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The economic impact of higher education in Wales

Viewforth Consulting Ltd
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The economic impact of higher education in Wales Report to Universities Wales

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Acknowledgements

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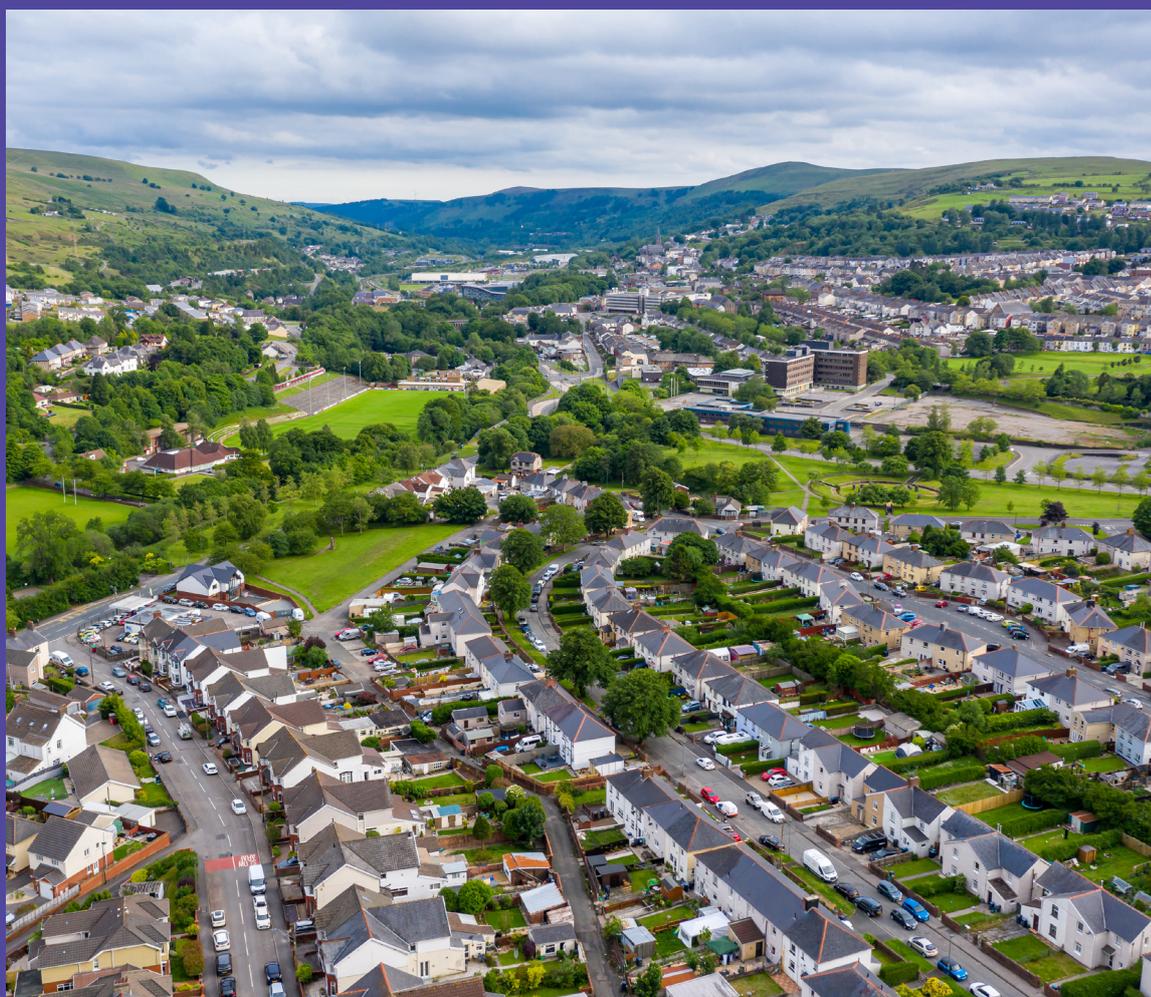
Views expressed in this report are those of the authors and not necessarily those of Universities Wales.

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Foreword



Our universities have long been part of our communities across Wales. From providing access to education and skills, to working with business on cutting edge research and innovation, the work that our universities do is closely intertwined with the people and places of Wales.

This analysis clearly illustrates what universities mean for Wales' economy. But perhaps what is most notable about the findings of this report is not just the immediate economic impact of the activities our universities carry out, but how our institutions bring benefits right across local communities and, indeed, across Wales. These benefits are felt in supply chains, by local businesses including retail, hospitality and recreation, and crucially by the people who make up our communities. It is this which is at the heart of the finding that 1 in 20 jobs in Wales are generated as a result of our universities. The work our universities do touches upon many lives, many businesses and many communities. This is the collaboration that is at the heart of our sector.

This brings with it many responsibilities. Welsh universities will continue working with partners across Wales as we rebuild and recover from the impact of the Covid-19 pandemic, and embrace the challenges of a changing world. With the changing structures within Wales that regulate higher education and research, and the challenges posed by global issues such as climate change and automation, we remain firm in our ambition to grow and sustain a successful, enterprising higher education sector that draws in international expertise and excellence while delivering to our localities and regions.

We must also be conscious of what lies behind many of the figures that make up this report. Our universities are more than units of economic value: they transform lives, create opportunities, and feed into the growth of new businesses. And, of course, we must acknowledge the important role that our students play, not just through their economic contribution but the way they enable our campuses to be vibrant, forward-thinking areas for learning and research.

As a sector we must keep our eyes firmly on this and continue to challenge ourselves to improve access to university, to better demonstrate what we have to offer, and to enable more people in our communities to benefit from these longstanding assets.

Our thanks go to Viewforth Consulting for their work in developing this report and again helping us demonstrate the economic role of our universities.

Professor Elizabeth Treasure Chair, Universities Wales



Powering the Welsh economy



In 2019/20 Welsh universities generated over **£5.3 billion** of output

£661m



£661million of export earnings – equivalent to 11.8% of all Welsh service sector export earnings

£2.8bn



of Welsh GVA through their expenditure and that of students and their visitors – equivalent to 4.2% of 2019 Welsh GVA.

£1.6bn



of their own output, with their activities creating an additional **£3.7bn** of output for the Welsh economy.



International reach

134,760

students attended Welsh universities in 2019/20

52%

came from Wales

32%

came from the rest of the UK

4%

came from the EU

12%

came from outside the EU





Creating jobs

61,722 jobs

Welsh universities generated 1 in every 20 jobs in Wales



20,730 jobs



19,690 jobs

Universities directly provided 20,730 jobs across a range of occupations and skill levels.

Through 'knock-on' effects an additional 19,690 jobs were created in other industries in Wales.



21,301 jobs



1 job per 2 international students

Off-campus spending of university students and international visitors generated an additional 21,301 jobs in Wales.

1 job was generated for every 2 international students at Welsh universities.



Supporting Welsh communities

Welsh universities have a positive economic impact across the whole of Wales, including in areas that do not host a university.



20% of Welsh GVA in areas with no university presence



22% of jobs in areas with no university presence

Of the £2.8bn Welsh GVA generated by Welsh universities and their students, £564.8 million (20%) was in local authority areas that did not have a university presence.

Of the 61,722 jobs created in Wales by Welsh universities 13,523 (22%) jobs were in parts of Wales that do not have a university presence.

1. Introduction



1.1. This report is the fourth in a series of analyses that have examined the position of higher education as part of the Welsh economic landscape. Building on previous reports undertaken in 2013, 2015 and 2017, the current study focusses on the role of Welsh universities as an integral part of the Welsh economy, with the university sector as an industry in itself, providing employment and generating other economic activity.

1.2. Over the past decade, the university landscape in Wales has changed significantly, with a number of university mergers and further collaboration with further education colleges, businesses, and other partners. The teaching undertaken by universities is vital to enhancing the skills base of the nation while research and the interaction between the universities and industry is important in supporting business and innovation.

1.3. Further change is on the horizon. The Welsh Government has confirmed plans to lay the Tertiary Education and Research Bill to reform the regulation of post-compulsory education. This Bill would establish a Commission for Tertiary Education and Research in Wales, to enable a ‘whole system approach’ to post 16 education and training, and research and innovation.¹

1.4. The Welsh Government has highlighted that university research accounts for around half of all research and development expenditure in Wales². There is also considerable ongoing interest in the role of universities in the development and enhancement of work-related skills and

continuing professional development for Welsh residents, through work-based learning, part time and short courses as well as through provision of degree apprenticeships.³

1.5. However, as well as the value to Wales in what universities do and produce, the university sector in itself forms an important element of the Welsh economic base, generating output and jobs and contributing to Welsh GDP. Changes that affect universities’ operations will de facto go on to affect the rest of the economy. The role of the universities in generating economic activity in the economy is the focus of this study.

Study coverage

1.6. The study is primarily focussed on the eight universities in Wales that are included in the 2019/20 Higher Education Statistics Agency (HESA) data. The financial data for modelling also included the income and expenditure of the central functions of the University of Wales.⁴ The analysis of student data additionally includes Open University in Wales students.⁵ A list of the included institutions can be found in Appendix Three. These eight institutions, together with OU students and the finance of the University of Wales central functions, are treated as the ‘higher education sector’ in Wales.⁶ The study examined key economic features of the Welsh higher education sector in the academic and financial year 2019-20 (the most recent year for which data are available), together with those aspects of its contribution to the economy that can be readily measured.

¹ *Commission for Tertiary Education and Research* <https://gov.wales/tertiary-education-and-research-commission>

² Policy Statement on Higher Education Welsh Government 2013

³ See, for example: *Aligning the Apprenticeship model to the needs of the Welsh Economy* Welsh Government (2017) ; *Employability Plan* (2020) The Welsh Government

⁴ While relatively modest (c£3.1 m) this still part of the Welsh higher education sector (as defined) income and expenditure

⁵ There were over 10,700 OU students registered as studying in Wales in 2019/20. It was not possible to include analysis of the income and expenditure of the Open University activity in Wales because all of the financial data for the Open University is formally allocated to its ‘head office’ in Milton Keynes.

⁶ The terms ‘university sector’ and ‘higher education sector’ will be used interchangeably but in all cases refer to higher education provision in the universities. There are additional HE level courses offered in a range of colleges in Wales but these are not included in this analysis.

1.7. In the study year, the eight institutions included ranged in size from Cardiff University, with over 33,200 students, to Wrexham Glyndŵr University with just over 6,000 students. There is academic provision across all major areas including Arts and Humanities, Creative Industries, Science and Technology, Business, Education, Social Sciences, Medicine and Healthcare. Many of the Welsh institutions have an international profile and in 2019/20 the sector attracted nearly 22,000 students from across the globe to study in Wales.

1.8. The study examines the impact of the expenditure of Welsh universities together with that of their international and domestic students. It also includes analysis of the additional impact of short-term international visitors to Wales who are visiting friends and family studying or working in the universities in Wales.⁷ Preliminary estimates were also made of the numbers of international academic business visitors to the universities and the impact of their business expenditure.

Methodological approach

1.9. Major economic characteristics of the sector were examined, including its revenue, expenditure and employment. The study also included modelled analysis of the economic activity generated in other sectors of the economy through the secondary or 'knock-on' effects of the expenditure of the institution, its staff and students. The

core model used was a modelling system based on input-output analysis and purpose designed for analysis of higher education impact. The same approach using input-output analysis has been used to previously model higher education impact in Wales as well as for modelling of higher education at the UK level, in the English regions and for many individual UK and Republic of Ireland institutions.

1.10. An additional dimension of analysis, involving local gravity modelling, was undertaken, to enable analysis of the distribution of impact across Wales. This approach had been successfully applied in the earlier 2015 and 2017 studies of Wales higher education. For this study, a new and updated Welsh gravity model was constructed. The gravity model combines a range of mass and distance variables to examine how impact from centres of higher education activity flows out across Wales. A new element to the gravity model was added, intended to reflect a more 'social' or 'real world' dimension to university impact. This new dimension shows the numbers of residents in each local authority across Wales whose jobs are ultimately generated by the university sector's economic activity.

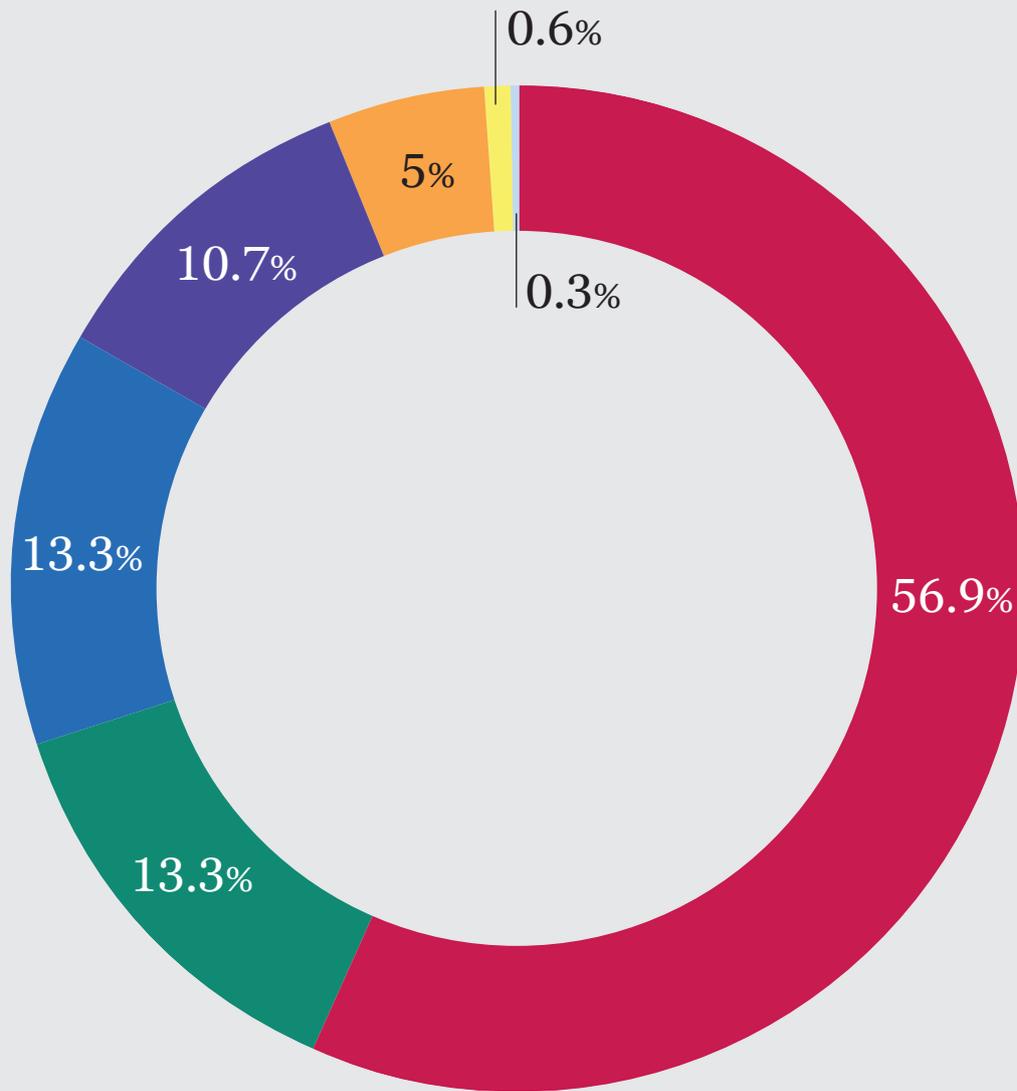
1.11. A fuller description of the methodology and data sources used is included as Appendix One.

