

University of Surrey Economic Impact 2018/19

A report to the University of Surrey
December 2020





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1.

Executive Summary

The University of Surrey creates a significant and growing impact on the economy of Guildford, Surrey and beyond.

In the academic year 2018/19, the University of Surrey generated:

- £1.0 billion GVA and 12,230 jobs in the Borough of Guildford;
- £1.2 billion GVA and 14,490 jobs in the County of Surrey; and
- £1.8 billion GVA and 19,430 jobs across the UK.

In 2018/19 the University of Surrey contributed £5.83 Gross Value Added (GVA) to the UK economy for every £1 of income and 6 jobs for each employee

The core activities of the University, including its core employment, supply chain spending, staff spending and capital investment, contribute £434 million Gross Value Added (GVA)¹ to the UK economy and support 6,590 jobs, of which 3,080 are directly employed by the University. This is significant but represents less than a quarter of the overall impact of the University, the vast majority of which comes from the University's education, research and innovation activity.

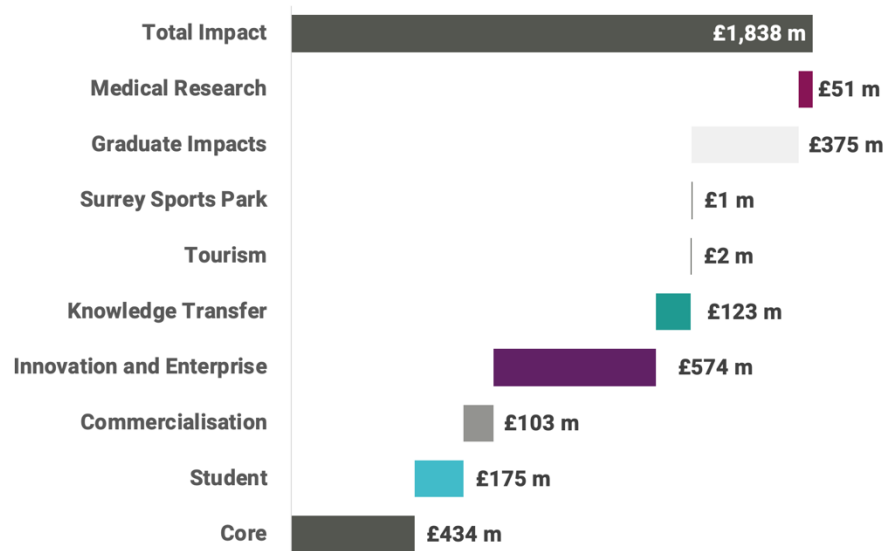
The largest economic contribution made by the University of Surrey comes from its innovation and enterprise activities, which generate £574 million GVA for the UK economy and support over 6,370 jobs. This includes the support ecosystem offered by the University for innovative businesses including incubators and accelerators for start-up companies, funding through the S100 Club and the Surrey Research Park.

Students at the University of Surrey contribute £175 million GVA to the UK economy through their spending, part-time work and volunteering activities. The largest impact from students occurs after they graduate when the teaching and wider experience of the University enable them to be more productive than they otherwise would have been. The cohort of graduates that left the University in 2018/19 is expected to realise this through a graduate earnings premium of £375 million over their working lives.

¹ Gross Value Added (GVA) is a measure of the monetary contribution that the University adds to the economy through its operations calculated by subtracting non-staff related expenditure from total turnover



Figure 1-1 UK GVA Impact by Source



Source: BiGGAR Economics Calculations

Through its knowledge transfer and commercialisation activities, the University makes a further significant contribution to the economy, generating a combined impact of £226 million GVA throughout the UK.

The quantifiable economic impact of the University of Surrey has grown by 6% in the two years since the previous study in 2016/17.

The economic impact of the University of Surrey has increased by 6% in two years, with GVA growing by £97m and jobs increasing by 1,630 since 2016/17.

The economic impacts of the University of Surrey extend beyond quantifiable measures. Wider economic benefits include:

- its leading contribution to the development of revolutionary 5G technologies in the UK through the 5G Innovation Centre;
- improved health outcomes and support to MedTech businesses, extending the impact of the University's medical research expertise in areas of growing need such as diabetes management and dementia care;
- its business support and innovation ecosystem that nurtures early stage businesses to grow to their full potential;
- commercialisation of research through the creation of spin-out businesses; and



-
- research that leads to improved cybersecurity for individuals and companies to enhance their protection against financial fraud.



2.

Introduction

This report presents the findings of an economic impact study of the University of Surrey during the academic year 2018/19, undertaken by BiGGAR Economics.

2.1 University of Surrey

The University of Surrey is one of the UK's leading higher education institutions and was established in 1966 with the grant of its Royal Charter. The history of the University of Surrey dates back to the late 19th century when the Battersea Polytechnic Institute was established to provide greater access to further and higher education for the poorer inhabitants of London.

Over the past 50 years, the University has grown considerably and now has 17,000 full-time and part-time students, employs 3,100 members of staff and generates a turnover of £315 million. The University of Surrey is a leading research-intensive institution and was ranked 26th in the UK in the Guardian University Guide 2020, as well as achieving a Gold rating in the Teaching Excellence Framework. The University was also ranked 7th in the UK in the Times Higher Education Student Experience Survey 2018.

The University of Surrey has a strong reputation for Electrical and Electronic Engineering (including transportation, aerospace and telecommunications), Hospitality and Tourism, Nursing and Veterinary Sciences and is particularly well known for its pioneering work in space and satellite technology. Leading research has also been undertaken in vital fields such as AI and machine learning, clean air and safe water, sustainable energy, food and nutrition, disease control, digital health and 5G technology.

2.2 Approach

2.2.1 Metrics of Quantitative Analysis

The key objective of this study is to describe and, where possible, quantify the contribution that the University of Surrey makes to the local, regional and UK economies. Quantifiable economic effects were assessed using two widely accepted measures of economic impact:

- Gross Value Added (GVA): measuring the monetary contribution that the University adds to the economy through its operations; and
- Employment: measured in terms of total jobs supported, unless stated otherwise.



The quantitative impacts described in this report are likely to underestimate the full value of the contribution that the University of Surrey makes to the economy as the monetary figures fail to capture the full value of many types of activity. For this reason, this assessment also highlights various examples of the wider, unquantifiable contributions that the University generates for the local, regional and UK economy.

2.2.2 Study Areas

This study considers the economic contribution that the University of Surrey makes to:

- the Borough of Guildford;
- the County of Surrey; and
- the UK.

Throughout the report, unless otherwise stated, the impact in the UK is inclusive of the impact in the County of Surrey and the Borough of Guildford.

Whilst this study quantifies the University's economic impact in the UK, the University of Surrey also has a number of international activities which have impacts on the wider, global economy. This includes the academic partnership between the University of Surrey and Dongbei University of Finance and Economics in China (SII-DUFE) and the University's membership in the University Global Partnership Network (UGPN).

2.2.3 Economic Assumptions

The starting point for assessing each source of impact is the scale of activity undertaken and its location, which was provided by the University. In some cases, it was necessary to supplement this data with assumptions, for example on the student cost of living, or, where University data was not available, with assumptions based on similar institutions such as the proportion of contract research clients in each study area. Assumptions used are set out in each section of the report.

In addition, each area of impact requires the use of three types of economic assumptions:

- turnover to GVA ratio – this is used to estimate the direct GVA impact of spend in an area and is obtained from the Annual Business Survey;²
- turnover per employee – this is used to estimate the direct employment impact of the spend in each of the study areas. This is obtained from the UK Annual Business Survey; and
- GVA and employment multipliers – these are used to estimate the indirect impacts, arising from spending in the supply chain, and induced impacts (as a result of staff spending). These multipliers have been based on those published in the Scottish Government's Input-Output tables.³ These multipliers have been

² ONS (2020), UK Annual Business Survey 2018.

³ Scottish Government (2020), Input-Output Tables 2016.



adapted to each of the study areas to reflect the comparative size of the economy in that area.

2.3 Report Structure

The remainder of this report is structured as follows:

- section three considers the core impacts of the University;
- section four covers the impacts associated with students;
- section five quantifies learning impacts;
- section six sets out commercialisation related impacts;
- section seven discusses and quantifies impacts associated with innovation and enterprise activities;
- section eight covers business engagement related impacts;
- section nine highlights the impact of the University on the health and medical industry;
- section ten quantifies impacts on the tourism economy;
- section eleven considers the role of Surrey Sports Park; and
- section twelve summarises the total impacts and compares the findings with previous years.



3.

Core Impacts

This section considers the economic impacts associated with the University of Surrey’s core activities. This includes its spending on supplies and capital, and the expenditure carried out by its staff.

3.1 Direct Impact

The direct impact of an organisation is the economic impact that is associated with its core activities. It is the contribution to economic activity that the organisation can entirely claim as its own. This is usually estimated in terms of the Gross Value Added (GVA) by that organisation and by the headcount employment it supports.

In 2018/19 the University of Surrey generated a turnover of £315.3 million. To support its activities, the University spent around £77.6 million in goods and services (excluding capital expenditure). Over the same time period, the University of Surrey employed 3,079 people, equivalent to 2,812 FTEs.

The direct GVA of an organisation is typically considered to be equivalent to its turnover less its non-staff expenditure. In this way, it was estimated that the University of Surrey generated £237.7 million direct GVA and supported 3,079 jobs across Guildford, Surrey and the UK.

Table 3-1 Direct Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	237.7	237.7	237.7
Employment	3,079	3,079	3,079

Source: BIGGAR Economics Analysis

3.2 Supply Spending Impact

The University of Surrey has also an economic impact through its spending on goods and services. This expenditure benefits those businesses where purchases take place and, in this way, supports their turnover and employment.

It was estimated that in 2018/19 the University of Surrey spent £77.6 million in goods and services. Around 8% of this expenditure took place in businesses located in Guildford, 16% in those operating in Surrey and 94% in UK-based businesses.

In addition, based on available information from the previous modelling of the University’s spending on supplies, it was estimated that ‘professional and bought in



services' (28%), 'computer supplies and services' (13%) and 'utilities' (9%) accounted for half of the supply spending. To estimate the economic impact generated by the expenditure across different sectors of the economy, supply spend was allocated to the industries where it took place, based on the level-2 ONS Standard Industrial Classification (SIC)⁴ codes.

To estimate the direct economic impact from spending on supplies, it was necessary to divide the expenditure taking place in each study area and sector by the turnover per GVA and turnover per job for the relevant sector. In addition to these direct impacts, the analysis required to account for indirect and induced impacts. Indirect impacts capture the effects of the spending taking place across the supply chains of those businesses benefitting from contracts from the University of Surrey. Induced impacts involve the spending carried out by the employees of the companies that work for the University of Surrey. Indirect and induced impacts were estimated by applying Type 1 and Type 2 multipliers to the direct GVA and employment generated by the University of Surrey's spending on suppliers. These were weighted according to the size of the economic area considered.

Summing these impacts together, it was estimated that in 2018/19 the University of Surrey through its supply spending generated £3.3 million GVA and supported 50 jobs in Guildford, £7.6 million GVA and 118 jobs in Surrey and £57.3 million GVA and 902 jobs across the UK.

Table 3-2 Supply Spending Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	3.3	7.6	57.3
Employment	50	118	902

Source: BiGGAR Economics Analysis

3.3 Staff Spending Impact

The staff working for the University of Surrey make an economic contribution through their spending on goods and services. This, in turn, benefits those businesses from which households make purchases.

The starting point in estimating the impact of this spending was to establish where the staff working for the University live. It was estimated that in 2018/19 around 33% of the staff lived in Guildford, with another 28% living in Surrey and a further 38% elsewhere in the UK. Staff received from the University of Surrey a total £169.9 million, including salaries, wages and social security and pension contribution or to estimate the impact of the spending by staff members, it was further necessary to make assumptions on where staff spent its salaries and wages. For instance, it was assumed that those living in Guildford spent 33% of their salaries in Guildford, 74% in

⁴ Office for National Statistics (ONS) (2009), UK Standard Industrial Classification of Economic activities 2007 (SIC 2007).



Surrey and 93% across the UK. Assumptions on staff spending are presented in the staff spending matrix of Table 3-3.

