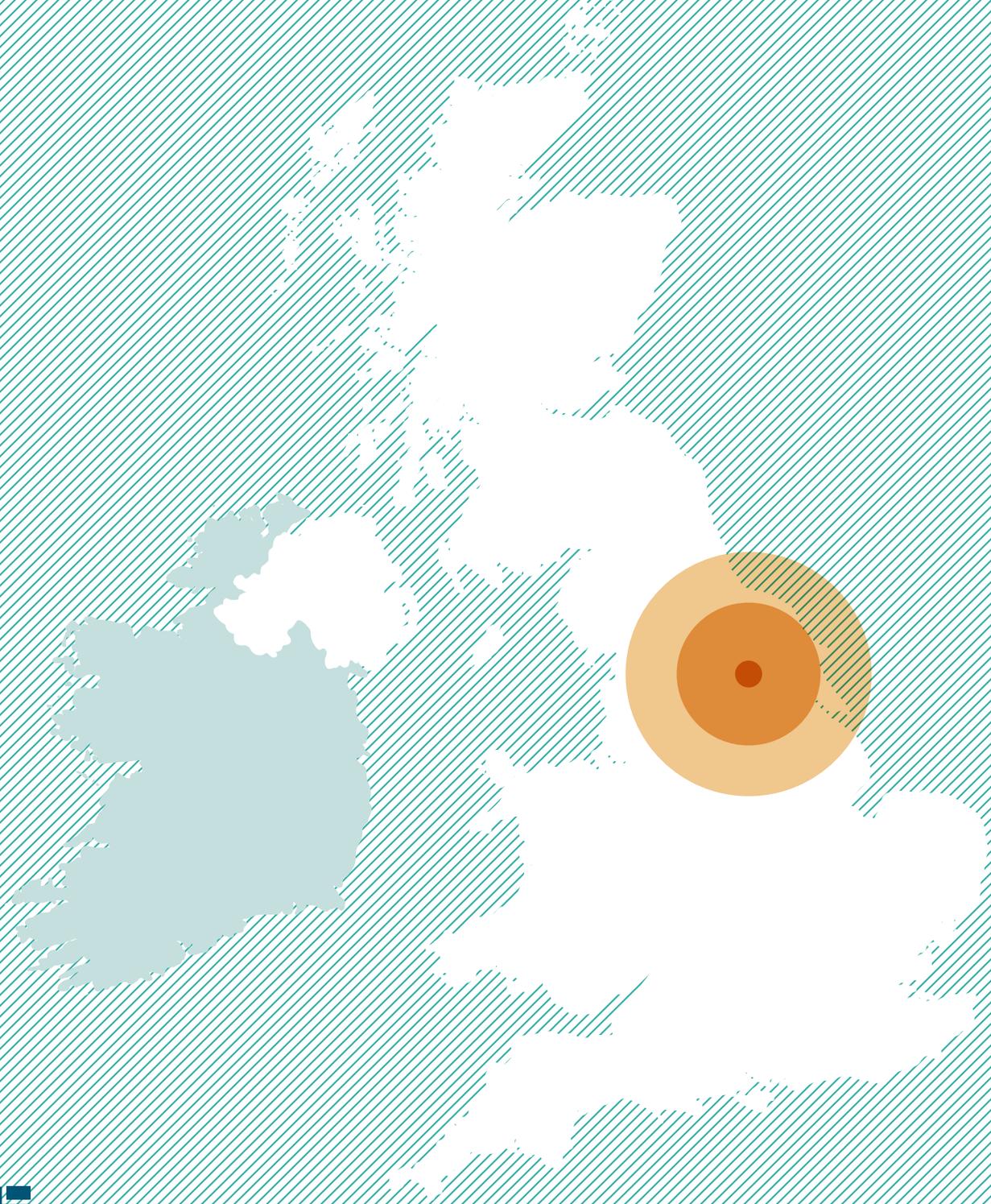


THE ECONOMIC IMPACT OF THE

YORKSHIRE AND HUMBERSIDE

HIGHER EDUCATION SECTOR



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CHAPTER 1

INTRODUCTION

The local role of higher education is a matter of growing interest in the UK and internationally. This report presents a summary of findings from analysis of the impact of higher education on local economies in England. It updates a previous 2010 Universities UK report, *Making an economic impact: higher education and the English regions*, and its focus is on the impact of the institutions as enterprises in themselves and the higher education sector in each geographical region as an industry.

With 130 higher education institutions overall, in terms of turnover the higher education sector in England makes up 83% of all UK higher education. It has a total revenue of £23.3 billion (the UK as a whole has a revenue of £27.9 billion), employs over 262,700 staff and has over two million students spread across England.

Recent studies in the UK have highlighted that higher education is important to the national economy, with a graduate workforce raising productivity and contributing to economic growth.¹ The university research base is also seen as vital in fostering innovation, with the research base considered an essential part of the framework supporting innovation and national economic competitiveness.²

However, the importance of higher education in the local economy is also attracting extensive attention. Across Europe the growing emphasis on regional 'smart specialisation' is encouraging business, government and universities to work collaboratively to help identify, develop and maintain the particular strengths that will make for regional economic success.

Universities can bring many benefits to their local areas. They provide educational opportunities, are a source of research and innovation support, and can work with local and regional businesses as well as playing an important role in civic society. As independent organisations with a non-profit-making educational mission, universities can provide civic

leadership as well as being – literally and metaphorically – a 'public space' for debate and exchange of ideas. As a result, universities can be perfectly situated to help develop and support the necessary collaborations that can be important for regional success.³ Universities also operate globally and their international connections are a vital link – especially for peripheral regions – with the wider world.

The 2013 Witty review⁴ of the role of universities in their local communities focused on how universities can drive growth and contribute to society. Witty recognised that universities will be important players in the work of Local Enterprise Partnerships (LEPs), particularly in support for innovation. The review recommended that all universities should have a presence on their LEP Board to work together with other organisations to stimulate economic growth in their area.

The Witty review explored many of the other ways universities benefit their local areas, not only through education and research but also as economic actors in themselves, being a vital source of economic activity in a region, with a positive influence particularly during times of recession. Universities are substantial enterprises and are frequently among the largest employers in their localities. They are counter-cyclical. While they may not grow as fast as other enterprises during an economic boom, neither do they contract as much in a recession – thus being a source of stability, anchoring investment in the region.

The economic contribution of higher education institutions as businesses in their region is the subject of this report. The report highlights key economic characteristics of the higher education sector in each of the nine regions⁵ of England, including institutional income, employment and expenditure. The report also presents the results of modelled secondary or 'knock-on' effects of higher education expenditure on the regions, showing how many jobs are dependent on the universities and the contribution being made to GDP.

1. Holland D, Liadze I, Rienzo C, Wilkinson D (2013) *The relationship between graduates and economic growth across countries* Department for Business, Innovation and Skills, Research Paper 110
2. Allman K. et al. (2011) *Measuring Wider Framework Conditions for successful innovation: A system's review of UK and international innovation data* London: Nesta
3. See the discussion in Goddard J and Vallance P (2013) *The University and the City* London: Routledge
4. *Encouraging a British Invention Revolution: Sir Andrew Witty's Review of Universities and Growth* (2013)
5. Each region is defined as the former government office region.