⁷ It is worth noting that over 13% of university staff in Wales are international.

2. Key economic characteristics of the sector



Figure 1: Sectoral income
Income of the Welsh universities in 2019/20
Total £1.64 billion



●	Tuition fees and education contracts	£931m
●	HEFCW grants	£218m
●	Research grants and contracts	£218m
●	Other income	£175m
●	Residence and catering income	£83m
●	Investment income	£9m
●	Donations and endowments	£4m
	Total income	£1.64bn

Income

2.1. The Welsh higher education sector had total revenue of £1.64 billion in the study year. Once inflation is taken into account, the overall reported income of the sector in 2019/20 was much the same as it was in 2015/16, which was the year of the last study.⁸

2.2. However, it should also be noted that the income of the sector in 2019/20 was negatively affected by the advent of the Covid pandemic. As the universities' academic and financial year runs 1 August to 31 July, the Covid pandemic affected the last 4 or so months of the financial year, with the country going into lockdown (along with, more or less, the rest of the world) at the end of March. Many students returned to their home addresses as university provision moved online. All universities waived or reduced student accommodation fees. Conferences and other income-generating events the universities would normally have expected to host were cancelled. Some of that impact begins to be seen in the analysis undertaken in this report, although it will be the following financial year 2020-2021 before the full consequences become clear.

2.3. Figure 1 shows the diversity of sources from which the Welsh higher education sector derives its income. All of the universities are autonomous private bodies (all of the Welsh universities in this study are part of the 'not-for-profit' sector and are registered charities). Most income is directly education related, with the larger part of sectoral income

(83.4%) being earned for delivering teaching and research (HEFCW grants, tuition fees and research income.) The income for teaching and research activity came from a range of sources including from HEFCW grants, individual student fee payments and research contracts with private and international clients. However, the sector also relies on income from other services including, for example, consultancy, the provision of residence and catering services, conference support or facilities hire (in 2019/20 this made up nearly 16% of income).

2.4. The sector's income from residences, catering and conferences was particularly affected by the pandemic. Income dropped by 23% on the previous year, falling from over £107 million to £82.7 million. The reduction in university income and its related expenditure⁹ also feeds through to impact on the wider economy.

Export earnings

2.5. Nonetheless, even taking into account the difficult circumstances that began to unfold in the latter part of the academic year, the sector earned a significant amount of international revenue in 2019/20, estimated as £336 million.¹⁰ Together with the off-campus expenditure of international students (£295million) and the expenditure of international visitors to Wales associated with international students, as well as visiting international academics (£30 million),¹¹ this represents a total of £661 million^{12 13}

⁸ Income in 2015/16 was £1.51 billion.

⁹ Like all non-profit making institutions, university expenditure typically closely tracks its income.

¹⁰ This figure for university international revenue was derived from analysis of HESA 2019/20 finance data and includes non EU fees, an estimate of 'rest of EU' student fees paid from non-UK sources, income from international research and consultancy together with other services to international customers including, for example, conference accommodation and residence fees paid by international students.

¹¹ These include an estimated number of visitors associated with international students i.e. visiting family and friends as well as a conservative estimate of international visiting academic business visitors.

¹² The estimates of expenditure of international students and visitors were adjusted downwards to take account of Covid travel restrictions in the last four months of the year.

¹³ The most recent estimates for the service sector come from the ONS and are for 2016. These show Service Sector exports for Wales at £5.604 billion in 2016. <https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/datasets/regionalisedestimatesofukserviceexports>

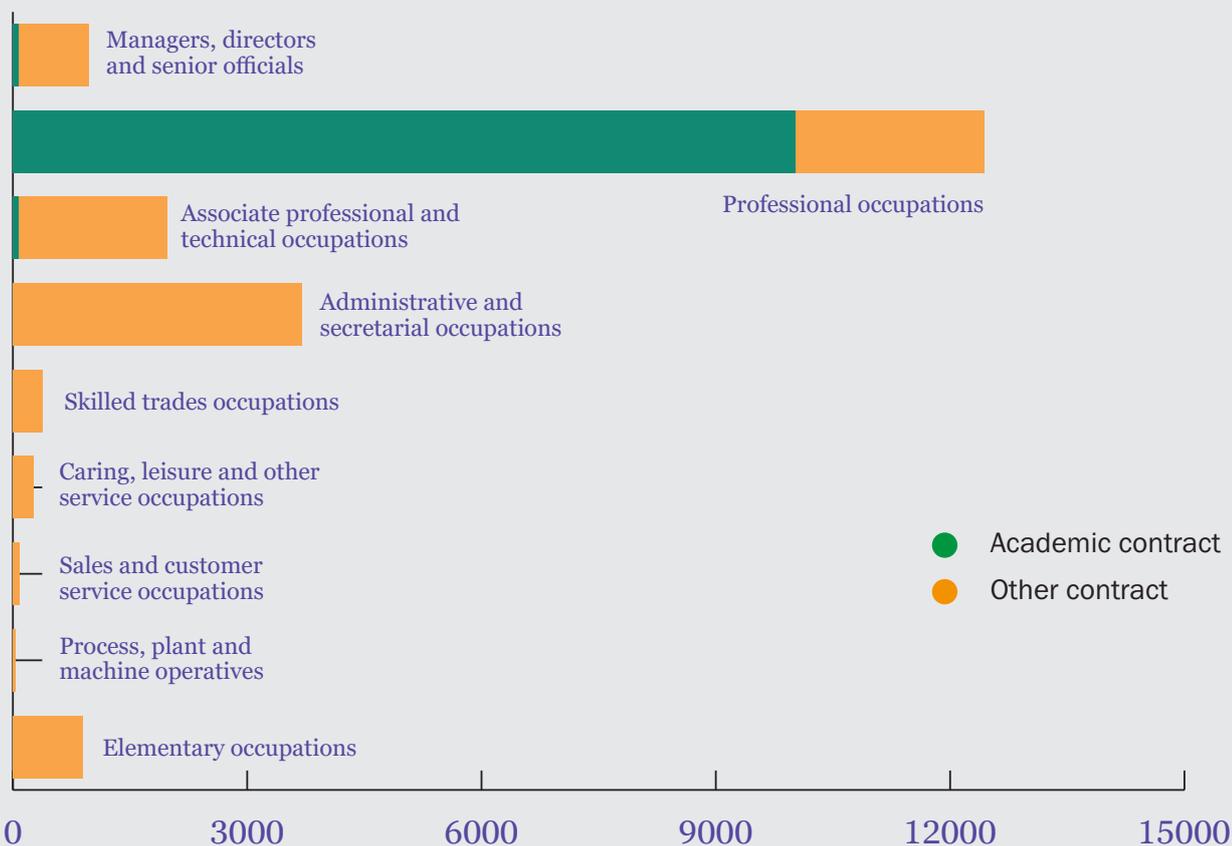
Employment

2.6. The sector directly provided 20,730 jobs (17,155 FTE) across a wide range of occupations. The occupational profile of university employment is shown in Figure 2.

2.7. Figure 2 clearly shows that while the majority of people on academic contracts are concentrated in ‘professional’ occupations (all university teaching and research occupations - professors, lecturers and researchers are classified as part of Standard Occupational Classification (SOC)2 ‘Professional’), there is a significant number of other staff classed as SOC2 Professional. These can include, for example, university librarians.

2.8. It can be noted that staff on academic contracts only make up just under half (49%) of all staff, and there is a very wide range of other occupational employment in universities, including many skilled and semi-skilled jobs. This is a reflection of the complex business of a university – with the need to maintain large estates including lecture halls, laboratories, offices, as well as halls of residence, cafeteria and related facilities for students such as sports facilities. The university sector is a major source of employment in Wales and the employment opportunities it offers are an important element of its role in the Welsh economy.

Figure 2: Occupational profile of employment in Welsh universities

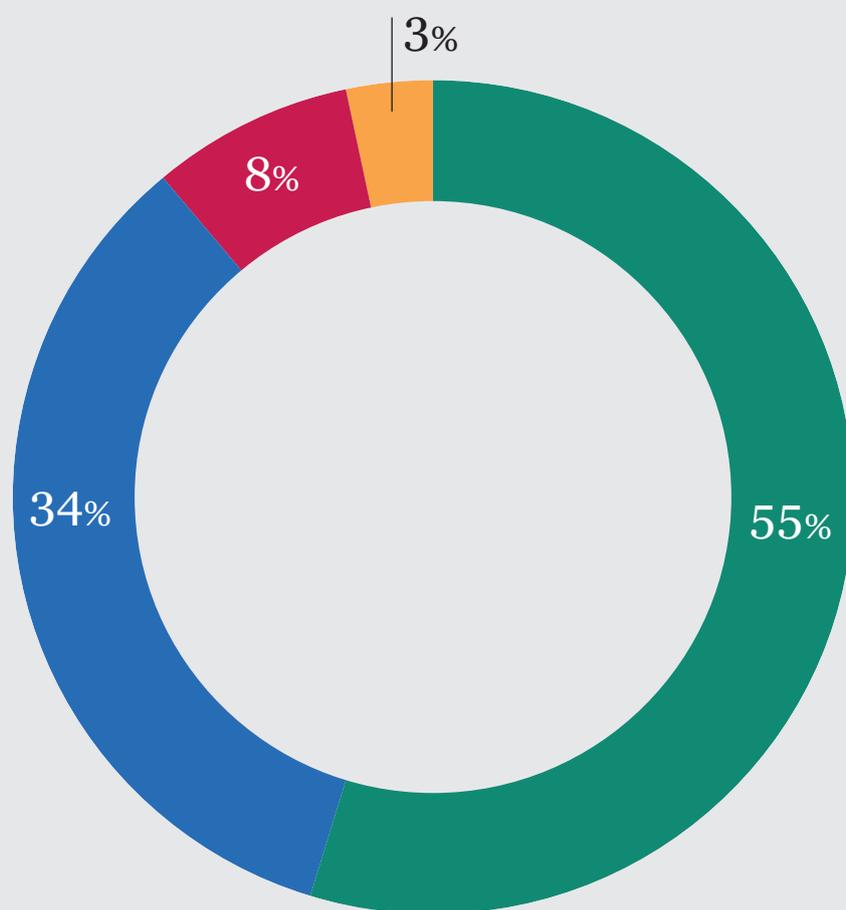


Expenditure

2.9. Welsh university expenditure, together with the expenditure of university staff and students, generates economic activity through secondary or 'knock-on' effects.

2.10. In 2019/20 the HESA data show a total expenditure (including staff salaries) of £1.52 billion. General categories of spend - staff costs, other operating expenditure etc. - are shown in Figure 3.

Figure 3: Sectoral expenditure



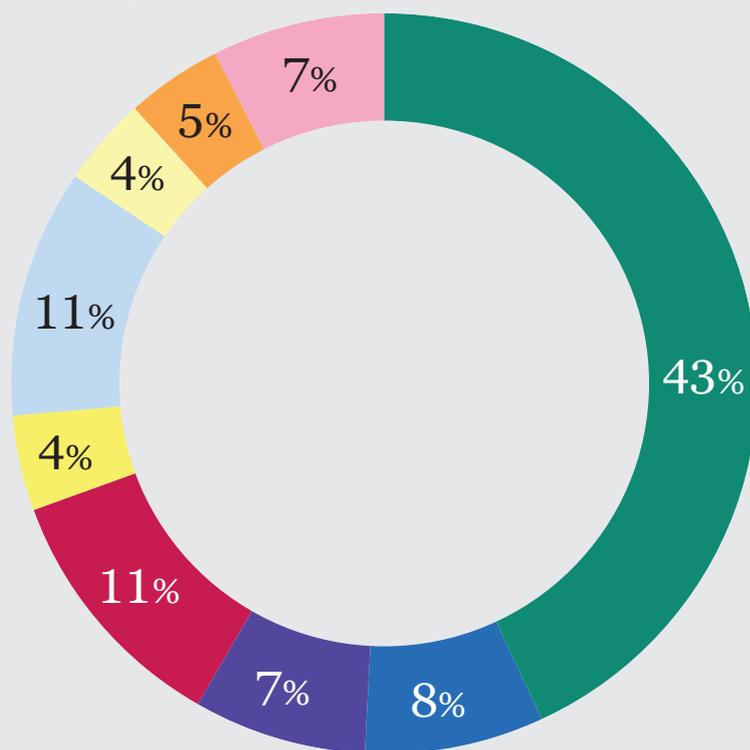
●	Staff costs	£837m
●	Other operating expenses	£521m
●	Depreciation and amortisation	£119m
●	Interest and other finance costs	£47m

Staff costs are shown net of a non-cash accounting adjustment for the USS pension scheme of £118m.
Source: HESA Finances of Higher Education Providers 2019/20

Figure 4 gives a broad picture of how universities spend their money. In 2019/20, the majority went to the staff and operating costs of academic departments. Other spending included supporting specific research grants and contracts, academic services (e.g. IT and computing infrastructure, libraries etc.); general expenditure on estates and buildings, residence and catering, staff and student facilities, student bursaries etc. As we noted from the occupational

employment profile of the university sector, the university needs a very wide range of staff across all occupational groups to support its activities. Staff on academic contracts only make up just under half (49%) of all staff. However, as we can see from the broad picture of where universities spend their money, central administration functions (which will include, for instance, student registry, planning offices, finance, HR, etc.) only make up around 8% of expenditure.