Table 3-3 Staff Spending Matrix, University of Surrey 2018/19

Where Staff Live...	Where Staff Spend...		
	Guildford	Surrey	UK
Guildford	33%	74%	93%
Surrey	10%	74%	93%
UK	10%	20%	93%

Source: BiGGAR Economics Analysis

This was then discounted by 8%, the share of household spending devoted to VAT according to a study by the European Commission⁵. It was necessary to exclude spending on VAT, since data from the UK Annual Business Statistics (ABS) is exclusive of taxation.

The total spending taking place in each study area was divided by the average turnover per GVA and turnover per job ratios for a range of sectors where household spend occurs. To estimate GVA and employment indirect and induced impacts, Type 1 and Type 2 GVA and employment multipliers were applied in a similar way as in the previous section.

In this way, it was estimated that staff working at the University of Surrey through their expenditure in the economy generated £12.1 million GVA and supported 238 jobs in Guildford, £44.5 million GVA and 887 jobs in Surrey and £109.2 million GVA and 2,207 jobs across the UK.

Table 3-4 Staff Spending Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	12.1	44.5	109.2
Employment	238	887	2,207

Source: BiGGAR Economics Analysis

3.4 Capital Spending Impact

The University of Surrey also has an economic impact through its spending on capital projects. These include purchases of durable goods (e.g. IT and non-IT equipment) and the construction of new buildings. Given the type of spending, expenditure on capital tends to fluctuate over time. For instance, in 2018/19, the University of Surrey spent £70.1 million in capital projects, of which around £25

⁵ European Commission (2013), A study on the economic effects of the current VAT rates structure.



million went towards the construction of new student accommodation. In 2015/16, spending on capital was considerably lower at around £40 million.

To account for these fluctuations, a ten-year average over the period 2014/15 to 2023/24 was estimated. During this period the University will spend an average of £45.4 million per annum on capital. Spending was then allocated to each study area following the same assumptions used to determine the location of expenditure on supplies.

To estimate the direct employment and GVA, the turnover in each sector and study area was multiplied by the relevant turnover per GVA and turnover per job ratios. Indirect and induced impacts were estimated applying Type 1 and Type 2 GVA and employment multipliers to direct impacts.

In this way, it was estimated that capital spending by the University of Surrey generated £1.5 million GVA and 21 jobs in Guildford, £3.7 million GVA and 50 jobs in Surrey and £29.9 million GVA and 401 jobs in the UK.

Table 3-5 Capital Spending Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	1.5	3.7	29.9
Employment	21	50	401

Source: BIGGAR Economics Analysis

3.5 Summary of Core Impacts

Summing the impacts associated with its core activities, it was estimated that in 2018/19 the University of Surrey generated £254.5 million GVA and supported 3,388 jobs in Guildford, £293.4 million GVA and 4,134 jobs in Surrey and £434.1 million GVA and 6,590 jobs across the UK.



Table 3-6 Summary of Core Impacts, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
Direct Impact	237.7	237.7	237.7
Supply Spending Impact	3.3	7.6	57.3
Staff Spending Impact	12.1	44.5	109.2
Capital Spending Impact	1.5	3.7	29.9
Total	254.5	293.4	434.1
Employment			
Direct Impact	3,079	3,079	3,079
Supply Spending Impact	50	118	902
Staff Spending Impact	238	887	2,207
Capital Spending Impact	21	50	401
Total	3,388	4,134	6,590

Source: BiGGAR Economics Analysis *Totals may not add up due to rounding



4. Student Impacts

This section estimates the economic impact generated by the spending, part-time work and volunteering activities undertaken by students at the University of Surrey.

4.1 Student Expenditure

The University of Surrey attracts to Guildford and Surrey students from across the UK and beyond. These students, while at University, make an economic contribution to the local economy through their spending. This chapter considers the economic impact generated by full-time students, as part-time students are likely to have different spending profiles driven by their participation in the labour market.

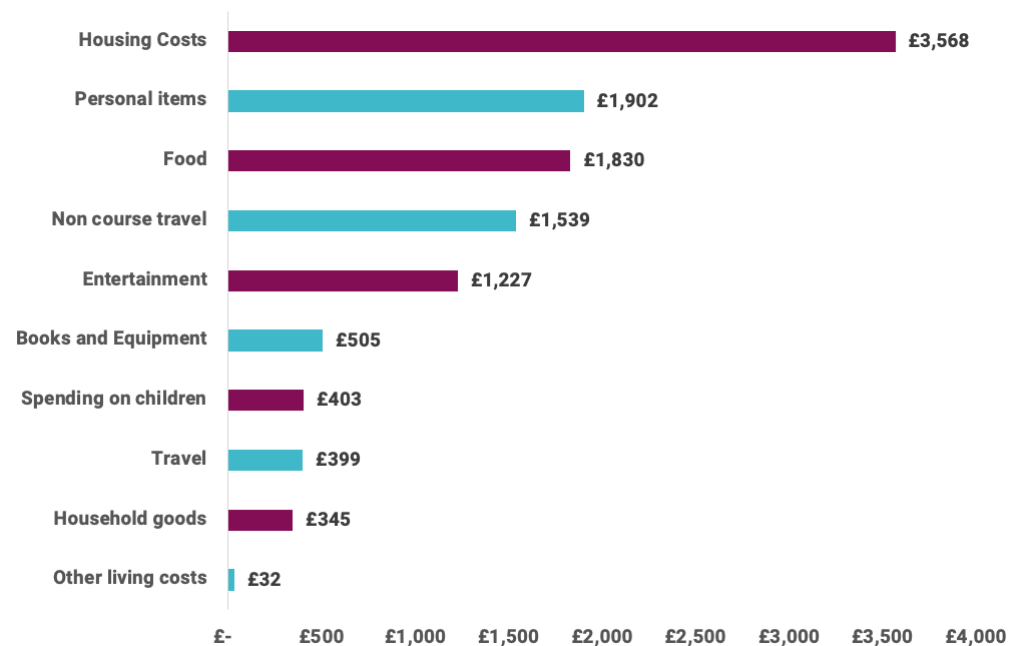
Based on data on students' domicile, it was estimated that in 2018/19, there were a total 16,864 full-time students at the University of Surrey, with 75% studying for an undergraduate degree and the remainder for a postgraduate award. Based on a post-code analysis of students' domicile, it was estimated that around 74% of students lived in Guildford and 80% in Surrey.

The estimation of student spending relied on the Department for Education's (DfE) 'Student Income and Expenditure Survey 2014 to 2015'⁶. This study surveyed the spending patterns of students during their studies, depending on their tenure and location. The expenditure survey found that a student in Non-London England spends on average £11,750 a year, with most of this spending being devoted to housing, personal items and food, as shown in Figure 4-1.

⁶ Department for Education (2018) Student Income and Expenditure Survey 2014 to 2015.



Figure 4-1 2014/15 Student Expenditure – Non-London England



Source: Department of Education (DoE) 2018, Student Income and Expenditure Survey 2014 to 2015

The spending from the DoE study was adjusted for inflation to take account of changes in the price level occurred since 2015⁷. Different items of spending were then discounted to remove VAT, where this applied. Student spending was then converted in weekly terms to account for the different time spent by undergraduate and postgraduate students at the University. Based on the 2020-21 academic calendar⁸, it was assumed that undergraduate students were on campus for around 30 weeks, whereas postgraduate students for 52 weeks.

To estimate students' expenditure, it was necessary to make a series of assumptions. Based on the information received, it was estimated that 38% of students lived in institution-maintained accommodation, 14% in parental accommodation and 48% in rented accommodation. It was necessary to account for students' tenure as this affects their expenditure. For instance, a student living in parental accommodation is expected to spend considerably less in housing than someone renting private accommodation. At this stage, expenditure on housing from students living in institution-maintained accommodation was not included as it was already counted as part of the University of Surrey's income.

Once total expenditure by accommodation type and study area was estimated, this was divided by the relevant turnover per GVA and turnover per job of the sectors where student expenditure took place. To estimate indirect and induced impacts,

⁷ University of Surrey (2020), Dates by Academic Year, 2020/21 Academic Year, available at: <https://www.surrey.ac.uk/about/facts/key-dates>

⁸ University of Surrey (2020), Dates by Academic Year, available at: <https://www.surrey.ac.uk/about/facts/key-dates>



Type 1 and Type 2 GVA and employment multipliers were applied to the direct GVA and employment estimates.

In this way, it was estimated that in 2018/19 full-time students at the University of Surrey through their expenditure contributed £53.6 million GVA and 1,078 jobs in Guildford, £66.3 million GVA and 1,285 jobs in Surrey and £105.8 million GVA and 1,925 jobs across the UK economy.

Table 4-1 Student Expenditure Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	53.6	66.3	105.8
Employment	1,078	1,285	1,925

Source: BIGGAR Economics Analysis



Kings College, Guildford

Intensive Outreach support from the University supported a rapid improvement in a local school

Surrey is a relatively affluent area that contains pockets of serious deprivation. The County has one of the highest levels of education inequality in England.

The University takes an active approach to encourage wider participation in higher education and has adopted a “whole institution” approach to the issue. It has a Widening Participation and Outreach department with a mission to increase the participation of students from underrepresented backgrounds in higher education and support their success during and after university.

The award-winning alliance it has formed with a local school, Kings College Guildford, illustrates how effective the University’s outreach work can be. In early 2017 the school was ranked as “well below average” and was put into special measures following an Ofsted inspection which rated it “inadequate” in several areas. In response, a new collaboration was announced between Kings College, Guildford Borough Council, the University of Surrey and the Royal Grammar School to improve standards. The University appointed a Widening Participation and Outreach Coordinator who worked at the school for four days each week. Their role was to:



-
- provide attainment and aspirations support to the school;
 - deliver a sustained programme of activities;
 - assess how the whole University could support the school;
 - involve undergraduates and postgraduates in school life; and
 - embed the University within the school.

A tailored Finding Our Futures programme was developed for each year group with cultural experiences, study support, family activities and university exchanges available for pupils in all years.

Just 18 months after the initial assessment, a follow-up Ofsted inspection reclassified the school as “good” with several indicators for attainment showing a dramatic improvement. By 2019, Kings College Guildford was ranked in the top 3% of most academically improved schools in England.

Its alliance with the University is continuing and it has embedded a series of excellence awards into the College’s culture which it presents in partnership with the University. This means that the improved educational outcomes of these pupils, and the resulting improved economic outcomes, will continue into the future.

4.2 Student Part-time Employment

Students at the University of Surrey also make an economic contribution through their part-time work. In this way, they contribute to the turnover of the businesses where they are employed, while they acquire work-experience and a series of transferable skills that will be useful in their future careers.

The available evidence on student part-time work suggests that around one in three⁹ students work part-time for an average of 14 hours a week¹⁰. To estimate the total number of students in part-time employment, the number of full-time students was multiplied by 33%. From the total number of students working part-time were then subtracted those students who worked for the University, as their impact had already been captured as part of the University’s core activities.

Most of the students working part-time were assumed to work in the retail and hospitality sectors. To estimate the total number of FTE jobs supported, the number of weekly hours worked by students in each sector were annualised based on the time they spent on campus. Annualised figures were then divided by the average number of hours worked in each of the sectors where students are employed.

⁹Office for National Statistics (ONS) (2016), Labour Force Survey Table A06: Educational status, economic activity & inactivity of young people: People aged 16 to 24 by educational status, economic activity and inactivity (not seasonally adjusted).

¹⁰National Union of Students (2010), Still in the Red: Student Finance in 2010.



However, not all of the employment supported by students was additional. That is, if they were not doing those jobs, somebody else would have. To estimate how much of the employment supported by students was additional, it was assumed that this would be negatively related to the unemployment rate among 16 to 24 years old¹¹. The Borough of Guildford, and the wider County of Surrey is a relatively affluent area and as a result the rate of youth unemployment (6.6%) is significantly lower than that of the wider UK (11.5%). Therefore, the part-time labour that students provide is particularly important for businesses in Surrey as they would find it difficult to fill these roles without them.

The number of additional jobs supported by students in part time work was then multiplied by the GVA per job for each sector where they worked to estimate the direct GVA. Indirect impacts were then estimated by applying Type 1 GVA and employment multipliers to direct GVA and employment estimates. Induced impacts were not considered, as the impacts from student spending have already been considered in the previous chapter.

