIPs) are a concept first introduced by Professor Ed Coyle at Georgia Institute of Technology in the United States. They focus on multi-disciplinary collaboration across undergraduate, postgraduate and doctoral students with support from staff at the University. The projects aim to research current issues and engage staff and students in live research which produces sustainable outcomes for communities. The University of Bath is the first University in the UK to introduce VIPs to its students and in 2020/21, 150 students and 12 academic staff were involved in the process. It offers a range of VIPs to staff and students with many focusing on sustainability and climate change. Current projects include:

- **Green Equity:** a collaboration with local people to address climate and ecological pressures and how to utilise the area's green space to improve access for all.
- **Creating carbon neutral communities** –to reduce the carbon footprint in a local village, Farrington Gurney, through infrastructure and lifestyles changes.
- **Bath biodevices without borders:** to address needs in different global locations, in line with existing research and the UN Sustainable Development Goals.
- **Intergenerational engagement in research & teaching:** to improve local policy and decision making and create a more inclusive environment for older people.
- **Decolonising Bath:** designing and operating a historic walking trail through Bath to represent the City's past in transatlantic trade and plantation slavery.
- **Decarbonising heating:** to address the challenges of heating Bath's buildings in a more environmentally efficient manner.
- **Students for Sustainable Food:** to encourage sustainable food choices that have benefits for both health and the environment.
- **Community consultation for sustainability:** to enhance the environmental impact of a major naval facility and dockyard in the UK.
- **Community engagement:** addressing social and economic inequalities in Bath through engagement with stakeholders and developing interventions.
- **Sustainable Transport:** to solve local challenges around pollution, congestion, active commuting, parking and traffic safety.
- **Student Wellbeing:** focussing on university interventions to address the current student wellbeing and mental health challenges present in today's society.
- **Technology for social care:** using advances in technology to improve the lives of different communities living in social care environments.



7.3.3 Accommodation and Hospitality Services

The University's Accommodation and Hospitality Services team manage accommodation for 3,586 students on campus and 1,147 in the city and occupancy rates are typically 98%. The department runs several initiatives to minimise the negative environmental impacts from its portfolio. The Leave No Trace campaign encourages students, staff and visitors to reduce the number of disposable containers used; the Pack for Good campaign collects unwanted items from students moving out of accommodation and donates them to the British Heart Foundation; and unwanted ambient food items are collected for charities including the Genesis Trust Food Bank. Bath is one of 40 universities in the UK to run the Student Switch Off campaign which it introduced in 2010 to encourage behaviour change in students and deliver energy savings for the environment.

7.3.4 Climate Focused Research

The University is active in research solutions to environmental problems. This includes globally leading work at the IAAPS, in partnership with Ford, which will result in carbon savings equivalent to removing over 100,000 cars from the road.

Transport is one of the key sectors that contributes to greenhouse gas emissions and personal cars, running on fossil fuels are a key component of this. The automotive sector is challenged to find innovative solutions to reducing the carbon emissions associated with fossil fuel driven cars. One of the challenges that the sector faces regarding innovation is the lack of accuracy in simulations of the dynamic performance of turbochargers. Simulations are vitally important in the development process for complex systems as they can identify issues and solutions at a much earlier stage of the development process. Unreliable or insufficient simulations can result in significantly increased costs, and time delays, for R&D projects as problems are not identified until much later in the process.

The University of Bath's collaboration with Ford started in 2014, when the University was challenged to develop an approach to significantly reduce CO₂ emissions from the Ford Focus fleet without compromising on the performance of the vehicles. The team at the IAAPS developed simulation techniques which have been recognised as globally unique. These simulations helped to demonstrate designs which could improve fuel economy by up to 13% and the learnings from these simulations have been applied to engines that have been mass produced by Ford since 2017. As a result 1.4 million new Ford vehicles produce less CO₂, equivalent to taking 109,000 cars off the road each year.



Climate Change



To address the global climate emergency, the University has taken a number of steps to reduce its own carbon footprint and embed efforts to tackle the crisis through its research and teaching across the University.