In relation to the economic impact generated by students in a region, the impact of international (i.e. all non-UK) off-campus student expenditure is considered. Additional analysis is also made of the off-campus expenditure of domestic students from outside the region who are attracted there by the universities. While domestic student expenditure is not additional to the UK economy as a whole, it is legitimate at a regional level to consider the money being attracted into a region from the rest of the UK. Analysis is not included of the off-campus expenditure of local students (i.e. students from the specific region under analysis) on the basis that their personal expenditure is not additional to the region, but is likely to have occurred in the region in any event.

Analysis has been conducted and results presented at sectoral level for each region, examining the collective impact of the region's universities rather than the individual impact of each university. Each region has different characteristics in terms of

its business and industrial structure, and the composition of its higher education sector.

The analysis was conducted of each region separately, using a two-stage approach to the estimation of the economic impact of each regional higher education sector. The impact of the higher education institutions on the UK economy was modelled, using a purpose-designed economic 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 the region. Fuller details of the methodological approach are given in Annexe A.

The institutions included are the 130 institutions in England that are included in the data collected by the Higher Education Statistics Agency. These include universities and colleges of higher education as well as conservatoires and other specialist institutions. In this report they will all be referred to as 'universities' or 'higher education institutions'.

CHAPTER 2

SUMMARY OF RESULTS FOR EACH REGION

2.1 East of England

- Total revenue of East of England higher education institutions was £2.46 billion in 2011–12.
- International revenue amounted to £467 million which, together with the estimated off-campus expenditure of international (all non-UK) students (£369 million), represented a total of £836 million export earnings.
- Universities provided 21,123 full-time equivalent jobs across a range of occupations and skill levels.
- 33,148 full-time equivalent jobs were generated outside the universities, with most (30,494) based in the region.
- The universities' own output was £2.46 billion. Through knock-on effects they generated an additional £3.35 billion in other industries throughout the UK, with the majority (£3.1 billion) in the region.
- Universities attracted 32,730 students from outside the UK to study in the region.
- International students' off-campus expenditure (£369 million) generated £554 million of output and 4,691 full-time equivalent jobs throughout the UK.
- Universities attracted 52,405 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£580 million) generated £647 million of output and 6,858 full-time equivalent jobs in the region.
- The East of England higher education institutions, together with the spending of international students and students from other parts of the UK, generated 62,840 jobs in the region, which was equivalent to 2.2% of the 2012 East of England workforce in employment.⁶
- The higher education institutions alone generated regional GVA of £2.9 billion (direct plus

secondary), which was equivalent to around 2.6% of all 2011 East of England GVA.

- When combined with the impact of the spending of international students and students from other parts of the UK, a total regional GVA of over £3.5 billion was generated, equivalent to 3.1% of total East of England GVA.⁷

2.2 East Midlands

- Total revenue of East Midlands higher education institutions was £1.7 billion in 2011–12.
- International revenue amounted to £345 million which, together with the estimated off-campus expenditure of international students (£293 million), represented a total of £638 million of export earnings.
- Universities provided 21,478 full-time equivalent jobs across a range of occupations and skill levels.
- 23,118 full-time equivalent jobs were generated outside the universities, with most (19,240) based in the region.
- The universities' own output was £1.7 billion. Through knock-on effects they generated an additional £2.3 billion in other industries throughout the UK, with the majority (£1.9 billion) in the region.
- Universities attracted 25,945 students from outside the UK to study in the region.
- International students' off-campus expenditure (£293 million) generated £440 million of output and 3,719 full-time equivalent jobs throughout the UK.
- Universities attracted 84,695 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£938 million) generated £1.1 billion of output and 9,527 full-time equivalent jobs in the region.

6. ONS regional summary of labour market indicators for 2012 (2,907,000 people in employment in the East of England)

7. East of England regional GVA in 2011 was £114.1 billion. (ONS 2012)

- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 53,220 jobs in the region, equivalent to 2.5% of the 2012 workforce in employment.⁸
- The higher education institutions alone generated over £2 billion of regional GVA (direct and secondary), equivalent to around 2.5% of all 2011 East Midlands GVA.
- When combined with the spending of international students and students from other parts of the UK, a total regional GVA of £2.7 billion was generated, equivalent to 3.3% of total 2011 East Midlands GVA.⁹

2.3 London

- Total revenue of London higher education institutions was £5.8 billion in 2011–12.
- International revenue amounted to £1.3 billion which, together with the estimated off-campus expenditure of international students (£1.2 billion), represented a total of £2.5 billion in export earnings.
- Universities provided 56,896 full-time equivalent jobs across a range of occupations and skill levels.
- Over 78,380 full-time equivalent jobs were generated outside the universities, with most (64,241) based in London.
- The universities' own output was £5.8 billion. Through knock-on effects they generated an additional £7.9 billion in other industries throughout the UK, with the majority (£5.9 billion) in London.
- Universities attracted 102,995 students from outside the UK to study in London.
- International students' off-campus expenditure (£1.2 billion) generated £1.7 billion of output and 14,763 full-time equivalent jobs throughout the UK.
- Universities attracted 113,995 students from other parts of the UK to study in London.
- The off-campus expenditure of students from the rest of the UK (£1.4 billion) generated £1.5 billion

of output and 13,447 full-time equivalent jobs in London.

- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 145,921 jobs in London. This was equivalent to 3.7% of the workforce in employment in 2012.¹⁰
- The higher education institutions alone generated £6.6 billion regional GVA (direct plus secondary), equivalent to 2.3% of all 2011 London GVA.
- When combined with the spending of international students and students from other parts of the UK, regional GVA of over £7.9 billion was generated, equivalent to 2.8% of total 2011 London GVA.¹¹

2.4 North East

- Total revenue of North East higher education institutions was £1.1 billion in 2011–12.
- International revenue amounted to £244 million which, together with the estimated off-campus expenditure of international students (£213 million), represented a total of £457 million of export earnings.
- Universities provided 14,661 full-time equivalent jobs across a range of occupations and skill levels.
- 15,261 full-time equivalent jobs were generated outside the universities, with most (11,493) based in the region.
- The universities' own output was £1.1 billion. Through knock-on effects they generated an additional £1.5 billion in other industries throughout the UK, with the majority (£1.1 billion) in the region.
- Universities attracted 18,860 students from outside the UK to study in the region.
- International students' off-campus expenditure (£213 million) generated £319 million of output and 2,703 full-time equivalent jobs throughout the UK.
- Universities attracted 40,505 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£457 million) generated £509

8. ONS 2013 (East Midlands 2012 employment was 2,121,000)

9. East Midlands regional GVA in 2011 was £81.6 billion. (ONS 2012)

10. ONS regional summary of labour market indicators for 2012 (3,933,000 people in employment in London)

11. London GVA in 2011 was £283 billion. (ONS 2012)

million of output and 4,156 full-time equivalent jobs in the region.

- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 32,246 jobs in the region. This was equivalent to 2.76% of the workforce in employment in 2012.¹²
- The universities alone generated £1.3 billion of regional GVA (direct plus secondary), equivalent to around 3% of all 2011 North East GVA.
- Combined with the spending of international students and students from other parts of the UK, regional GVA of nearly £1.6 billion was generated, equivalent to 3.8% of total 2011 North East GVA.¹³

2.5 North West

- Total revenue of North West higher education institutions was £2.6 billion in 2011–12.
- International revenue amounted to £461 million which, together with the estimated off-campus expenditure of international students (£387 million), represented a total of £848 million of export earnings.
- Universities provided 31,085 full-time equivalent jobs across a range of occupations and skill levels.
- 34,617 full-time equivalent jobs were generated outside the universities, with most (29,795) based in the region.
- The universities' own output was £2.61 billion. Through knock-on effects they generated an additional £3.48 billion in other industries throughout the UK, with the majority (£2.91 billion) in the region.
- Universities attracted 34,270 students from outside the UK to study in the region.
- International students' off-campus expenditure (£387 million) generated £581 million of output and 4,912 full-time equivalent jobs throughout the UK.
- Universities attracted 80,030 students from other parts of the UK to study in the region.