In this way, it was estimated that students at the University of Surrey through their part-time employment generated £42.7 million GVA and 1,596 jobs in Guildford, £49.9 million GVA and 1,831 jobs in Surrey and £64.2 million GVA and 2,275 jobs across the UK.

Table 4-2 Student Part-Time Employment Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	42.7	49.9	64.2
Employment	1,596	1,831	2,275

Source: BiGGAR Economics Analysis

4.3 Student Volunteering

Students studying at the University of Surrey have also an economic impact through their volunteering activities. By supporting the activities of charitable organisations through their work, they allow those bodies to expand their operations. In addition, students benefit from their volunteering experiences through the acquisition of a range of soft and hard skills that will support them in their careers.

To estimate the economic impact generated by volunteering, it was first necessary to consider how many students volunteered during the academic year. Based on a study by the NUS¹², it was assumed that 33% of students participated in volunteering

¹¹Office for National Statistics (2020), Annual Population Survey Sept. 2018- Sept. 2019, Unemployment Rate 16-24 years old

¹² NUS Connect (2014), The Student Volunteering Landscape.



activities. These students volunteered on average 44 hours during the academic year¹³.

To estimate the economic impact of volunteering activity, it was necessary to translate the number of hours worked into equivalent FTE jobs. Having done so, employment was multiplied by around £20,000, the estimate of the UK charity sector GVA per employee, based on data from the UK Civil Society 2019 Almanac¹⁴. Type 1 GVA and employment multipliers from the 'social work activities without accommodation' sector were then applied to estimate indirect impacts.

In this way, it was estimated that students volunteering generated £3.3 million GVA and supported 12 jobs in Guildford, £3.7 million GVA and 24 jobs in Surrey and £5.3 million GVA and 60 jobs across the UK.

Table 4-3 Student Volunteering Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	3.3	3.7	5.3
Employment	12	24	60

Source: BiGGAR Economics Analysis

4.4 Summary of Student Impacts

It was estimated that in 2018/19 students at the University of Surrey through their expenditure, part-time employment and volunteering contributed £99.6 million GVA and 2,686 jobs in Guildford, £119.9 million GVA and 3,140 jobs in Surrey and £175.2 million GVA and 4,260 jobs across the UK.

¹³ NUS Connect (2014), The Student Volunteering Landscape.

¹⁴ National Council for Voluntary Organisations (2019), The UK Civil Society Almanac 2019.



Table 4-4 Total Student Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
Student Expenditure Impact	53.6	66.3	105.8
Part-Time Employment Impact	42.7	49.9	64.2
Student Volunteering Impact	3.3	3.7	5.3
Total	99.6	119.9	175.2
Employment			
Student Expenditure Impact	1,078	1,285	1,925
Part-Time Employment Impact	1,596	1,831	2,275
Student Volunteering Impact	12	24	60
Total	2,686	3,140	4,260

Source: BIGGAR Economics Analysis. *Totals may not add up due to rounding

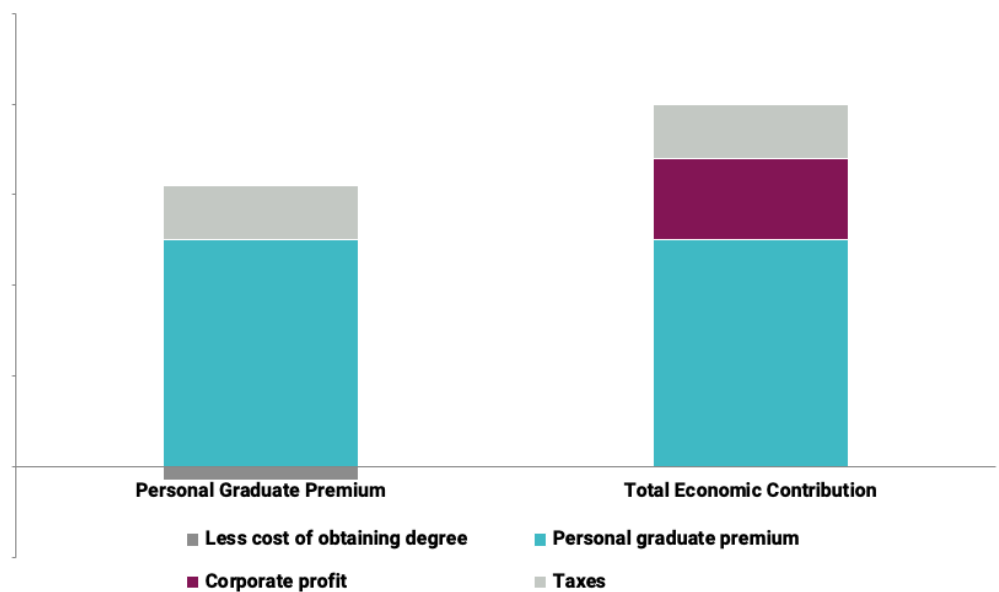
5. Learning Impacts

This chapter considers the economic impact associated with the graduate premium and the savings from students' participation in placements.

5.1 Graduate Premium

There are two aspects to the contribution that graduates create as a result of having a degree: the personal graduate premium and the total economic contribution. The difference between the two is illustrated in Figure 5-1.

Figure 5-1 Personal Graduate Premium Vs Total Economic Contribution



Source: BIS (2013), The Returns to Higher Education Qualifications

By completing their studies at university, graduates acquire skills that make them more productive than they would otherwise have been. The personal graduate premium includes the additional earnings that the graduate can achieve as a result of having their degree, plus the tax contribution that they make, less the costs they incurred in studying which is largely accounted for by student loans.

Graduates are also more likely to be employed than those without a university education. In 2017¹⁵, the employment rate of graduates in the UK labour market was 82%, compared to 78% for individuals with A-Level or equivalent qualifications. Therefore, the decision to go to university not only means that the graduates are more productive when they are employed, but they are also more likely to be in employment than individuals who chose not to go to university. Although not

¹⁵ ONS (2018) Graduates in the UK Labour Market 2017



quantified, the increase in labour market participation is also an economic benefit to the economy.

Beyond this, businesses that employ graduates become more profitable and can generate a greater economic impact than they would otherwise have done. The GVA and productivity gains that they realise include the additional profits that employers can generate by employing graduates and the additional employment costs they are willing to pay to generate these additional profits. Therefore, the total economic contribution includes the graduate premium plus the additional corporate profits and taxes that they in turn generate.

In this way, the total graduate premium gives the combined personal economic benefit that the year's graduates will obtain rather than the increase in national productivity associated with the degree, which will be higher. Therefore, it is an under-estimate of the total economic impact associated with increased graduate productivity as it does not include the corporate profit associated with each graduate as well as the taxes paid to the Treasury. For these reasons (as illustrated in Figure 6-1) the impact presented in this section is likely to underestimate the full impact that graduates from the University of Surrey generate for the UK economy.

5.1.1 The Graduate Premium and the University of Surrey

The University of Surrey has a strong focus on the employability of its students and works towards all of its students being as ready as possible for the workplace when they leave University. This includes programmes such as the industrial placement year, in which students are based with employers for a year as part of their degree and gain the skills that employers are looking for in a recruit. The University of Surrey is one of the leading UK institutions for integrated placements and half of the undergraduate level students will benefit from this programme.

The University, through its Employability and Careers team, also runs programmes within departments to bring employers in and give students an understanding of what is required to secure a job in their desired field. The Employability and Careers team also run specific programmes that are targeted towards students' groups that are disadvantaged when entering the workforce, such as BAME students, care leavers and estranged students.

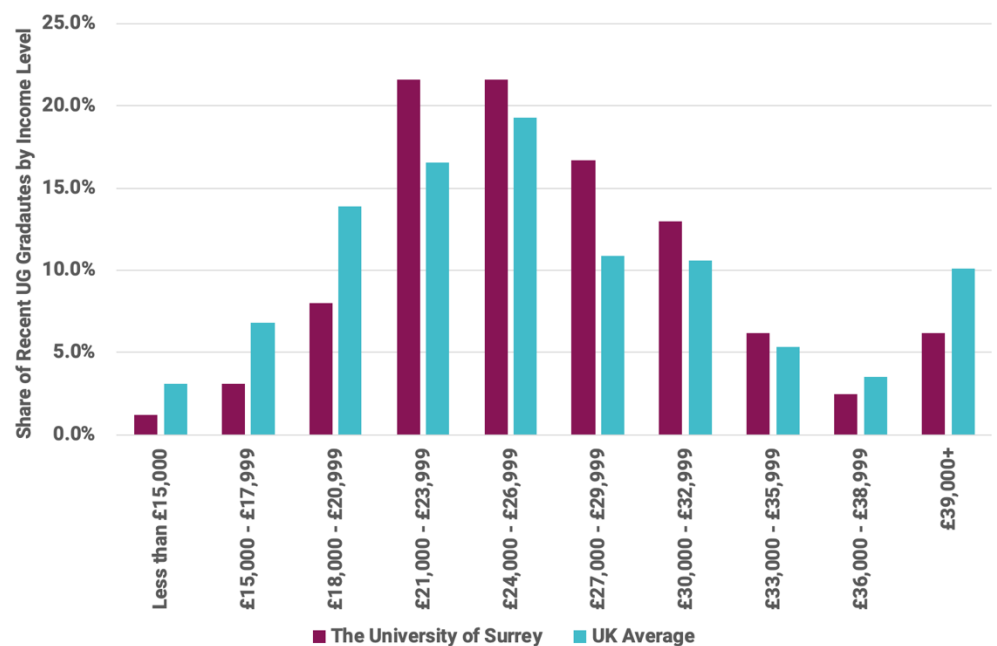
As a result, the outcomes for graduates of the University of Surrey are better than at other institutions. The Graduate Outcomes Survey¹⁶ found that of all the University's undergraduate, full-time leavers who had gone on to employment 84% had entered high skilled, graduate-level occupations in the years after graduation. The average across the UK is 71%.

The earnings of graduates of the University of Surrey are marginally higher than those of other institutions and graduates are significantly less likely to be low earners after graduation. Across the UK, 24% of recent graduates earn less than £21,000, however, only 12% of the University of Surrey graduates earn below this

¹⁶ HESA (2020) Graduate Outcome Survey 2017/18 Results

figure. The earnings bands of graduates are shown in Figure 5-2 for the University of Surrey and the UK. This shows that Surrey graduates earnings are much more concentrated than the UK average, with 43% of graduates earning between £21,000 and £27,000. University of Surrey graduates are less likely to be earning at the highest or lowest end of the spectrum than their peers across the UK. This is partly explained by the higher than average prevalence of students studying for healthcare-related professions who enter the NHS in these middle categories.

Figure 5-2 Recent Graduate Earnings, University of Surrey and UK



Source: HESA (2020) Graduate Outcomes Survey

5.1.2 Graduate Premium by Subject

The graduate premium is a well-researched subject. A comprehensive breakdown of graduate premium by subject is provided in a 2011 study by the Department for Business Innovation and Skills (BIS)¹⁷ which uses data from the UK Labour Force Survey between 1996 and 2009 (Figure 5-3). Despite the data being somewhat dated, evidence from the OECD¹⁸ suggests that the returns from higher education tend to remain constant over time.

The analysis considered the after-tax earnings of a graduate compared to the after-tax earnings of a non-graduate. Direct costs, such as tuition fees less student support, and indirect costs such as foregone earnings were then subtracted from the gross graduate premium for each degree subject to give the net graduate premium.