Greenhouse gas emissions are grouped into three Scopes using international standards: Scope 1 covers emissions from sources directly owned or controlled by the University, Scope 2 covers emissions from electricity consumed by the University which it does not generate itself and Scope 3 covers other indirect emissions associated with its activity, such as travel and procurement. The University's 2021 Annual Carbon Report shows that, over the past 15 years, its Scope 1 and 2 emissions have fallen by approximately 10,000 tonnes of CO₂, representing a 45% reduction over the period which exceeded the targeted 43%. Going forward, the University strives to become Net Zero in Scope 1 and 2 emissions by 2030; see a 50% reduction in Scope 3 emissions by 2030; and become Net Zero across all 3 types of emissions by 2040. In May 2020, the University produced an 11 Point Climate Action Framework (CAF) to deliver its climate change principles which are:

1. Carbon Emissions Reduction
2. Research and Innovation
3. Learning and Teaching
4. University Strategy
5. University Governance
6. University Campus Emissions Reduction and Climate Change Adaption
7. Internationalisation Strategy
8. Carbon Management
9. University Finances
10. University Community Awareness and Action
11. University of Bath: Local Leader and Partner

It has recently expanded its Climate Action Team to deliver the principles of the CAF framework and embed this focus into the University's operations. The Team is also there to support staff and students through the University's transition to Net Zero Carbon. In September 2020, the Climate Action Team brought together an interdisciplinary group of academic and professional staff to deliver a Climate Literacy course for all new students at the University. Following the induction, 250 students made a personal pledge to take action, such as consuming less meat and using less plastic and 40 students signed up to the University's Climate Leaders programme. This increased in scale in 2021 by offering a similar course to all 5,000 first years as part of their induction.



8. Fiscal Impacts

The economic activity that is generated by the University of Bath will also stimulate tax revenues for UK Treasury.

8.1 Taxes Paid by Source

The three key quantifiable sources of impact that have been considered in this analysis are:

- employment taxes paid by the University of Bath;
- employment taxes from the increased earnings potential of graduates; and
- VAT paid by staff and students.

The resulting analysis will provide a significant, but conservative estimate of the fiscal impacts of the activities of the University of Bath. In addition to the taxes outlined the University will also generate fiscal impacts through corporation tax from the enterprises it helps to grow, VAT that it is unable to recover from its own purchases and other taxes stimulated by the described activity. Sufficient data was not available to estimate these impacts in a reliable manner and therefore they have not been quantified.

8.1.1 Paid by the University

In 2019/20, the University of Bath paid out £178 million in staff costs. This explicitly included £13 million in employers National Insurance contributions. In addition to this, the employees would also make their own contribution to National Insurance and would pay income tax. Based on the staff costs data provided it was estimated that in 2019/20 the staff at the University of Bath paid;

- £11 million in employees National Insurance contributions; and
- £16 million in income tax.

8.1.2 Additional taxes paid by graduates

The largest element of the total GVA contribution of the University of Bath is also the largest source of tax revenues. The additional earnings that a graduate will have over their lifetime will also generate additional employment taxes associated with that income. This will include the additional income tax and national insurance contributions.

The IFS study on earnings of graduates²⁴ also considered the lifetime exchequer impacts of an undergraduate degree. These returns were defined to be:

²⁴ IFS (2020) The impact of undergraduate degrees on lifetime earnings



- the sum of:
 - Student loan repayments;
 - Income tax;
 - Employer and Employee National Insurance Contributions

- less
 - maintenance loan payments
 - tuition loan payments; and
 - teaching grants.

This found that the exchequer impacts, as with the earnings premium the exchequer impacts varied between subjects and student characteristics. These characteristics determined the income level of the graduates, and therefore the value of employment taxes that they would pay and their likelihood of paying off all their student loans. Based on the characteristics and earnings profile of the graduates of the University of Bath it was estimated that the total exchequer benefit from the 2019/20 cohort of students will be £323 million. This is equivalent to £58,000 of net benefit to HM Treasury for every degree awarded.

The figures for graduate premium, which are reported in Table 5-1 consider the net benefit to the graduate and therefore do not include the taxes paid.

8.1.3 VAT from associated spending

Combined, the staff and students at the University of Bath spent an estimated £220 million in the UK economy. This spending will include Value Added Tax (VAT). Not all spending is subject to VAT and it is estimated²⁵ that VAT accounts for 8% of household spending in the UK. The spending profile of students is different to that of typical households and it is therefore estimated that VAT accounts for 11% of their spending.

Applying these ratios to the staff and student spending values estimated that staff paid £13 million in VAT in 2019/20 and students paid £11 million.

8.1.4 Summary of taxes

In total, it was estimated that the University of Bath’s activities in 2019/20 will stimulate £386 million in taxes paid. The vast majority of this will be the increased employment taxes paid by graduates. The split is shown in Table 8-1.