Figure 4: Welsh university sector expenditure by broad categories



● Academic departments	£657m
● Admin & central services	£122m
● Premises	£112m
● Research grants and contracts	£169m
● Residences and catering operations	£66m
● Academic services	£164m
● Staff and student facilities	£58m
● General educational expenditure including student bursaries	£67m
● Other	£111m

3. Secondary or 'knock-on' effects on the economy



3.1. The higher education sector generates economic impact through its expenditure. Known as ‘knock-on’ effects, this impact is chiefly recognised as occurring in two ways:

- **Indirect effects:** through the universities buying goods and services from a wide range of suppliers (from books and stationery to legal services, laboratory equipment to catering supplies). The suppliers also have to make purchases in order to fulfil the university orders and their suppliers in turn make other purchases and so on, rippling through the economy.
- **Induced effects:** through the universities paying wages to their employees, who in turn spend their salaries on housing, food and other consumer goods and services. This creates income for employees in other businesses and sectors, who also spend their income and so on.

3.2. Purchasing behaviours and purchasing policies can play an important role in enhancing economic impact. Put simply, the greater the spend on domestic, rather than imported, goods and services, the greater the economic impact. Previous studies have shown that universities in the UK tend to have a higher propensity to spend on UK, rather than imported goods and services, and many universities encourage local suppliers where possible.

3.3. The long-established roots of many of the Welsh higher education institutions (with most going back between 100 – 150 years) and their strong local presence are likely to enhance their impact, increasing the tendency to spend on more local, Welsh, goods and services. Similarly, as all Welsh universities are accredited by the Living Wage Foundation, this has a beneficial

impact on wages throughout the supply chain¹⁴. The distributional impact analysis presented in Section 5 of this report shows the significant local impact of the sector in the areas immediately surrounding the centre of higher education activity, as well as illustrating benefits flowing to other parts of Wales.

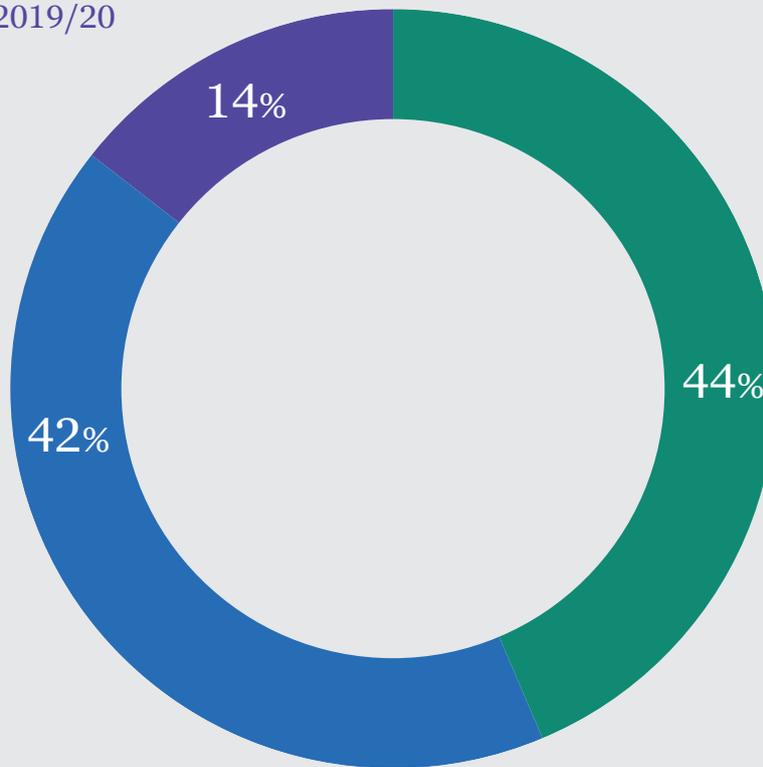
3.4. Staff¹⁵ and student expenditure usually follows a slightly different pattern from institutional expenditure, being more consumer orientated. Staff and student expenditure will have a higher proportion of expenditure on imported consumer goods and goods from elsewhere in the UK (e.g., through online shopping). However, (and certainly in more normal, non-pandemic, times) there is still an obvious and observable reliance on local goods and services – such as cafés, pubs, restaurants, fast food outlets, taxi services or personal services such as hairdressing etc. The ‘snapshot’ analysis of the impact of expenditure reflects those linkages.

3.5. In this study, the impact of Welsh university expenditure on the UK as a whole was modelled and analysis made of the proportion of that impact accruing to Wales (using a location quotient approach). An additional Wales-specific gravity model was then constructed to analyse the further flow of impact across Wales. Modelling of impact on and across Wales took into account the business and industry structure of Wales and the distances between different centres of activity.

¹⁴ <https://www.livingwage.org.uk/accredited-living-wage-employers>

¹⁵ Staff expenditure is included in the modelling of the university expenditure and the model takes account of the different pattern of staff expenditure (these are part of the ‘induced effects’ previously described in 3.1)

Figure 5: Total output generated by Welsh universities 2019/20



●	Output of the universities	£1638m
●	Output generated in the rest of Wales	£1575m
●	Output generated in the rest of the UK	£532m

Source: HESA Finances of Higher Education Providers 2019/20

Output generated by the Welsh universities

3.6. The sector's output in 2019/20 was £1.64 billion. ¹⁶Through 'knock-on' effects in that year the sector generated an additional £2.1 billion in other industries throughout the UK, with the majority (£1.57 billion) accruing in Welsh industries.

3.7. The impact is generated by institutional expenditure. By studying the total volume of impact generated by 2019/20 sectoral expenditure, it is possible to calculate

'multipliers' that show the relationship between the university's direct output and that generated in other sectors. Multipliers are an outcome or end result of the modelling process. Only tailored modelled analysis of the kind undertaken in this study can produce higher education specific multipliers. ¹⁷The Type II output multipliers for the Welsh HEI sector in 2019/20 were calculated. These were:

- UK: 2.29
- Wales: 1.96

¹⁶ The Sector's turnover is broadly equivalent to its output.

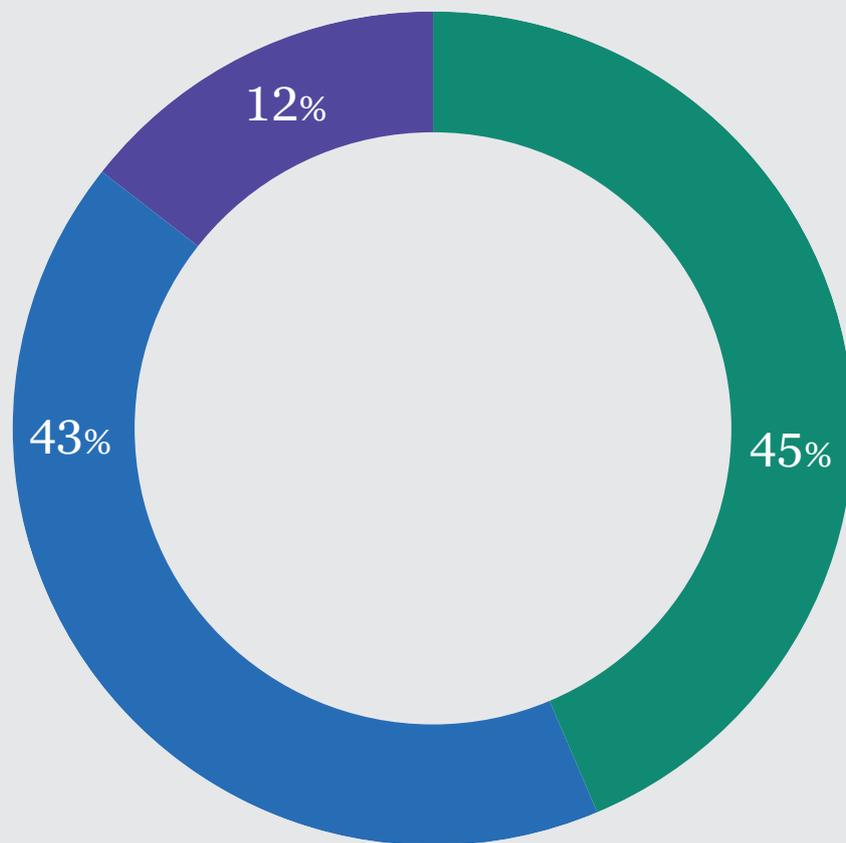
¹⁷ In other words, the results of this analysis are bespoke and tailored to the higher education sector. They are not using broad brush 'borrowed' multipliers from other sectors or other studies. On the contrary, they are enabling the calculation of sector-specific multipliers.

3.8. In other words, every £1 million of Welsh university output in 2019/20 generated a further secondary output impact of £0.96 million in Wales plus a further £0.33 million outside Wales, in the rest of the UK.

Employment generated by the Welsh universities

3.9. In addition to directly providing 20,730 jobs, university expenditure generated additional jobs in other parts of the economy.¹⁸

Figure 6: Employment generated by the Welsh universities



●	Jobs in the universities	20,730
●	Jobs generated in other industries in Wales	19,690
●	Jobs generated in other parts of the UK	5,598

Source: Viewforth modelling system analysis (2021)

¹⁸ The modelling process for employment impact initially gives results in terms of 'FTE' or 'full time equivalent' jobs. FTE is essentially an expression of labour demand with one FTE equivalent to 'one-person-year' of employment. However, headcount jobs is a more intuitive and normal way to present employment results, giving a more realistic picture of how many people are actually affected. In this study we present employment results in terms of headcount jobs, with the FTE results included in footnotes for reference purposes. When presenting headcount employment, we use the actual headcount reported by the universities for their direct employment and we translate the FTE secondary employment into headcount jobs using the prevailing pattern of fulltime to part-time employment in Wales and the rest of the UK.

3.10. Around 25,289 more jobs were generated outside the universities. The majority of the additional jobs (19,690) were generated in Wales.

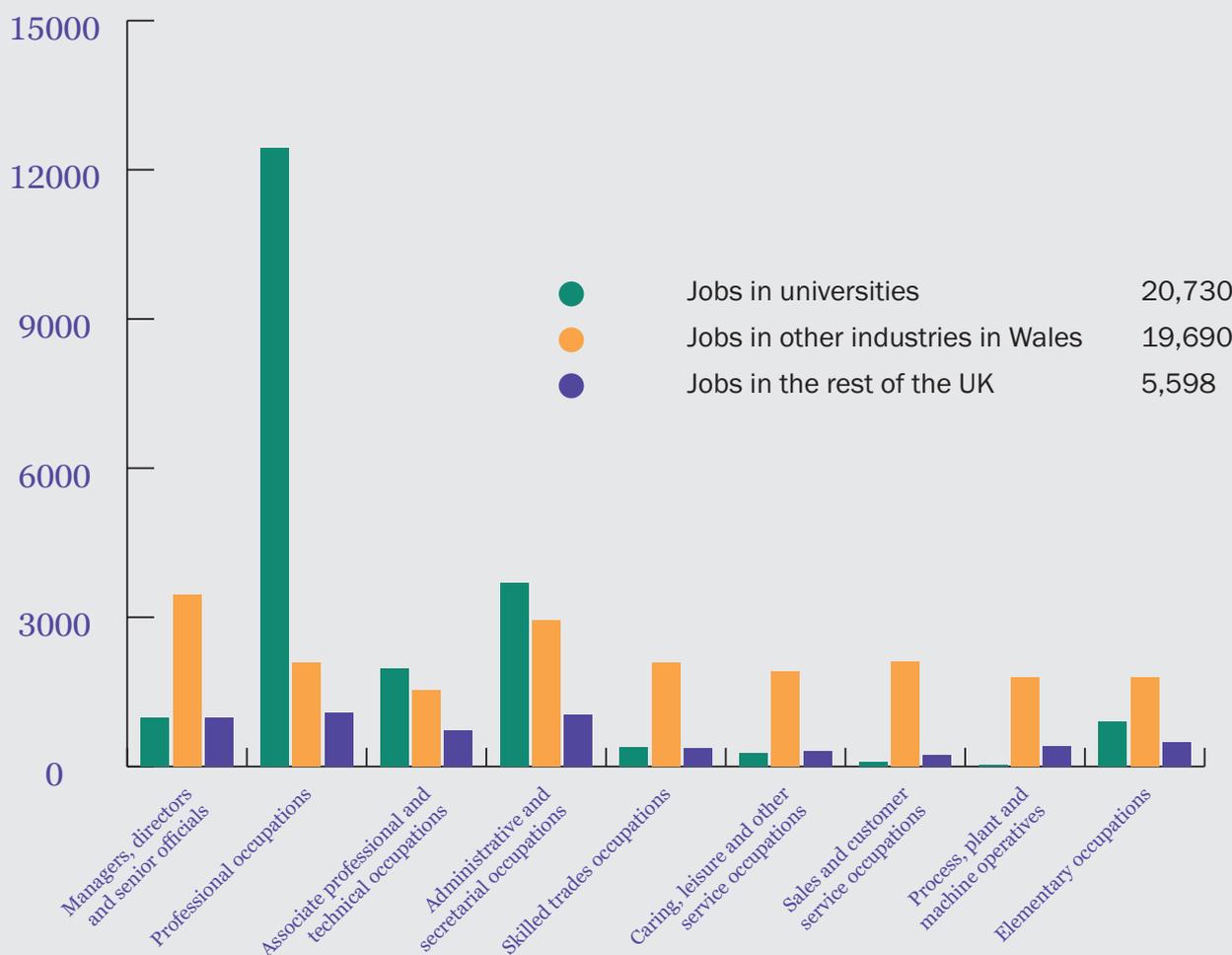
3.11. As with the analysis of output impact, it is possible to calculate ‘multiplier’ values. The Type II employment multipliers for the Welsh higher education sector in 2019/20 were calculated as follows:

- UK 2.22
- Wales 1.93

In other words, for every 100 direct jobs created in the University itself, another 122 UK jobs were generated outside the universities in other industries, 93 of which were in Wales.