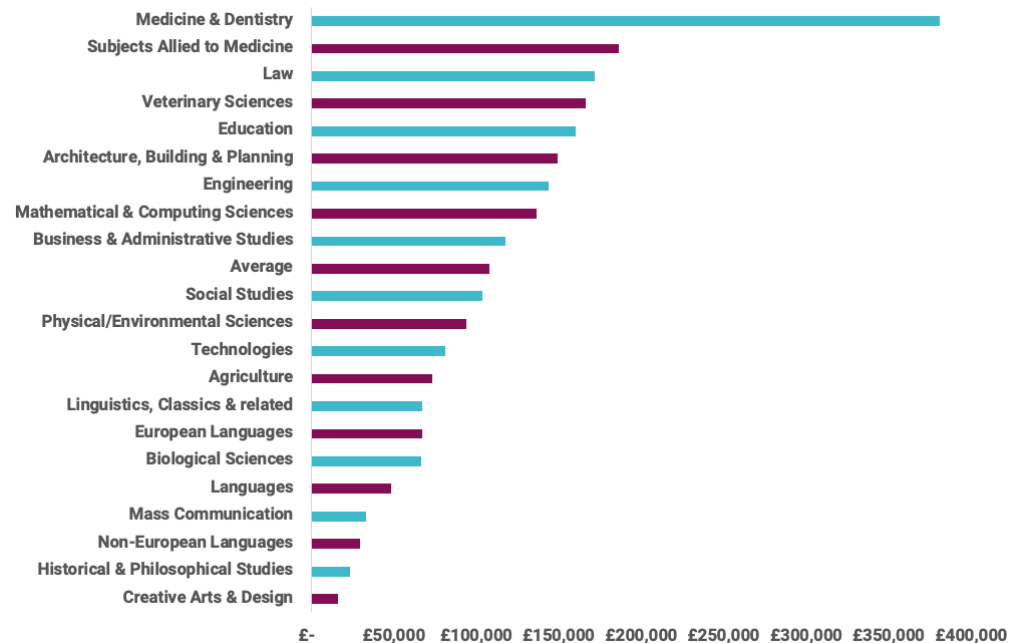
The research showed that the average premium for achieving a degree amounts to £108,121. However, there is considerable variation on the returns from getting a degree, depending on the subject studied. As a result, the graduate premium ranges

¹⁷ Department for Business, Innovation and Skills (2011), The Returns to Higher Education Qualifications
¹⁸ Education at a Glance, OECD Indicators series.



from between £380,604 for those studying Medicine and Dentistry, to £16,183 for those studying Creative Arts and Design.

Figure 5-3 Returns by Degree Subject Studied



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

5.1.3 Calculating the Graduate Premium

In 2018/19, 5,005 students graduated from the University of Surrey. Around 63% of graduates achieved an undergraduate degree, while the remaining 37% were awarded a postgraduate degree. Between 2016/17 and 2018/19 the number of undergraduate degrees awarded has increased by 15% and the number of postgraduate degrees awarded has decreased by 7%.

To estimate the graduate premium, the number of students achieving each degree offered at the University of Surrey was multiplied by that subject’s graduate premium. It was then necessary to consider where this impact would take place. The analysis relied on the same assumptions used in the previous report. These were based on an analysis of the Destination of Leavers from Higher Education (DLHE) survey responses. On that basis, it was assumed that around 95% of the University of Surrey’s UK domiciled graduates remain in the UK after graduation. Of these graduates, around 20% remain in Guildford, with a further 11% remaining elsewhere in Surrey. Approximately 20% of the University’s non-UK graduates remain in the UK after graduation. Those graduates were assumed to be as likely to live in any of the study areas as UK-graduates.

In this way, it was estimated that the total graduate premium of University of Surrey graduates was £77.3 million in Guildford, £122.9 million in Surrey and £373.5 million in the UK. This impact is a productivity gain measured in terms of GVA and consequently does not have associated employment impacts.

Table 5-1 Graduate Productivity Premium, University of Surrey

	Guildford	Surrey	UK
GVA (£ million)	77.3	122.9	373.5

Source: BIGGAR Economics Analysis

5.2 Cost Savings from Student Placements

The experience that students acquire during their placements means that they are often able to secure an offer of employment from the companies where they are placed. This has considerable advantages for those businesses, as they save both on recruitment costs and on the costs of developing the new recruits.

According to the Association of Graduate Recruiters (AGR), the average cost of recruiting a graduate in 2016 was £3,383¹⁹, and the average cost of developing a graduate was £2,963 (according to 2015 survey)²⁰. It was assumed that hiring a graduate that had already undertaken a placement would reduce recruitment costs by 50% and graduate development costs by 25%.

In this way, it was estimated that for each student on placement hired there could be around £2,400 in savings. It was estimated that in 2018/19 there were 1,250 students from the University of Surrey on professional placements in the UK. Based on a post-code analysis of the location of professional placements, it was estimated around 8% of these placements took place in Guildford, 17% in Surrey and the remainder elsewhere in the UK.

In this way, it was estimated that student placements saved to the companies where placements took place £0.1 million in Guildford, £0.2 million in Surrey and £1.0 million across the UK.

Table 5-2 Cost Savings from Student Placements, University of Surrey

	Guildford	Surrey	UK
GVA (£ million)	0.1	0.2	1.0

Source: BIGGAR Economics Analysis

5.3 Summary of Learning Impacts

The total economic impact associated with the learning impacts estimated in this chapter amounted to £77.4 million GVA in Guildford, £123.1 million GVA in Surrey and £374.5 million GVA across the UK.

¹⁹ The Association of Graduate Recruiters (2016), The AGR Annual Survey 2016.

²⁰ The Association of graduate Recruiters (2015), The AGR Annual Survey 2015.



Table 5-3 Summary of Learning Impacts, University of Surrey 2018/19

	Guildford	Surrey	UK
Graduate Productivity	77.3	122.9	373.5
Student Placements	0.1	0.2	1.0
Total	77.4	123.1	374.5

Source: BiGGAR Economics Analysis

6. Commercialisation

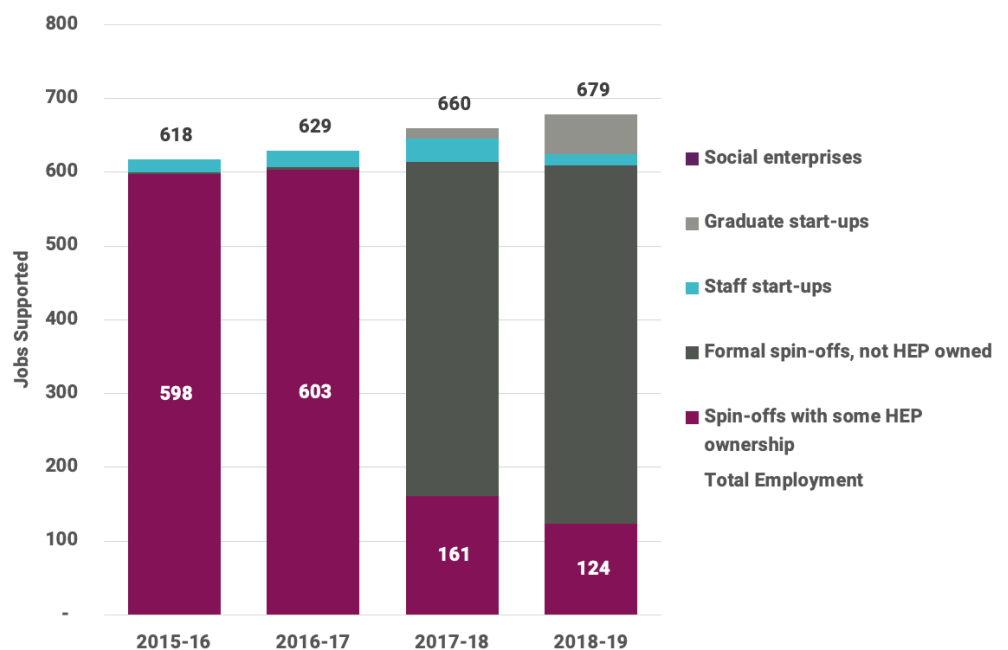
This chapter considers the economic impact generated by the commercialisation activities in which the University of Surrey engaged.

6.1 Spin-outs

The University of Surrey generates an economic impact also through its spin-outs. Through them, the University commercialises the research conducted by its academics. In 2018/19, there were 13 active staff start-ups, 47 active graduate start-ups and the University of Surrey owned share in 15 spin-out companies. These companies generated a total of £7.8 million in turnover. In addition, there were 6 spin-out companies which the University of Surrey no longer held any shares in, which had a turnover of £65 million.

There has been some change in the spin-out companies of the University of Surrey in the past two years. The overall level of employment in these companies have grown, from 618 in 2015/16 to 679 in 2018/19. However, there has been some significant disposals in this time, including Surrey Satellite Technology Ltd, and the employment in spin-out companies which have some University of Surrey ownership has reduced from 598 to 124.

Figure 6-1 Employment levels in affiliated Spin-out companies 2015 - 2019



Source: HESA (2020) Higher Education Business and Community Interaction Survey



The spin-outs that are quantified in this section are all of those listed in the HE-BCI return, not just those in which the University of Surrey retains some ownership. As a result, the economic activity from spin-out companies includes disposed companies such as Surrey Satellite Technology Ltd, which is based at the Surrey Research Park.

Based on the sectoral split of companies from the 2016/17 study and by applying the appropriate ratios and multipliers, it was estimated that the University of Surrey through its spin-outs generated £60.3 million GVA and supported 761 jobs in Guildford, £70.5 million GVA and 909 jobs in Surrey and £103.0 million GVA and 1,369 jobs across the UK.

Table 6-1 Spin-Outs Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£m)	60.3	70.5	103.0
Employment	761	909	1,369

Source: BIGGAR Economics Analysis

6.2 Licencing

The University of Surrey has also an economic impact through its licencing activity. It was estimated that in 2018/19 it generated around £0.6 million in licencing income. Most of this was generated by the Faculty of Engineering and Physical Sciences (52%) and by the Faculty of Health and Medical Sciences (47%). At the same time, only 2% of the licence holders were located in the UK.

The amount of royalties paid depends on the details of the licensing agreement and this can vary considerably from company to company. In order to agree on a licensing deal, negotiators must first form a view of how much the IP is worth to the prospective licensee. The '25% rule' is a general rule of thumb based on an empirical study first undertaken in the 1950s and updated in 2002. The study found that royalty rates were typically around 25% of the licensee's profits. This implies that royalties paid for a technology typically represent around 5% of the total turnover generated by that technology. In 2002, Goldscheider²¹ analysed the returns by industry and found that the royalties rate varied around the '5% rule' between 2.8% and 8.0%.

By applying an average royalty rate of 4.9%, based on the Goldscheider analysis, it was possible to estimate the increase in turnover that these technologies generate. This turnover was then converted into GVA and employment through appropriate ratios and multiplier effects.

In this way, it was estimated that through its licencing activity the University of Surrey generated £0.2 million GVA and supported three jobs across the UK.

²¹ Goldscheider et al, Use of the 25 Per Cent Rule in Valuing IP, December 2002.

Table 6-2 Licensing Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£m)	-	-	0.2
Employment	-	-	3

Source: BIGGAR Economics Analysis



Surrey Face Model

The University has structured its licencing pricing to ensure that SMEs can benefit from cutting edge software developments, such as the Surrey Face Model.

The Surrey Face Model consists of a multi-resolution principal component analysis model of face shape and colour information and allows the reconstruction of a 3D face from a single 2D image. Such models are used for 3D head pose estimation, face analysis, face recognition and facial landmark detection and tracking. It has applications for the security industry.

The 3D morphable face model was created at the Centre for Vision, Speech and Signal Processing at the University of Surrey. The Centre is an internationally recognised leader in audio-visual machine perception research with a diverse community of more than 150 researchers. It is one of the largest audio and vision research groups in the UK. Research in the Centre has led to award-winning spin-out companies in the biometric, communication, medical and creative industries.

The licencing approach has been designed to ensure that the maximum number of individuals can benefit from the software while recognising the value that this IP can bring to a company. A limited version of the Surrey Face Model is available free on GitHub for non-commercial purposes. Commercial licences are available on request through the Technology Transfer Office at the University. The pricing structure of the commercial licences is linked to the size of the company wishing to purchase it. This makes the licence more affordable for SMEs and start ups who can use the technology to develop their own products and services. SMEs in the UK have typically underinvested in research and development and therefore initiatives that support SME investment in innovation address a real need in the UK economy.

To date 17 licence agreements have been purchased to use the model, including 10 with commercial organisations. The majority of the commercial licences are SMEs.



6.3 Commercialisation Impacts Summary

It was estimated that through its commercialisation activities the University of Surrey generated £60.3 million GVA and supported 761 jobs in Guildford, £70.5 million GVA and 909 jobs in Surrey and £103.0 million GVA and 1,372 jobs across the UK.

