Making an economic impact: Higher education and the English regions
Research reports

This series of Research reports published by Universities UK will present the results of research that we have commissioned or undertaken in support of our policy development function. The series aims to disseminate project results in an accessible form and there will normally be a discussion of policy options arising from the work.

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This is the first published study of the impact of the higher education sector on the English regions (although a modeller issued by Universities UK four years ago enabled universities to calculate their own local impact). In 1997 Universities UK published a study of the impact of universities on the UK economy and this report is based on a method that was first used then. Since then three further studies have been published, the most recent appearing in the autumn of 2009.

Since 1997 the economic importance of higher education has been much more widely recognised and its contribution to national and regional economic development is an important influence on policymaking. It is seen as fundamental to the creation and transfer of knowledge to the UK economy through its teaching, research and other activities.

This report on the English regions provides new evidence of the impact of universities as independent businesses (additional to their role in increasing the stock of human capital). The economic activity generated by university expenditure [the aspect of the sector’s economic contribution which is most readily quantifiable] is substantial. The scale of university activity across the UK also means that this can be very important at the macroeconomic level. The report measures the growing economic importance of the sector, in terms of its income, gross export earnings and total workforce in the academic year 2007/08. It measures the sector’s wider economic impact in terms of its total output in each of the nine regions of England.

The report confirms the substantial effect of higher education activity on employment, with universities creating many jobs in their regions and across the UK. The report provides further evidence of the importance of international students to the sector and the wider economy. One significant regional impact highlighted in the report is the volume of personal off-campus expenditure of these students and their visitors.

Such activity depends on a continuing mix of public and private investment in the sector. Income from private sources amounts to 26 per cent of all higher education income – with considerable variations between institutions – but public investment (61 per cent of the total) will continue to play a vital role in the development of the sector. It is clear that such investment has a direct impact on the UK economy and employment levels as well as maintaining the health of the sector.
Summary

We also modelled estimates of the impact of the off-campus expenditure of international visitors attracted to the UK by the universities. The off-campus expenditure of UK-domiciled students was excluded as this may be regarded as not additional to the UK economy as a whole.

The model was a purpose-designed and specially constructed ‘type II’ input-output model based on actual UK data derived from the Office of National Statistics’ input-output tables (2006) together with data from its ‘Blue Book’ (2008). Data on university finance, staffing and students were obtained from HESA. Other data sources included Travel trends (Office of National Statistics) and a student expenditure survey (2009), published by the former Department for Innovation, Universities and Skills, as well as the Labour Force Survey and Annual Business Inquiry.

Key findings

East Midlands

- Total revenue of higher education was £1.38 billion in 2007/08
- International revenue amounted to nearly £181 million which, together with the estimated off-campus expenditure of international students (£146 million), represented a total of £327 million of export earnings
- Universities provided 20,687 full-time equivalent jobs across a wide range of occupations.
- The universities’ own output was £1.36 billion. Through ‘knock-on’ effects they generated an additional £1.93 billion in other industries throughout the UK, with the majority (£1.56 billion) in the region
- 21,391 full-time equivalent jobs were generated outside the universities, with most based in the region
- Universities attracted 21,475 students from outside the UK to study in the region
- International students’ off-campus expenditure (£146 million) generated £205 million of output and 1,930 full-time equivalent jobs throughout the UK.

East of England

- Total revenue of higher education was £1.98 billion in 2007/08
- International revenue amounted to nearly £265 million which, together with the estimated off-campus expenditure of international students...
Universities provided 13,715 full-time equivalent jobs across a wide range of occupations.

The universities’ own output was £967 million. Through ‘knock-on’ effects they generated an additional £1.32 billion in other industries throughout the UK, with most (£939 million) in the region.

14,683 full-time equivalent jobs were generated outside the universities, with most based in the region.

Universities attracted 16,310 students from outside the UK to study in the region.

International students’ off-campus expenditure (£149 million) generated £156 million of output and 1,473 full-time equivalent jobs throughout the UK.

North West

Total revenue of higher education was £2.26 billion in 2007/08.

International revenue amounted to nearly £240 million which, together with the estimated off-campus expenditure of international students (£205 million), represented a total of £445 million of export earnings.

Universities provided 32,308 full-time equivalent jobs across a wide range of occupations.

The universities’ own output was £2.26 billion. Through ‘knock-on’ effects they generated an additional £3.17 billion in other industries throughout the UK, with most (£2.63 billion) in the region.

35,185 full-time equivalent jobs were generated outside the universities, with the majority based in the region.

Universities attracted 30,195 students from outside the UK to study in the region.

International students’ off-campus expenditure (£149 million) generated £288 million of output and 2,726 full-time equivalent jobs throughout the UK.

South East

Total revenue of higher education was £3.1 billion in 2007/08.

International revenue amounted to nearly £381 million which, together with the estimated off-campus expenditure of international students (£261 million), represented a total of £642 million of export earnings.

Universities provided 42,960 full-time equivalent jobs across a wide range of occupations.

North East

Total revenue of higher education was £967 million in 2007/08.

International revenue amounted to nearly £123 million which, together with the estimated off-campus expenditure of international students (£111 million), represented a total of £234 million of export earnings.
— The universities’ own output was £3.1 billion. Through ‘knock-on’ effects they generated an additional £2.2 billion in other industries throughout the UK, with most (£1.6 billion) in the region
— 24,775 full-time equivalent jobs were generated outside the universities, with most based in the region
— Universities attracted 27,480 students from outside the UK to study in the region
— International students’ off-campus expenditure (£187 million) generated £263 million of output and over 2,481 full-time equivalent jobs throughout the UK.

South West

— Total revenue of higher education was £1.36 billion in 2007/08
— International revenue amounted to nearly £125 million which, together with the estimated off-campus expenditure of international students (£113 million), represented a total of £238 million of export earnings
— Universities provided 20,218 full-time equivalent jobs across a wide range of occupations.
— The universities’ own output was £1.36 billion. Through ‘knock-on’ effects they generated an additional £1.9 billion in other industries throughout the UK, with most (£1.6 billion) in the region
— 20,878 full-time equivalent jobs were generated outside the universities, with most based in the region
— Universities attracted 16,640 students from outside the UK to study in the region
— International students’ off-campus expenditure (£113 million) generated £158 million of output and over 1,500 full-time equivalent jobs throughout the UK.

West Midlands

— Total revenue of higher education was £1.64 billion in 2007/08
— International revenue amounted to nearly £194 million which, together with the estimated off-campus expenditure of international students (£187 million), represented a total of £381 million of export earnings
— Universities provided 23,638 full-time equivalent jobs across a wide range of occupations.
— The universities’ own output was £1.64 billion. Through ‘knock-on’ effects they generated an additional £2.5 billion in other industries throughout the UK, with most (£1.84 billion) in the region
— 48,051 full-time equivalent jobs were generated outside the universities, with most based in the region
— Universities attracted 38,425 students from outside the UK to study in the region
— International students’ off-campus expenditure (£261 million) generated £367 million of output and over 3,469 full-time equivalent jobs throughout the UK.

Yorkshire and Humberside

— Total revenue of higher education was £1.84 billion in 2007/08
— International revenue amounted to nearly £216 million which, together with the estimated off-campus expenditure of international students (£181 million), represented a total of £397 million of export earnings
— Universities provided 27,719 full-time equivalent jobs across a wide range of occupations.
— The universities’ own output was £3.1 billion. Through ‘knock-on’ effects they generated an additional £2.2 billion in other industries throughout the UK, with most (£1.6 billion) in the region
— 27,971 full-time equivalent jobs were generated outside the universities, with most based in the region
— Universities attracted 26,605 students from outside the UK to study in the region
— International students’ off-campus expenditure (£187 million) generated £263 million of output and over 2,481 full-time equivalent jobs throughout the UK.
The role of higher education in the economy is attracting growing attention in all developed countries. In particular the potential for higher education to contribute to economic prosperity through innovation and knowledge transfer from universities to wider society is regarded as vitally important for economic development and growth. Universities and colleges are a core part of national and regional economic infrastructure, generating employment and output, attracting export earnings and contributing to gross domestic product (GDP). They are also part of local, regional, national and international networks influencing the political, social, cultural and economic climate.

At a time of global economic crisis governments across the world are looking to their universities to support the national and regional economies, through the development of new ideas, products and services from university research as well as through continuing to raise the education levels of citizens and the nation’s ability to innovate and adapt.

The economic importance of universities is particularly noticeable in the regional economy. First, the knowledge and skills of higher education graduates contribute to the creation of a more flexible and adaptable workforce, which enhances that region’s economic competitiveness. Secondly, as large employers universities make a very tangible contribution to the regional economy and have a significant impact through their expenditure and that of their staff and students. The strength of the higher education sector and its effectiveness in generating economic activity becomes all the more important in a recession, when other sectors of the economy are contracting.