3.12. Section 2 (Figure 2) had shown how the sectoral employment profile covers a wide range of occupations and skill levels. Using Standard Occupational Classifications, it is possible to compare the profile of higher education employment with that generated outside the universities. Figure 7 compares

Figure 7: Comparison of the occupational profile of the employment generated



Source: Viewforth modelling system analysis (2021)

the sectoral occupational profile with that of the employment created outside the higher education institutions in Wales, and in the rest of the UK, by the spending of universities.

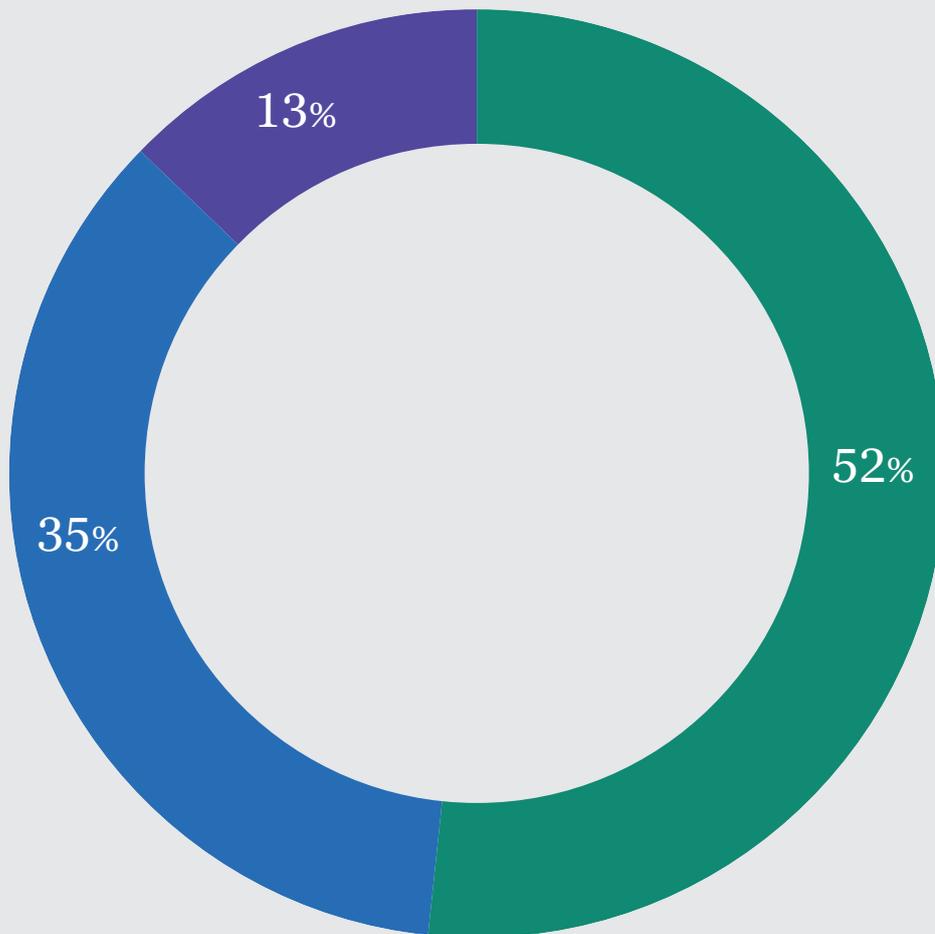
3.13. As Figure 7 illustrates, higher education employment is relatively specialised in high skilled ‘white collar’ jobs compared to jobs in the rest of the economy. This might be expected from the knowledge-intensive nature of university activity. The relatively fewer ‘managerial’ occupations in universities compared to the jobs generated in the rest of the economy will tend to be more of a reflection of how universities classify their own staff – with many academics (who are included in SOC2 Professional, rather than SOC1 Managers and Directors) undertaking managerial roles.

GVA generated by the Welsh universities

3.14. The importance of higher education to the Welsh economy can be seen by its generation of significant levels of gross output and employment. However, another key measure of the sector’s contribution to the economy is the GVA generated. GVA or ‘Gross Value Added’ is a measure of the value created by the sector – GVA is the industry level measure of GDP(O). GDP(O) is a production measure of the net change in wealth or prosperity in the economy as a whole over the year. The sector’s direct GVA amounted to £1.12 billion and through secondary or ‘knock-on’ effects it generated a further £1.03 billion of GVA in other industries across the UK (with the majority, £760 million, generated in Welsh industries). The £1.88 billion share of Welsh GVA (direct and secondary) was equivalent to around 2.8% of 2019 Welsh GVA.¹⁹

¹⁹ 2019 Welsh GVA was £67.1 billion (Stats Wales)

Figure 8: Total GVA generated by the Welsh universities 2019/20



●	Direct university GVA	£1116m
●	GVA generated in other industries in Wales	£760m
●	GVA generated in the rest of the UK	£274m
	Total	£2.15 billion

4. The impact of off-campus student expenditure



4.1. An additional and important aspect of the impact generated through a university's activities is the impact of student expenditure. Student expenditure can be very important to the local and regional economy and is always seen by local businesses as a core part of their own revenue stream. In a 'normal' year, as well as paying fees to the university, students spend money on rent, food and other living expenses, much of which accrues to the local area. There is a visible impact on the areas surrounding a university. The most casual observer can see the plethora of bars, cafes and shops and other services that spring up to serve the student population. Local landlords also benefit from the need for rented accommodation.

4.2. 2019/20 was not a 'normal' year for analysing student off-campus expenditure. As we have noted, from April to July 2020 the lockdown due to the Covid pandemic meant some students were unable to physically return to university after the Easter break, with the resultant impact on university rentals. This also means that there was less student personal expenditure taking place in the university areas.

4.3. There is no data available on the extent of the curtailment of student expenditure. For the purposes of this analysis and to take at least some account of the reduction in student spending in Wales in 2019/20 due to Covid, we made estimates of student spend in a 'normal' year and then adjusted these downwards.

4.4. We assumed that for the majority of the year – to end March 2020, student expenditure was as normal; we then adjusted estimates of student spend downwards for the remainder of the academic year. Adjustments²⁰ were made based on observing the drop in university student residence income and assumed that:

- Welsh students all remained in Wales. They may not have incurred expenditure in the direct university area but their personal spend remained within Wales.
- 50% of undergraduate students from the rest of the UK did not return to Wales after Easter and their spend was 'lost' to Wales.
- 20% of all international undergraduate students did not return and their expenditure was 'lost' to Wales (this is a lower proportion than students from the rest of the UK as fewer international students would have left Wales over Easter in the first place.)

4.5. There was a total (headcount) student population in Welsh universities of 134,760 in 2019/20.²¹ Over half of all students (52%) came from Wales, 32% came from the rest of the UK, 4 % from the EU and 12 % from other countries.

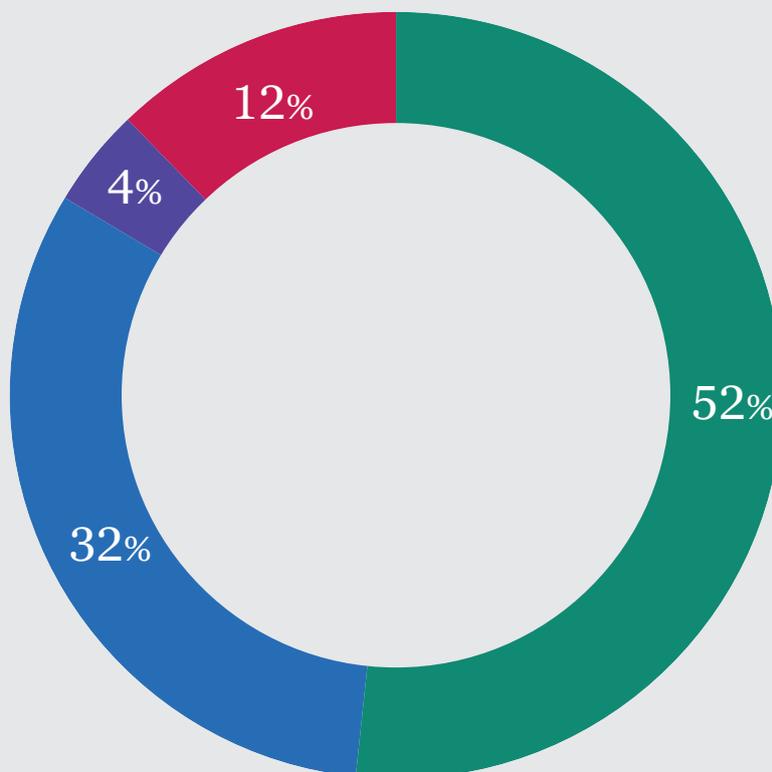
²⁰ These adjustments are clearly broad brush, but in the absence of any actual data they may be a broad approximation. Arguably the loss of rest of UK student spend may have been offset by a gain in Welsh student spend (in that a number of Welsh students normally studying in the rest of the UK may have remained in Wales after Easter and not returned to the rest of the UK.)

²¹ Student data are taken from HESA 2019/20 and includes Wales based Open University students. The university finance flows associated with the students (tuition fees, and so on) are not included in Wales data but are attributed to the main OU site in Milton Keynes.

4.6. Estimates were made of the personal expenditure of the four different groups of students – non-EU students, students from the EU, students from other parts

of the UK and domestic Welsh students - and the impact of their expenditure on the economy was modelled.²² The results for each group are presented below.

Figure 9: Student profile by domicile of origin



●	Students from Wales	69,820
●	Students from the rest of the UK	42,955
●	Students from EU countries	5,795
●	Students from non-EU countries	16,190

Source: Viewforth modelling system analysis (2021)

²² Student off-campus expenditure was estimated by drawing on the most recently available Student Income and Expenditure survey for Wales (published 2018) and adjusted to 2020 expenditure using the Consumer Price Index. Student types (part-time/fulltime; undergraduate/postgraduate) were mapped to the relevant expenditure types. Expenditure included for undergraduate students was for 9 months of the year and postgraduates included 12 months expenditure. International Student off-campus expenditure was estimated by drawing on the detailed analysis of international student expenditure carried out by the Department for Business, Skills and Innovation (BIS) for the UK Government International Education Strategy Paper International Education: Global Growth and Prosperity (July 2013) and uprated by the Consumer Price Index to 2020. To avoid double counting, overall student spend figures were adjusted downwards to reflect the estimated amount spent on campus (for residence, catering etc), which varied according to different groups of students (for instance a relatively higher proportion of international students tend to stay in university accommodation compared to Welsh students.) and this gave the final 'off-campus' spend. The analysis by BIS of international student expenditure took account of 'UK-sourced' income e.g. from part-time work and excluded UK-sourced income so that only expenditure from non-UK sources was counted – hence can be reliably classed as export earnings. As previously indicated, further adjustment downwards was also made to take account of the reduction in student personal spend attributable to Covid restrictions from April- July 2020.

International students

4.7. The international dimension of Welsh higher education is regarded as being of considerable value to Wales, in terms of making international connections and acting as a bridge between Wales and the global economy. The Welsh Government has recognised the importance to Wales of the international links created by the Welsh universities, and the economic and cultural benefits they bring, with its support for the Global Wales partnership.²³ Global Wales is a partnership between Universities Wales, British Council Wales, HEFCW and the Welsh Government and aims to encourage universities in both international student recruitment and building research, knowledge exchange and collaborative business links with other countries.

4.8. By attracting students from abroad, the higher education sector is contributing, both immediately and in the longer term, to the goal of raising the country's profile and attracting investment. The students themselves can be regarded as 'long stay visitors', spending money in the region. They also attract and regularly pull in short stay leisure visitors (parents, relations, and friends) who spend money on hotel accommodation and local amenities. Active alumni networks can also help make such benefits a longer lasting phenomenon, attracting alumni back to Wales and building international links. Encouraging domestic students to develop an international outlook is also considered to be important, with universities encouraging domestic Welsh students and staff to participate in international exchange and research collaborations.

4.9. In 2019/20 Welsh universities attracted nearly 22,000 students from outside the UK. The fees paid by international students to the universities are captured in the university accounts and their impact is included in analysis of the overall institutional impact at sectoral level. Non-EU students alone paid the universities over £203.2 million in fee income in 2019/20. On its own, this tuition fee income can be seen to make up around 3.6% of all Welsh service sector exports.²⁴ Payments to the universities for halls of residence accommodation, or money spent in university cafeterias, bars etc., are likewise captured in the institutional impact.