- The off-campus expenditure of students from the rest of the UK (£886 million) generated over £1 billion of output and 9,286 full-time equivalent jobs in the region.
- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 74,218 jobs¹⁴ in the region. This was equivalent to 2.3% of the 2012 North West workforce in employment.
- The higher education institutions alone generated £3.1 billion of regional GVA (direct plus secondary), equivalent to around 2.5% of all 2011 North West GVA.
- Combined with the spending of international students and students from the rest of the UK, regional GVA of £3.86 billion was generated, equivalent to 3.1% of total 2011 North West GVA.¹⁵

2.6 South East

- Total revenue of South East higher education institutions was £3.8 billion in 2011–12.
- International revenue amounted to £707 million which, together with the estimated off-campus expenditure of international students (£549 million), represented a total of £1.26 billion of export earnings.
- Universities provided 45,982 full-time equivalent jobs across a range of occupations and skill levels.
- 50,920 full-time equivalent jobs were generated outside the universities, with most (45,515) based in the region.
- The universities' own output was £3.8 billion. Through knock-on effects they generated an additional £5.1 billion in other industries throughout the UK, with the majority (£4.5 billion) in the region.
- Universities attracted 48,675 students from outside the UK to study in the region.
- International students' off-campus expenditure (£549 million) generated £825 million of output and 6,977 full-time equivalent jobs throughout the UK.

12. ONS regional summary of labour market indicators for 2012 (1,167,000 people in employment in the North East)

13. North East regional GVA in 2011 was £41.6 billion (ONS 2012)

14. ONS regional summary of labour market indicators for 2012 (3,177,000 people in employment in the North West)

15. North West regional GVA in 2011 was £123.9 billion (ONS 2012)

- Universities attracted 98,170 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£1.1 billion) generated £1.4 billion of output and 12,591 full-time equivalent jobs in the region.
- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 110,331 jobs in the region. This was equivalent to 2.6% of the South East workforce in employment in 2012.¹⁶
- The higher education institutions alone generated £4.7 billion of regional GVA (direct plus secondary), equivalent to around 2.4% of all regional GVA. Combined with the spending of international students and students from other parts of the UK, regional GVA of nearly £5.7 billion was generated, equivalent to around 3% of total 2011 South East region GVA.¹⁷
- Universities attracted 70,225 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£792 million) generated £996 million of output and 8,639 full-time equivalent jobs in the region.
- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 51,780 jobs in the region. This was equivalent to 2% of the workforce in employment in 2012.¹⁸
- The higher education institutions alone generated £2 billion of regional GVA (direct plus secondary), equivalent to around 2% of all 2011 South West GVA.
- Combined with the spending of international students and students from other parts of the UK, regional GVA of £2.7 billion was generated, equivalent to around 2.6% of total 2011 South West region GVA.¹⁹

2.7 South West

- Total revenue of South West higher education institutions was £1.7 billion in 2011–12.
- International revenue amounted to £288 million which, together with the estimated off-campus expenditure of international students (£270 million), represented a total of £558 million of export earnings.
- Universities provided 20,522 full-time equivalent jobs across a range of occupations and skill levels.
- 22,207 full-time equivalent jobs were generated outside the universities, with most (19,677) based in the region.
- The universities' own output was £1.7 billion. Through knock-on effects they generated an additional £2.2 billion in other industries throughout the UK, with the majority (£1.9 billion) in the region.
- Universities attracted 23,915 students from outside the UK to study in the region.
- International students' off-campus expenditure (£270 million) generated £405 million of output and 3,428 full-time equivalent jobs throughout the UK.

2.8 West Midlands

- Total revenue of West Midlands higher education institutions was £1.95 billion in 2011–12.
- International revenue amounted to £394 million which, together with the estimated off-campus expenditure of international students (£408 million), represented a total of £802 million of export earnings.
- Universities provided 23,674 full-time equivalent jobs across a range of occupations and skill levels.
- 25,361 full-time equivalent jobs were generated outside the universities, with most (19,451) based in the region.
- The universities' own output was £1.95 billion. Through knock-on effects they generated an additional £2.6 billion in other industries throughout the UK, with the majority (£1.9 billion) in the region.
- Universities attracted 36,140 students from outside the UK to study in the region.
- International students' off-campus expenditure (£408 million) generated £612 million of output

16. ONS regional summary of labour market indicators for 2012 (4,225,000 people in employment in the South East)

17. South East regional GVA in 2011 was £192.3 billion. (ONS 2012)

18. ONS regional summary of labour market indicators for 2012 (2,544,000 people in employment)

19. South West regional GVA in 2011 was £102 billion. (ONS 2012)

and 5,180 full-time equivalent jobs throughout the UK.

- Universities attracted 76,580 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£864 million) generated £981 million of output and 8,309 full-time equivalent jobs in the region.
- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 55,355 jobs in the region. This was equivalent to 2.18% of the workforce in employment in 2012.²⁰
- The higher education institutions alone generated £2.2 billion of regional GVA (direct plus secondary), equivalent to around 2.3% of 2011 West Midlands regional GVA.
- Combined with the spending of their international students and students from other parts of the UK, regional GVA of £2.9 billion was generated, equivalent to 3% of total 2011 West Midlands region GVA.²¹

2.9 Yorkshire and Humberside

- Total revenue of Yorkshire and Humberside higher education institutions was £2.2 billion in 2011–12.
- International revenue amounted to £422 million which, together with the estimated off-campus expenditure of international students (£380 million), represented a total of £802 million of export earnings.
- Universities provided 27,375 full-time equivalent jobs across a range of occupations and skill levels.

- 28,227 full-time equivalent jobs were generated outside the universities, with most (22,270) based in the region.
- The universities' own output was £2.2 billion. Through knock-on effects they generated an additional £2.8 billion in other industries throughout the UK, with the majority (£2.1 billion) in the region.
- Universities attracted 33,655 students from outside the UK to study in the region.
- International students' off-campus expenditure (£380 million) generated £570 million of output and 4,823 full-time equivalent jobs throughout the UK.
- Universities attracted 94,430 students from other parts of the UK to study in the region.
- The off-campus expenditure of students from the rest of the UK (£1 billion) generated over £1.1 billion of output and 9,677 full-time equivalent jobs in the region.
- The universities, together with the expenditure of their international students and students from the rest of the UK, generated 62,838 jobs in the region. This was equivalent to 2.5% of the region's workforce in employment in 2012.²²
- The higher education institutions alone generated £2.5 billion of regional GVA (direct plus secondary), equivalent to around 2.7% of all 2011 Yorkshire and Humberside GVA.
- Combined with the spending of international students and students from other parts of the UK, regional GVA of over £3.2 billion was generated, equivalent to 3.5% of total 2011 Yorkshire and Humberside GVA.²³

20. ONS regional summary of labour market indicators for 2012 (2,533,000 people in employment in the West Midlands)

21. West Midlands regional GVA in 2011 was £95.8 billion. (ONS 2012)

22. ONS regional summary of labour market indicators for 2012 (2,496,000 people in employment in Yorkshire and Humberside)

23. Yorkshire and Humberside GVA in 2011 was £91.04 billion. (ONS 2012)

CHAPTER 3

THE ECONOMIC IMPACT OF THE YORKSHIRE AND HUMBERSIDE HIGHER EDUCATION SECTOR

3.1 Introduction

This summary presents key economic aspects of the higher education sector in the Yorkshire and Humberside region of England in the academic and financial year ending 2012 and of the sector's impact on the region and on the rest of the UK. The study includes the 11 higher education institutions covered in the 2011–12 Higher Education Statistics Agency (HESA) data. In the study year the 11 institutions included ranged in size from the Leeds College of Art with just over 1,100 students to Sheffield Hallam University with over 37,100 students. A list of the included institutions can be found in Annexe B.