Universities are relatively stable elements of the regional economic infrastructure. Although universities may be delivering additional services remotely and offering distance and e-learning opportunities, their core business still tends to be focused on physical campus sites. These are also the university ‘headquarters’ and are rooted in the region.

Universities are unlikely to move to other parts of the country or overseas – unlike many other industries. Indeed, for most of them part of their identity, reputation and ‘brand’ is inextricably connected to the identity of their host region, town or city and they play a key role in attracting qualified people to, and retaining such people in, the region. This makes universities increasingly important in a global knowledge economy, when investment tends to follow the flow of knowledge and be anchored in a region by the availability of qualified and skilled people.
This study has been undertaken in parallel with a UK-wide study on *The impact of universities on the UK economy* (Universities UK, 2009) and alongside analyses of higher education in the other countries of the UK. We looked at the impact of universities and colleges in each of the nine regions of England, in Scotland, Wales and Northern Ireland as well as the UK-wide study.

The new studies all follow the same methodological approach, building on the UK-wide study. They follow a two-stage approach to the estimation of the economic impact of universities on their region. The impact of the relevant group of 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 impact of a region’s universities on the host region’s economy.

The model used was a ‘type II’ input-output model based on actual UK data derived from the UK input-output tables (2006) published by the Office of National Statistics together with Labour Force Survey and Annual Business Inquiry data. The modelling system was purpose-designed for UK universities and constructed as part of an overall impact study for Universities UK.

We analysed the higher education sector as a conventional industry, highlighting the main economic characteristics including sources of revenue, employment created, output generated and export earnings attracted. Modelled estimates are made of the economic activity generated in other sectors of the economy through the secondary or ‘knock-on’ multiplier effects of the expenditure of universities, their staff and that of the international students, including those from the rest of the EU, attracted to the UK.

Each region has been modelled separately, reflecting the particular characteristics of higher education institutions in that region in terms of scale and type of expenditure. The location quotient approach also seeks to reflect the particular economic characteristics of the region under analysis and assumes, for example, that where a region is specialised in a particular industry, local university requirements for products of that industry would be met by the local regional industry rather than through inter-regional trade. This will tend to maximise the estimate of impact of university expenditure accruing to the region rather than the rest of the UK.1 In the absence of the availability of input-output tables for every region, a ‘top-down’ modelling approach of this type is the most cost-effective and practical way to estimating the impact of universities in a region and one that has the benefits of studying all universities within the same overall methodological framework.

Detailed direct comparisons of the results of these analyses with the results of other studies of regional impact (for example, those using the economic impact modelling system issued by Universities UK in 2006) are not appropriate as a new and different input-output model has been developed for this study and there are also a number of definitional differences in the data sources used. A mathematical specification of the input-output model is provided in Appendix 1.
Introduction

This summary of the key economic features of higher education in the East Midlands in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the nine institutions in the East Midlands for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) It should be noted that while these universities are the major suppliers of higher education in the region, courses at this level are also offered at a range of further education colleges and there can be significant numbers of higher education students registered at these colleges. Relevant data on these are not included in HESA publications. While this section will therefore capture the most of the regional economic impact of higher education as an activity, its overall impact in the East Midlands will be somewhat greater.

The primary focus of the study was the East Midlands universities as businesses and the impact of their business activity during the academic 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in the East Midlands in that year. The expenditure of UK-based students was excluded, as arguably this money cannot be regarded as additional to the UK economy.

The study used a two-stage approach to the estimation of the economic impact of higher education in the East Midlands, as described in section 2.

Key findings

Revenue

- Higher education in the East Midlands had revenue of £1.38 billion in 2007/08.

Chart 1

East Midlands: university revenue, 2007/08 (total £1.4 billion)

- Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 82 per cent of the total). Other services (for example, residence and catering and conference income accounted for 17 per cent of revenue.

- The UK public sector was the largest single client, with 53 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

- 12 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.
Export earnings

The universities’ international revenue of nearly £181 million together with the estimated off-campus expenditure of EU and international students (£146 million) represents a total of £327 million of export earnings.

Table 1

East Midlands: university revenue sources
2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>526</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>526</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>202</td>
<td>0</td>
<td>103</td>
<td>131</td>
<td>437</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>104</td>
<td>49</td>
<td>24</td>
<td>177</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>22</td>
<td>34</td>
<td>11</td>
<td>67</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>36</td>
<td>110</td>
<td>14</td>
<td>159</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>728</td>
<td>161</td>
<td>310</td>
<td>181</td>
<td>1380</td>
</tr>
</tbody>
</table>


Chart 2

East Midlands: university revenue sources, 2007/08 (total £1.4 billion)

Employment

The region’s universities provided 20,687 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment in the East Midlands is shown in chart 3 and table 2.

While the occupational profile of university employment is predictably highly specialised in academic professional posts, there is a spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Chart 3
Occupational profile of universities in the East Midlands, 2007/08 (total 20,687 full-time equivalent jobs)


Table 2
Employment in universities in the East Midlands, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>9,221</td>
<td>44.6</td>
</tr>
<tr>
<td>Managers</td>
<td>849</td>
<td>4.1</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>949</td>
<td>4.6</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>1,957</td>
<td>9.5</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>734</td>
<td>3.5</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>375</td>
<td>1.8</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>3,173</td>
<td>15.3</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>779</td>
<td>3.8</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>387</td>
<td>1.9</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>215</td>
<td>1.0</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>107</td>
<td>0.5</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>97</td>
<td>0.5</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>1,844</td>
<td>8.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,687</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Expenditure

- The expenditure of universities, their staff and students in the East Midlands generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

Chart 4
East Midlands: university expenditure, 2007/08 (total £1.36 billion)

- In 2007/08, universities in the East Midlands spent just over £1.36 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.
- The universities attracted 21,475 students from outside the UK, who spent an estimated additional £146 million off-campus.

Output generated

- The universities’ own output was £1.38 billion. Through ‘knock-on’ effects they generated an additional £1.93 billion in other industries throughout the UK, with most (£1.56 billion) in the East Midlands.

Chart 5
Output generated by universities in the East Midlands, 2007/08 (total £3.29 billion)

- This gives a UK-wide output multiplier of 2.4 (with a regional output multiplier of 2.13). In other words, for every £1 million of university output in the East Midlands, a further £1.4 million is generated in other UK industries, of which £1.13 million is in industries located in the East Midlands region.
Chart 6 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

- In addition to providing 20,687 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 21,391 full-time equivalent jobs were generated outside the universities, with most based in the East Midlands region.

**Chart 7**

Total employment generated by university expenditure in the East Midlands, 2007/08 (total 42,078 full-time equivalent jobs)


The employment generated indicates an overall UK employment multiplier of 2.03 (1.86 within the East Midlands). In other words, for every 100 jobs within a university in the East Midlands, a further 103 jobs were generated in other industries in the UK, of which 86 were in industries located in the East Midlands region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

- East Midlands universities attracted 21,475 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £146 million off-campus.

- This off-campus expenditure generated £205 million of output and 1,930 full-time equivalent jobs throughout the UK.

Overall impact

- The overall economic impact of university expenditure in the East Midlands is shown in table 3.

Table 3
Overall impact of university and international student expenditure in the East Midlands, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the East Midlands</th>
<th>Total impact on the East Midlands (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Midlands universities</td>
<td>£1,379.60</td>
<td>£1,557.14</td>
<td>£2,936.73</td>
<td>£368.26</td>
<td>£3,304.99</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£166.84</td>
<td>£166.84</td>
<td>£38.26</td>
<td>£205.10</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£1,379.60</td>
<td>£1,723.98</td>
<td>£3,103.57</td>
<td>£406.52</td>
<td>£3,510.10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time equivalent jobs)</th>
<th>Total-knock on impact on the East Midlands</th>
<th>Total impact on the East Midlands (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Midlands universities</td>
<td>20,687</td>
<td>17,840</td>
<td>38,527</td>
<td>3,551</td>
<td>42,078</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>1,552</td>
<td>1,552</td>
<td>387</td>
<td>1,939</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>20,687</td>
<td>19,392</td>
<td>40,079</td>
<td>3,938</td>
<td>44,017</td>
</tr>
</tbody>
</table>

**Key findings**

**Revenue**

- Higher education in East of England had revenue of £1.98 billion in 2007/08.

**Chart 9**

**East of England: university revenue, 2007/08 (total £1.98 billion)**

- Funding body grants 26%
- Research grants and contracts 17%
- Tuition fees and education contracts 20%
- Endowment and investment income 3%
- Other income 11%
- Other services rendered 23%


- Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 63 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 34 per cent of revenue.

- The UK public sector was the largest single client, with 34 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

- 16 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.