Table 8-1 Taxes paid by Source

Source	Taxes Paid
Taxes paid by the University	
Employers National Insurance	£13 m

²⁵ European Commission (2013), A Study on the effect of Current VAT Rates Structures



Employees National Insurance	£11 m
Income Tax	£16 m
Additional Taxes Paid by Graduates	
PAYE and NI on Graduate Premium	£323 m
VAT from Associated Spending	
Staff Spending	£13 m
Student Spending	£11 m
Total Taxes Paid	£386 m

Source: BiGGAR Economics Analysis

8.2 Fiscal Impacts in Context

In 2019/20, the University of Bath received £59m from public sector funding. This included funding from:

- Office for Students grants worth £14 million;
- Research England grants worth £18 million;
- grants from Research councils worth £19 million; and
- income from other public sector bodies worth £4 million.

Therefore, for every £1 of public sector funding received²⁶, the University of Bath generates a net benefit of at least £6.50 in tax revenues.

²⁶ Write offs of student loans can also be considered public sector income, however this has been accounted for in the adjustments made in estimating the additional employment taxes a graduate will pay



9. Summary of Impacts

This section provides a summary of the study’s main findings and compares them to those of the study conducted by Oxford Economics in 2016.

9.1 Total Quantitative Economic Impact

It was estimated that in 2019/20 the University of Bath generated;

- £380 million GVA and 5,950 jobs in Bath and North East Somerset;
- £443 million GVA and 6,660 jobs in the West of England Combined Authority; and
- £1.2 billion GVA and 12,080 jobs across the UK.

A breakdown of GVA and employment by source of impact and study area is provided in the tables below.

Table 9-1 Total Economic Impact of the University of Bath 2019/20, GVA (£m)

Impacts	Bath and North East Somerset	West of England Combined Authority	UK
Direct	245	245	245
Supply Chain	3	8	60
Staff Spending	9	18	81
Capital Investment	1	15	42
Student Spending	48	52	85
Student Employment	28	30	40
Student Volunteering	2	2	2
Tourism and Visitor Economy	1	1	0
Total Operational GVA	338	371	555
Graduate Productivity	23	49	478
Continuing Professional Development	2	2	6
Student Placement	2	4	56
Services to Business	1	1	35
KTP	0	1	5
Innovation and Enterprise	15	15	108



Total Purposeful GVA	42	72	687
Total GVA Impact	380	443	1,242

Table 9-2 Total Economic Impact of the University of Bath 2019/20, Jobs

Impacts	Bath and North East Somerset	West of England Combined Authority	UK
Direct	3,580	3,580	3,580
Supply Chain	80	220	1,220
Staff Spending	190	380	1,720
Capital Investment	20	210	620
Student Spending	840	910	1,460
Student Employment	970	1,040	1,370
Student Volunteering	-	-	-
Tourism and Visitor Economy	50	50	-
Total Operational Employment	5,730	6,390	9,970
Graduate Productivity	-	-	-
Continuing Professional Development	-	10	40
Student Placement	20	50	730
Services to Business	-	-	60
KTP	10	20	110
Innovation and Enterprise	180	190	1,170
Total Purposeful Employment	220	270	2,110
Total GVA Impact	5,950	6,660	12,080

The impact is largest across the UK; however the economic activity is most concentrated within Bath and North East Somerset. Across Bath and North East Somerset there are 108,000 jobs in total, of which 5,950 are supported by the University. Therefore, the University supports one job in every 18 across the whole local authority area.



9.2 Impact Multipliers

Multipliers are a useful summary indicator to express within a single figure the returns from investment in an organisation. In 2018/19, the University of Bath had an income of £300 million, generated £245 million direct GVA and directly employed 3,600 people. Therefore;

- for each £1 of income the University generated as a result of its direct operations, it supported £5.10 GVA in total benefits across the UK economy;
- for each person it directly employed, the University supported 3.4 jobs across the UK; and
- for each £1 of income received, the University of Surrey generated £4.20 in economic impact across the UK.

Table 9-3 University of Surrey Impact Ratios 2018/19

	Total (including long term impacts)
Direct GVA: Total GVA	5.1
Direct Jobs: Total Jobs	3.4
Income: Impact	4.2

Source: BiGGAR Economics Analysis

9.3 Difference from impact in 2014/15

The economic impact study that was completed by Oxford Economics in 2016 found that the University generated £352 million GVA across the UK and supported 7,800 jobs.