4.10. However, in addition to any fees or other monies they pay to the university, international students spend money off-campus. This can be on private sector rental, food, entertainment, consumer goods, travel etc. In 2019/20 the off-campus expenditure of international students (adjusted for Covid, as previously explained) was estimated as £216 million. In this context, 'international' includes both students from the rest of the EU and non-EU students, as all of their personal expenditure can be regarded as an injection into the UK economy and are export earnings. The impact of non-EU and EU students can be observed separately.

²³ <https://wales.britishcouncil.org/en/global-wales-welsh-higher-education-partnership>

²⁴ With the most recent estimates of Welsh Service Sector Exports being £5.6 billion (ONS, 2018) <https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/datasets/regionalisedestimatesofukserviceexports>

Students from non-EU countries

The off-campus expenditure of non-EU students generated £329 million of output (of which £246 million was in Wales) and over 3,352 jobs throughout the UK (of which 2,495 were in Wales).

Non-EU student off-campus expenditure generated just over £152 million of GVA in the UK (£111 million in Wales).

Students from the EU

The off-campus expenditure (estimated as £79m) of students from the EU generated nearly £106 million of output in the UK (of which £91 million was in Wales). 1,244 jobs were generated in the UK (925 in Wales).

EU students generated nearly £57 million of UK GVA (£41 million in Wales).

Students from the rest of the UK

4.11. In 2019/20, there were 42,955 students from the rest of the UK outside Wales registered at Welsh universities.²⁵ The expenditure of students from outside Wales - while it is not additional to the UK economy as a whole - can be regarded as an injection into the Welsh economy. Consideration of this element of impact is legitimate in terms of regional policy evaluation.

4.12. The covid-adjusted off-campus expenditure of the 42,955 students from the rest of the UK studying at Welsh higher education institutions was estimated to be £466 million in 2019/20.

The off-campus expenditure of students from the rest of the UK generated £541 million of output in Wales and around 5,485 jobs in Wales. The off-campus expenditure of students from the rest of the UK generated £244 million of Welsh GVA.

Welsh students

4.13. One of the distinctive aspects of the Welsh higher education sector is its strong Welsh identity and its commitment to raising the skills base of Wales through providing educational opportunities to domestic residents, thereby ensuring they have access to higher education without having to leave Wales. This can be of particular importance in more rural or remote areas. In 2019/20, 69,820 Welsh-domiciled students studied at universities in Wales.²⁶ The expenditure of students from Wales is not additional to the Welsh economy. However, there is an arguable case that the universities ensure that this expenditure is retained within the region, rather than the students moving away from Wales.

4.14.

The off-campus expenditure of Welsh domiciled students studying at Welsh universities in 2019/20 was estimated to be just over £1 billion.

This expenditure generated £1.19 billion of output and around 12,046 jobs in Wales.

The off-campus personal expenditure of Welsh students generated £537 million of Welsh GVA.

4.15. The summary impact of off-campus student expenditure is presented in Table 1.

²⁵ Source: HESA Students in Higher Education Institutions 2019/20

²⁶ This includes Open University students studying in Wales

Impact of off-campus expenditure of university students in Wales 2019/20

	Estimated off-campus expenditure (£m) ²⁷	Output impact on Wales (£m)	Output impact on rest of UK (£m)	Jobs generated in Wales (FTE)	Jobs generated in rest of UK (FTE)	GVA generated in Welsh industries (£m)	GVA generated in rest of UK (£m)
16,190 Non-EU students	216	246.0	82.8	2494	857	111.1	41.3
5,795 EU students	79	91.3	15.3	925	318	41.2	15.3
42,955 Rest of UK students	466	540.9	N/A*	5485	N/A*	244.3	N/A
69,820 Welsh students	1016	1188.0	N/A*	12046	N/A*	536.5	N/A
Total	1777	2066.1	98.1	20951	1176	933.1	56.6

Source Viewforth Modelling System Analysis

*NOTE to Table: Impact generated by international students is additional to both the UK and Welsh economies. Impact of students from the rest of the UK is included here on the basis that the Welsh universities attracted RUK students and their expenditure into Wales and hence it is an injection into the Welsh economy. Analysis of domestic Welsh student expenditure is also included here on the basis that the universities retained these Welsh students and their expenditure in Wales. In both the case of RUK students and Welsh students, it is the impact on Wales that is important, impact on RUK is not relevant as it is not additional to the UK economy and could be regarded as displacement.

Impact of international visitors

4.16. Along with attracting international students, universities also attract a range of other international visitors - both business and leisure - every year. As organisations with an international outlook and with research connections across the globe, universities regularly attract business visitors on individual research visits, study visits or for participation in academic and learned society conferences.

4.17. The important role that universities can play in attracting business tourism is increasingly recognised and encouraged in many cities across the UK. The Wales International Convention Centre in Newport was launched in late 2019. While its activity has been curtailed due to the pandemic, it will be a key venue for the future as the type of facility that can successfully host major conferences. The importance of universities in attracting major conferences cannot be understated. A study undertaken of the international conference business

²⁷ This is the 'off-campus' personal expenditure of students. It does not include monies paid to the Universities for catering, residence and related items, which are included in University accounts and reflected in University impact.

in Glasgow²⁸ found that of the 44 major international (“Supranational”) conferences held in Glasgow in 2018, 41 had a specific academic or scientific link with a local academic ‘ambassador’ involved.

4.18. It is likely that the role of the Welsh universities in helping to attract international business visitors will become more visibly important in future. The International Convention Centre has already established its own ‘Ambassador Programme’ (Ambassador Wales²⁹) working with university staff to attract major academic conferences to Wales.

4.19. It is beyond the scope of this study to consider the full role of the Welsh universities in business tourism, which would need separate study of the conferences and convention business in Wales. However, there are two clear streams of international visitors associated with the universities, for whom some estimates can be made. These are:

(a) Leisure visitors: the family and friends of current and graduating international students who come to Wales as tourists to visit students, attend graduation ceremonies and other university events. The universities do not formally collect data on such visitors; however, estimates can be made through analysis of the International Passenger Survey data, combined with data from the Annual Population Survey and HESA data on international student numbers.

(b) Academic business visitors: a feature of the international standing of the universities and their staff is that, in a typical year, every university will host hundreds of visiting international academics, sometimes as part of an academic delegation or, frequently, as research visitors to individual members of staff. Estimates can be

made based on the number of active research staff in the universities.

4.20. To estimate the numbers of leisure visitors we drew on numbers of international visitors to Wales in 2019, from different parts of the world, reported through the IPS and Travel Trends (2019), who indicated that the primary purpose of visit was to see family and friends. This was combined with the respective numbers of international students in Wales as well as international university staff (over 13% of university staff in Wales are from other countries). It was assumed that six person visits in a year would be made to each EU student or staff member by family and friends (reflecting the relative ease and inexpense of travel between Wales and the rest of Europe.) Two person visits in a year would be made to students and staff from non-EU countries. The estimated expenditure of visitors was also made drawing on the IPS and Travel Trends data.

4.21. A conservative estimate of academic business visitors was made by firstly identifying the number of academic staff on full Teaching and Research contracts. Staff on such contracts (4,125 staff) made up around 20% of all university staff. It was then assumed that these 20% of staff members would each attract two international academic visitors per year. Only staff on full Teaching and Research contracts were included to reflect that these are likely to be the more established staff with international reputations in their field.

4.22. Overall, taking both leisure and business visitors into account, this resulted in an estimate of 86,850 international person visits in 2019/20 attracted by the universities, with an average spend per visit of £389. ³⁰The impact of this expenditure was modelled and the results are presented in Table 2.

28 The impact of Supranational conferences on their host economies: the case of Glasgow, Scotland. Kelly, Marsh & McNicoll (2019) <http://www.viewforthconsulting.co.uk/sitebuildercontent/sitebuilderfiles/supranationalconferencinglasgow.pdf>

29 <https://www.iccwales.com/news/2019/05/15/ambassador-programme-event/>

30 This made a total expenditure of £33.8million, of which £30 million was treated as “off-campus” expenditure.

Table 2: Additional impact of the off-campus expenditure of short-term international visitors associated with universities in Wales 2019/20

	Generated in Wales	Generated in rest of UK	Total generated in UK
Output £m	£34.6m	£11.6m	£46.3m
Jobs (Headcount)	351	121	472
GVA £m	£15.6m	£5.8m	£21.4m

Overall impact on Wales of the universities and their students

4.23. A summary of the results for the modelled analysis of impact on Wales as a whole and on the rest of the UK are summarised in Tables 3,4 and 5. The study shows Welsh higher education to be of significant economic importance to Wales bringing immediate benefits to the country in terms of output generated and jobs created. Section 5 of this report goes further to explore the pattern of impact and how this is distributed around Wales.

Overall output impact

Table 3: The total impact of Welsh university activity in 2019/20:
Summary of output generated

	Direct (£ m)	'Knock-on' impact on UK* £m	Of which accruing to Wales £m	Total UK impact (direct & 'knock-on')£m	Total impact on Wales (direct & 'knock-on') £m
University	1637.6	2107.0	1575.3	3744.6	3212.8
Plus non-EU students	0	328.8	246.0	328.8	246.0
Subtotal	1637.6	2435.8	1821.2	4073.4	3458.8
Plus EU students	0	106.6	91.3	106.6	91.3
Subtotal	1637.6	2542.4	1912.5	4180.0	3550.1
Plus rest of UK students	0	540.9	540.9	540.9	540.9
Subtotal	1637.6	3083.3	2453.4	4720.9	4091.0
Plus Welsh students	0	1188.0	1188.0	1188.0	1188.0
Subtotal	1637.6	4271.3	3641.4	5908.9	5279.0
Plus international visitors	0	46.3	34.6	46.3	34.6
Total combined impact	1637.6	4317.5	3676.0	5955.1	5313.6

Source: Viewforth Modelling System Analysis

*Because of the effects of displacement, the impact on UK jobs for both RUK students and Welsh students is assumed to be equal to the impact on Welsh jobs.

Overall output impact

4.24. The total combined impact on Welsh employment of the universities and their students came to 61,722 jobs. This was equivalent to 4.8 % of all 2018 Welsh employee jobs. ³¹

Table 4: The total impact of Welsh university activity in 2019/20: Summary of employment

	Direct employment (Headcount)	'Knock-on' impact on UK* (Headcount)	Of which accruing to Wales (Headcount)	Total UK impact (direct & 'knock-on') (Headcount)	Total impact on Wales (direct & 'knock-on') (Headcount)
University	20730	25289	19690	46019	40420
Plus non EU students	0	3352	2494	3352	2494
Subtotal	20730	28641	22185	49371	42915
Plus EU students	0	1244	925	1244	925
Subtotal	20730	29884	23110	50614	43840
Plus rest of UK students	0	5485	5485	5485	5485
Subtotal	20730	35369	28595	56099	49325
Plus welsh students	0	12046	12046	12046	12046
Subtotal	20730	47415	40641	68145	61371
Plus international visitors	0	472	351	472	351
Total combined impact	20730	47887	40992	68617	61722

Source: Viewforth Modelling System Analysis

*Because of the effects of displacement, the impact on UK jobs for both RUK students and Welsh students is assumed to be equal to the impact on Welsh jobs.

Overall impact on GVA

4.25. The universities alone generated over £1.8 billion of GVA in 2019/20 and the total combined impact on Wales GVA of the universities and their students and visitors came to around £2.82 billion. This was equivalent to 4.2% of all 2019 Wales GVA. (Total Wales GVA in 2019 was £67.1 billion - Stats Wales 2021³²).

Table 5: Total impact of Welsh university activity on GVA (universities and students) 2019/20

	Direct (£ m)	'Knock-on' impact on UK* £m	Of which accruing to Wales £m	Total UK impact (direct & 'knock-on') £m	Total impact on Wales (direct & 'knock-on') £m
University	1116.23	1034.4	760.1	2150.6	1876.3
Plus non-EU students	0	152.4	111.1	152.4	111.1
Subtotal	1116.23	1186.7	871.2	2303.0	1987.4
Plus EU students	0	56.5	41.2	56.5	41.2
Subtotal	1116.23	1243.3	912.4	2359.5	2028.6
Plus rest of UK students	0	244.3	244.3	244.3	244.3
Subtotal	1116.23	1487.5	1156.6	2603.8	2272.9
Plus Welsh students	0	536.5	536.5	536.5	536.5
Subtotal	1116.23	2024.0	1693.1	3140.2	2809.4
Plus international visitors	0	21.4	15.6	21.4	15.6
Total combined impact	1116.23	2045.5	1708.8	3161.7	2825.0

Source: Viewforth Modelling System Analysis

*Because of the effects of displacement, the impact on UK GVA for both RUK students and Welsh students is assumed to be equal to the impact on Welsh GVA.