---

**Introduction**

This summary of the key economic features of higher education in the East of England in the academic year 2007/08 focuses on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the nine institutions in the East of England for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) Although these institutions are the major suppliers of higher education in the region, courses at this level are also offered at a range of further education colleges and there can be significant numbers of higher education students registered at such colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the regional economic impact of higher education as an activity, the overall impact in the East of England will be somewhat greater.

The primary focus of the study was the universities in the East of England as businesses and the impact generated by their business activity during the academic year 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in the East of England in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy). The study used a two-stage approach to the estimation of the economic impact of higher education in the East of England, as described in section 2.
51 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The universities’ international revenue of £265 million together with the estimated off-campus expenditure of EU and international students (£149 million) represents a total of £414 million of export earnings.

Table 4
East of England: university revenue sources 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>505</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>505</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>157</td>
<td>0</td>
<td>127</td>
<td>108</td>
<td>392</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>181</td>
<td>112</td>
<td>46</td>
<td>339</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>95</td>
<td>277</td>
<td>92</td>
<td>465</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>42</td>
<td>154</td>
<td>19</td>
<td>215</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>67</td>
<td>0</td>
<td>67</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>662</strong></td>
<td><strong>318</strong></td>
<td><strong>737</strong></td>
<td><strong>265</strong></td>
<td><strong>1,982</strong></td>
</tr>
</tbody>
</table>


Chart 10
East of England: university revenue sources, 2007/08 (total: £1.98 billion)

The region’s universities provided 20,130 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 11 and table 5 below.

While the occupational profile of university employment is predictably highly specialised in academic professional posts, there is spread of employment across a wide range of other occupations. Substantial physical estates and buildings, for instance, account for the relatively high proportion of cleaners, security assistants and other support staff needed to maintain them.

### Table 5

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>9,313</td>
<td>46.3</td>
</tr>
<tr>
<td>Managers</td>
<td>726</td>
<td>3.6</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>1,285</td>
<td>6.4</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>1,959</td>
<td>9.7</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>426</td>
<td>2.1</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>287</td>
<td>1.4</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>2,672</td>
<td>13.3</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>1,033</td>
<td>5.1</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>376</td>
<td>1.9</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>341</td>
<td>1.7</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>15</td>
<td>0.1</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>299</td>
<td>1.5</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>1,398</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,130</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The universities’ own output was £1.98 billion. Through ‘knock-on’ effects they generated an additional £2.72 billion in other industries throughout the UK, with most of it (£2.38 billion) in the East of England region.

This gives a UK-wide output multiplier of 2.38 (with a regional output multiplier of 2.20). In other words, for every £1 million of university output in the East of England, a further £1.38 million is generated in other UK industries, of which £1.2 million is in industries located in the region.

The expenditure of universities in the East of England, their staff and students generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

In 2007/08, universities in the East of England spent just over £1.9 billion. University expenditure was very similar to university revenue in the study year which is a characteristic of non-profit-making institutions.

The universities attracted 21,835 students from outside the UK, who spent an estimated additional £149 million off-campus.
Chart 14 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

Employment
- In addition to providing 20,130 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 30,119 full-time equivalent jobs were generated outside the universities, with most of them based in the East of England region.

Chart 15
Total employment generated by university expenditure in the East of England, 2007/08 (total 50,249 full-time equivalent jobs)
The employment generated indicates an overall UK employment multiplier of 2.5 (2.29 within the East of England): for every 100 jobs within a university in the East of England, a further 150 jobs were generated in other industries in the UK, of which 129 were in industries located in the region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
**International student expenditure**

- Universities in the East of England attracted 21,835 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £149 million off-campus.

- This off-campus expenditure generated £209 million of output and 1,970 full-time equivalent jobs throughout the UK.

**Overall impact**

- The overall economic impact of university expenditure in the East of England is shown in table 6.

### Table 6

Overall impact of university and international student expenditure in the East of England, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the East of England</th>
<th>Total impact on the East of England (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East of England universities</td>
<td>£1,982.16</td>
<td>£2,380.41</td>
<td>£4,362.56</td>
<td>£344.42</td>
<td>£4,706.98</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>189.43</td>
<td>189.43</td>
<td>£19.11</td>
<td>£208.54</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£1,982.16</td>
<td>£2,569.84</td>
<td>£4,551.99</td>
<td>£363.53</td>
<td>£4,915.53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time equivalent jobs)</th>
<th>Total-knock on impact on the East of England</th>
<th>Total impact on the East of England (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East of England universities</td>
<td>20,130</td>
<td>25,908</td>
<td>46,038</td>
<td>4,211</td>
<td>50,249</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>1,753</td>
<td>1,753</td>
<td>219</td>
<td>1,971</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>20,130</td>
<td>27,661</td>
<td>47,791</td>
<td>4,430</td>
<td>52,221</td>
</tr>
</tbody>
</table>

Introduction

This summary of the key economic features of higher education in London in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the 41 institutions in London for which data is provided by the Higher Education Statistics Agency (HESA). [They are listed in Appendix 2.] Although these institutions are the major suppliers of higher education in London, courses at this level are also offered at a range of further education colleges and there can be significant numbers of higher education students registered at such colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the economic impact of higher education as an activity, its overall impact in London will be somewhat greater.

The primary focus of the study was the universities in London as businesses and the impact generated by their business activity during the academic year 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in London in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy). The study used a two-stage approach to the estimation of the economic impact of higher education in London, as described in section 2.

Key findings

Revenue

Higher education in London had revenue of £4.85 billion in 2007/08.

Chart 17

London: university revenue, 2007/08 (total £4.85 billion)

Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 82 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 16 per cent of revenue.

The UK public sector was the largest single client, with 43 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

13 per cent of revenue was from other public sector bodies for other purposes, including research contracts, consultancy and other services.
44 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The universities’ international revenue of nearly £786 million, together with the estimated off-campus expenditure of international students (£584 million) represents a total of £1,379 billion of export earnings.

Table 7
London: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>1,654</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,654</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>429</td>
<td>0</td>
<td>425</td>
<td>567</td>
<td>1,421</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>403</td>
<td>351</td>
<td>144</td>
<td>899</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>78</td>
<td>80</td>
<td>27</td>
<td>186</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>163</td>
<td>377</td>
<td>48</td>
<td>588</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>105</td>
<td>0</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td><strong>2,083</strong></td>
<td><strong>645</strong></td>
<td><strong>1,338</strong></td>
<td><strong>786</strong></td>
<td><strong>4,853</strong></td>
</tr>
</tbody>
</table>


Chart 18
London: university revenue sources, 2007/08 (total £4.85 billion)

While the occupational profile of university employment is predictably highly specialised in academic professional posts, there is a spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Chart 19
Occupational profile of universities in London, 2007/08 (total 55,578 full-time-equivalent jobs)

Table 8
Employment in universities in London, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>27,101</td>
<td>48.8</td>
</tr>
<tr>
<td>Managers</td>
<td>3,768</td>
<td>6.8</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>4,250</td>
<td>7.6</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>4,247</td>
<td>7.6</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>1,216</td>
<td>2.2</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>915</td>
<td>1.6</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>9,011</td>
<td>16.2</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>1,803</td>
<td>3.2</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>408</td>
<td>0.7</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>449</td>
<td>0.8</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>78</td>
<td>0.1</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>145</td>
<td>0.3</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>2,187</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55,578</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The universities own output was £4.85 billion. Through 'knock-on' effects they generated an additional £6.7 billion in other industries throughout the UK, with most of it (£4.97 billion) in the London region.

In 2007/08, the London region’s universities spent just over £4.7 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.

The universities also attracted 85,815 students from outside the UK, who spent an estimated additional £584 million off-campus.

This gives a UK-wide output multiplier of 2.39 (with a regional output multiplier of 2.02). In other words, for every £1 million of university output, a further £1.39 million is generated in other UK industries, of which £1.02 million is in industries located in London.
Chart 22 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

- In addition to providing 55,578 full-time equivalent jobs directly in higher education, university expenditure generated jobs in other parts of the economy.
- 74,641 full-time equivalent jobs were generated outside the universities, with most based in the London region.

**Chart 23**

Total employment generated by university expenditure in London, 2007/08 (total 130,219 full-time equivalent jobs)
The employment generated indicates an overall UK employment multiplier of 2.34 (2.10 within London). In other words, for every 100 jobs within a university, a further 134 jobs were generated in other industries in the UK, of which 110 were in industries located in the London region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

- Universities in London attracted 85,815 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £584 million off-campus.

- This off-campus expenditure generated £820 million of output and 7,748 full-time equivalent jobs throughout the UK.

Overall impact

- The overall economic impact of universities in London expenditure is shown in table 9.