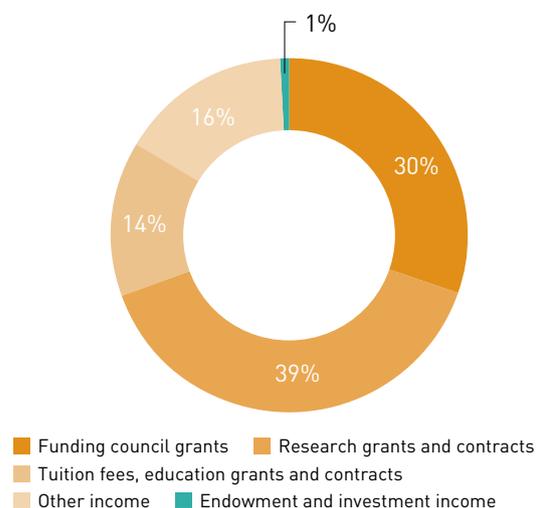
Major economic characteristics of the sector were examined, including its revenue, expenditure and employment. The study also included modelled analysis of the economic activity generated in other sectors of the economy through the secondary or 'knock-on' effects of the expenditure of the institutions, and their staff as well as the impact generated by the off-campus expenditure of international (all non-UK) students and students from outside the region. The model used was the most recent version of the *Universities UK economic impact modelling system*,²⁴ which was updated and revised by Viewforth Consulting in spring 2013. A description of the methodology and data sources used is included as Annexe A. Overall this summary report presents an up-to-date examination of the quantifiable contribution of the Yorkshire and Humberside higher education sector to the regional economy, as well as its impact on the rest of the UK.

3.2 Key regional higher education sector characteristics

3.2.1 Revenue

- The Yorkshire and Humberside higher education sector had a total revenue of £2.2 billion in the study year. This was earned for a wide range of educational and related services. This is shown in Figure 1.

Figure 1: Institutional revenue, 2011–12



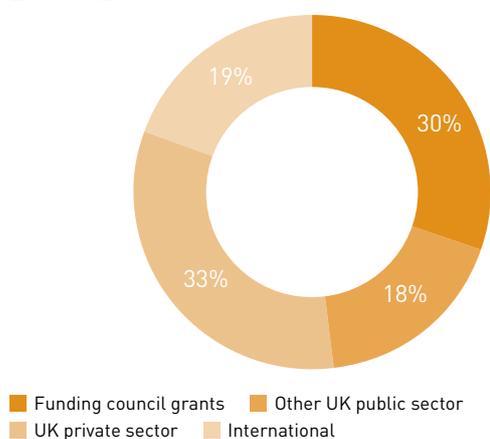
Source: HESA *HE Finance Plus 2011/12*

- The largest part of institutional revenue (83%) was earned for delivering teaching and research (funding council grants, tuition fees and research income). This came from a range of sources, individual student fee payments and research contracts with private and international clients as well as from the UK public sector. In addition to money for teaching and research the sector also earns 16% of its income from other services including, for example, consultancy services, the provision of residence and catering services, conference support or facilities hire. Income from endowments and investments (frequently these come from charitable or philanthropic donations) is relatively modest at 1% – this is fairly typical of higher education across the UK.
- Around 48% of university revenue in the study year was estimated as being derived from public sector sources. However, only 30% of this was the baseline funding council income which is awarded directly from the Higher Education Funding Council for England (HEFCE). 'Other' public sector income makes up an estimated 18% of total university income. (This includes Research Council funding, tuition fees paid by public

24. The Universities UK economic impact modelling system is a purpose-built system, designed for higher education institutions. The current version was revised and updated by Viewforth Consulting in spring 2013 as part of a project for Universities UK.

sector agencies, or research and consultancy contracts with public sector bodies – much of which is won in competition with other bodies such as consultancy firms.) Thirty-three per cent of university revenue comes from the UK private sector and 19% from international sources. Private revenue includes student fee payments (whether made directly by individuals or through loans from the Student Loans Company), payments for other services includes residence and catering, consultancy or research contracts with private firms. International revenue (estimated as amounting to nearly £422 million) includes overseas student fees as well as residence and conference income and research and consultancy contracts with international agencies.

Figure 2: Institutional revenue by broad source, 2011–12²⁵



Source: Derived from analysis of HESA *HE Finance Plus 2011/12*

3.2.2 Export earnings

- The sector’s international revenue of £422 million together with the estimated off-campus expenditure of international students (£380 million) represents a total of £802 million of export earnings. This is an important contribution to the UK balance of trade.

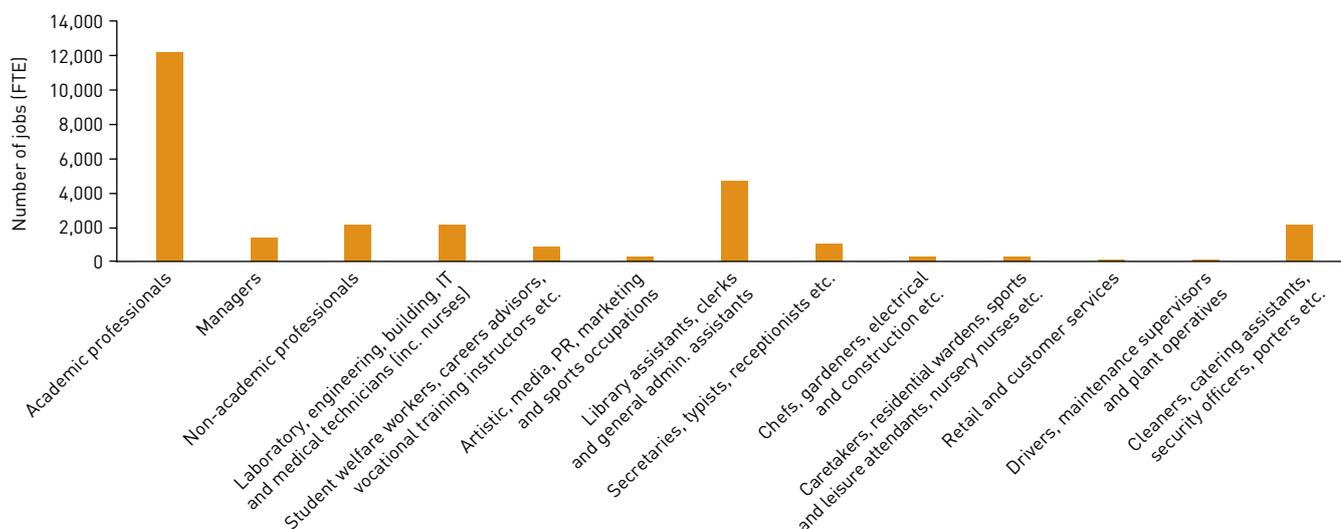
3.2.3 Employment

- The sector directly provided 27,375 full-time equivalent (FTE) jobs across a wide range of occupations. The occupational profile of university employment is shown in Figure 3. Unsurprisingly, academic professions (professors, lecturers and researchers) are the largest single type of occupation. However jobs are provided across a very wide range of occupations, including a range of skilled and semi-skilled jobs. This reflects the need to maintain significant university estates including lecture halls, laboratories, offices as well as halls of residence, cafeteria and related facilities for students such as sports facilities.