5. Distribution of impact across Wales

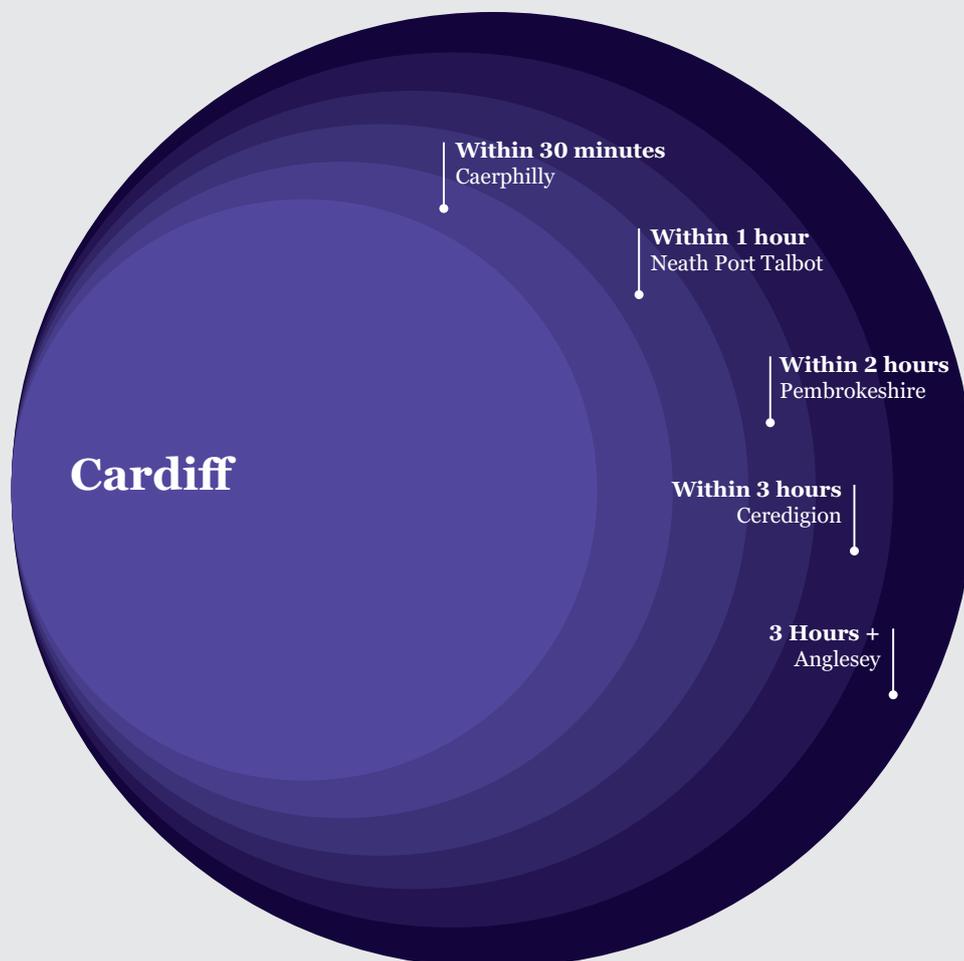


5.1. This study was extended to include analysis of the distribution of university economic impact across Wales. This involved the construction of a Wales-specific 'gravity model' which combined official data on the industry and labour market structure of Wales together with information on the travel distance from the major centres of university activity.

5.2. Analysing how higher education economic impact flows across Wales shows how all parts of Wales benefit from the impact of the spending of the universities,

university students and their visitors. While the areas immediately surrounding centres of university activity benefit most directly, economic impact flows further afield even to areas that do not have a university. This reflects the way in which the expenditure impact ripples through the economy, so that even locations relatively distant from the immediate centre of higher education activity experience some impact. The concept is illustrated below, using the example of university activity in Cardiff as the initial source of impact.

Figure 10: Ripple effect of impact across Wales
(using impact originating in Cardiff as an example)



5.3. This effect is replicated for all areas where higher education activity originated. In this analysis, nine centres of university activity were identified and used as the originating point of impact, which then spread across Wales in a ripple effect.³³

5.4. Larger centres of employment and population tend to attract concentrations of expenditure impact. This is moderated by distance - the further the distance travelled from the original source of impact, the weaker the ripples of impact become. The resultant analysis reflects the demographics, industry and employment characteristics of Wales as well as geographical location factors.

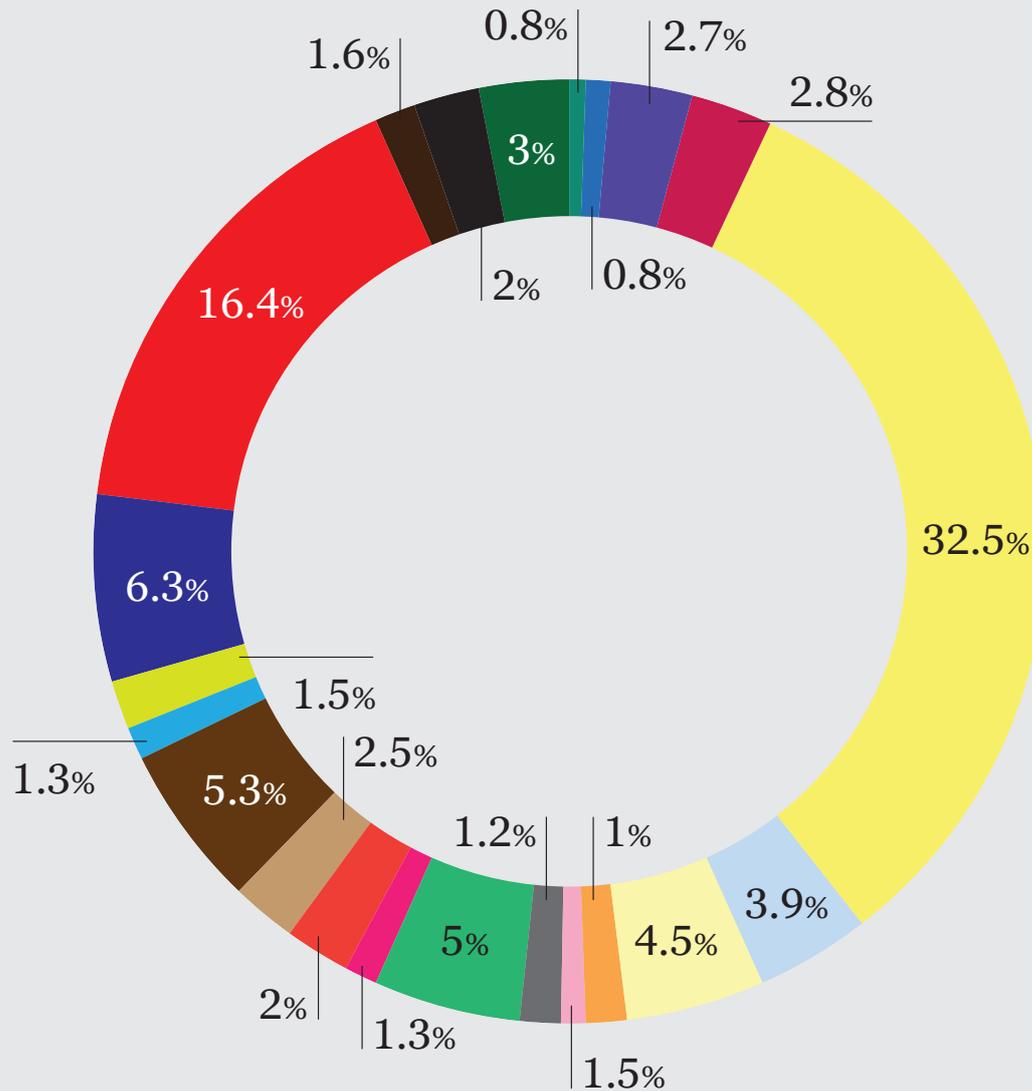
5.5. The analysis undertaken reflects the total impact of Welsh universities on Wales and includes 'spillovers' across regions. For instance, the overall economic impact of the university sector observed to be in Swansea is not only and wholly attributable to the higher education activity directly in Swansea (Swansea University and University of Trinity St David activity in Swansea) but also includes ripples from the impact of other universities. The impact observed in Gwynedd includes not only the impact of Bangor University but also economic ripple effects through the supply chain from other universities in Wales including e.g. impact originating from Aberystwyth University, the University of South Wales, Cardiff University and so on.

5.6. The results for detailed analysis of impact across the 22 Local Authority areas of Wales are presented below. Figures 11 and 12 show the impact distribution across Wales of the output and GVA generated. These reflect the distribution of impact according to where the economic activity takes place (i.e. where the particular industry or business where the output and GVA generated is located.) Therefore, to give an example, the £37.4m of GVA shown as in Conwy, means that the flow of university impact through the supply chain across Wales has led to this amount of GVA being generated in businesses located in Conwy - even though there are no centres of university activity directly in Conwy. Of the £2.8bn of Welsh GVA generated by Welsh universities and their students, £564.8 million (20%) was in Local Authority areas that did not have a university presence.

³³ The initial 'impact point' included the main geographical areas where there was observable Welsh university activity. In 2019/20 these were: Aberystwyth, Bangor, Cardiff, Carmarthen, Lampeter, Newport, Pontypridd, Swansea, Wrexham.

Distribution across Wales of output impact

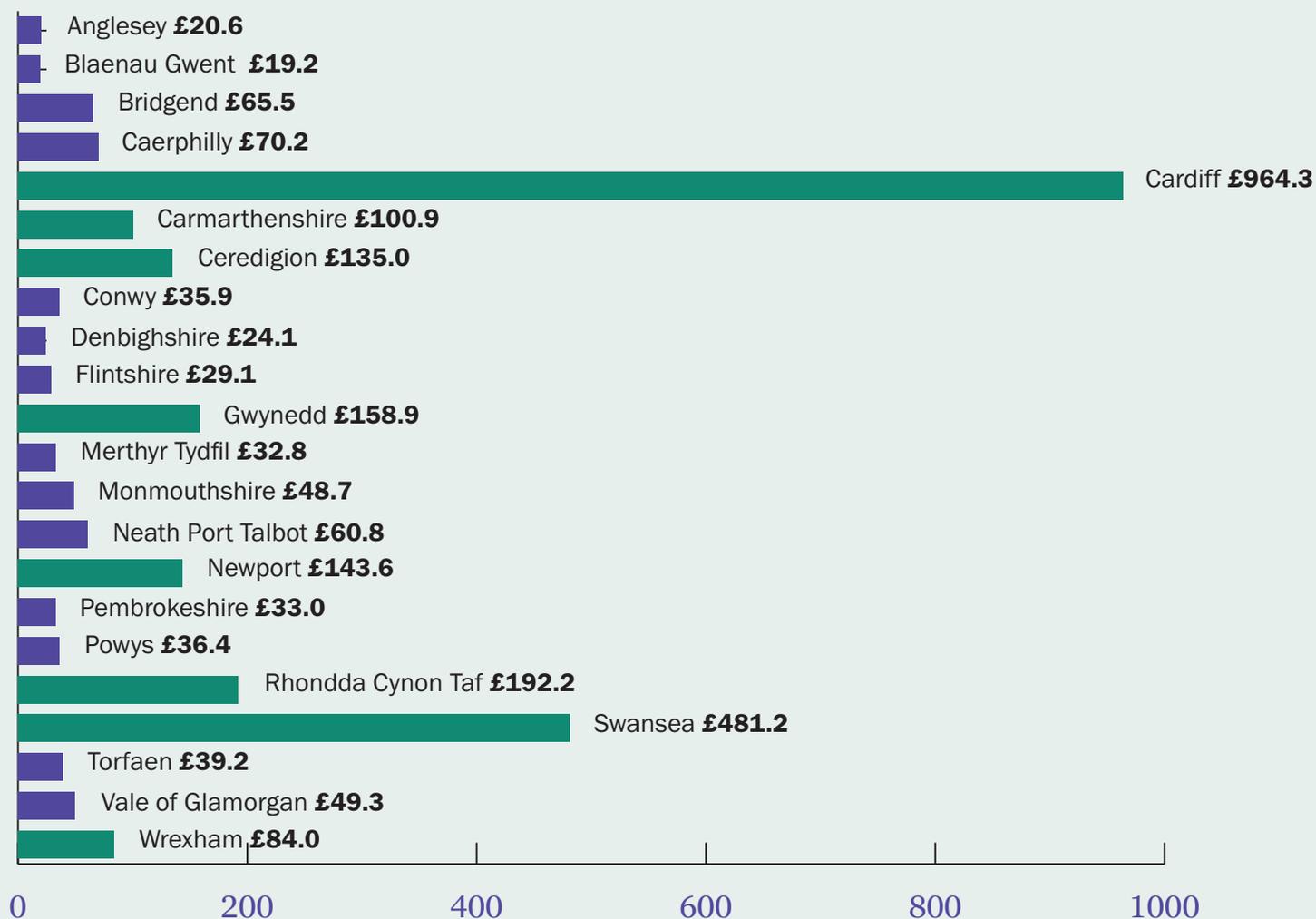
Figure 11: Distribution of output impact - local effects across Wales



● Anglesey	£44.16m	● Denbighshire	£51.97m	● Powys	£78.4m
● Blaenau Gwent	£41.46m	● Flintshire	£62.56m	● Rhondda Cynon Taf	£339.91m
● Bridgend	£141.1m	● Gwynedd	£267.22m	● Swansea	£869.26m
● Caerphilly	£151.09m	● Merthyr Tydfil	£70.66m	● Torfaen	£84.55m
● Cardiff	£1727.68m	● Monmouthshire	£104.71m	● Vale of Glamorgan	£106.3m
● Carmarthenshire	£207.25m	● Neath Port Talbot	£130.86m	● Wrexham	£161.72m
● Ceredigion	£241.67m	● Newport	£282.76m		
● Conwy	£77.3m	● Pembrokeshire	£71m		

Distribution across Wales of GVA impact

Figure 12: Distribution of GVA impact – local effects across Wales
Figures shown in £m



5.7. In Figure 12 the areas which have a concentration of university activity are highlighted in green. These are:

- Wrexham (Wrexham Glyndŵr University)
- Swansea (Swansea University and University of Wales Trinity St David activities)
- Rhondda Cynon Tâf (University of South Wales activity)
- Newport (University of South Wales activity)
- Gwynedd (Bangor University activity)
- Ceredigion (Aberystwyth University and University of Wales Trinity St David activity)
- Carmarthenshire (University of Wales Trinity St David activity)
- Cardiff (Cardiff University, Cardiff Metropolitan and some University of South Wales activity)