Table 6-3 Commercialisation Impacts, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
Spin-outs	60.3	70.5	103.0
Licensing	-	-	0.2
Total	60.3	70.5	103.2
Employment			
Spin-outs	761	909	1,369
Licensing	-	-	3
Total	761	909	1,372

Source: BIGGAR Economics Analysis *Totals may not add up due to rounding

7. Innovation and Enterprise

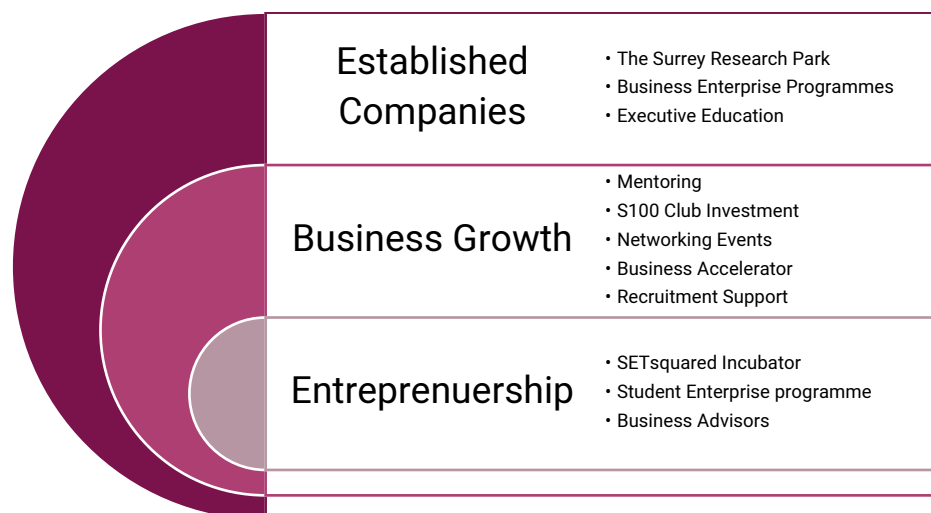
This section estimates the economic impact associated with the innovation and enterprise activities of the University of Surrey.

7.1 Ecosystem Approach

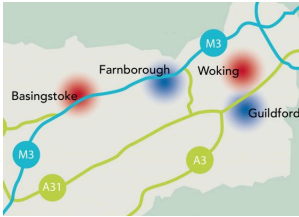
As a commercially-minded institution, the University of Surrey works to translate its research into real-world applications. The University offers a full ecosystem of support to start and grow new, innovative businesses. From encouraging student entrepreneurs and academics to consider spinning out their research, to incubating new start businesses through the award-winning SETsquared incubator and providing space for growing companies on the Surrey Research Park, the University offers a pathway of services and facilities to fully support innovation. The University's 5G Innovation Centre is a flagship facility that is leading the UK's research and development in 5G technology.

It is one of only two universities in the UK to be classed as a Top 55 Tech Challenger by the Times Higher education and all dimensions of the innovation support infrastructure at the University share a common goal of driving economic growth.

Figure 7-1 Innovation Ecosystem Services at the University of Surrey



The University recently set up an Innovation Strategy Team within the Vice-Provost Research and Innovation portfolio. This maximises the potential for innovative companies to grow from within the University. By having a greater focus on the University community and becoming more accessible to the innovations that the community generates, the Innovation Strategy Team aims to increase the number of ideas that enter the innovation ecosystem and grow to become successful businesses.



Digital Business Accelerator Hubs

The Digital Business Accelerator Hubs (DBAH) programme is a £2.4 million initiative for innovative digital SMEs with high growth potential.

Supported by the Enterprise M3 LEP, the DBAH is being delivered by the University of Surrey through SETsquared and local private and public partners. Funded through the ERDF, the programme aims to set up a network of four business acceleration hubs in Guildford, Woking, Basingstoke and Farnborough.

The DBAH programme is an example of the University working at different levels of a business's commercial life and providing specialist, targeted services to support growth at each stage. Digital and tech start-ups can receive funded access to two key stages of support:

- **Two-day entrepreneur's programme** – a fast track, interactive programme for entrepreneurs with an idea for a new technology product or service or those in existing high-tech companies who need to be boosted to the next level. It covers all the essential elements of starting a business such as getting to problem/solution fit stage, identifying the market opportunity and building a financial plan; and
- **One-year, fully-funded business acceleration support** – funded virtual membership of SETsquared's portfolio of business acceleration support services. This includes:
 - update meetings with a dedicated Entrepreneur in Residence;
 - a client portal with discounted deals on software/ service providers;
 - access to funding through a range of pitching opportunities at SETsquared's Investment Showcase Event and the S100 Angel Investment Cub;
 - business skills workshops;
 - access to a mentor programme;
 - member networking events; and
 - professional service clinics and workshops.

Running for three years, it targets digital SMEs (start-up and established) with high innovation and high growth potential and it has brought more companies through the University's incubator in recent times.



7.2 Incubator

The Surrey SETsquared incubator at the Surrey Technology Centre supports young businesses to get their products to market. Through this support, the businesses can commercialise their products, generate revenue and benefit the local and national economies.

The starting point in estimating the economic impact that is generated by the incubator was the turnover and the employment supported by the businesses hosted at the incubator. Based on data from the University of Surrey, it was estimated that the businesses at the Surrey Incubator employed 291 people and had a turnover of £12.4 million.

7.2.1 Adding Value through the SETsquared Partnership

The SETsquared incubator was founded by the University in 2002 and is ranked in 1st place globally for university business incubators. It is a collaboration between the Universities of Bath, Bristol, Exeter, Southampton and Surrey. SETsquared Surrey has over 17 years' experience of supporting and accelerating tech start-ups and, since inception, it has helped over 250+ early-stage technology companies with 82% of them still trading. Research suggests that companies supported by an incubator are significantly more likely to succeed.

Based at the Surrey Technology Centre on the Surrey Research Park, SETsquared offers dedicated advisors who nurture businesses to grow by analysing their individual business strategies and prioritising development needs, signposting to a suite of support services where relevant and connecting new start-ups to a network of businesses and services across the region. Advice on Intellectual Property rights and licensing is available from the technology transfer team.

Its portfolio of assistance includes access to a flexible office environment which offers businesses an immediate start, advice and support with funding such as the DBAH Programme (see separate case study), business skills workshops, business mentoring, professional service clinics, masterclasses and events. Membership of the incubator also brings unique and significant access to the University's research insights and facilities, including its centres of excellence and its support programmes such as the SPRINT, BlockStart, and Scale-Up schemes. Access to finance is available through the University's angel investment network, the S100Club.

7.2.2 Measuring the Value Added

Applying a similar methodology as in the 2018 study, 73% of the businesses were assumed to be physically located at the incubator, whereas the remainder 27% were assumed to receive virtual support. The additionality of the economic impact generated by these two groups of businesses was assumed to be 50% and 25% respectively.

In this way, it was estimated that through its incubators in 2018/19 the University of Surrey generated £3.3 million GVA and supported 146 jobs in Guildford, £3.6 million GVA and 163 jobs across Surrey and £4.4 million GVA and 200 jobs across the UK.



Table 7-1 Incubators Impact, University of Surrey 2018/19

	Guildford	County of Surrey	UK
GVA (£m)	3.3	3.6	4.4
Employment	146	163	200

Source: BIGGAR Economics Analysis



Smart Separations

Support from SETsquared Surrey helped this award-winning microfiltration company to grow a team of 25 people in 3 years.

Smart Separations has developed a ceramic membrane that provides a more controlled, versatile, and low-cost microfiltration solution. Their microfilter is designed to filter out particles between 1 and 100 microns in size, from bacteria to pollen, using a robust ceramic material. Its unique manufacturing process allows the membranes to be tailored to a wide array of new systems and has the potential to dramatically reduce the waste associated with traditional disposable filters. Making use of a proprietary platform technology, the company has explored new ways to filter blood, water and air for use in air pollution reduction, cancer research and more, developing a new generation of microfilters.

It has applications for several industries, including indoor air purification and can be retrofitted to existing air ventilation units.

It joined the SETsquared incubator in September 2017 as a residential member and took up lab space the following year at the Surrey Research Park. In 2018, Smart Separations was one of only two UK SMEs to receive up to £2.2 million in funding from the European Innovation Council (EIC) pilot to help with demonstration, testing, piloting and scaling up their business. They also benefitted from business coaching and business acceleration services at this time. In the same year, the company established a wholly-owned subsidiary in Portugal and later received grant funding from the NORTE2020 programme to help bring its product to market. The company moved to a larger lab on the Surrey Research Park in 2019.

The company’s founder and CEO, Hugo Macedo has highlighted the importance of the support they received from the SETsquared Partnership.

“SETsquared came at a very crucial time. Through SETsquared I have been receiving coaching support which has helped me to refine our strategy and to understand



better where we want to go. Over these last two years, it’s been a great experience to be working with people in SETsquared and alongside other likeminded entrepreneurs. I believe that this has played an especially important role in this journey.”

The company’s growth has been rapid. As it approached its first year on the Research Park in 2018, Smart Separations had a staff complement of nine employees, growing to 17 the following year and 25 employees by mid-2020.

7.3 S100 Club

The University contributes towards fostering innovation also through the S100 Club. With links to the other University initiatives on enterprise and innovation – Surrey Research Park and SETsquared – the S100 Club is an Angel Investment network. This matches entrepreneurs who need funding to start or develop their business ideas or products with investors, who then take a stake in the company. Entrepreneurs are offered with the opportunity to pitch their ideas to an audience of investors.

Given the level of employment and economic activity supported in 2016/17, it was estimated that in 2018/19 the S100 Club supported employment of £1.4 million GVA and 19 jobs in Guildford, £1.6 million GVA and 23 jobs in Surrey, and £2.2 million GVA and 32 jobs in the UK.

Table 7-2 S100 Club Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£m)	1.4	1.6	2.2
Employment	19	23	32

Source: BIGGAR Economics Analysis

7.4 Surrey Research Park

The Surrey Research Park is a University of Surrey Enterprise which received its first tenants on site in 1985. Since then it has grown to become one of the most prestigious and successful research parks in the UK, offering support for all businesses from including incubator spaces and research and development opportunities.

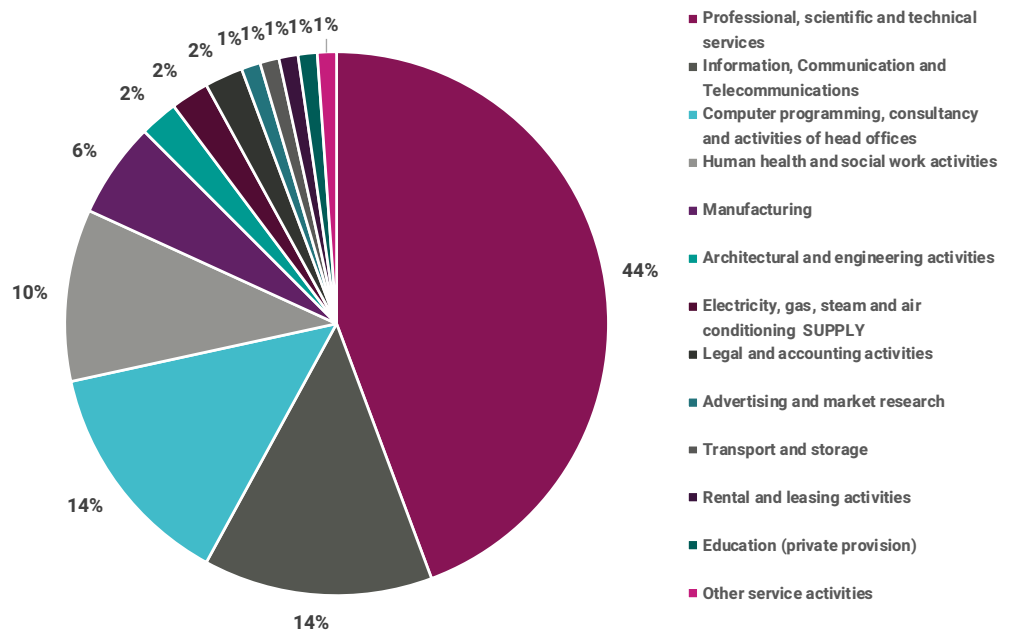
A Health Tech Accelerator is due to open on the Research Park in 2021. As an initiative funded by the Enterprise M3 LEP, the £3.8m project will offer health tech companies an exceptional combination of facilities and access to a “Digital Ward – living laboratory” where new products can be tested and designed.

This section focuses predominantly on the quantifiable economic impact generated by the Research Park and excludes impacts associated with the incubator and accelerator facilities on-site.