Table 9

Overall impact of university and international student expenditure in London, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Direct knock-on impact on London</th>
<th>Total impact on London (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>London universities</td>
<td>£4,852.52</td>
<td>£4,972.88</td>
<td>£9,825.41</td>
<td>£1,750.30</td>
<td>£11,575.71</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£591.00</td>
<td>£591.00</td>
<td>£228.60</td>
<td>£819.60</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£4,852.52</td>
<td>£5,563.88</td>
<td>£10,416.40</td>
<td>£1,978.90</td>
<td>£12,395.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock-on impact on London</th>
<th>Total impact on London (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>London universities</td>
<td>55,578</td>
<td>60,901</td>
<td>116,479</td>
<td>13,740</td>
<td>130,219</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>5,923</td>
<td>5,923</td>
<td>1,825</td>
<td>7,748</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>55,578</td>
<td>66,824</td>
<td>122,402</td>
<td>155,65</td>
<td>137,967</td>
</tr>
</tbody>
</table>

Introduction

This summary of the key economic features of high education in the North East in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the five institutions in the North East for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) It should be noted that while these universities are the major suppliers of higher education in the region, courses at this level are also offered at a number of further education colleges and there can be significant numbers of higher education students registered at these colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the economic impact of higher education as an activity, its overall impact in the North East will be somewhat greater.

The primary focus of the study was the universities in the North East as businesses and the impact generated by their activity during the academic and financial year 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in North East in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy). The study used a two-stage approach to the estimation of the economic impact of North East higher education, as described in section 2.

Key findings

Revenue

Higher education in the North East had revenue of £967 million in 2007/08.

Chart 25
North East: university revenue, 2007/08 (total £967 million)

Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 80 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 18 per cent of revenue.

The UK public sector was the largest single client, with 52 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

13 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.
35 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The universities’ international revenue of nearly £123 million together with the estimated off-campus expenditure of international students (£111 million) represents a total of £234 million of export earnings.

Table 10
North East: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>368</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>368</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>133</td>
<td>0</td>
<td>64</td>
<td>87</td>
<td>284</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>77</td>
<td>32</td>
<td>18</td>
<td>127</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>20</td>
<td>21</td>
<td>7</td>
<td>48</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>29</td>
<td>85</td>
<td>11</td>
<td>125</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>501</strong></td>
<td><strong>127</strong></td>
<td><strong>216</strong></td>
<td><strong>123</strong></td>
<td><strong>967</strong></td>
</tr>
</tbody>
</table>


Chart 26
North East: university revenue sources, 2007/08 (total £967 million)

Employment

Universities in the North East provided 13,715 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 27 and table 11 below:

While the occupational profile of university employment is predictably specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Chart 27
Occupational profile of universities in the North East, 2007/08 (total 13,715 full-time-equivalent jobs)


Table 11
Employment in universities in the North East, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>5,827</td>
<td>42.5</td>
</tr>
<tr>
<td>Managers</td>
<td>764</td>
<td>5.6</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>912</td>
<td>6.6</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>1,050</td>
<td>7.7</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>361</td>
<td>2.6</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>184</td>
<td>1.3</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>2,050</td>
<td>14.9</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephone</td>
<td>709</td>
<td>5.2</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>138</td>
<td>1.0</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>325</td>
<td>2.4</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>23</td>
<td>0.2</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>22</td>
<td>0.2</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>1,350</td>
<td>9.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,715</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The universities’ own output was £967 million. Through ‘knock-on’ effects universities and colleges in the North East generated an additional £1.32 billion in other industries throughout the UK, with most of it (£939 million) in the region.

This gives a UK-wide output multiplier of 2.37 (with a regional output multiplier of 1.97). In other words, for every £1 million of university output in the North East, a further £1.37 million is generated in other UK industries, of which £0.97 million is in industries located in the region.

In 2007/08 universities in the North East spent just under £928 million. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.

They also attracted 16,310 students from outside the UK and these international students spent an estimated additional £111 million off-campus.

Expenditure
- The expenditure of universities in the North East, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

Chart 28
Expenditure of universities in the North East, 2007/08 (total £928 million)

Output generated
- The universities’ own output was £967 million. Through ‘knock-on’ effects universities and colleges in the North East generated an additional £1.32 billion in other industries throughout the UK, with most of it (£939 million) in the region.

Chart 29
Output generated by universities in the North East, 2007/08 (total £2.3 billion)
Chart 30 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

- In addition to providing 13,715 full-time equivalent jobs directly in higher education, university expenditure generated jobs in other parts of the economy.
- 14,683 full-time equivalent jobs were generated outside the universities, with most in the North East region.

The employment generated indicates an overall UK employment multiplier of 2.07 (1.80 within the North East). In other words, for every 100 jobs within a university in the North East, a further 107 jobs were generated in other industries in the UK, of which 80 were in industries located in the North East region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.

**International student expenditure**

- Universities in the North East attracted 16,310 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £111 million off-campus.
- This off-campus expenditure generated £156 million of output and 1,473 full-time equivalent jobs throughout the UK.

**Overall impact**

- The overall economic impact of universities in the North East is shown in table 12.

<table>
<thead>
<tr>
<th>Table 12</th>
<th>Overall impact of university and international student expenditure in North East, 2007/08</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
<td><strong>Direct (£ millions)</strong></td>
</tr>
<tr>
<td>North East universities</td>
<td>£966.83</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total combined impact of university activity</strong></td>
<td>£966.83</td>
</tr>
</tbody>
</table>

| **Category** | **Direct (full-time-equivalent jobs)** | **Total-knock on impact on the North East** | **Total impact on the North East (direct plus knock-on)** | **Knock-on impact on the rest of the UK** | **Total impact on the UK (direct plus knock-on)** |
| North East universities | 13,715 | 11,011 | 24,726 | 3,673 | 28,398 |
| Non-UK students | 0 | 1,054 | 1,054 | 419 | 1,473 |
| **Total combined impact of university activity** | 13,715 | 12,064 | 25,779 | 4,092 | 29,871 |

Introduction

This summary of the key economic features of higher education in the North West in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the 14 institutions in the North West for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) Although these universities are the major suppliers of higher education in the region, courses at this level are also offered by a range of further education colleges and there can be significant numbers of higher education students registered at these colleges. Relevant data on these are not included in HESA publications. While this report therefore captures most of the economic impact of higher education as an activity, its overall impact in the North West will be somewhat greater.

The primary focus of the study was universities in the North West as businesses and the impact generated by their activity during the academic 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in the North West in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy).

The study used a two-stage approach to the estimation of the economic impact of North West higher education, as described in section 2.

Key findings

Revenue

Higher education in North West had revenue of £2.26 billion in 2007/08

Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 80 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 18 per cent of revenue.

The UK public sector was the largest single client, with 50 per cent of university revenue being core payments from the public sector. Core public sector revenue is made up of funding council payments and tuition fees from public sector sources.

14 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.
36 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The international revenue of universities in the North West of £240 million, together with the estimated off-campus expenditure of international students (£205 million), represents a total of £445 million of export earnings.

Table 13
North West: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>838</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>838</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>300</td>
<td>0</td>
<td>178</td>
<td>151</td>
<td>630</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>194</td>
<td>87</td>
<td>48</td>
<td>329</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>51</td>
<td>43</td>
<td>14</td>
<td>109</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>71</td>
<td>200</td>
<td>26</td>
<td>297</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>57</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>1,138</td>
<td>316</td>
<td>566</td>
<td>240</td>
<td>2,259</td>
</tr>
</tbody>
</table>


Chart 34
North West: university revenue sources, 2007/08 (total £2.3 billion)

Employment

The region’s universities provided 32,308 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 35 and table 14 below:

While the occupational profile of university employment is predictably highly specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Chart 35
Occupational profile of universities in the North West, 2007/08 (total 32,308 full-time equivalent jobs)

Table 14
Employment in universities in the North West, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>14,136</td>
<td>43.8</td>
</tr>
<tr>
<td>Managers</td>
<td>968</td>
<td>3.0</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>2,688</td>
<td>8.3</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>2,685</td>
<td>8.3</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>855</td>
<td>2.6</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>566</td>
<td>1.8</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>4,767</td>
<td>14.8</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>1,724</td>
<td>5.3</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>541</td>
<td>1.7</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>375</td>
<td>1.2</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>91</td>
<td>0.3</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>124</td>
<td>0.4</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>2,788</td>
<td>8.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32,308</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Expenditure

The expenditure of universities in the North West, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

Chart 36
Expenditure of universities in the North West, 2007/08 (total £2.2 billion)

- In 2007/08, universities in the North West spent just over £2.2 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.
- Universities also attracted 30,195 students from outside the UK, who spent an estimated additional £205 million off-campus.