The two studies are not directly comparable because the list of quantifiable economic impacts which are considered in this report is greater than that considered in 2016. This study considers the purposeful impacts of the University for the first time. In addition, there are methodological differences in how the economic impact of the student and staff expenditures have been considered.

To compare how the economic impact of the University has changed in this time period, it is best to consider how the key drivers of impact have changed over time. The key drivers of the impact of the University are;

- the number of students;
- the number of graduates;
- the income of the University; and
- the number of staff.

A summary of how these have changed since 2014/15 is shown in Table (Below, ad link). This shows that the main drivers of impact have increased by between 19% and



29% in the previous 5 years. It is therefore reasonable to assume that the economic impact of the University of Bath has grown by a similar proportion over this time period.

Figure 9-1 Change in Key Drivers of Economic Impact at the University of Bath

Metric	2014/15	2019/20	Change
Full time Students	13,310	16,605	+25%
Degrees Awarded (UG)	2,595	3,340	+29%
Income to the University	£243 m	£298 m	+23%
Staff numbers	2,760	3,280	+19%

Source: HESA, note staff numbers differ from reported figures in this study due to changes in definitions



10. Appendix A – Method and Sources

This section outlines the methodology and approach applied to quantify the economic impacts associated with the University of Bath.

10.1 Definitions, Study Areas and Study Period

The description of economic impacts refers to the following key terms:

- Gross Value Added (GVA): a measure of the monetary contribution that an organisation adds to the economy through its operations
- Employment: the number of jobs supported by an organisation;
- Direct Impact: the economic contribution made by an organisation through the goods and services it produces. It is generally estimated as the difference between its turnover and non-staff operating costs;
- Indirect Impact: the economic impact associated with spending taking place within an organisation's supply chain; and
- Induced Impact: the economic impact associated with the spending by the staff employed within the supply chain.

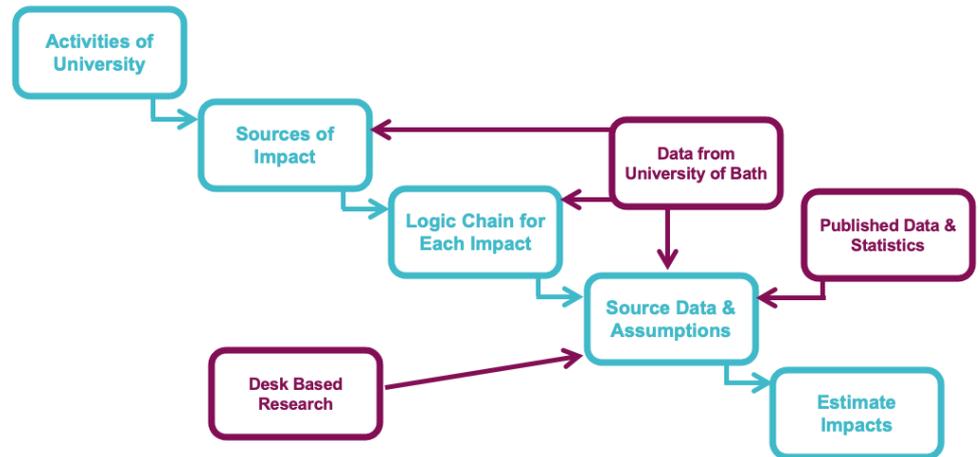
The study has been carried out with reference to the 2019/20 academic year and has considered the following study areas:

- Bath and North East Somerset;
- West of England Combined Authority; and
- UK.

10.2 Approach

This study is based on a consolidated methodology that has been applied to universities across the UK and Europe. The study approach is summarised in Figure 10-1.

Figure 10-1 Study Approach



The starting point for the analysis was to consider the various activities undertaken by the University of Bath and identify those that were likely to generate an economic contribution. Logic chains were then developed to describe how each type of activity generates economic value and these were used to build an economic model to estimate the economic contribution of the University of Bath as a whole.

The next step was to consider how the value generated by each type of activity might be measured and what data would be required to do this. For most activity, two types of information were required:

- source information about the scale of activity, which was supplied by the University of Bath as far as possible; and
- other data and published statistics which could be used as the basis for assumptions to measure economic value.

To estimate economic impacts, the study relied on turnover per GVA and turnover per job ratios as sourced from the UK Annual Business Survey. Indirect and induced economic impacts were estimated based on the UK Input-Output Tables.

The data were then used to populate an economic model which estimates the value of each source of contribution from the University of Bath and these were aggregated to produce an estimate of the total contribution made.