In 2018/19, excluding incubator and accelerator tenants, a total of 93 companies were based at the Surrey Research Park. Of these 93 companies, 3 were spin-outs from University-related activities and have therefore been excluded from this section of the analysis to avoid double counting with the previous section.

The Surrey Research Park is accessible for companies working in all economic sectors but is targeted particularly towards those working in the fields of technology, science, health and engineering. As shown in Figure 7-2, businesses in these sectors account for the majority of companies located at the park with 44% working in professional, scientific and technical services, 14% in information, communication and telecommunications, 14% in computer programming, consultancy and head office activities and 10% specialising in human health and social work activities.

Figure 7-2 Companies Based at the Surrey Research Park by Economic Sector, 2018/19



Source: BiGGAR Economics Analysis

By applying economic ratios and multipliers to each company, appropriate to its economic sector, it was possible to estimate the economic impact of companies located on the Research Park. The Surrey Research Park also provides business accommodation space that otherwise would not be available in the area, therefore without the presence of the science park, there would be a lack of businesses locating to the region as it would be more difficult to find suitable premises. As a result, it was necessary to make assumptions about the additionality of the Research Park and it was assumed that 100% of jobs at the Surrey Research park would be additional to Guildford and Surrey and 80% would be additional to the UK.



7.5 Innovation and Enterprise Impacts Summary

Adding up the impacts considered in this chapter, it was estimated that in 2018/19 the University of Surrey through its activities in support of enterprise and innovation generated £510.7 million GVA and 5,202 jobs in Guildford, £574.4 million GVA and 6,043 jobs in Surrey and £574.1 million GVA and 6,375 jobs across the UK.

In the instance of the Surrey Research Park, impacts are not cumulative as the level of additionality is lower for the Research Park at the UK level (80%) than it is at the Surrey level (100%).

Table 7-3 Innovation and Enterprise Impacts, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
Business Incubators	3.3	3.6	4.4
Surrey 100 Club	1.4	1.6	2.2
Surrey Research Park	506.1	569.2	567.5
Total	510.7	574.4	574.1
Employment			
Business Incubators	146	163	200
Surrey 100 Club	19	23	32
Surrey Research Park	5,036	5,856	6,142
Total	5,202	6,043	6,375

Source: BiGGAR Economics Analysis. * Totals may not add up due to rounding.



5G Innovation Centre

Surrey is home to the world's first 5G Innovation Centre, promoting collaboration and leading the way in developing this revolutionary new technology.

In 2013, the world's first 5G innovation centre (5GIC) at the University of Surrey was created in partnership with the initial founding members, new members Vodafone, EE, Telefonica, Huawei (Germany), Samsung Aeroflex (now Viavi), BT, BBC Ofcom, Rohde & Schwarz, Fujitsu, Aircom International (now TEOCO) and local government EM3 (Enterprise M3). Officially the dedicated centre was inaugurated by Royal Highness the Duke of Kent on 15th September 2015.

5GIC has been the UK's home of 5G research and innovation with an international reputation for high quality research and innovation since its establishment. The centre has hosted high profile visitors from all over the world including UK Government Ministers, Secretaries of State, Prime Ministers and Presidents.

It has achieved several world firsts in research and innovation including:

- the world's first 5G core (Made in the UK) which is capable of hosting more than 1 million users;
- the first private 5G network - located on the University's campus, and home to the national 5G test-bed;
- the world's first 5G remote-controlled driverless vehicle, with the car on campus in Guildford, and the driver at ExCeL London;
- the first demonstration of 5G-powered real-time holoportation video, making 3D video-conferencing, meetings and working a reality;
- the first 5G over geostationary satellite, and, more recently, the first 5G over low-earth orbit satellite, helping bring us closer to 100% global coverage; and
- the first application of 5G to smart manufacturing.

5GIC has played an important role in terms of catalysing collaboration by proximity, geographically and cognitively.

Membership at 5GIC has grown to more than 26 international leading companies and more than 55 UK SMEs, cooperating with Surrey's researchers and academia - many of whom are competitors. The Centre has promoted collaboration to meet goals that address the common good, furthering overall knowledge and understanding of this revolutionary new technology.

In December 2016, 5GIC launched the 5G mobile network at the Basing View Innovation Hub in Basingstoke in partnership with SETsquared, Basingstoke and



Deane Borough Council and high-tech start-up Gematech, with funding from Enterprise M3 LEP. This allows start-ups and businesses working on mobile applications to develop systems capable of operating on the 5G system and will be accessed through SETsquared's digital hubs as part of its Digital Business Acceleration Hub programme.

In 2020, 5GIC deployed a 5G network to Aldershot gaming hub with help from EM3 grant funding.

5G Mobile Communications Arrow Project is a remarkable case study of the successes of innovation in Surrey's EM3 LEP region. With funding secured by the University of Surrey, and a private-led consortium that supports the project, it plans to create a high-value diverse sector within Surrey. The project has the potential to create 4,000 jobs as well as around £1 billion of business investment and infrastructure upgrades in the local area.

"From its inception collaboration was key to delivering such an ambitious plan. Our focus on involving partners from the outset was reflective of the need for global input to ensure the successful implementation of a new communications standard across the world. We actively welcome innovative ideas from all potential partners." commented Regius Professor Tafazoli, Director of the 5GIC.

Dr Mike Short CBE, UK DIT Chief Scientific Advisor and Visiting Professor at the University of Surrey, added: "Bringing a wide range of companies from different backgrounds together is no mean feat. The partner representatives on the 5GIC Strategy Advisory Board have developed a shared 5G vision that sets out a long-term roadmap for further partners to benefit and lend their expertise in this exciting international market."

"In order to realise the potential of 5G, we are working to create a new generation of user-centric applications and services, enabled by creative analytics and underpinned by a flexible distributed ICT infrastructure," comments Dr Adel Rouz of Fujitsu Laboratories of Europe. "This is a fundamentally different approach to previous communications concepts, and requires a collaborative approach, as epitomised by 5GIC. It is helping to redefine how we think about global projects of this scale."

8. Business Engagement

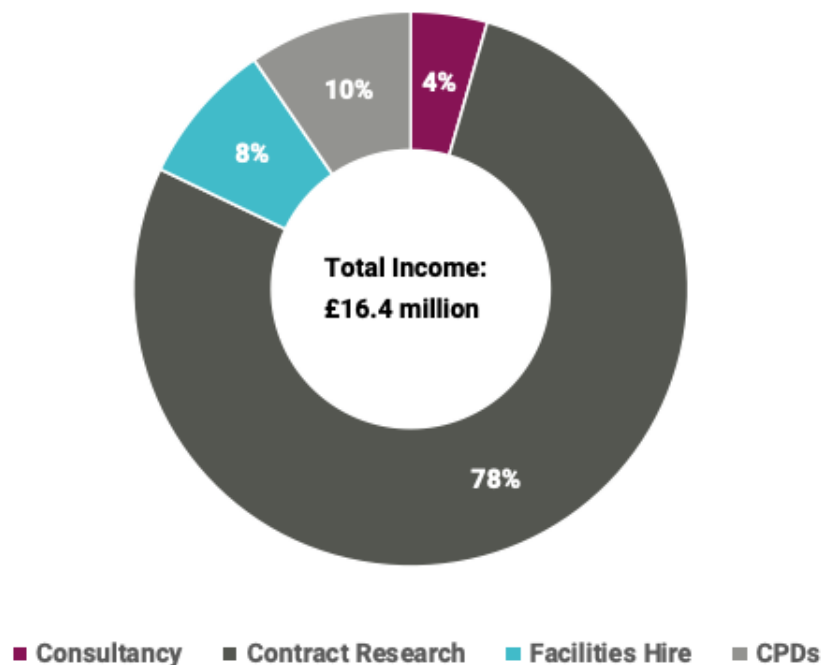
This chapter considers the economic impact from activities in support to businesses, knowledge transfer programmes and student placements.

8.1 Business Collaboration

The University of Surrey also makes an economic contribution through its activities in support of businesses. These include consultancy, contract research, continued professional development (CPD) courses and facilities hire.

It was estimated that the University of Surrey in 2018/19 generated £16.4 million through these activities (Figure 8-1). Most of this income was generated through Contract Research (78%), with facilities hire and CPD courses accounting for about £2.9 million and consultancy for £0.7 million.

Figure 8-1 Income from Services to Business, 2018/19



Source: University of Surrey

8.1.1 Approach to Estimating the Impact of Services to Business

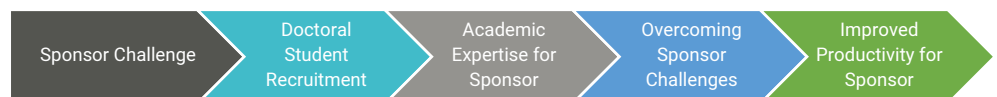
Research and development projects paid for by industry can have an impact on the economy in several ways. They can increase the productivity of staff employed by the company, enable the company to offer a new product or service that supports growth, or allow them to improve an existing product or service.



Engineering Doctorates

The EPSRC Centre for Doctoral Training in Micro and Nano Materials and Technologies (MiNMaT) helps industry to solve critical and complicated problems by embedding skilled doctoral students in the Sponsor organisation.

The MiNMaT Doctoral Programme has industrial impacts at its core and the engagement and training processes have been designed to maximise their economic impact. The Sponsor will approach MiNMaT with a specific challenge that they face as a company and MiNMaT will recruit a student based on that specific challenge. The challenges that are presented by the Sponsor are significant and to address it they will invest around half of the programme costs over the four year period. The student will be based within the Sponsor company and will also receive specialist management and scientific education from the University of Surrey through MiNMaT. MiNMaT places 8 -12 new doctoral students each year.

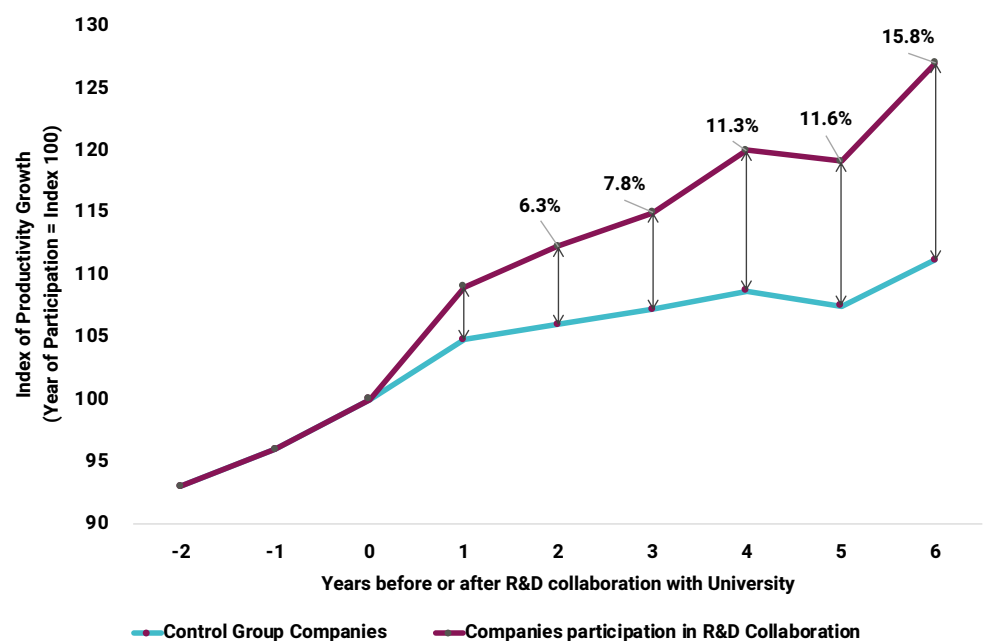


This programme will have an economic impact in multiple ways. The programme will improve the productivity of the Sponsors as solutions are found to expensive and time consuming problems. This enables the Sponsor to be competitive, profitable and grow. In addition, the students receive bespoke management and engineering training that enable them to be highly productive leaders of industry after graduation. The students will have the opportunity to qualify with dual Chartered status, as both engineering and management professionals. After graduation, most students are employed by their Sponsor.