Output generated

The universities’ own output was £2.26 billion. Through ‘knock-on’ effects the universities and colleges in the North West generated an additional £3.17 billion in other industries throughout the UK, with most of it (£2.63 billion) in the region.

Chart 37
Output generated by universities in the North West, 2007/08 (total £5.4 billion)

- This gives a UK-wide output multiplier of 2.4 (with a regional output multiplier of 2.16). In other words, for every £1 million of university output, a further £1.4 million is generated in other UK industries, of which £1.16 million is in industries located in the region.
Chart 38 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

### Employment

- In addition to providing 32,308 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 35,185 full-time equivalent jobs were generated outside the universities, with most of them based in the North West region.

The employment generated indicates an overall UK employment multiplier of 2.09 (1.94 within the North West). In other words, for every 100 jobs within a university in the North West, a further 109 jobs were generated in other industries in the UK, of which 94 were in industries located in the region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

Universities in the North West attracted 30,195 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £205 million off-campus.

This off-campus expenditure generated £288 million of output and 2,726 full-time equivalent jobs throughout the UK.

Overall impact

The overall economic impact of the expenditure of universities in the North West is shown in table 15.

Table 15
Overall impact of university and international student expenditure in North West, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the North West</th>
<th>Total impact on the North West (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North West universities</td>
<td>£2,259.48</td>
<td>£2,629.82</td>
<td>£4,889.3</td>
<td>£536.92</td>
<td>£5,426.22</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£232.02</td>
<td>£232.02</td>
<td>£56.37</td>
<td>£288.39</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£2,259.48</td>
<td>£2,861.83</td>
<td>5,121.31</td>
<td>£593.30</td>
<td>£5,714.61</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock on impact on the North West</th>
<th>Total impact on the North West (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North West universities</td>
<td>32,308</td>
<td>30,325</td>
<td>62,633</td>
<td>4,861</td>
<td>67,493</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>2,250</td>
<td>2,250</td>
<td>477</td>
<td>2,726</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>32,308</td>
<td>32,575</td>
<td>64,883</td>
<td>5,337</td>
<td>70,220</td>
</tr>
</tbody>
</table>

Introduction

This summary of the key economic features of higher education in the South East in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the 18 institutions in the South East for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) It should be noted that while these universities are the major suppliers of higher education in the South East, higher education courses are also offered at a range of further education colleges and there can be significant numbers of higher education students registered at such colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the economic impact of higher education as an activity, its overall impact in the South East will be somewhat greater.

The primary focus of the study was the universities in the South East as businesses and the impact generated by their activity during the academic year 2007/08. It also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in the South East in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy).

The study used a two-stage approach to the estimation of the economic impact of higher education in the South East, as described in section 2.

Key findings

Revenue

- Higher education in the South East had revenue of £3.1 billion in 2007/08.

Chart 41
South East: university revenue, 2007/08 (total £3.1 billion)

- Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 79 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 18 per cent of revenue.

- The UK public sector was the largest single client, with 47 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

- 11 per cent of revenue was derived from other public sector bodies for other purposes, including for research contracts, consultancy and other services.
42 per cent of university revenue was earned from the private sector and international clients.

**Export earnings**

Universities’ international revenue of nearly £381 million together with the estimated off-campus expenditure of international students (£261 million) represents a total of £642 million of export earnings.

### Table 16
South East: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>1,139</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,139</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>324</td>
<td>0</td>
<td>291</td>
<td>211</td>
<td>826</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>258</td>
<td>156</td>
<td>100</td>
<td>514</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>19</td>
<td>95</td>
<td>32</td>
<td>146</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>67</td>
<td>306</td>
<td>39</td>
<td>412</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>81</td>
<td>0</td>
<td>81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,463</strong></td>
<td><strong>343</strong></td>
<td><strong>930</strong></td>
<td><strong>381</strong></td>
<td><strong>3,117</strong></td>
</tr>
</tbody>
</table>


### Chart 42
South East: university revenue sources, 2007/08 (total £3.1 billion)
Employment

The region’s universities provided 42,960 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 43 and table 17 below:

While the occupational profile of higher education institutional employment is predictably highly specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

chart 43

Occupational profile of universities in the South East, 2007/08 (total 42,960 full-time equivalent jobs)


table 17

Employment in universities in the South East, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>19,509</td>
<td>45.4</td>
</tr>
<tr>
<td>Managers</td>
<td>1,969</td>
<td>4.6</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>3,819</td>
<td>8.9</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>3,023</td>
<td>7.0</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>1,203</td>
<td>2.8</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>857</td>
<td>2.0</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>6,363</td>
<td>14.8</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>1,943</td>
<td>4.5</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>706</td>
<td>1.6</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>461</td>
<td>1.1</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>281</td>
<td>0.7</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>208</td>
<td>0.5</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>2,618</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42,960</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Expenditure**

- The expenditure of universities in the South East, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

**Chart 44**

Expenditure of universities in the South East, 2007/08 (total £3 billion)

- In 2007/08, universities in the South East spent just over £3 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.

- They also attracted 38,425 students from outside the UK, who spent an estimated additional £261 million off-campus.

**Output generated**

- The universities’ own output was £3.1 billion. Through ‘knock-on’ effects they generated an additional £4.3 billion in other industries throughout the UK, with most of it (£3.7 billion) in the South East region.

**Chart 45**

Output generated by universities in the South East, 2007/08 (total £7.4 billion)

- This gives a UK-wide output multiplier of 2.39 (with a regional output multiplier of 2.19). In other words, for every £1 million of university output, a further £1.39 million is generated in other UK industries, of which £1.19 million is in industries located in the South East.
Chart 46 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

In addition to providing 42,960 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.

48,051 full-time equivalent jobs were generated outside the universities, with most in the South East region.
The employment generated indicates an overall UK employment multiplier of 2.12 (2.0 within the South East). In other words, for every 100 jobs within a university, a further 112 jobs were generated in other industries in the UK, of which 100 were in industries located in the South East region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

Universities in the South East attracted 38,425 students from outside the UK to study in the region. In addition to any fees or other monies paid to universities (for example, for halls of residence fees etc), these students spent an estimated £261 million off-campus.

This off-campus expenditure generated £367 million of output and 3,469 full-time equivalent jobs throughout the UK.

Overall impact

The overall economic impact of university expenditure in the South East is shown in table 18.

Table 18
Overall impact of university and international student expenditure in the South East, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the South East</th>
<th>Total impact on the South East (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South East universities</td>
<td>£3,117.12</td>
<td>£3,720.39</td>
<td>£6,837.51</td>
<td>£606.02</td>
<td>£7,443.53</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£316.30</td>
<td>£316.30</td>
<td>£50.69</td>
<td>£366.99</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£3,117.12</td>
<td>£4,036.69</td>
<td>£7,153.81</td>
<td>£656.71</td>
<td>£7,810.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock on impact on the South East</th>
<th>Total impact on the South East (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South East universities</td>
<td>42,960</td>
<td>42,845</td>
<td>85,805</td>
<td>5,206</td>
<td>91,011</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>3,095</td>
<td>3,095</td>
<td>375</td>
<td>3,469</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>42,960</td>
<td>45,940</td>
<td>88,902</td>
<td>5,580</td>
<td>94,481</td>
</tr>
</tbody>
</table>

Introduction

This summary of the key economic features of higher education in the South West in the academic year 2007/08 focuses primarily on higher education institutions as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

The universities included are the 12 institutions in the South West for which data is provided by the Higher Education Statistics Agency (HESA). (They are listed in Appendix 2.) It should be noted that while these universities are the major suppliers of higher education in the South West, courses at this level are also offered at a number of further education colleges and some higher education students will be registered at such colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the economic impact of higher education as an activity, its overall impact in the South West of England will be somewhat greater.

The primary focus of the study was universities in the South West as businesses and the impact generated by their activity during the academic year 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in the South West in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy). The study used a two-stage approach to the estimation of the economic impact of higher education in the South West, as described in section 2.

Key findings

Revenue

Higher education in the South West had revenue of £1.36 billion in the study year.

Chart 49

South West: university revenue, 2007/08 (total £1.36 billion)

Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 80 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 18 per cent of revenue.

The UK public sector was the largest single client, with 54 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

13 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.

Funding body grants 42%
Tuition fees and education contracts 26%
Research grants and contracts 12%
Other income 15%
Other services rendered 2%
Endowment and investment income 2%

33 per cent of university revenue was earned from the private sector and international clients.

**Export earnings**

The universities’ international revenue of £125 million together with the estimated off-campus expenditure of international students (£113 million) represents a total of £238 million of export earnings.