3.2.4 Expenditure

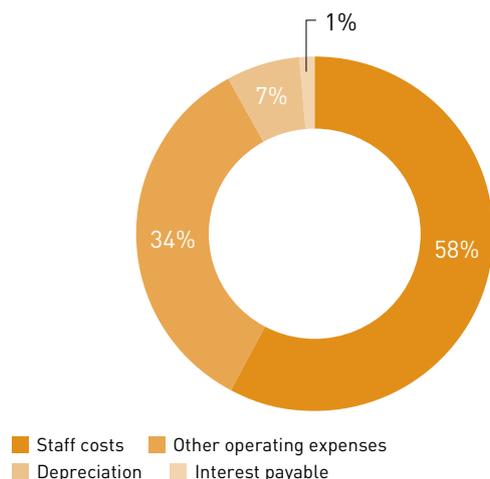
- University expenditure, together with the expenditure of university staff and students, generates economic activity through secondary or ‘knock-on’ effects.
- In 2011–12 the HESA data shows a total expenditure (including staff salaries) of £2 billion.

Figure 3: Occupational profile of institutional employment, 2011–12



Source: HESA staff data 2011–12

25. In this analysis, based on HESA *HE Finance Plus* information, tuition fees paid through the Student Loans Company are classed as ‘private’ as the payments are made on behalf of specific private individuals who are then responsible for repayment to the SLC.

Figure 4: Institutional expenditure, 2011–12

Source: HESA *HE Finance Plus 2011/12*

3.2.5 Students

- There was a total (headcount) student population of 211,355 in 2011–12.²⁶
- The sector attracted 33,655 students from outside the UK. As well as paying fees to the university, international students spend money on rent, food and other living expenses, much of which accrues to the local area. International student off-campus personal expenditure amounted to an estimated £380 million.
- In addition, the sector attracted 94,430 students from other parts of the UK who spent an estimated £1 billion on living and personal expenses. The expenditure of other domestic students from outside the region can be regarded as an injection into the regional economy.

3.3 Secondary or 'knock-on' effects on the economy

3.3.1 Generation of 'knock-on' effects

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:

- 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.

- 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.

In the case of universities that are long established in a particular location, purchasing linkages will be highly developed within their host region (previous studies of universities in the UK have shown that universities have a relatively high propensity to spend on UK, rather than imported, goods and services, generating greater regional economic impact than businesses that rely more heavily on imports²⁷).

Staff expenditure tends to follow a different pattern from institutional expenditure, being more consumer oriented, but while staff expenditure will have a higher proportion of expenditure on imported consumer goods and goods from elsewhere in the UK (e.g. through online shopping), there is still an 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 will reflect the composition of those linkages.

In this particular study, the impact of institutions' expenditure on the UK as a whole was modelled and then the proportion of that impact accruing to the region was analysed. This took into account the business and industry structure of the region as well as a consideration of purchases that are most likely to be more locally based, for instance the goods and services of local pubs and coffee shops, grocery stores and personal services such as hairdressers.

3.3.2 Output generated by the institutions

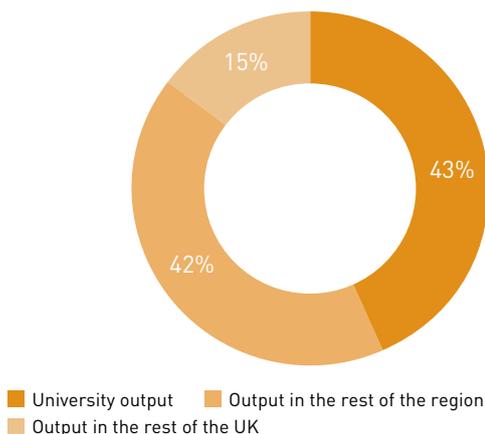
- The sector's output in 2011–2012 was £2.2 billion.²⁸ Through the 'knock-on' effects of its expenditure in that year, the sector generated an additional £2.8 billion in other industries throughout the UK, with the majority (£2.1 billion) accruing in Yorkshire and Humberside industries.

26. Student data is taken from HESA 2011/2012 and uses the HESA student record figure.

27. See McNicoll, 1995 & 1997 Kelly et al. 2006, 2009

28. Institutional revenue or 'turnover' equates to institutional output.

Figure 5: Total output generated by Yorkshire and Humberside institutions, 2011–12



Source: Viewforth modelling system (2013) analysis

The impact was spread across a range of other industries, with an emphasis on manufacturing, wholesale and retail, and business activities. The spread of impact is determined by the types of goods and services bought by the universities and their staff – as well as from whom they are bought. A university may buy laboratory equipment direct from a manufacturer, for instance, or through a wholesaler. They may purchase legal services from a local firm of solicitors. University staff expenditure tends to be more oriented towards consumer goods and services, many of these from local companies and shops. Figure 6 shows the pattern of output impact across industries.

3.3.3 Output multipliers

The impact is generated by institutional expenditure. By studying the volume of impact generated by 2011–12 sectoral expenditure it is possible to calculate ‘multipliers’. Analysis of the output impact enabled Type II output multipliers for the Yorkshire and Humberside higher education sector to be derived. These were:

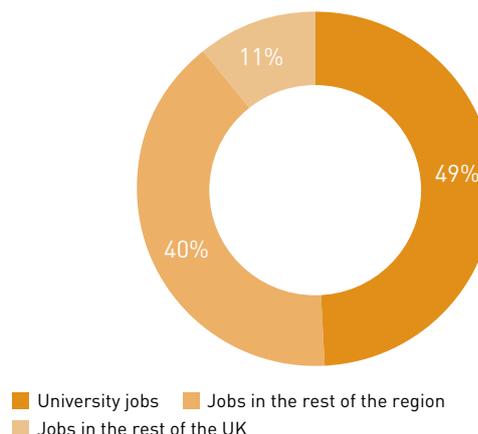
- UK: 2.30
- Regional: 1.96

In other words, every £1 million of higher education institutional revenue will generate a further secondary output impact of £0.96 million in the region plus a further £0.34 million in the rest of the UK.