Jaguar Land Rover (JLR) supports 275,000 jobs in the UK and is one company that has benefited from being a Sponsor on this programme. JLR faced significant costs in the development of prototype tyres and recruited a doctoral student through MiNMaT to address the problem by modelling the interaction between the tyres and different road surfaces. This allows the safety and performance of the prototype tyres to be simulated through Computer Aided Engineering and will significantly reduce both the time and cost requirement of developing new products. This increases the productivity of JLR, which is vital in a highly competitive market.

Impacts from an interaction with the University are not realised instantly or even within the first year afterwards. In 2012, Danish consultancy DAMVAD²² 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 provided in Figure 8-2, 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.

Figure 8-2 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 Scotland²³. The connections that Interface has made have covered a range of different types of engagement from small consultancy projects and access to university equipment and facilities through to company sponsored PhDs. The BiGGAR Economics evaluation found that the costs to Interface’s clients of participating were £12.9 million and the direct benefit to these organisations was

²² DAMVAD (2012), Measuring the Economic Effects of Companies Collaborating with the University of Copenhagen.

²³ BiGGAR Economics (2013), Evaluation of Interface, the knowledge connection for industry.



£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 Reform²⁴ 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 of Surrey's services to businesses was estimated using the lowest of the possible multipliers, i.e. 340%.

The GVA impact of business collaboration activities at the University of Surrey was therefore estimated by multiplying the amount spent by businesses on these services (i.e. the income to the University from this) by the 340% multiplier. The sectoral and geographic split of the companies that engage with the University were estimated based on data provided by the University or based on historical data.

In this way, it was estimated that the University of Surrey through its provision of services to business generated £14.5 million GVA and supported 22 jobs in Guildford, £32.6 million GVA and 53 jobs in Surrey and £94.3 million GVA and 162 jobs across the UK.

Table 8-1 Services to Business Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	14.5	32.6	94.3
Employment	22	53	162

Source: BiGGAR Economics Analysis

8.2 Knowledge Transfer Partnerships

The University of Surrey has an economic impact on knowledge exchange also 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 22 partnerships. To estimate the impact

²⁴ PriceWaterhouseCoopers, Impact of RDA spending – National report – Volume 1 – Main Report, March 2009, DBERR.



from these, the analysis relied on a study by Regeneris Consulting²⁵, 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 South East of England generated £726,000 GVA.

Among ongoing KTPs, one of them was operational in 2018/19. Based on the Regeneris study, the annual impacts from ongoing KTPs were estimated to be lower than for those concluded at around £12,100 annual GVA.

Adding together the impacts associated with those KTPs completed since 2012 and ongoing KTP activity, it was estimated that in 2018/19 KTP activity associated with the University of Surrey generated £0.1 million GVA and supported three jobs in Guildford, £0.6 million GVA and 15 jobs in Surrey and £2.7 million GVA and 66 jobs across the UK.

Table 8-2 KTP Impact, University of Surrey 2018/19

	Guildford	County of Surrey	UK
GVA (£ million)	0.1	0.6	2.7
Employment	3	15	66

Source: BiGGAR Economics Analysis



Basemap

The company formed a Knowledge Transfer Partnership with the University in 2018 to develop software for the electric transport market.

Basemap's offers digital mapping and transport data solutions and its vision is to be the centre of excellence for transport accessibility solutions. The company arrived in the incubator on the Surrey Research Park in 2014. It has grown to employ 14 people and is now based on larger premises on the Park.

The company was aware of the benefits of working with the University's expertise to grow their business and pursued further opportunities to work with the University after leaving the incubator. In 2018, Basemap entered a 31-month knowledge transfer partnership with the University. The aim was to develop a holistic logistics management routing software tool which combines scheduling and routing with critical vehicle and environmental performance factors to allow rapid entry and

²⁵ Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review.



growth in the commercial electric transport market. The partnership was part funded by Innovate UK.

Commenting on the partnership, the CEO of Basemap highlighted the appeal of working with a world class university to help the business become a leading supplier of routing software for the global commercial electric transport market. The project draws on the expertise of the University of Surrey to understand the dynamics of electric vehicles and the various factors affecting their performance, applying data science and analytics to optimise usage.

The Connected and Autonomous Vehicles Lab at the University will benefit from the opportunity to apply their knowledge to a real-world issue, helping to bring a new product to market. The partnership also offers the opportunity to embed the commercial outcomes back in to teaching and research at all levels in the Department.

8.3 Professional Placements

The University of Surrey also supports the activities carried out by businesses through the participation of its students to professional placements. These provide an opportunity for the students to get work experience relevant to their degree and for the businesses to stay up to date with the latest developments taking place in academia. This section considers only those placements that take place for a period longer than 12 weeks. Placements with a shorter length are assumed to be more of a demonstrational nature.

Based on a post-code analysis of data from the University of Surrey, it was estimated that in 2018/19 100 students took part in placements within Guildford, 212 within Surrey and 955 across the UK.

To estimate the impact generated by students on placement, it was first necessary to estimate the number of weeks that students carried out in placements across different economic sectors where they were employed. The total number of weeks was then adjusted by 33%, as it was assumed that students on placements would be less productive than a sector's average worker. The total number of weeks was also divided by the average number of weeks worked by sector to estimate the direct employment supported by students' placements. Direct GVA was then estimated by applying the relevant GVA per job ratio. Indirect impacts were estimated in a similar way as in previous chapters and induced impacts were not considered to avoid double-counting student spending.

In this way, it was estimated that in 2018/19 students on placements generated £2.1 million GVA and supported 37 jobs in Guildford, £4.4 million GVA and 76 jobs in Surrey and £26.3 million GVA and 470 jobs across the UK.

Table 8-3 Student Placements Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	2.1	4.4	26.3
Employment	37	76	470

Source: BIGGAR Economics Analysis

8.4 Business Engagement Impacts Summary

In this chapter it was estimated that in 2018/19 the University of Surrey through its business engagement activities generated £16.7 million GVA and supported 62 jobs in Guildford, £37.7 million GVA and 144 jobs in Surrey and £123.3 million GVA and 698 jobs across the UK.

Table 8-4 Business Engagement Impacts, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
Services to Business	14.5	32.6	94.3
Knowledge Transfer Partnerships	0.1	0.6	2.7
Student Placements	2.1	4.4	26.3
Total	16.7	37.7	123.3
Employment			
Services to Business	22	53	162
Knowledge Transfer Partnerships	3	15	66
Student Placements	37	76	470
Total	62	144	698

Source: BIGGAR Economics Analysis *Totals may not add up due to rounding



Fraud Research

The University worked with HSBC to identify character traits that made their customers more vulnerable to financial fraud.

The University of Surrey is recognised by the UK Government as an Academic Centre of Excellence in Cyber Security Research. In 2019, HSBC commissioned academics the Surrey Centre for Cyber Security to develop a new study on factors which make individuals more susceptible to online fraud. In particular, this considered how the level of empathy and 'niceness' in a person can be an indicator of vulnerability.

In 2018, a total of £1.2 billion was lost to fraud and scams in the UK

This research surveyed 2,000 members of the public including 1,000 previous victims of fraud and 1,000 people who have avoided fraud. All participants were asked a series of questions about character traits which helped ascertain how 'nice' they were. The survey produced a series of new findings such as the fact that victims of fraud were 10% 'nicer' on average than those who hadn't been taken advantage of by scammers, rating themselves as 41% more 'agreeable', 28% more 'kind' and 30% more 'willing to please'.

The outputs of this study will enable HSBC, and others, to improve their services by encouraging customers to think how their personality traits could lead to them being at risk with fraudsters. HSBC used the results to develop guidance that was distributed to customers and a 'Nice Alert' was played in branches across the UK in the run up to Christmas 2019.

HSBC encouraged customers to think about what data they may be unwittingly giving away by being too 'nice'

The economic impact of this research is greater than the benefits that would be realised to HSBC through the improvement of their service. The main impacts will be realised by those who avoid becoming the victims of fraud due to the greater understanding of the process that the University of Surrey has provided.



9. Health and Medical Research

This section considers the economic impact generated by the University of Surrey through its activities in health and medical research.

9.1 Medical Research

While many of the economic contributions of health and medical research are qualitative in nature, there have been attempts to quantify its impact. Research by the Wellcome Trust on the value of medical research in the UK considers two types of return: health gains (net of the health care costs of delivering them) and economic gains²⁶. This section considers the value of both.

9.1.1 Quality of Life Impact

The value of health gains was assessed by the Wellcome Trust using the quality adjusted life years (QALY) method²⁷. This is a widely used method developed by health economists to assess how many extra months or years of life of a reasonable quality a person might gain as a result of treatment. The Wellcome Trust research considered two areas of medical research expenditure, for cardiovascular disease and mental health.

The value of the health benefit was presented as a return on initial expenditure on the research (IRR). This varies slightly between the two areas of study, and more widely between different scenarios for each of the study areas. The best estimate for the IRR in cardiovascular disease research is 9.2%, although the research also considered high and low expenditure scenarios that ranged from 7.7% and 13.9%. Similarly, the best estimate for the IRR for investment in mental health research was 7.0%. The high and low estimates for this area of study had a slightly broader range and varied between 3.7% and 10.8%.

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

Following the approach used by the Wellcome Trust, the Net Present Value (NPV) of medical research was estimated by applying the Treasury approved 3.5% discount rate. In this way, it was estimated that the £9.4 million income for health and medical research received by the University of Surrey would have a total impact of around

²⁶ Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK, For the Medical Research Council, the Wellcome Trust and the Academy of Medical Sciences, November 2008.

²⁷ Ibid.



£10 million over the next twenty years across the UK. The impact in Guildford and Surrey are assumed to be proportional to the size of their population.



Diabetes & Insulin Research

Onset 1 Trial carried out by the University led to the approval of new, fast-acting insulin product for diabetes treatment in the UK

Diabetes is estimated to affect around 6% of the UK population and its prevalence is rising. It is a lifelong condition that causes a person's blood sugar level to become too high. If it is not properly managed it can increase the risk of developing other health problems such as heart disease, stroke, foot and circulation problems, sight problems and blindness, pain and loss of feeling and kidney problems.

A high proportion of diabetic patients in the UK fail to manage their blood sugar levels after mealtimes. A study in 2015 revealed that 70% of patients with Type 1 diabetes and 34% of patients with Type 2 diabetes failed to achieve the recommended targets.

In 2017, a new insulin treatment called Fiasp was launched in the UK for adults with Type 1 and Type 2 diabetes. Compared to the existing formulation, Fiasp increases the initial insulin absorption rate and can work twice as quickly in the bloodstream following injection. This helps people with diabetes who struggle to keep their blood glucose levels in a healthy range around mealtimes to achieve lower blood glucose levels after eating.

The onset 1 trial for Fiasp was carried out by Professor David Russell-Jones, Professor of Diabetes and Endocrinology the University of Surrey, in collaboration with the pharmaceuticals company Novo Nordisk.

Clinical trials showed that Fiasp outperformed the pre-existing formulation (NovoRapid) in helping people with Type 1 diabetes to achieve better diabetes control after meals and overall. The results were even more pronounced among those using insulin pumps, with no significant increases seen in either hypoglycemia or hyperglycemia.

People with type 2 diabetes who took Fiasp also experienced improvements one hour after eating compared to the pre-existing treatment.

Fiasp became available to the NHS at no additional cost compared to the existing formulation.



9.1.2 Economic Impact

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

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

As with the previous calculation, the Net Present Value (NPV) of medical research on GDP was estimated, applying the Treasury discount rate of 3.5%. Over a 20-year period, it was estimated that medical research would result in £40 million across the UK. The impact was assumed to be proportionate to an area's population.

9.1.3 Total Returns to Health and Medical Research

Adding the social and economic impact of medical research undertaken by the University of Surrey provides an estimate of the total returns to medical research. Thus, the University was estimated to contribute £0.1 million GVA to Guildford, £0.9 million GVA to Surrey and £50.8 million across the UK through its medical research.

Table 9-1 Returns to Health and Medical Research Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	0.1	0.9	50.8

Source: BiGGAR Economics Analysis



Health Tech Accelerator

A new facility at the University of Surrey will offer health tech companies an exceptional combination of facilities.

Businesses with innovative ideas on how technology can improve health outcomes can be supported by a new Health Tech Accelerator initiative funded by the Enterprise M3 LEP, based at the University of Surrey and led by Surrey and Borders Partnership Foundation NHS Trust (SABP).