### Table 19
South West: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>564</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>564</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>178</td>
<td>0</td>
<td>94</td>
<td>81</td>
<td>353</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>105</td>
<td>44</td>
<td>18</td>
<td>167</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>8</td>
<td>28</td>
<td>9</td>
<td>46</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>58</td>
<td>133</td>
<td>17</td>
<td>208</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>742</strong></td>
<td><strong>171</strong></td>
<td><strong>324</strong></td>
<td><strong>125</strong></td>
<td><strong>1,363</strong></td>
</tr>
</tbody>
</table>


### Chart 50
South West: university revenue sources, 2007/08 (£1.36 billion)

Employment

Universities and colleges in the South West provided 20,218 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in Chart 51 and table 20 below:

While the occupational profile of higher education institutional employment is predictably highly specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Chart 51

Occupational profile of universities in the South West, 2007/08 (total 20,218 full-time equivalent jobs)

Table 20

Employment in universities in the South West, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>8,612</td>
<td>42.6</td>
</tr>
<tr>
<td>Managers</td>
<td>1,024</td>
<td>5.1</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>1,778</td>
<td>8.8</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>1,515</td>
<td>7.5</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>606</td>
<td>3.0</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>473</td>
<td>2.3</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>2,839</td>
<td>14.0</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>848</td>
<td>4.2</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>436</td>
<td>2.2</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>248</td>
<td>1.2</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>77</td>
<td>0.4</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>54</td>
<td>0.3</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>1,708</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,218</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Expenditure

The expenditure of universities in the South West, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

Chart 52
Expenditure of universities in the South West, 2007/08 (total £1.33 billion)

- In 2007/08, universities in the South West spent just over £1.3 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.
- They also attracted 16,640 students from outside the UK, who spent an estimated additional £113 million off-campus.

Output generated

The universities’ own output was £1.36 billion. Through ‘knock-on’ effects they generated an additional £1.9 billion in other industries throughout the UK, with most (£1.6 billion) in the South West region.

Chart 53
Output generated by universities in the South West, 2007/08 (total £1.9 billion)

- This gives a UK-wide output multiplier of 2.38 (with a regional output multiplier of 2.18). In other words, for every £1 million of university output in the South West, a further £1.38 million is generated in other UK industries, of which £1.18 million is in industries located in the region.
Chart 54 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

Employment

- In addition to providing 20,218 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 20,878 full-time equivalent jobs were generated outside the universities, with most of them in the South West region.

Chart 55

Total employment generated by university expenditure in the South West, 2007/08 (total 41,096 full-time equivalent jobs)

The employment generated indicates an overall UK employment multiplier of 2.03 (1.91 within the South West). In other words, for every 100 jobs within a university in the South West, a further 103 jobs were generated in other industries in the UK, of which 91 were in industries located in the region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

It has been highlighted that universities in the South West attracted 16,640 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £113 million off-campus.

This off-campus expenditure generated £158 million of output and 1,500 full-time equivalent jobs throughout the UK.

Overall impact

The overall economic impact of university expenditure in the South West is shown in table 21.

Table 21
Overall impact of university and international student expenditure in South West, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the South West</th>
<th>Total impact on the South West (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South West universities</td>
<td>£1,362.56</td>
<td>£1,606.68</td>
<td>£2,969.24</td>
<td>£269.75</td>
<td>£3,239.00</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£131.24</td>
<td>£131.24</td>
<td>£27.69</td>
<td>£158.92</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£1,362.56</td>
<td>£1,737.92</td>
<td>£3,100.48</td>
<td>£297.44</td>
<td>£3,397.92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock on impact on the South West</th>
<th>Total impact on the South West (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South West universities</td>
<td>20,218</td>
<td>18,519</td>
<td>38,737</td>
<td>2,359</td>
<td>41,096</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>1,288</td>
<td>1,288</td>
<td>215</td>
<td>1,501</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>20,218</td>
<td>19,807</td>
<td>40,025</td>
<td>2,574</td>
<td>42,598</td>
</tr>
</tbody>
</table>

Key findings

Revenue

Higher education in the West Midlands had revenue of £1.64 billion in 2007/08.

Chart 57
West Midlands: university revenue, 2007/08 (total £1.64 billion)

Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 77 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 21 per cent of revenue.

The UK public sector was the largest single client, with 50 per cent of university revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

12 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.
38 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The universities’ international revenue of nearly £194 million together with the estimated off-campus expenditure of international students (£187 million) represents a total of £381 million of export earnings.

Table 22
West Midlands: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>589</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>589</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>225</td>
<td>0</td>
<td>121</td>
<td>141</td>
<td>487</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>115</td>
<td>46</td>
<td>18</td>
<td>180</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>43</td>
<td>34</td>
<td>11</td>
<td>88</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>49</td>
<td>191</td>
<td>24</td>
<td>264</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>29</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>814</strong></td>
<td><strong>207</strong></td>
<td><strong>422</strong></td>
<td><strong>194</strong></td>
<td><strong>1,636</strong></td>
</tr>
</tbody>
</table>


Chart 58
West Midlands: university revenue sources, 2007/08 (total £1.64 billion)

Employment

The universities and colleges in the West Midlands provided 23,638 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 59 and table 23 below:

While the occupational profile of university employment is predictably highly specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Table 23

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>9,601</td>
<td>40.6</td>
</tr>
<tr>
<td>Managers</td>
<td>1,428</td>
<td>6.0</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>1,473</td>
<td>6.2</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians</td>
<td>1,678</td>
<td>7.1</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training</td>
<td>690</td>
<td>2.9</td>
</tr>
<tr>
<td>instructors, personnel and planning officers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>444</td>
<td>1.9</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>4,024</td>
<td>17.0</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>865</td>
<td>3.7</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical</td>
<td>488</td>
<td>2.1</td>
</tr>
<tr>
<td>fitters and printers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants,</td>
<td>485</td>
<td>2.1</td>
</tr>
<tr>
<td>nursery nurses and care occupations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>112</td>
<td>0.5</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>190</td>
<td>0.8</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and</td>
<td>2,160</td>
<td>9.1</td>
</tr>
<tr>
<td>maintenance workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23,638</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The universities’ own output was £1.64 billion. Through ‘knock-on’ effects the universities and colleges generated an additional £2.2 billion in other industries throughout the UK, with most (£1.6 billion) in the region. This gives a UK-wide output multiplier of 2.36 (with a regional output multiplier of 2.01). In other words, for every £1 million of university output, a further £1.36 million is generated in other UK industries, of which £1.01 million is in industries located in the West Midlands.

In 2007/08, universities in the West Midlands spent just over £1.6 billion. University expenditure was very similar to university revenue in the study year, which is a characteristic of non-profit-making institutions.

They also attracted 27,480 students from outside the UK, who spent an estimated additional £187 million off-campus.
Chart 62 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

- In addition to providing 23,638 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 24,775 full-time equivalent jobs were generated outside the universities, with most based in the West Midlands region.

Chart 63 shows the distribution of the total employment generated by universities in the West Midlands, 2007/08 (total 48,413 full-time-equivalent jobs).
The employment generated indicates an overall UK employment multiplier of 2.05 (1.81 within the West Midlands). In other words, for every 100 jobs within a university in the West Midlands, a further 105 jobs were generated in other industries in the UK, of which 81 were in industries located in the region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

- Universities in the West Midlands attracted 27,480 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £187 million off-campus.

- This off-campus expenditure generated £263 million of output and 2,481 full-time equivalent jobs throughout the UK.

Overall impact

- The overall economic impact of university expenditure in the West Midlands is shown in table 23.

Table 24
Overall impact of university and international student expenditure in the West Midlands, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on the West Midlands</th>
<th>Total impact on the West Midlands (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Midlands universities</td>
<td>£1,636.38</td>
<td>£1,658.25</td>
<td>£3,294.63</td>
<td>£573.72</td>
<td>£3,868.35</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£195.41</td>
<td>£195.41</td>
<td>£67.05</td>
<td>£262.46</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>£1,636.38</td>
<td>£1,853.66</td>
<td>£3,490.04</td>
<td>£640.77</td>
<td>£4,130.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock-on impact on the West Midlands</th>
<th>Total impact on the West Midlands (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Midlands universities</td>
<td>23,638</td>
<td>19,036</td>
<td>42,674</td>
<td>5,739</td>
<td>48,413</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>1,737</td>
<td>1,737</td>
<td>744</td>
<td>2,481</td>
</tr>
<tr>
<td>Total combined impact of university activity</td>
<td>23,638</td>
<td>20,773</td>
<td>44,411</td>
<td>6,483</td>
<td>50,894</td>
</tr>
</tbody>
</table>

Introduction

- This summary of the key economic features of higher education in Yorkshire and Humberside in the academic year 2007/08 focuses primarily on universities as businesses, generating economic activity through their expenditure, which is an aspect of their contribution to the regional and national economy that can be readily measured.