10.3 Purposeful Impacts

10.3.1 Teaching and Learning

The Department for Education researched on the market returns to different degrees from the various universities across England, reporting on the drivers of higher graduate salaries²⁷. The report found that average earnings for graduates 5 years after graduation were £26,000 for women and £30,000 for men and reported on the

²⁷ Department for Education (2018), The relative labour market returns to different degrees



factors which contributed to deviations from these averages. The drivers of deviances from the average highlighted in the report were institution choice, course choice, and student characteristics such as prior attainment and socio-economic background:

- There was wide variation in the earnings between graduates taking different degrees. After five years, graduates who took medicine, maths or economics all earned around 30% more than the average graduate, while creative arts graduates earned around 25% less. When considering more specific courses, the report found that some courses resulted in an 100% premium over average graduate earnings, whilst the lowest-earning courses attracted earnings around 40% below the average graduate earnings.
- Some of the differences in earnings from different degrees taken is explained by the characteristics of the students that take the degrees. For example, some degrees may attract a higher proportion of students with higher prior attainment, meaning higher returns may be the result of high-ability students. However, after accounting for the characteristics of students, differences in returns were reduced, but still significant. Medicine and economics degrees still had returns around 20% greater than the average degree. Courses in business, computing and architecture degrees all resulted in earnings 10% above the average. Creative arts still had low returns when accounting for student characteristics – around 15% less than the average graduate after five years.
- There are differences in returns resulting from prior education and prior attainment, but these were less significant than other factors. Graduates from independent schools and the top quintile earned around 7% to 9% more than those from the lowest SES backgrounds. Adding an extra A at A level increased earnings by around 3%.
- Different types of students experienced different returns after five years based on their course choice. The report found that medicine, pharmacology and English had relatively higher returns for women than men, whereas men benefitted more from taking computer science. Medicine and education had higher returns for students from lower socio-economic backgrounds, while economics and history had higher returns for students from higher socio-economic backgrounds. For students with lower levels of prior achievement, social care and creative arts courses offered relatively higher returns.
- The institution attended by graduates also had a significant impact on earnings five years following graduation. There was considerable variation between the same courses at different institutions. The best business studies degrees have returns in excess of 50% more than the average degree while the worst business degrees have below average returns. High-status universities, such as the Russell Group and universities established before 1992, generally had higher earning graduates. The report attributes this, in part to the fact that these universities accept students with the highest prior attainment and ability. Accounting for student composition, differences remain but are reduced. Even after controlling for these differences, the traditionally high-status universities still provided the highest returns. This may be because these universities provide



students with skills required to earn higher salaries but may also be the result of the signalling value of having attended a prestigious university.

Overall, the report emphasised that the decisions students make about the institution they attend and the subject they study are important to determining later-life labour market outcomes, and the returns on their choice may vary depending on the characteristics of the student. The University of Bath is an established, pre-1992 University, and therefore may benefit from students with higher prior-attainment levels who are expected to achieve greater returns anyway. It may also be that the University provides courses with particularly high returns, and these may be attended by the type of students who benefit from these courses the most (e.g., people from lower socio-economic backgrounds taking medicine and higher socio-economic backgrounds taking history). Graduates of the University may also benefit from the reputation of the institution signalling to potential employers, and also it may be the case that the University does provide graduates with skills that particularly benefit them in finding well-paid employment.

The Graduate Premium, as estimated in the report, relies on data on discounted lifetime earnings from different degrees. These were sourced from a recent study by the Institute for Fiscal Studies on the impact of undergraduate degrees on lifetime earnings²⁸. A breakdown of discounted lifetime earnings by degree type is provided in Table 10.1.

Table 10.1 Discounted Lifetime Earnings

	Women	Men
Medicine	£341,000	£493,000
Law	£224,000	£159,000
Economics	£220,000	£326,000
Business	£173,000	£124,000
Pharmacology	£172,000	£89,000
Education	£144,000	£51,000
Politics	£133,000	£77,000
Maths	£128,000	£169,000
Computing	£126,000	£112,000
Engineering	£123,000	£129,000
Nursing	£109,000	£23,000
Subjects allied to Medicine	£94,000	£51,000

²⁸ IFS (2021), The impact of undergraduate degrees on lifetime earnings.