3.3.4 Employment generated by the institutions

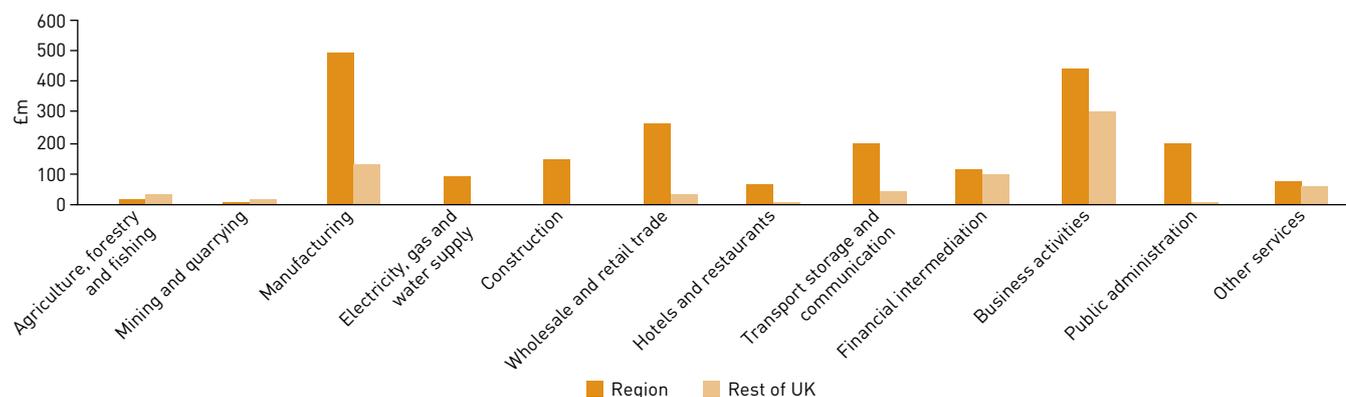
- In addition to directly providing 27,375 full-time equivalent (FTE) jobs, university expenditure generated additional jobs in other parts of the economy.
- Over 28,227 more FTE jobs were generated outside the universities. The majority of the additional jobs (22,271) are generated in Yorkshire and Humberside.
- Total employment generated by the institutions amounted to 55,602 full-time equivalent jobs.

Figure 7: Total employment generated by Yorkshire and Humberside institutions, 2011–12



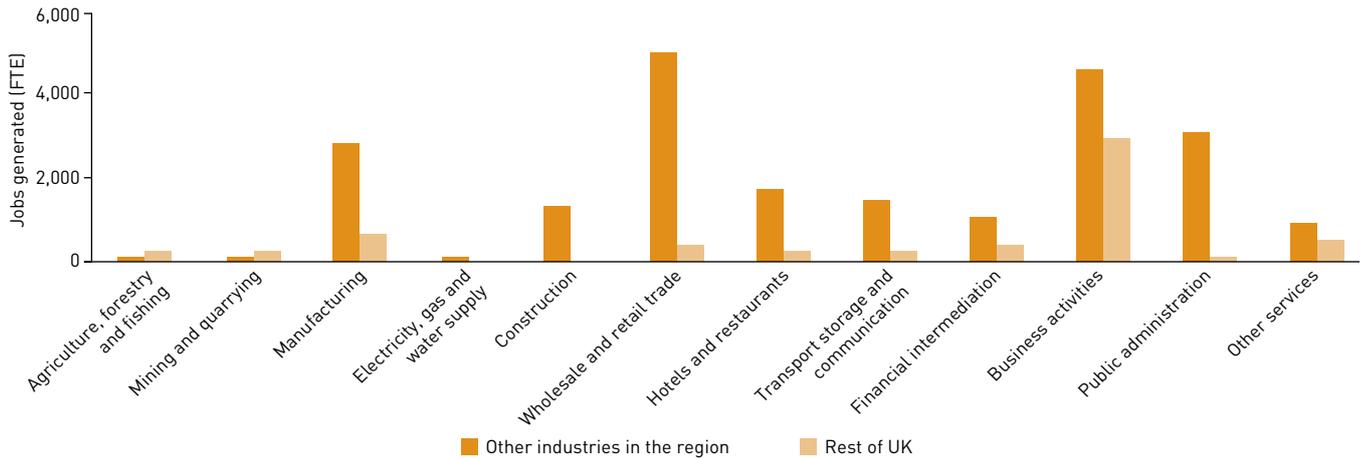
Source: Viewforth modelling system (2013) analysis

Figure 6: Secondary output generated by Yorkshire and Humberside institutions, 2011–12



Source: Viewforth modelling system (2013) analysis

Figure 8: Secondary employment generated by Yorkshire and Humberside institutions, 2011–12²⁹



Source: Viewforth modelling system (2013) analysis

Figure 8 shows the other industries within which the additional jobs would be generated. The pattern of employment generated has a particular emphasis on the wholesale and retail trade, business activities and public administration. This is because of a combination of two major factors – that Yorkshire and Humberside higher education institutions had a relatively high output impact in these areas and also that these industries tend to be relatively labour intensive.

3.3.5 Employment multipliers

As with the analysis of output impact, it is possible to calculate ‘multiplier’ values.

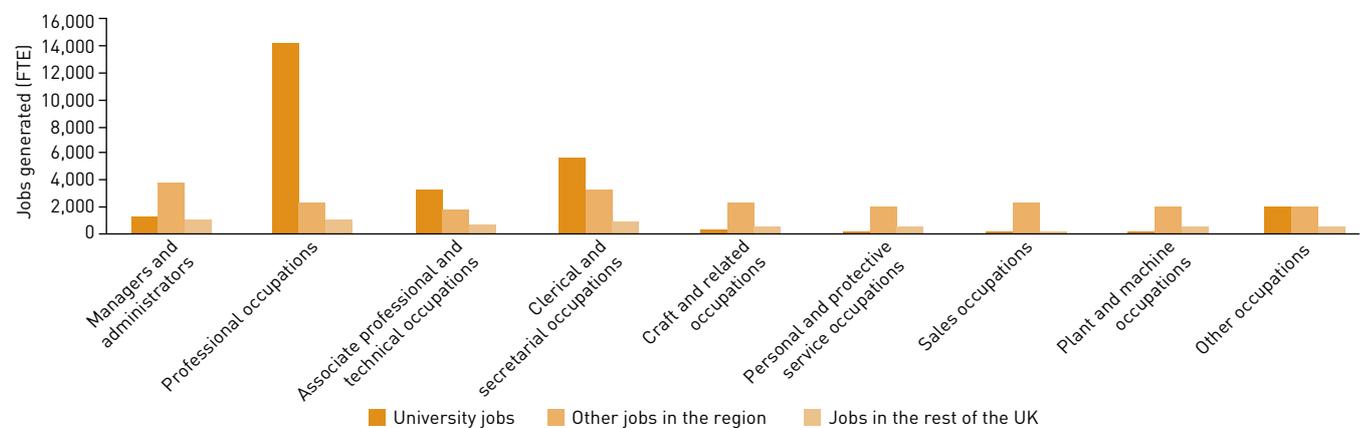
- The Type II employment multipliers derived for the Yorkshire and Humberside higher education institutions were observed to be as follows:
 - UK: 2.03
 - Regional: 1.81

- In other words, for every 100 direct full-time equivalent (FTE) jobs created in the university itself, another 103 UK jobs would be generated outside the universities in other industries, 81 of which would be in Yorkshire and Humberside.
- The total UK employment impact of £1 million received by Yorkshire and Humberside institutions is 25.38 FTE jobs. Every £1 million of sectoral output³⁰ creates:

- 12.49 FTE jobs directly in the universities
- Plus 10.17 FTE additional (secondary impact or ‘knock-on’) jobs in the region
- plus 2.72 FTE secondary impact jobs in the rest of the UK

Figure 3 has shown how the sectoral employment profile covers the full range of skill levels. By translating sectoral employment profile into

Figure 9: Comparison of the occupational profile of employment generated, 2011–12



Source: Viewforth modelling system (2013) analysis

29. The economic model used is based on SIC 2003 descriptors, which at a 1 digit level are not significantly different from SIC 2007. Hence the industry descriptors used here are SIC 2003.