- The universities included are the 11 institutions for which data is provided by the Higher Education Statistics Agency. (They are listed in Appendix 2.) It should be noted that while these universities are the major suppliers of higher education in Yorkshire and Humberside, courses at this level are also offered at a range of further education colleges and there can be significant numbers of higher education students registered at such colleges. Relevant data on these are not included in HESA publications. While this report will therefore capture most of the economic impact of higher education as an activity, its overall impact in Yorkshire and Humberside will be somewhat greater.

- The primary focus of the study was the universities in Yorkshire and Humberside as businesses and the impact generated by their activity during the academic and financial year 2007/08. We also examined the impact of the off-campus expenditure of international students and students from the rest of the EU who were studying at universities in Yorkshire and Humberside in that year. The expenditure of UK-based students was excluded (as arguably this money cannot be regarded as additional to the UK economy). The study used a two-stage approach to the estimation of the economic impact of higher education in Yorkshire and Humberside, as described in section 2.

Key findings

Revenue

- Higher education in Yorkshire and Humberside had revenue of £1.84 billion in the study year.

Chart 65
Yorkshire and Humberside: university revenue, 2007/08 (total £1.84 billion)

- Most of the income received was associated with teaching and research activity (income from funding council grants, tuition fees and research grants and contracts amounted to 81 per cent of the total). Other services (for example, residence and catering and conference income) accounted for 17 per cent of revenue.

- The UK public sector was the largest single client, with 52 per cent of revenue being core payments from the public sector. Core public sector revenue consists of funding council payments and tuition fees from public sector sources.

- 13 per cent of revenue was derived from other public sector bodies for other purposes, including research contracts, consultancy and other services.
35 per cent of university revenue was earned from the private sector and international clients.

Export earnings

The universities’ international revenue of £216 million together with the estimated off-campus expenditure of international students (£181 million) represents a total of £397 million of export earnings.

Table 25
Yorkshire and Humberside: university revenue sources, 2007/08 (£ million)

<table>
<thead>
<tr>
<th>Type of revenue</th>
<th>Core public</th>
<th>Other public</th>
<th>UK private</th>
<th>International</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding body grants</td>
<td>678</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>678</td>
</tr>
<tr>
<td>Tuition fees and education contracts</td>
<td>287</td>
<td>0</td>
<td>115</td>
<td>143</td>
<td>545</td>
</tr>
<tr>
<td>Research grants and contracts</td>
<td>0</td>
<td>168</td>
<td>73</td>
<td>39</td>
<td>280</td>
</tr>
<tr>
<td>Other services rendered</td>
<td>0</td>
<td>23</td>
<td>40</td>
<td>13</td>
<td>76</td>
</tr>
<tr>
<td>Other income</td>
<td>0</td>
<td>50</td>
<td>162</td>
<td>21</td>
<td>233</td>
</tr>
<tr>
<td>Endowment and investment income</td>
<td>0</td>
<td>0</td>
<td>31</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>965</strong></td>
<td><strong>242</strong></td>
<td><strong>421</strong></td>
<td><strong>216</strong></td>
<td><strong>1,844</strong></td>
</tr>
</tbody>
</table>


Chart 66
Yorkshire and Humberside: university revenue sources, 2007/08 (total £1.84 billion)

Employment

The universities provided 27,719 full-time equivalent jobs across a wide range of occupations. The occupational profile of university employment is shown in chart 67 and table 26 below:

Chart 67
Occupational profile of universities in Yorkshire and Humberside, 2007/08
(total 27,719 full-time-equivalent jobs)

While the occupational profile of university employment is predictably highly specialised in academic professional posts, it is important to note the spread of employment across a wide range of other occupations. For instance, the relatively high proportion of cleaners, security assistants and other support staff reflects the need to maintain substantial physical estates and buildings.

Table 26
Employment in universities in Yorkshire and Humberside, 2007/08

<table>
<thead>
<tr>
<th>Staff</th>
<th>Full time equivalent</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic professionals</td>
<td>12,211</td>
<td>44.1</td>
</tr>
<tr>
<td>Managers</td>
<td>1,190</td>
<td>4.3</td>
</tr>
<tr>
<td>Non-academic professionals</td>
<td>1,811</td>
<td>6.5</td>
</tr>
<tr>
<td>Laboratory, engineering, building, IT and medical technicians (including nurses)</td>
<td>2,396</td>
<td>8.6</td>
</tr>
<tr>
<td>Student welfare workers, careers advisors, vocational training instructors, personnel and planning officers</td>
<td>735</td>
<td>2.7</td>
</tr>
<tr>
<td>Artistic, media, public relations, marketing and sports occupations</td>
<td>371</td>
<td>1.3</td>
</tr>
<tr>
<td>Library assistants, clerks and general administrative assistants</td>
<td>4,584</td>
<td>16.5</td>
</tr>
<tr>
<td>Secretaries, typists, receptionists and telephonists</td>
<td>1,190</td>
<td>4.3</td>
</tr>
<tr>
<td>Chefs, gardeners, electrical and construction trades, mechanical fitters and printers</td>
<td>440</td>
<td>1.6</td>
</tr>
<tr>
<td>Caretakers, residential wardens, sports and leisure attendants, nursery nurses and care occupations</td>
<td>263</td>
<td>0.9</td>
</tr>
<tr>
<td>Retail and customer service occupations</td>
<td>114</td>
<td>0.4</td>
</tr>
<tr>
<td>Drivers, maintenance supervisors and plant operatives</td>
<td>73</td>
<td>0.3</td>
</tr>
<tr>
<td>Cleaners, catering assistants, security officers, porters and maintenance workers</td>
<td>2,341</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27,719</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Expenditure

- The expenditure of universities in Yorkshire and Humberside, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.

Chart 68
Expenditure of universities in Yorkshire and Humberside, 2007/08 (total £1.79 billion)

- In 2007/08, universities in Yorkshire and Humberside spent just over £1.79 billion.
- The institutions also attracted 26,605 students from outside the UK, who spent an estimated additional £181 million off-campus.

Output generated

- The universities’ own output was £1.84 billion. Through ‘knock-on’ effects the universities and colleges generated an additional £2.5 billion in other industries throughout the UK, with most (£1.84 billion) in industries in Yorkshire and Humberside.

Chart 69
Output generated by universities in Yorkshire and Humberside, 2007/08 (total £4.4 billion)

- This gives a UK-wide output multiplier of 2.36 (with a regional output multiplier of 2.0). In other words, for every £1 million of university output, a further £1.36 million is generated in other UK industries, of which £1 million is in industries located in Yorkshire and Humberside.


Chart 70 shows the industries in which output was generated. There is an emphasis on manufacturing, wholesale and retail and business activities.

**Employment**

- In addition to providing 27,719 full-time equivalent jobs directly in higher education, institutional expenditure generated jobs in other parts of the economy.
- 27,971 full-time equivalent jobs were generated outside the universities, with most based in the Yorkshire and Humberside region.

**Chart 71**

Total employment generated by university expenditure in Yorkshire and Humberside, 2007/08 (total 55,690 full-time equivalent jobs)

The employment generated indicates an overall UK employment multiplier of 2.0 (1.80 within the region). In other words, for every 100 jobs within a university in Yorkshire and Humberside, a further 100 jobs were generated in other industries in the UK, of which 80 were in the region.

Employment was generated in a wide range of industries, with particular concentration in manufacturing, wholesale and retail, as well as business activities and public administration.
International student expenditure

- Universities in Yorkshire and Humberside attracted 26,605 students from outside the UK to study in the region. In addition to any fees or other monies paid to the universities (for example, for halls of residence fees etc), these students spent an estimated £181 million off-campus.

- This off-campus expenditure generated £254 million of output and 2,402 full-time equivalent jobs throughout the UK.

Overall impact

- The overall economic impact of university expenditure is shown in table 24.