Chemistry	£93,000	£91,000
Physics	£81,000	£13,000
History	£72,000	£74,000
Communication	£65,000	£12,000
Technology	£62,000	£53,000
Social Care	£60,000	-£33,000
Sociology	£59,000	£15,000
Geography	£57,000	£98,000
Psychology	£52,000	£18,000
English	£41,000	£2,000
Architecture	£39,000	£102,000
Biosciences	£36,000	£26,000
Physical Sciences	£31,000	£1,000
Philosophy	£23,000	£15,000
Agriculture	£21,000	-£22,000
Languages	£13,000	£61,000
Creative Arts	-£5,000	-£94,000

Source: Source: IFS (2021), The impact of undergraduate degrees on lifetime earnings.

Similarly, each degree qualification has on average a different impact on Government Revenue, as analysed in the IFS study on the returns from degrees. The Exchequer Revenue by degree type is set out in Table 10.2.

Table 10.2 Exchequer Revenue

	Women	Men
Medicine	£260,000	£515,000
Economics	£219,000	£544,000
Law	£195,000	£265,000
Politics	£111,000	£175,000
Business	£98,000	£171,000
Maths	£84,000	£224,000
Pharmacology	£77,000	£46,000
Engineering	£75,000	£134,000
Computing	£62,000	£111,000
Education	£53,000	£15,000
Physics	£32,000	£24,000



Subjects allied to Medicine	£30,000	£56,000
Chemistry	£28,000	£107,000
History	£23,000	£117,000
Nursing	£18,000	-£21,000
Geography	£12,000	£160,000
Technology	£8,000	£46,000
Communication	£4,000	-£12,000
Sociology	£3,000	£17,000
Psychology	-£2,000	£8,000
Social Care	-£12,000	-£83,000
Biosciences	-£13,000	£24,000
English	-£14,000	-£10,000
Architecture	-£19,000	£114,000
Philosophy	-£21,000	£70,000
Agriculture	-£23,000	-£21,000
Physical Sciences	-£28,000	-£15,000
Languages	-£31,000	£124,000
Creative Arts	-£49,000	-£111,000

Source: IFS (2021), The impact of undergraduate degrees on lifetime earnings.

It was assumed that the gender split of graduates by subject was in line with the UK average gender split by subject²⁹.

10.3.2 Enterprise and Innovation

Licensing

One of the ways in which research is translated into economic activity is through licensing agreements with industry. These give companies the legal right to use technology or intellectual property developed at the University of Bath in order to generate additional sales, reduce costs or otherwise improve productivity.

The relationship between royalties paid for a technology and the associated turnover depends on the details of licensing agreements which can vary considerably depending on how much the intellectual property is worth to the prospective licensee. These discussions are often guided by the '25% rule' which is based on an empirical study by the late Robert Goldschneider, first undertaken in the 1950s and updated in 2002³⁰. The study found that royalty rates were typically around 25% of

²⁹ HESA (2021) HE Qualifications obtained by CAH level 1 subject and sex

³⁰ R. Goldschneider et al (2002), Use of the 25 Per Cent Rule in Valuing IP



the licensee's profits, which represent around 5% of total turnover generated by the licensed technology.

These assumptions were then applied to the total income from licensing activity of £274,000.

Spin-outs and Start-ups

Spin-outs and start-ups are another way in which the research conducted at the University of Bath has an economic impact. The analysis relied on data on the number of start-ups and spin-outs supported by the University and their employment.

The next stage in estimating the impact of these start-ups was to multiply their employment by the ABS' GVA per job ratios for the relevant economic sectors. As for other economic impacts, Type 1 and Type 2 UK multipliers were applied to the direct GVA and employment impacts to estimate indirect and induced GVA and employment impacts.

Incubator and Accelerators (SETsquared)

The economic impact from companies hosted at the University's incubating and accelerating facilities relied on data on the employment supported by those companies. Businesses were allocated to an industrial sector based on their Standard Industrial Classification codes.

It was then possible to estimate the direct GVA supported by multiplying employment by the GVA per job ratios for the relevant sectors. Indirect and induced impacts were estimated by applying Type 1 and Type 2 GVA and employment multipliers to the direct GVA and employment supported by incubated businesses.

10.3.3 Knowledge Exchange

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.

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.