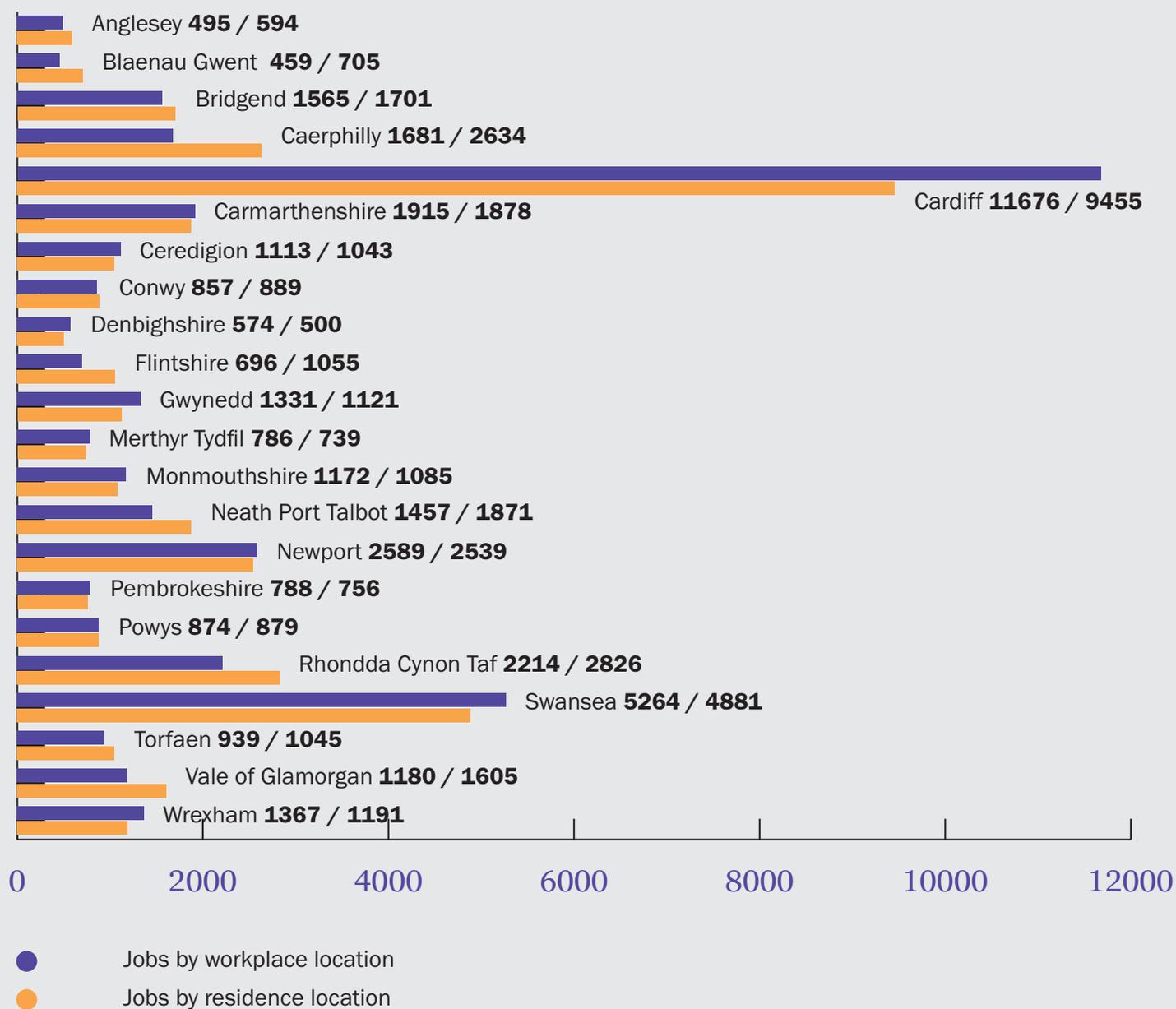
There is clearly a larger volume of economic activity in those areas because they include the university's own direct activity; however, the chart also shows how impact flows through the supply chain right across Wales.

Distribution across Wales of employment impact

In order to consider the distribution of employment impact across Wales we developed an additional perspective. Firstly – as with the distribution of output and GVA – we analysed where the jobs generated through the university sector's impact will tend to be. In other words, the geographic location of where the economic activity takes place (workplace location). Within the gravity model this used an economic 'mass' indicator (the total employee jobs in industries in each local authority area).

Secondly, in order to explore more social impact dimensions, we analysed where the people doing those jobs will tend to live. For instance, a job may be created in an industry based in Swansea, but not everyone working in Swansea actually lives in Swansea. Some commute in. This analysis entailed modelling the flow of employment across Wales using a residence-based measure (the total number of residents aged 16-64 in employment in each local authority area). The contrasting pattern of results is shown in Figure 13, which focusses on the secondary employment generated, i.e. only the jobs outside the universities.

Figure 13: Distribution of secondary employment impact – local effects across Wales



5.8. Figure 13 shows that there are slightly different patterns emerging from the two different perspectives. To take examples: a significant number of jobs generated are shown as located in Cardiff; however, the residence-based analysis shows that these jobs will not all be filled by people living in Cardiff – the employment benefits accrue over a wider area and will tend to reflect commuting patterns. This may be seen more clearly in table Form in Table 6 below.

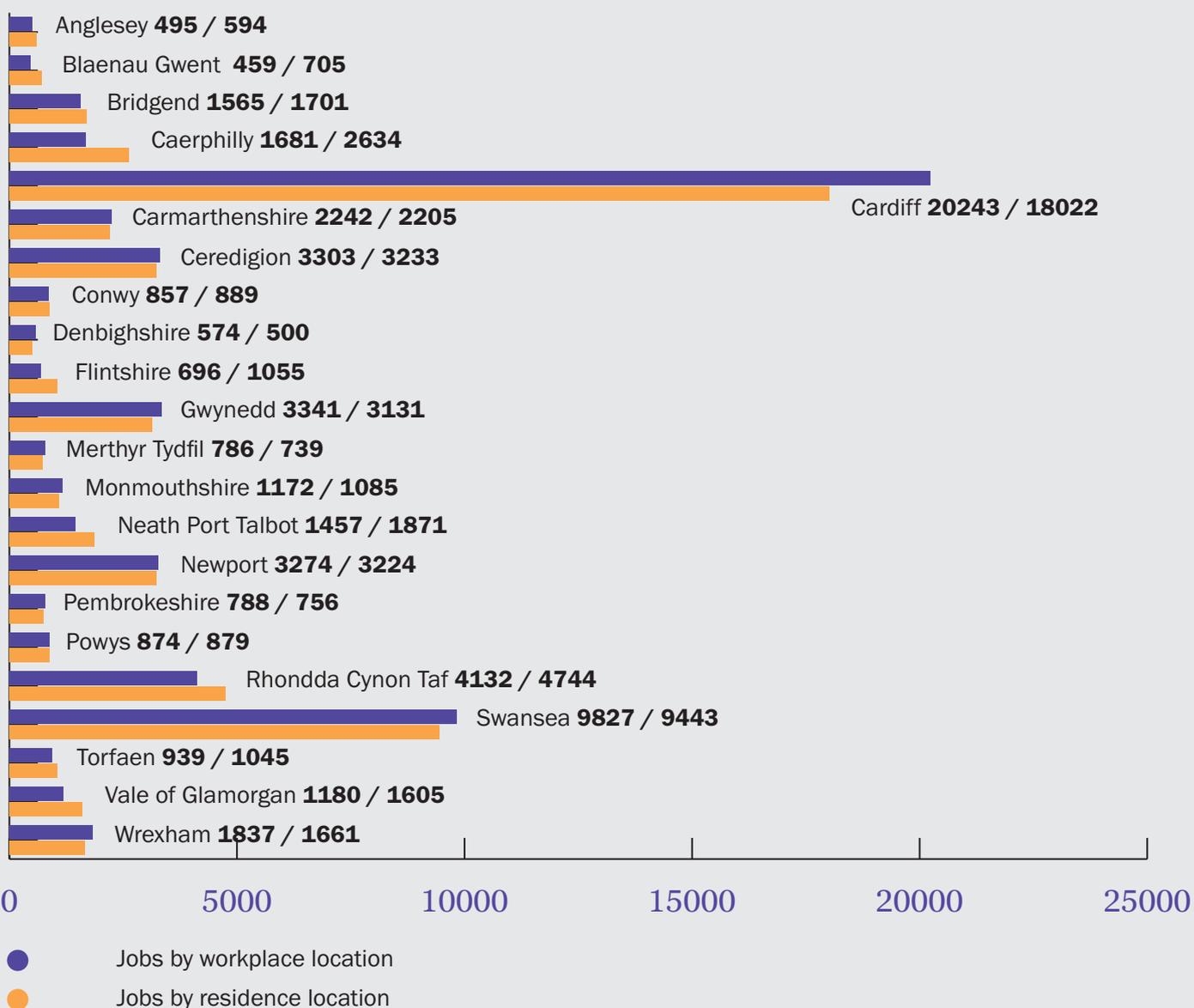
Table 6: Distribution of employment impact – local effects across Wales

	Workplace measure:	Resident measure:
Secondary employment only (jobs outside the universities)	Workplace jobs generated in that area (location of jobs generated) ultimately dependent on university sector activity	Residents of that area (aged 16-64) who are in employment ultimately derived from university sector activity
Anglesey	495	594
Blaenau Gwent	459	705
Bridgend	1565	1701
Caerphilly	1681	2634
Cardiff	11676	9455
Carmarthenshire	1915	1878
Ceredigion	1113	1043
Conwy	857	889
Denbighshire	574	500
Flintshire	696	1055
Gwynedd	1331	1121
Merthyr Tydfil	786	739
Monmouthshire	1172	1085
Neath Port Talbot	1457	1871
Newport	2589	2539
Pembrokeshire	788	756
Powys	874	879
Rhondda Cynon Tâf	2214	2826
Swansea	5264	4881
Torfaen	939	1045
Vale of Glamorgan	1180	1605
Wrexham	1367	1191
Totals	40992	40992

It can be noted that in many cases the areas that do not have a direct university presence (e.g. the Isle of Anglesey or Caerphilly) still benefit from jobs generated in those areas by university activities in two ways: there are a number of jobs located in those areas that are dependent on the university sector's economic activities. But also, given the prevailing commuting and residence

patterns in those areas, there are in fact an even greater number of residents in those areas whose jobs are dependent on the university sector's economic activities. Of the 61,722 jobs created in Wales by Welsh universities 13,523 (22%) jobs were in parts of Wales that do not have a university presence.

Figure 14: Total employment impact of university sector activity across Wales (direct and secondary)



As we did not have access to data on actual university staff residence locations, we were unable to present a complete residence impact but have had to assume that university staff all live in the regions in which they work. Figure 14 above shows

the picture of where all the jobs are located including those directly in the universities and the residence pattern (assuming all university staff live in the same place in which they work).

Table 7: Relative local importance of jobs generated by Welsh university activity

Local Authority	Jobs in that area dependent on Welsh university activity (2019/20)	Equivalent percentage of local employment
Anglesey	495	2.36
Blaenau Gwent	459	2.48
Bridgend	1565	2.70
Caerphilly	1681	3.14
Cardiff	20243	9.55
Carmarthenshire	2242	3.35
Ceredigion	3303	12.23
Conwy	857	1.86
Denbighshire	574	1.42
Flintshire	696	0.93
Gwynedd	3341	6.25
Merthyr Tydfil	786	3.57
Monmouthshire	1172	3.21
Neath Port Talbot	1457	3.10
Newport	3274	3.99
Pembrokeshire	788	1.77
Powys	874	1.73
Rhondda Cynon Tâf	4132	5.33
Swansea	9827	8.97
Torfaen	939	2.35
Vale of Glamorgan	1180	3.42
Wrexham	1837	3.19
ALL WALES	61722	4.85

6. Conclusions and reflections



6.1. This study demonstrates the baseline economic impact of the Welsh universities as large businesses and large employers. The analysis highlights that while the sector is considered to be of considerable importance to Wales in supporting economic development through education and research, it is also a major economic actor and industry in itself, generating output, jobs and GVA, supporting communities across all of Wales. The results clearly demonstrate that, irrespective of any wider impact generated by the nature of higher education activities, higher education institutional expenditure, and that of higher education staff and students, have an immediate positive economic impact. This impact is significant for Wales, with spillover benefits for other parts of the UK.

6.2. Like all other parts of the economy and society, the university sector was negatively affected by the Covid pandemic in 2019/20, even though this only began in the latter stages of the academic and financial year. The negative impact on the university sector fed through to the wider economy. If the university sector had earned the same income from its residence, catering and conference operations in 2019/20 as it had done in the previous year, we could have expected an additional 600 jobs to have been generated in Wales. The curtailment of student personal expenditure is also estimated to have resulted in a loss of around 1100 jobs in Wales.

6.3. However, even in the difficult circumstances of 2019/20, the university sector was demonstrably important to the Welsh economy. Key points to note include:

- Universities in Wales directly employed 20,730 people in occupations spanning

the whole spectrum of skills and qualifications. Through 'knock-on' effects an additional 25,289 jobs were created in other industries across the UK, with 19,690 of these in Wales.

- The off-campus spending of university students and international visitors associated with the universities generated an additional 22,598 jobs in the UK, of which 21,301 were in Wales. In total, 68,617 UK jobs, including 61,722 jobs in Wales, were dependent on the Welsh university sector.
- The sector operates in a global market, attracting international funding for research as well as bringing in nearly 22,000 students from outside the UK and thereby generating export earnings. In total, the export earnings of the sector – including the income directly earned by the universities and the off-campus expenditure of international students – amounted to £661 million, which is equivalent to around 11.8% of all Wales' service sector export earnings.

6.4. The universities also attracted a significant number of students (42,955) from the rest of the UK, which brought additional benefits to both local and wider Welsh economies. Even after adjusting for the limitations posed by the pandemic and lockdown restrictions, students from the rest of the UK generated 5,485 jobs in Wales through their off-campus expenditure.

6.5. The universities' provision of educational opportunities for Welsh students and the sector's commitment to promoting the Welsh economy and community has meant that it also retains significant numbers of students in Wales (69,820) who may otherwise have left to study elsewhere.