Table 27
Overall impact of university and international student expenditure in Yorkshire and Humberside, 2007/08

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (£ millions)</th>
<th>Knock-on impact on Yorkshire and Humberside</th>
<th>Total impact on Yorkshire and Humberside (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South West universities</td>
<td>£1,843.54</td>
<td>£1,839.17</td>
<td>£3,682.71</td>
<td>£675.80</td>
<td>£4,358.50</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>£179.88</td>
<td>£179.88</td>
<td>£74.22</td>
<td>£254.10</td>
</tr>
<tr>
<td>Total combined impact of</td>
<td>£1,843.54</td>
<td>£2,019.05</td>
<td>£3,862.59</td>
<td>£750.02</td>
<td>£4,612.60</td>
</tr>
<tr>
<td>university activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct (full-time-equivalent jobs)</th>
<th>Total-knock on impact on Yorkshire and Humberside</th>
<th>Total impact on Yorkshire and Humberside (direct plus knock-on)</th>
<th>Knock-on impact on the rest of the UK</th>
<th>Total impact on the UK (direct plus knock-on)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South West universities</td>
<td>27,719</td>
<td>22,100</td>
<td>49,819</td>
<td>5,872</td>
<td>55,690</td>
</tr>
<tr>
<td>Non-UK students</td>
<td>0</td>
<td>1,750</td>
<td>1,750</td>
<td>652</td>
<td>2,402</td>
</tr>
<tr>
<td>Total combined impact of</td>
<td>27,719</td>
<td>23,850</td>
<td>51,569</td>
<td>6,524</td>
<td>58,092</td>
</tr>
<tr>
<td>university activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We used was a purpose-designed and specially constructed 'type II' input-output model of the UK economy, based on data derived from the Office of National Statistics’ input-output tables (2006) together with Labour Force Survey data. For the type II Leontief we needed to add a row of employment income coefficients and a column of household consumption coefficients to the \( A^{DO} \) matrix. For the income coefficients we then calculated for all industries:

\[
Y_i^{E} / X_0^{0} \]

Where \( Y_i^{E} \) is compensation of employees in industry I and \( X_0^{0} \) is domestic output of industry I from above. Total household income \( Y_t \) was estimated as employment income \( Y_i^{E} \) (estimated from the input-output tables), plus other income \( Y_0 \) from the Treasury Blue Book (2008.)

From the simulated domestic final demand matrix \( Y^{DO} \) estimated earlier, we used the column vector of domestic household consumption \( C^{DO} \).

From this the column vector of consumption coefficients is calculated as:

\[
C^{DO} / Y^T
\]

The type II Leontief inverse was now calculated. As above, validation involved ensuring that the expanded model was able to replicate actual base year outputs, including in this case total household income.

**Extensions to model framework**

UK employment figures by industry were created, using the Labour Force Survey where possible. Using this and the type II Leontief, the employment/output ratios can be calculated. This allows creation of the employment sub-matrix.

The UK occupation-by-industry submatrix was formed using primary data. The occupation by industry data was compiled from previous Tourism Satellite Accounts, compiled by the authors for the former Department for Culture, Media and Sport, which used the Labour Force Survey.

**The extended labour market input-output model**

The following describes both the use of the data already described in the creation of the model and the nature of the extended input-output model used as the main engine of analysis.

The basic UK input-output equation here is:

\[
X^{UK} = \sum_{i=1}^{124} \frac{X^{UK}}{Y^{UK}} + Y^{UK}
\]

where:

\( i, j \) = industrial sectors 1 to 124 including households
For the creation of the occupation by industry matrix, we define a matrix, \( o_{ij} \), of UK occupational employment shares coefficients with elements given by:

\[
o_{ij} = \frac{o_{ij}}{E_{i}} \quad o = 1 \ldots \ldots 371 \text{ occupations} \]

\[
j = 1 \ldots \ldots 123 \text{ sectors}
\]

where: \( o_{ij} \) is FTE employment in occupation \( o \) in industry \( j \).

Then a vector, \( O_{i} \), of total UK employment in each occupation is obtained as:

\[
O_{i} = o_{i} E_{i}
\]

and from (12a):

\[
O_{i} = o_{i} E_{i}\left[I - A_{i}\right]^{-1} Y
\]

which is occupation by industry equating with overall full-time equivalent employment across the UK. This will operate through the impact of expenditure within the economy in a consistent manner.

Overall the key results of the UK extended input-output labour market model are derived from the following equations:

**Sectoral gross outputs**

\[
X_{i} = [I - A_{i}]^{-1} Y
\]

**Sectoral total employment**

\[
E_{i} = \hat{e} \left[I - A_{i}\right]^{-1} Y
\]

**Employment by occupation**

\[
o_{ij} = \frac{o_{ij}}{E_{i}} \quad o = 1 \ldots \ldots 371 \text{ occupations} \]

\[
j = 1 \ldots \ldots 123 \text{ sectors}
\]

where: \( o_{ij} \) is total UK employment in each occupation obtained as:

\[
O_{i} = o_{i} E_{i}\left[I - A_{i}\right]^{-1} Y
\]

Taking the conventional input-output assumption that:

\[
X_{ij} = a_{ij} X_{i} \forall i,j
\]

or, in matrix form:

\[
X_{ij} = A_{ij} X_{i}
\]

where: \( A_{ij} \) is a matrix of parametric constants, whose typical element \( a_{ij} \) gives the inputs required from UK industry \( i \) per unit of output of UK industry \( j \).

Substituting (8a) into (7):

\[
X_{i} = A_{i} X_{i} + Y
\]

and solving (9) for \( X_{i} \):

\[
X_{i} = [I - A_{i}]^{-1} Y
\]

where \([I - A_{i}]^{-1}\) is the UK Type II Leontief Inverse

In the extended input-output model we define a vector of aggregate industry employment-output coefficients, \( e \), with elements given by:

\[
e_{i} = E_{i} / X_{i} \quad i = 1 \ldots \ldots 123 \text{ sectors}
\]

where: \( E_{i} \) is total full-time equivalent employment in UK industry \( i \). Then, the vector \( E_{i} \) of total UK sectoral employment is:

\[
E_{i} = \hat{e} X_{i}
\]

Or alternatively,

\[
E_{i} = \hat{e} [I - A_{i}]^{-1} Y
\]

(by substitution from (10)
Appendix 2
Universities and colleges included in the study

**East Midlands**
Bishop Grosseteste University College Lincoln
De Montfort University
University of Derby
University of Leicester
University of Lincoln
Loughborough University
University of Northampton
University of Nottingham
Nottingham Trent University

**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

**London**
Birkbeck College
Brunel University
Institute of Cancer Research
Central School of Speech and Drama
City University
Conservatoire for Dance and Drama
Courtauld Institute of Art
University of East London
Goldsmiths College
University of Greenwich
Guildhall School of Music and Drama
Heythrop College
Imperial College of Science, Technology and Medicine
Institute of Education
King’s College London
Kingston University
University of the Arts
London Business School
University of London
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 and Westfield College
Ravensbourne College of Design and Communication
Roehampton University
Rose Bruford College
Royal Academy of Music
Royal College of Art
Royal College of Music
Royal College of Nursing
Royal Veterinary College
St George’s Hospital Medical School
St Mary’s University College
School of Oriental and African Studies
School of Pharmacy
Thames Valley University
Trinity Laban Conservatoire of Music and Dance
University College London
University of Westminster

**North East**
University of Durham
University of Newcastle-upon-Tyne
University of Northumbria
University of Sunderland
University of Teesside

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

**West Midlands**
Aston University
Birmingham City University
University of Birmingham
University College Birmingham
Coventry University
Harper Adams University College
University of Keele
Newman University College
Staffordshire University
University of Warwick
University of Wolverhampton
University of Worcester

**South East**
University of Brighton
Buckinghamshire New University
University of Buckingham
Canterbury Christ Church University
University of Chichester
University for the Creative Arts
University of Kent
Open University
Oxford Brookes University
University of Oxford
University of Portsmouth
University of Reading
Royal Holloway and Bedford New College
Southampton Solent University
University of Southampton
University of Surrey
University of Sussex
University of Winchester

**Yorkshire and Humberside**
University of Bradford
University of Huddersfield
University of Hull
Leeds College of Music
Leeds Metropolitan University
University of Leeds
Leeds Trinity and All Saints
Sheffield Hallam University
University of Sheffield
York St John University
University of York

**South West**
Bath Spa University
University of Bath
Arts University College at Bournemouth
Bournemouth University
University of Bristol
Dartington College of Arts
University of Exeter
University College Falmouth
University of Gloucestershire
University College Plymouth St Mark and St John
University of Plymouth
Royal Agricultural College
Notes

1 A well-known characteristic of the location quotient method is that it tends to maximise local shares and hence local impacts because it assumes no ‘cross-hauling’ or import/export of the same industry commodity.

2 Student expenditure was estimated using the most recent UK expenditure survey of domestic UK students (DIUS 2009). International student expenditure was assumed to be similar to that of domestic students and adjusted downwards to reflect monies paid to the institution for accommodation.

3 This UK model was constructed specifically for this study; in addition 12 regional extensions to the model have been developed, covering every part of the UK. The UK model and the 12 regional extensions form part of the system known as the Universities UK economic impact modelling system, which is designed to model the impact of universities on both the regional and national economies.

4 From Labour Force Survey data.


About Universities UK

This publication has been produced by Universities UK (UUK) which is the representative organisation for the UK’s universities. Founded in 1918, its mission is to be the definitive voice for all universities in the UK, providing high quality leadership and support to its members to promote a successful and diverse higher education sector. With 133 members and offices in London, Cardiff and Edinburgh, it promotes the strength and success of UK universities nationally and internationally.

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