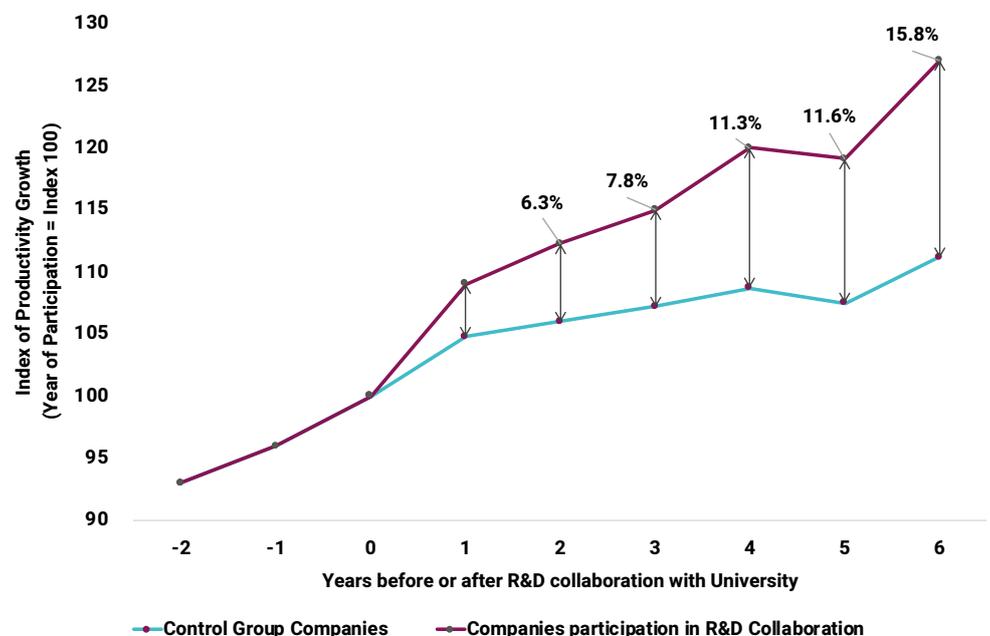
Research and development projects paid for by industry can have an impact on the economy in several ways. They can increase the productivity of staff employed by the company, enable the company to offer a new product or service that supports growth, or allow them to improve an existing product or service.



Impacts from an interaction with the University are not realised instantly or even within the first year afterwards. In 2012, Danish consultancy DAMVAD³¹ 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 10-2, 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.

Figure 10-2 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 Scotland³². The connections that Interface has made have covered a range of different types of engagement from small consultancy projects and access

³¹ DAMVAD (2012), Measuring the Economic Effects of Companies Collaborating with the University of Copenhagen.

³² BiGGAR Economics (2013), Evaluation of Interface, the knowledge connection for industry.



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 Reform³³ 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%.

Knowledge Transfer Partnerships

In estimating the impact generated by KTPs, only those KTPs completed within the last six years were considered. This covers 35 partnerships. To estimate the impact from these, the analysis relied on a study by Regeneris Consulting³⁴, which considered the returns from KTPs. The study found that on average each partnership supported three jobs and that on average a KTP in the UK generated £826,000 GVA. On this basis, it was possible to estimate the economic impact associated by each KTP at the University of Bath.

Student Placements

Students at the University of Bath also make an economic contribution by supporting the activities of those businesses where they are placed. 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 divided 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 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. Induced

³³ PriceWaterhouseCoopers, Impact of RDA spending – National report – Volume 1 – Main Report, March 2009, DBERR.

³⁴ Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review.



impacts were not estimated to avoid double-counting the impact of student spending, which is considered separately.

10.4 Operational Impacts

10.4.1 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) was estimated as the difference between income and non-staff operational costs.

10.4.2 Supply Chain Spending

To estimate the economic impact supported by expenditure on supplies, it was necessary to allocate the spending by the University of Bath 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.

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: Bath and North East Somerset; the West of England Combined Authority; and the UK.

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 Annual Business Survey.

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

10.4.3 Staff Spending Impact

The first step required to estimate staff impacts was to establish where the staff employed at the University of Bath lives. Based on this, it was then possible to allocate the payments made by the University to its staff across the three study areas considered in the study.

Assumptions were then made on where the staff living in each of the study areas would spend its salaries. For instance, it was assumed that staff living in Bath and North East Somerset would spend 33% of its wages in Bath and North East Somerset, 50% in the West of England Combined Authority and 95% across the UK. In this way, it was possible to estimate the spend taking place across each study area.

Before applying turnover per GVA and turnover per job ratios, the spending was discounted by 8%, the share of households' income spent on Value Added Tax



according to a 2013 study carried out by the European Commission³⁵. This was necessary since the ABS data are exclusive of taxation.

Indirect and induced impacts were estimated by applying the relevant Type 1 and Type 2 GVA and employment multipliers.