30. University output is definitionally equivalent to revenue or ‘turnover’.

Standard Occupational Classifications³¹ it is possible to compare the profile of higher education employment with that generated outside the universities. Figure 9 compares the sectoral occupational profile with that of the employment created outside the higher education institutions in Yorkshire and Humberside and in the rest of the UK.

As Figure 9 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 classed as professionals, rather than managers) undertaking managerial roles.

3.4 GVA generated by the institutions

The importance of higher education to the regional 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 £1.5 billion and through secondary or 'knock-on' effects it generated a further £1.4 billion of GVA in other industries across the UK (£1 billion of GVA was related to Yorkshire and Humberside industries).

The higher education institutions generated £2.5 billion regional GVA in total (direct plus secondary),

which was equivalent to around 2.7% of all 2011 Yorkshire and Humberside GVA.³²

The GVA multipliers were calculated as being:

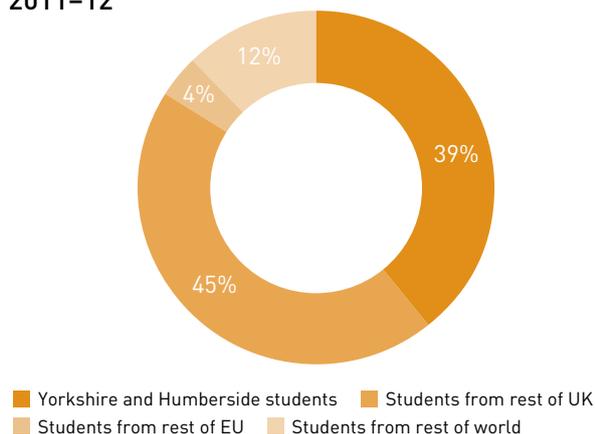
- UK: 1.93
- Regional: 1.69

3.5 The impact of student expenditure

3.5.1 Student profile

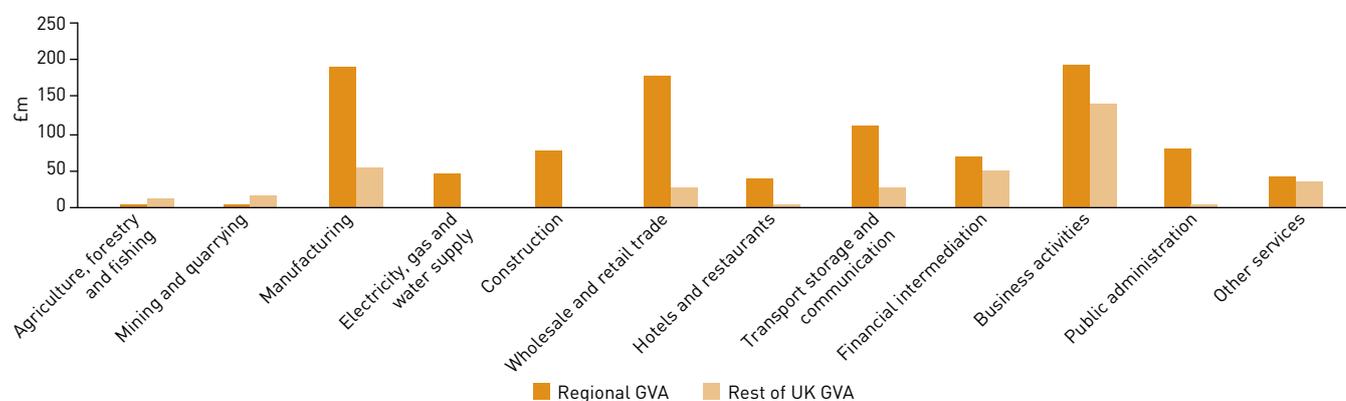
As well as providing educational opportunities for local students, with around 39% of all students coming from the region itself, the region's universities attract a substantial number of students from the rest of the UK and from overseas. Forty-five per cent come from the rest of the UK and 16% from other countries.

Figure 11: Student profile by domicile of origin, 2011–12



Source: HESA *Students in Higher Education Institutions 2011/12*

Figure 10: Secondary GVA generated by the Yorkshire and Humberside university sector, 2011–12



Source: Viewforth modelling system (2013) analysis

31. The economic model used is based on 2000 SOC and so to compare like with like we translated university employment into SOC 2000 rather than SOC 2010. At the aggregate 1 digit level the classifications and descriptors are very similar.

32. Yorkshire and Humberside GVA in 2011 was £91.04 billion. (ONS 2012)

3.5.2 International students

The current strength of Yorkshire and Humberside higher education institutions in attracting students from further afield to study in the region also means that they are attracting additional money into the region and boosting export earnings.

- In 2011–12 the region's universities attracted over 33,655 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 £260 million in fee income in 2011–12.) Payments to the universities for halls of residence accommodation, or money spent in university cafeterias, bars etc are likewise captured in the institutional impact. 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 2011–12 this off-campus expenditure of international students was estimated as £380 million.³³ 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 thus as export earnings.
- The off-campus expenditure of international students generated £570 million of output (of which £404 million was in the region) and 4,824 full-time jobs throughout the UK (of which 3,515 were in Yorkshire and Humberside). The international student expenditure generated £264 million of GVA in the UK. (£186 million regional GVA.)

3.5.3 Students from the rest of the UK

All student expenditure, domestic as well as international, can be very important to the local and regional economy and is seen by local businesses as a core part of their own revenue stream. There is a visible impact on the areas surrounding a university. The most casual observer can see the plethora of bars, cafés and shops and other services that

spring up to serve the student population. Local landlords also benefit from the need for rented accommodation.

The off-campus expenditure of local students – from within the region itself – is not analysed in this study on the basis that the personal living expenditure of local students – as ongoing residents of the region itself – is likely to have happened in the region anyway, irrespective of student status. However the expenditure of students from outside the region – while not additional to the UK economy as a whole – can be regarded as an injection into the regional economy. Consideration of this element of impact is legitimate in terms of regional policy evaluation.

- In 2011–12, there were 94,430 students from outside the region registered at Yorkshire and Humberside higher education institutions.³⁴
- The off-campus expenditure of the 94,430 students from the rest of the UK studying at higher education institutions in the region was estimated to amount to £1 billion.³⁵
- This off-campus expenditure of students from the rest of the UK generated £1.1 billion of output in the region and over 9,677 jobs in the region.
- The off-campus expenditure of students from the rest of the UK generated £511 million of regional GVA.

3.6 Conclusions

This study focused on higher education institutions as businesses and the higher education sector in each region as an industry, generating jobs and output through its expenditure. A summary of the results for the modelled analysis for the Yorkshire and Humberside region is provided in Figures 12 and 13. The study shows higher education to be of significant economic importance to the Yorkshire and Humberside economy bringing immediate benefits to the region in terms of output generated, jobs created and its contribution to regional GVA.

33. International student off-campus expenditure was estimated by drawing on the detailed analysis of international student expenditure carried out for the HM Government *International Education Strategy Paper, International Education: Global Growth and Prosperity* (July 2013). Overall student spend figures were adjusted downwards to reflect the estimated amount (13%) spent on campus for residence, catering etc. This was done to avoid double counting because amounts spent on campus are already included in the university impact.