The off-campus and personal expenditure of Welsh students is substantial, and this may be regarded as having been retained within Wales and supporting 12,046 jobs in Wales.

6.6. The total employment generated in Wales by the higher education institutions, their staff and students amounted to over 61,722 jobs in Wales. This was equivalent to around 4.85% of all Welsh employee jobs.³⁴

6.7. Welsh universities, together with their students and related international visitors, generated Welsh GVA of over £2.8 billion, equivalent to 4.2% of total 2019 Welsh GVA.

³⁵

6.8. The universities are of significant economic importance in their immediate host localities, with clear impacts on local employment, with many local businesses dependent on the spending of the universities, their staff, and students.

6.9. However, the Welsh universities have a positive economic effect across the whole of Wales, with even areas that do not have a university benefitting from the impact of university expenditure.

³⁴ 2018 Employee jobs by Local Authorities (StatsWales 2021) came to 1.27 million <https://statswales.gov.wales/v/j-jt>

³⁵ Total Welsh GVA in 2019 was £67.1 billion (StatsWales)

7. Appendices



Appendix One: Methodology and data sources

Study coverage and higher education data sources

The primary focus of the study was the Welsh university sector as an industry and the impact generated by university sector activity during the academic and financial year 2019/20. The study also examined the impact of the off-campus expenditure of international students who were studying at universities in Wales in that year.³⁶

Analysis also included the impact of international visitors (friends and family) to international students in Wales (before lockdown restricted international travel), as well as the economic contribution of estimated numbers of academic business visitors to the universities. The study additionally included consideration of the additional injection into the Welsh economy of the expenditure of students from other parts of the UK. The expenditure of local Welsh students was analysed, on the basis that it is retained in the region by the universities. Students studying at the Open University for Wales were included in the overall analysis of student expenditure. However, financial and staff data pertaining to the Open University in Wales were not available (as this is formally allocated to the OU main site in Milton Keynes) and hence the Open University could not be included in the institutional economic analysis.

The main source of university data was the Higher Education Statistics Agency (HESA) relating to data on HE Finance, staffing and students. Estimates of student

expenditure were made drawing on the most recent Welsh Government Student Income and Expenditure survey³⁷ as well as Department for Business and Innovation (BIS) estimates of international student expenditure.

Methodology

There was a three-stage approach to the estimation of the economic impact of the universities. The impact of the Welsh universities on the UK economy was modelled, using a purpose-designed input-output model of the UK. Analysis was then undertaken, using a Location Quotient approach, to estimate the share of the institutional impact on the UK likely to have accrued to Wales. Finally, in order to refine the analysis of Welsh impact and to take into account the distribution of university impact across Wales, a Wales-specific 'gravity-model' was developed.

The UK input-output model used was a 'Type II' input-output model based on actual UK data derived from the UK Input-Output Tables (Office of National Statistics.) The mathematical specification of the model can be found in Annexe B of The impact of Universities on the UK economy (Universities UK 2014.)³⁸

The 'Gravity Model' used was purpose designed and specifically constructed for this study. It combines a range of positive 'mass' or 'attraction' variables (e.g. workplace employment) in all 22 Welsh Local Authority areas (LAU1). These were combined with negative 'distance' variables reflecting the estimated travel time (by road) between the main 'centres of higher education activity' and the main

³⁶ In this context 'International students' refers to all students whose permanent domicile is recorded as outside the UK, including other parts of the EU as well as non-EU students.

³⁷ Welsh Government Social Research Paper 18/2018 Student Income and Expenditure Survey 2014/15. This was published in 2018 and is the most recent survey. The figures used for modelling were updated using the CPI Index to 2020 prices.

³⁸ <http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/impact-higher-education-institutions-uk-economy.aspx>

administrative centre of each of the regions. A modelled combination of these variables was applied to derive estimates of the pattern of impact distribution.

A large proportion of the impact of each individual university impact inevitably accrues to the immediate surrounding area. However, the gravity-modelling approach enables analysis of how far impact may also be felt through 'knock-on effects' in industries across Wales. This particular approach to gravity-modelling allowed 'spillover' effects from regions to be incorporated. That is to say, the final results for impact on a particular area, e.g. Gwynedd, will not only include impact of the university in the area (in this case the University of Bangor) but also include ripple effect impact from the other universities across Wales.

Gravity modelling had been used in this way in the previous 2015 and 2017 reports. For the current report, a further, new step was incorporated into the gravity modelling process. Firstly, we used a workplace-based mass variable to indicate where the

economic activity was generated (jobs, output, GVA), then we re-ran the model applying a residence-based variable to the distribution of employment impact. Rather than simply showing where the jobs are created, the second modelled analysis shows where the people tend to live who do the jobs created. This helps reflect commuting patterns and gives an additional insight to the significance of higher education for different areas of Wales, including showing that higher education activity has an impact on people across Wales, irrespective of whether they live close to a university or not

The mass variables for the gravity modelling analysis were derived from Stats Wales data on local authority workplace employment and local authority residents (aged 16-64) in employment.

Appendix Two: Select references and bibliography

Hazelkorn, E (2016) *Towards 2030: A framework for building a world-class post-compulsory education system for Wales*

Higher Education Statistics Agency (HESA) (2021) *Publications on Finance, Staff and Students* <https://www.hesa.ac.uk/data-and-analysis>

HM Government (2013) *International Education: Global Growth and Prosperity* Department for Business, Innovation and Skills

Kelly, U., McNicoll, I & White, J, Viewforth Consulting (2014) *The impact of universities on the UK economy* Universities UK

Kelly, U., McNicoll I, & White, J, Viewforth Consulting (2015) *The impact of higher education in Wales* Universities Wales

Kelly, U., McNicoll I, Viewforth Consulting (2018) *The Economic Impact of Higher Education in Wales* Universities Wales)

Kelly, U., Marsh, R., & McNicoll, (2019) *The impact of Supranational conferences on their host economies: the case of Glasgow, Scotland.* <http://www.viewforthconsulting.co.uk/sitebuildercontent/sitebuilderfiles/supranationalconferencesinglasgow.pdf>

Office of National Statistics
Regionalised estimates of Service Sector Exports (2018) <https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/datasets/regionalisedestimatesofukserviceexports>

Office of National Statistics *Travel Trends 2019* (2020)

Office of National Statistics (2020) *Business Register and Employment Survey* <https://www.ons.gov.uk/>

[employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/ploymentsurveybresprovisionalresults/2019](https://www.gov.wales/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/ploymentsurveybresprovisionalresults/2019)

StatsWales Data on employment and labour market <https://statswales.gov.wales/> Catalogue

Welsh Government *Policy Statement on Higher Education* (June 2013) 115

Welsh Government Social Research Paper 18/2018 *Student Income and Expenditure Survey 2014/15* <https://gov.wales/student-income-and-expenditure-survey-september-2014-august-2015>

Welsh Government (2017) *Public Good and a Prosperous Wales – Building a reformed PCET System* https://gov.wales/sites/default/files/consultations/2018-02/170620_consultation-en.pdf

Welsh Government (2021) *Commission for Tertiary Education and Research* <https://gov.wales/tertiary-education-and-research-commission>

Welsh government (2017) *Aligning the Apprenticeship model to the needs of the Welsh Economy* Welsh Government (2020) *Employability Plan*

Appendix Three: Universities included in the analysis

- Aberystwyth University
- Bangor University
- Cardiff University
- Cardiff Metropolitan University
- Swansea University
- University of Wales Trinity St David
- University of South Wales
- Wrexham Glyndŵr University

Finance and staffing analysis also included finance and staffing data for the central functions of the University of Wales.

Student data analysis also included higher education students registered as studying with the Open University in Wales.

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Tables

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Table 4: Overall employment impact of Welsh university activity in 2019/20

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Table 6: Distribution of employment impact – local effects across Wales

Table 7: Relative local importance of jobs generated by Welsh university activity

Appendix Five: Per capita student impact (non-EU, EU and RUK students)

The purpose of this analysis is to provide information that may be useful for policy projections – what the likely impact on Wales would be of a rise or fall in international student numbers, or numbers of students from the rest of the UK.

The analysis has only been conducted for international students and for those from the rest of the UK as it assumes the interest will primarily concern the economic injection into Wales.

The analysis has been undertaken on the basis of assuming a ‘normal’ year, unaffected by curtailment of spending through Covid. In the main report, which was based on the ‘snapshot’ year of 2019/20, adjustments had been made to the estimated personal spend of students to take account of the impact of Covid on student movement and spending in the last months of the academic and financial year. However, for policy projections it would be less useful to rely on an atypical year. Therefore, the calculations are made based on what would have been expected in 2019/20, had Covid not occurred.

Another point to note is that the projected impact of EU students will change in the future, as the fees and funding status of most new EU students will change after August 2021³⁹. It is likely that the per capita impact of EU students – assuming the same fees and funding status of non-EU students will apply to EU students – will be more akin to that of the non-EU students presented here.

The impact of students from the rest of the UK is only presented for the impact on Wales, as it is the injection into Wales that is of interest.

³⁹ See Welsh Government guidance on European students <https://gov.wales/student-finance/european-union-students>

Per capita impact of non-EU students

16190 Non-EU Students at universities in Wales (assuming normal year)	Output impact on the UK £m	Output impact on Wales £m	GVA impact on the UK £m	GVA impact on Wales £m	Employment impact on the UK (headcount)	Employment impact on Wales (headcount)
Impact achieved through the money paid to the universities (fees & related payments e.g. for accommodation)	£674.68	£446.90	£299.14	£260.99	6401	5622
Impact achieved through additional off-campus personal expenditure	£337.21	£252.30	£156.28	£113.94	3438	2558
TOTAL IMPACT	£1,011.90	£699.20	£455.42	£374.93	9839	8181
PER CAPITA IMPACT OF NON EU STUDENTS	£62,501	£43,187	£28,130	£23,158	0.61	0.51

This table shows that every non-EU student studying in Wales is likely to generate:

- £43,187 of output in Wales (a total of £62,501 in the UK as a whole)
- £23,158 of GVA in Wales (£28,130 in the UK as a whole)
- 0.51 jobs in Wales (0.61 in the UK as a whole)

Per capita impact of EU students

This analysis assumes no drop in student normal personal expenditure due to Covid (i.e. what would normally have been expected in 2019/20.) In terms of payments to the university it includes the fees noted as being EU student-paid fees in the university accounts as well as an estimated amount that would have been paid to the universities for residence and catering (again, assuming a normal year.)

This table shows that - assuming the funding arrangements of 2019/20- every EU student studying in Wales is likely to generate:

- £32,286 of output in Wales (a total of £45,890 in the UK as a whole)
- £16,675 of GVA in Wales (£20,789 in the UK as a whole)
- 0.37 jobs in Wales (0.45 in the UK as a whole)

Given that the fee status of most new EU students will change after August 2021 (see Welsh Government Guidance <https://gov.wales/student-finance/european-union-students>) this will affect the impact generated. It is likely that each EU student may have an impact more akin to that presented for non-EU students (although of course the overall numbers of students may fall).

5795 Students from other EU countries at the universities in Wales (assuming normal year)	Output impact on the UK £m	Output impact on Wales £m	GVA impact on the UK £m	GVA impact on Wales £m	Employment impact on the UK (headcount)	Employment impact on Wales (headcount)
Impact achieved through the money paid to the universities (fees & related payments e.g. for accommodation)	£138.38	£91.66	£61.36	£53.53	1313	1153
Impact achieved through additional off-campus personal expenditure	£127.55	£95.43	£59.11	£43.10	1300	968
TOTAL IMPACT	£265.93	£187.10	£120.47	£96.63	2613	2121
PER CAPITA IMPACT OF STUDENTS FROM OTHER EU COUNTRIES	£45,890	£32,286	£20,789	£16,675	0.45	0.37

Per capita impact on Wales of students from the rest of the UK

This table shows that every student from the rest of the UK studying in Wales is likely to generate:

- £30,688 of output in Wales
- £15,940 of GVA in Wales
- 0.32 jobs in Wales

42955 Students from the rest of the UK at universities in Wales (assuming normal year)	Output impact on Wales £m	GVA impact on Wales £m	Employment impact on Wales (headcount)
Impact achieved through the money paid to the universities (fees & related payments e.g. for accommodation)	£675.10	£394.26	8493
Impact achieved through additional off-campus personal expenditure	£643.12	£290.44	5390
TOTAL IMPACT	£1,318.22	£684.69	13883
PER CAPITA IMPACT OF STUDENTS FROM THE REST OF THE UK	£30,688	£15,940	0.32

Source: based on Viewforth Consulting analysis (2021)

Appendix Six: Note on FTE and headcount jobs

7.1. Throughout this report we have presented employment results in terms of headcount jobs.

The modelling process for employment impact initially gives results in terms of ‘FTE’ or ‘full-time equivalent’ jobs. FTE is essentially an expression of labour demand with one FTE equivalent to ‘one-person-year’ of employment.

However, headcount jobs is a more intuitive and normal way to present employment results, giving a more realistic picture of how many people are actually affected.

For that reason, in this study we present employment results in terms of headcount jobs. When presenting headcount employment, we use the actual headcount reported by the universities for their direct employment and we translate the FTE secondary employment into headcount jobs using the prevailing pattern of full-time to part-time employment in Wales and the rest of the UK. For this study we used the prevailing pattern for Wales and the rest of the UK as observed in the Business Register and Employment Survey (BRES) for 2019 which gave an overall pattern of 1.21 for Wales and 1.19 for the rest of the UK.

For information, the FTE results are included in the table below.

FTE	Direct	Secondary Wales	All Wales	Rest of UK	All UK
Universities	17155	16273	33428	4705	38133
Non-EU students	0	2062	2062	721	2782
EU students	0	765	765	267	1032
Students from the rest of UK	0	4533	4533	N/A	4533
Welsh students	0	9956	9956	N/A	9956
International visitors	0	290	290	101	391
Totals	17155	33878	51033	5794	56827



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