10.4.4 Capital Spending

The University of Bath also makes 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 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 a ten-year average of capital expenditure over the period between 2015 and 2025. In this way, it was estimated that on average the University and its academic partners spend a total £44.9 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. It was estimated that on average 77% 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.

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 and the manufacturing sector.

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

10.4.5 Student Spending

Students at the University of Bath 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 of Bath. Based on the data received from the University, it was estimated that 16,605 students were studying full-time at the University.

³⁵ European Commission (2013), A study on the economic effects of current VAT rate structures.



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 Education³⁶. The study sets out student expenditure for students living in different parts of the country and across different accommodation types. The analysis of student spending was based on data for non-London England.

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 ABS are exclusive of VAT.

Students were then allocated across the type of accommodation where they lived, based on the University of Bath's records. 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.

The analysis of student impacts has considered the effects of the Covid-19 pandemic. As a result of the lockdown enacted in late March 2020, it was assumed that students at the University of Bath during 2019/20 spent five months on campus, compared with 8.6 months in a typical year.

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.

10.4.6 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. First the number of full-time students was weighted by 34%, the share of students who work part-time during their studies³⁷. From this total, it was necessary to subtract the number of students that worked for the University of Bath.

Based on an NUS study, it was assumed that students worked on average 14.2 hours every week³⁸. It was also assumed that part-time work took place where students lived during term time and that the sectors that typically employ students in a part-

³⁶ Department for Education (2018), Student Income and Expenditure Survey 2014 to 2015.

³⁷ National Union of Students (2010), Still in the Red: Student Finances in 2010.

³⁸ Office for National Statistics (2020), Labour Force Survey, Table A06 SA: Educational status and labour market status for people aged 16 to 24 (seasonally adjusted) – Nov 2019.



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 ABS. To estimate indirect impacts, Type 1 UK 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.

As for student spending, the limited time spent by students on campus in 2019/20 as a result of the Covid-19 pandemic was considered.

10.4.7 Student Volunteering

Students at the University of Bath 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.

A UK-wide study by the NUS³⁹ on student volunteering estimates that around 33% of students volunteer at some point during their degree and that they volunteer for an average of 44 hours per year. Applying this to the total number of full-time students at the University of Bath implies that approximately 5,480 students at the University volunteered throughout the year, contributing a total of 241,105 hours. Based on the location of students, it was estimated that 227,093 hours (94%) were spent helping charities in Bath and North East Somerset. To estimate the total economic impact from student volunteering, volunteering hours were then multiplied by £7.70, the minimum wage for 21-24 year olds.

³⁹ NUS (2014), The Student Volunteering Landscape, Key Findings



As for student spending and part-time work, the limited time spent by students on campus in 2019/20 as a result of the Covid-19 pandemic was considered

10.4.8 Visitor Impact

Visitor impacts include both the activity associated with visits from friends and relatives of students and staff at the University of Bath as well as those from conferences and events organised by the University.

To estimate these impacts, it was first necessary to identify the total number of visits. This was done by applying the ratio of total VFR trips in Somerset to its population and applying that to the total staff and student population. Applicant days and open days were then added to estimate the total number of visits associated with the University.

Spending was then estimated on the basis of whether the visits were domestic day visits (open days and applicant days) or VFR domestic trips. Additionality factors were applied to account for the fact that some of these trips could have occurred anyways. Economic ratios and multipliers were then applied to estimate the GVA and employment supported by visitors' spend.



11. Appendix B – Economic Impact in Wiltshire and Swindon

The University of Bath also has an economic impact in the neighbouring areas of Wiltshire and Swindon.

In total, it was estimated that in 2019/20 the University of Bath generated:

- £53 million GVA; and
- supported 360 jobs in Wiltshire and Swindon.

Most of this impact is associated with the Innovation and Enterprise activity of the University. The largest driver of impact is the Spin-out company Vectura Ltd, which is based in Wiltshire.

Table 11-1 Total Economic Impact of the University of Bath 2019/20, Jobs

Impacts	GVA (£m)	Jobs
Direct	-	-
Supply Chain	1	20
Staff Spending	3	70
Capital Investment	0	-
Student Spending	1	10
Student Employment	0	10
Student Volunteering	0	-
Tourism and Visitor Economy	-	-
Total Operational Impact	5	120
Graduate Productivity	12	-
Continuing Professional Development	0	-
Student Placement	1	10
Services to Business	1	-
KTP	0	-
Innovation and Enterprise	33	230
Total Purposeful Impact	48	250
Total Impact	53	360





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