34. Source: HESA *Students 2011/12*

35. Domestic student expenditure was estimated by drawing on the *Student Income and Expenditure Survey 2011/12* Department for Business, Innovation And Skills Research Paper No.115, July 2013

Figure 12: Total sectoral impact: summary of output generated

	Direct (£ million)	'Knock-on' impact on UK*	Of which accruing to the region	Total UK impact (direct & 'knock-on')	Total impact on the region (direct & 'knock-on')
Regional HEIs	2,190.90	2,837.35	2,099.00	5,028.25	4,289.90
Plus international students	0	570.08	403.57	570.08	403.57
Subtotal	2,190.90	3,407.43	2,502.57	5,598.33	4,693.47
Plus rest of UK students	0	1,111.05	1,111.05	1,111.05	1,111.05
Total combined impact	2,190.90	4,518.48	3,613.62	6,709.38	5,804.52

*Because of the wider displacement effects of domestic student expenditure (domestic student expenditure can be relevant to the regional economy but is not additional to the UK economy) the knock-on impact of *domestic student expenditure only* on the UK as a whole is defined to be identically equal to the estimated impact on the region.

Figure 13: Total sectoral impact: summary of employment generated

	Direct employment (FTEs)	'Knock-on' impact on UK*	Of which accruing to the region	Total UK impact (direct & 'knock-on')	Total impact on the region (direct & 'knock-on')
HEIs	27,375	28,227	22,271	55,602	49,646
Plus international students	0	4,824	3,515	4,824	3,515
Subtotal	27,375	33,051	2,579	60,426	53,161
Plus rest of UK students	0	9,677	9,677	9,677	9,677
Total combined impact	27,375	42,728	35,463	70,103	62,838

*Because of the wider displacement effects of domestic student expenditure (domestic student expenditure can be relevant to the regional economy but is not additional to the UK economy) the knock-on impact of *domestic student expenditure only* on the UK as a whole is defined to be identically equal to the estimated impact on the region.

Figure 14: Total sectoral contribution to Yorkshire and Humberside GVA

	£ million		Total
	Direct	Regional GVA Secondary	
HEIs	1,489.94	1,027.27	2,517.21
International students	0	185.87	185.87
Students from rest of UK	0	511.72	511.72
Total contribution to GVA	1,489.94	1,724.86	3214.8

Source: Derived from university accounts from HESA *HE Finance Plus 2011/12* together with analysis of the secondary impacts modelled in the Viewforth modelling system

ANNEXE A

METHODOLOGY AND DATA SOURCES

The primary focus of the study was the higher education sector in each region as an industry and the impact generated by sector activity during the academic and financial year 2011–12. The study examined the impact of the off-campus expenditure of international students who were studying at the higher education institutions in that year.³⁶ It also analysed the additional injection into the regional economy of the expenditure of students from the rest of the UK (i.e. from outside the specific region being analysed). While domestic student expenditure is not additional to the UK economy as a whole, it is legitimate at a regional level to consider the money being attracted into a region from the rest of the UK.

The study utilised a two-stage approach to the estimation of the economic impact of each region's higher education sector. The impact of the higher education institutions on the UK economy was modelled, using a purpose-designed economic 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 the region.

The model used was a 'Type II' input-output model based on actual UK data derived from the UK Input-Output Tables (Office for National Statistics) together with Labour Force Survey and Annual Business Inquiry data and the 2008 UK Blue Book. The modelling system was updated in 2013 to reflect productivity increases and related economic changes. Additional data sources include the Producers' Prices Index, ONS Regional Accounts and Local Area Data from the ONS including the Business Register and Employment Survey and other regional labour market data from

nomisweb.co.uk. The core modelling system is based on SOC 2000 and SIC 2003 classifications and this has been used for the one-digit aggregate presentation of results. The modelling system used was purpose-designed for UK higher education institutions and is the most recent version of the Universities UK modelling system. The technical specification for the model is included in *The impact of universities on the UK economy* (Kelly, McLellan and McNicoll, Universities UK, 2009).

Other data sources and issues arising

The main source of higher education data is the Higher Education Statistics Agency (HESA) publications on higher education finance, staffing and students. These do not, however, completely disaggregate higher education institutions' revenue sources (for instance they do not separately identify EU student fees paid from domestic higher education student fees paid). Hence there needs to be additional analysis to estimate overall proportions of income from public, private and international sources. In these studies estimates were made of the EU student fee component of institutional international earnings on the basis of the average fee paid by the UK and EU student group in each region. Where data was not available from HESA, estimates were made of the pattern of public/private/international split of income based on tacit knowledge and observations from previous detailed studies of the income sources of individual universities (making the assumption that the broad pattern of other income sources, e.g. for residence and catering, is likely to be similar for most institutions).

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.

ANNEXE B

INSTITUTIONS INCLUDED IN THE STUDIES

East of England

Anglia Ruskin University
University of Bedfordshire
University of Cambridge
Cranfield University
University of East Anglia
University of Essex
University of Hertfordshire
Norwich University College of the Arts
Writtle College

East Midlands

Bishop Grosseteste University College Lincoln
De Montfort University
University of Derby
University of Leicester
University of Lincoln
Loughborough University
The University of Northampton
The University of Nottingham
Nottingham Trent University

London

Birkbeck, University of London
Brunel University
The Institute of Cancer Research
Central School of Speech and Drama
City University London
Conservatoire for Dance and Drama
Courtauld Institute of Art
University of East London
Goldsmiths, University of London
University of Greenwich
Guildhall School of Music and Drama
Heythrop College
Imperial College London
Institute of Education
King's College London
Kingston University
University of the Arts London
London Business School
University of London (institutes and activities)
London Metropolitan University
London South Bank University
London School of Economics and Political Science
London School of Hygiene and Tropical Medicine
Middlesex University
Queen Mary, University of London
Ravensbourne
University of Roehampton
Rose Bruford College
Royal Academy of Music
Royal College of Art

Royal College of Music
Royal Veterinary College
St George's Hospital Medical School
St Mary's University College, Twickenham
SOAS, University of London
Trinity Laban Conservatoire of Music and Dance
UCL School of Pharmacy
University College London
University of West London
University of Westminster

North East

Durham University
Newcastle University
Northumbria University
University of Sunderland
Teesside University

North West

University of Bolton
University of Central Lancashire
University of Chester
University of Cumbria
Edge Hill University
Lancaster University
Liverpool Hope University
Liverpool John Moores University
The Liverpool Institute for Performing Arts
University of Liverpool
Manchester Metropolitan University
The University of Manchester
Royal Northern College of Music
University of Salford

South East

University of Brighton
Buckinghamshire New University
The University of Buckingham
Canterbury Christ Church University
University of Chichester
University for the Creative Arts
University of Kent
The Open University
Oxford Brookes University
University of Oxford
University of Portsmouth
University of Reading
Royal Holloway, University of London
Southampton Solent University
University of Southampton
University of Surrey
University of Sussex
University of Winchester

South West

Bath Spa University
University of Bath
Arts University Bournemouth
Bournemouth University
University of Bristol
University of Exeter
University College Falmouth
University of Gloucestershire
University of St Mark & St John
Plymouth University
Royal Agricultural University
University of the West of England, Bristol

West Midlands

Aston University
Birmingham City University
University of Birmingham
University College Birmingham
Coventry University
Harper Adams University College
Keele University
Newman University College
Staffordshire University
The University of Warwick
University of Wolverhampton
University of Worcester

Yorkshire and Humberside

University of Bradford
University of Huddersfield
The University of Hull
Leeds College of Art
Leeds Metropolitan University
University of Leeds
Leeds Trinity University College
Sheffield Hallam University
The University of Sheffield
York St John University
The University of York

ANNEXE C

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