The £3.8m project will offer health tech companies facilities including an engineering test bed to develop product prototypes, as well as access to a “Digital Ward – living laboratory” where clinicians, patients, carers and other users of developing health tech devices will be involved in the design of the end product. The aim is to improve outcomes for a range of physical and mental health conditions from cancer to depression.

Surrey Research Park is already home to a cluster of health care companies with a strong focus on the MedTech sector. With its partnership links with the University of Surrey and both SETsquared Surrey and EM3 located on the Park, MedTech Surrey Research Park members are set to benefit.

The Health Tech Accelerator aims to support local health technology companies to develop products, services and processes which are designed to meet patient need and which can be fast tracked into the NHS as well as private health and social care markets. Work began on the Accelerator in January 2020.



10.

Tourism

This chapter quantifies the economic impact generated by visitors to the University of Surrey.

10.1 Visiting Friends and Relatives

Visiting friends and relatives of students and members of staff at the University of Surrey generate an economic impact during their visits through their spending in the local economy. To estimate the total number of VFR visits, the total number of students and staff living within each study area was multiplied by 0.26²⁸, the overnight domestic visitors per head of population in Surrey, and by 0.65²⁹, the overnight international visitors per head of population in Surrey.

Total expenditure was then estimated by multiplying visitors by their average spending per trip - £88³⁰ for domestic visitors and £343³¹ for overseas visitors – and discounted by VAT. To estimate the direct GVA and direct employment generated by this spending, it was then necessary to divide this by the turnover/GVA and turnover/job ratios from the Scottish Government’s Sustainable Tourism sector³². Type 1 and Type 2 multipliers were then applied using an average of the multipliers for the accommodation sector and the food and beverage service activities sectors.

In this way, it was estimated that visiting friends and relatives of students and staff at the University of Surrey generated £1.0 million GVA and supported 48 jobs in Guildford, £1.2 million GVA and 57 jobs in Surrey and £1.9 million GVA and 83 jobs across the UK.

Table 10-1 VFR Tourism Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	1.0	1.2	1.9
Employment	48	57	83

Source: BIGGAR Economics Analysis

²⁸ Kantar (2020), The Great Britain Visitor Survey 2019 Annual Report.

²⁹ Visit Britain (2020), Inbound nation, region & county data, available at: <https://www.visitbritain.org/nation-region-county-data>

³⁰ Kantar (2020), The Great Britain Visitor Survey 2019 Annual Report.

³¹ Visit Britain (2020), Inbound nation, region & county data, available at: <https://www.visitbritain.org/nation-region-county-data>

³² Scottish Government (2020), Growth Sector Statistics.



10.2 Open Days

The University of Surrey also attracts visitors to Guildford by organising a series of events aimed at prospective students. Among these events, in 2018/19 it organised:

- open days for prospective undergraduate students;
- open days for prospective postgraduate students;
- campus tours; and
- applicant days.

During these events, prospective students and applicants have the opportunity to visit the University’s campus, be introduced to the University’s academic staff, see the student accommodation and visit the Surrey Sports Park. These events are attended both by prospective students and by their parents. It was estimated that in 2018/19 a total 27,206 visitors attended similar events.

Most visitors (95%) were assumed to be day visitors and to spend around £25³³ during their day trip. The remainder of visitors were assumed to be overnight stayers and their spending was estimated using the average spending for domestic and overseas overnight stayers set out above. Total spending was then discounted by 20%, to account for VAT. The same ratios and multipliers as in the previous section were applied to estimate total employment and GVA impacts. UK impacts were further discounted by half to account for the fact that not all visits were additional.

In this way, it was estimated that those visiting the University to attend open days generated £0.4 million GVA and supported 18 jobs in Guildford, £0.5 million GVA and 24 jobs in Surrey and £0.3 million GVA and 14 jobs across the UK.

Table 10-2 Open Days Impact, University of Surrey 2018/19

	Guildford	County of Surrey	UK
GVA (£ million)	0.4	0.5	0.3
Employment	18	24	14

Source: BIGGAR Economics Analysis

10.3 Conferences and Events

The University of Surrey also attracted visitors through the organisation of day events and conferences. It was estimated that through these events the University attracted 43,712 visitors. Of this, it was estimated that 9,756 were overnight visitors. The analysis of the impact from participants that took part in sports event is considered in chapter 11.

³³ Kantar (2020), The Great Britain Day Visitor Survey 2019.



To estimate the economic impact generated by these visitors, it was first necessary to estimate their expenditure. Based on data from the GB Tourism Survey, it was estimated that overnight visitors to Surrey spend on average £51³⁴ per night, whereas day visitors to Guildford spend on average £25³⁵. Having estimated the spending of these visitors, it was then possible to estimate in a similar way as in the previous sections their GVA and employment contribution.

In this way, it was estimated that the University of Surrey through the organisation of conferences and events generated £0.3 million GVA and supported 17 jobs in Guildford, £0.4 million GVA and 17 jobs in Surrey and £0.3 million GVA and 13 jobs across the UK.

Table 10-3 Conferences and Events Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)	0.3	0.4	0.3
Employment	17	17	13

Source: BiGGAR Economics Analysis

10.4 Summary of Tourism Impacts

The tourism activity taking place as a result of the University of Surrey was estimated to generate £1.7 million GVA and 82 jobs in Guildford, £2.1 million GVA and 98 jobs in Surrey and £2.5 million GVA and 110 jobs across the UK.

Table 10-4 Total Tourism Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
GVA (£ million)			
VFR	1.0	1.2	1.9
Open Days	0.4	0.5	0.3
Conferences and Events	0.3	0.4	0.3
Total	1.7	2.1	2.5
Employment			
VFR	48	57	83
Open Days	18	24	14
Conferences and Events	17	17	13
Total	82	98	110

Source: BiGGAR Economics Analysis

³⁴ Kantar (2020), The Great Britain Visitor Survey 2019 Annual Report.

³⁵ Kantar (2020), The Great Britain Day Visitor Survey 2019.



11.

Surrey Sports Park

This chapter considers the economic impact that is generated by Surrey Sports Park.

Surrey Sports Park provides a venue for the students at the University of Surrey and the wider public to practice sports, stay fit and improve wellbeing, in state-of-the-art facilities. This section focuses in particular of the quantifiable economic impact associated with events organised at Surrey Sports Park. These events attract visitors to Guildford, who then go on spending money within the local economy, supporting its business base and its employment.

It was estimated that in 2018/19, Surrey Sports Park attracted a total 54,262 visitors. In order to estimate, the total spending generated by them, it was necessary to make assumption on the length of their stays. It was assumed that the vast majority of visitors (80%) could be considered day visitor, with around 15% overnight domestic visitors and 5% overnight international visitors. It was further assumed that 50% of event participants were additional to Guildford, 25% to Surrey and 25% to the UK.

The total spending carried out by these visitors was estimated by multiplying the number of visitors by the typical spending of day visitors to Guildford and overnight domestic and international visitors to Surrey. This was then discounted by the VAT rate and relevant turnover per GVA, turnover per job and Type 1 and Type 2 multipliers were applied to estimate its GVA and employment impacts.

In this way, it was estimated that in 2018/19 visitors to Surrey Sports Park generated £1.0 million GVA and supported 48 jobs in Guildford, £0.5 million GVA and 26 jobs in Surrey and £0.7 million and 29 jobs across the UK.

Table 11-1 Sports Event Visitors Impact, 2018/19

	Guildford	Surrey	UK
GVA (£ million)	1.0	0.5	0.7
Employment	48	26	29

Source: BiGGAR Economics Analysis

11.1 Wider Impacts

The impact of sport activity at the University of Surrey goes beyond what is quantifiable. For instance, the University promotes wellbeing through activities such as SurreyMoves, an app that keeps track of the physical activity that students and staff undertake. In 2018/19, there were 6,667 users of the app, who accumulated a total 2,149,614 miles of physical activity. The engagement of Surrey Sports Park with local schools provides another example of the wider benefits associated with Surrey Sports Park. The University engaged with 31 schools and around 16,800 children.

12.

Summary and Changes in Impact

This section provides a summary of the study’s main findings and compares them to those of the study conducted by BiGGAR Economics in 2018.

12.1 Summary of Quantitative Impacts

It was estimated that in 2018/19 the University of Surrey generated:

- **£1.0 billion GVA** and supported **12,229 jobs** in Guildford;
- **£1.2 billion GVA** and supported **14,492 jobs** in Surrey; and
- **£1.8 billion GVA** and supported **19,431 jobs** across the UK.

A breakdown of GVA and employment by source of impact and study area is provided in Table 12-1 and Table 12-2.

Table 12-1 GVA by Source of Impact, University of Surrey 2018/19 (£m)

	Guildford	Surrey	UK
Core Impacts	254.5	293.4	434.1
Student Impacts	99.6	119.9	175.2
Commercialisation	60.3	70.5	103.2
Innovation and Enterprise	510.7	574.4	574.1
Business Engagement	16.8	37.7	123.3
Tourism	1.6	2.1	2.5
Surrey Sports Park	1.0	0.5	0.7
Learning Impacts	77.4	123.1	374.5
Medical Research	0.1	0.9	50.8
Total GVA	1,020.0	1,222.6	1,838.4

Source: BiGGAR Economics Analysis *Totals may not add up due to rounding



Table 12-2 Employment by Source of Impact, University of Surrey 2018/19

	Guildford	Surrey	UK
Core Impacts	3,388	4,134	6,590
Student Impacts	2,686	3,140	4,260
Commercialisation	761	909	1,372
Innovation and Enterprise	5,202	6,043	6,375
Business Engagement	62	144	698
Tourism	82	98	110
Surrey Sports Park	48	26	29
Total Employment	12,229	14,492	19,431

Source: BiGGAR Economics Analysis, Totals may not add up due to rounding.

12.2 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 Surrey had an income of £315.3 million, generated £237.7 million direct GVA and directly employed 3,079 people. Therefore;

- for each £1 of income the University generated as a result of its direct operations, it supported £7.73 GVA in total benefits across the UK economy;
- for each person it directly employed, the University supported 6.31 jobs across the UK; and
- for each £1 of income received, the University of Surrey generated £5.83 in economic impact across the UK.

Table 12-3 University of Surrey Impact Ratios 2018/19

	Total (including long-term impacts)	Total (excluding long-term impacts)
Direct GVA: Total GVA	7.73	5.95
Direct Jobs: Total Jobs	6.31	6.31
Income: Impact	5.83	4.48

Source: BiGGAR Economics Analysis



12.3 Wider Impacts

The economic impacts of the University of Surrey are greater than those that have been quantified as part of this study. Some of these wider impacts have been captured in the case studies highlighted in this report and include:

- improved educational and economic outcomes for school pupils within Surrey that have been supported as part of the outreach and engagement programmes of the University. In particular, those within Kings College who have seen a significant turnaround in their school's performance;
- improved health outcomes, and their associated improved economic outcomes, from the University of Surrey's medical research in areas such as diabetes, dementia and sleep;
- improved housing provision for LGBTQ+ individuals through collaboration with housing providers; and
- improved cybersecurity for individuals and companies through research into how individuals respond to security measures.

12.4 Difference from 2016/17

The total UK GVA impact of the University of Surrey in 2018/19 was £1.8 billion, or around £97 million higher than in 2016/17. To allow for comparison, the methodology used in the two studies remained consistent and where assumptions had to be made for the 2018/19 study, it reflected the assumptions made in 2016/17. A comparison of impact is provided in Table 12-4.

The largest area of increase in activity between the two studies the learning impacts, which reflects the growth in students, particularly undergraduate students, who graduated. The growth in student and core impacts are broadly in line with the changes to student numbers and income to the University. The combined impact from Commercialisation, Innovation and Enterprise and Business Engagement has been fairly steady during this time period.



Table 12-4 GVA Difference between 2016/17 and 2018/19 (£m)

	2016/17	2018/19
Core Impacts	409.8	434.1
Student Impacts	156.9	175.2
Commercialisation	107.4	103.2
Innovation and Enterprise	583.8	574.1
Business Engagement	103.5	123.4
Tourism	3.7	2.4
Surrey Sports Park	0.8	0.7
Learning Impacts	336.5	374.5
Medical Research	39.4	50.8
Total	1,741.8	1,838.4

Source: BiGGAR Economics Analysis * Totals may not add up due to rounding.

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