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# **Higher education means business**

## **A summary of the economic impact of Scottish higher education institutions**

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November 2006**

## **Introduction**

This study examined key economic features of the Scottish higher education institutions (HEIs) in the academic and financial year 2004 -2005 together with those aspects of their contribution to the economy that can be readily measured. The Scottish HEIs included in the study are the 20 institutions for which data is provided by the Higher Education Statistics Agency.<sup>1</sup>

Major economic characteristics of the HEIs were examined, including their revenue, expenditure and employment. The study also included modelled analysis of the economic activity generated in other sectors of the economy through the secondary or 'knock-on' effects of the expenditure of the institution, its staff and international students. Overall this summary presents an up-to-date examination of the quantifiable contribution of Scottish HEIs to the economy.

## **KEY FINDINGS:**

### **Revenue**

- Scottish higher education was shown to be a substantial industry, with total revenue of £1.9 billion in the study year.
- The public sector remained the largest single client, with 51% of revenue being 'core' payments from the public sector. 'Core' public sector revenue<sup>2</sup> is made up Funding Council payments and tuition fees from public sector sources.

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<sup>1</sup> A list of the relevant HEIs is included as Appendix One

<sup>2</sup> 'Core' public sector revenue is defined as revenue derived from the Scottish Funding Council together with tuition fee payments from the public sector. Other public sector revenue relates to revenue earned, usually on a competitive basis for specific services, from any other part of the public sector.

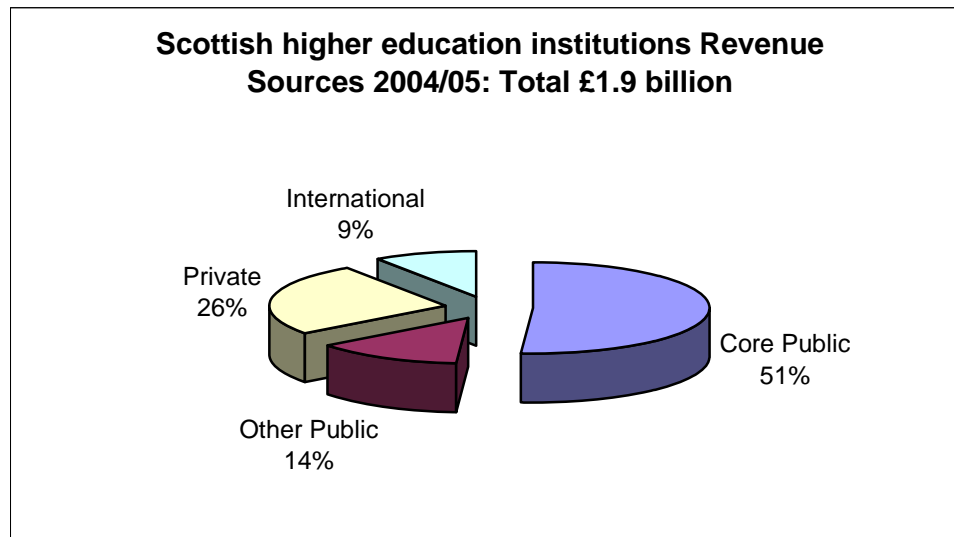
- 14 % of revenue was derived from other public sector bodies for other purposes, including for research contracts, consultancy and other services.
- A further 35% of HEI revenue was earned from the private sector and international clients.

**Figure 1: Scottish higher education institution revenue sources**

TYPE OF REVENUE	Core Public	Other Public	Private	International	Total
Funding Council Grants	810687				810687
Tuition fees & education grants & contracts	177607		94449	124774	396830
Research grants & contracts		186469	132824	46132	365425
Other income - other services rendered		25806	51994	10081	87880
Other income - other		50305	197586		247891
Endowment & investment income			27631		27631
	988294	262580	504483	180987	1936344

Source: Estimates derived from analysis of HESA *Resources of higher education institutions 2004/05*

**Figure 2: Chart of Scottish higher education revenue sources**



Source: Estimates derived from HESA *Resources of higher education institutions 2004/05*

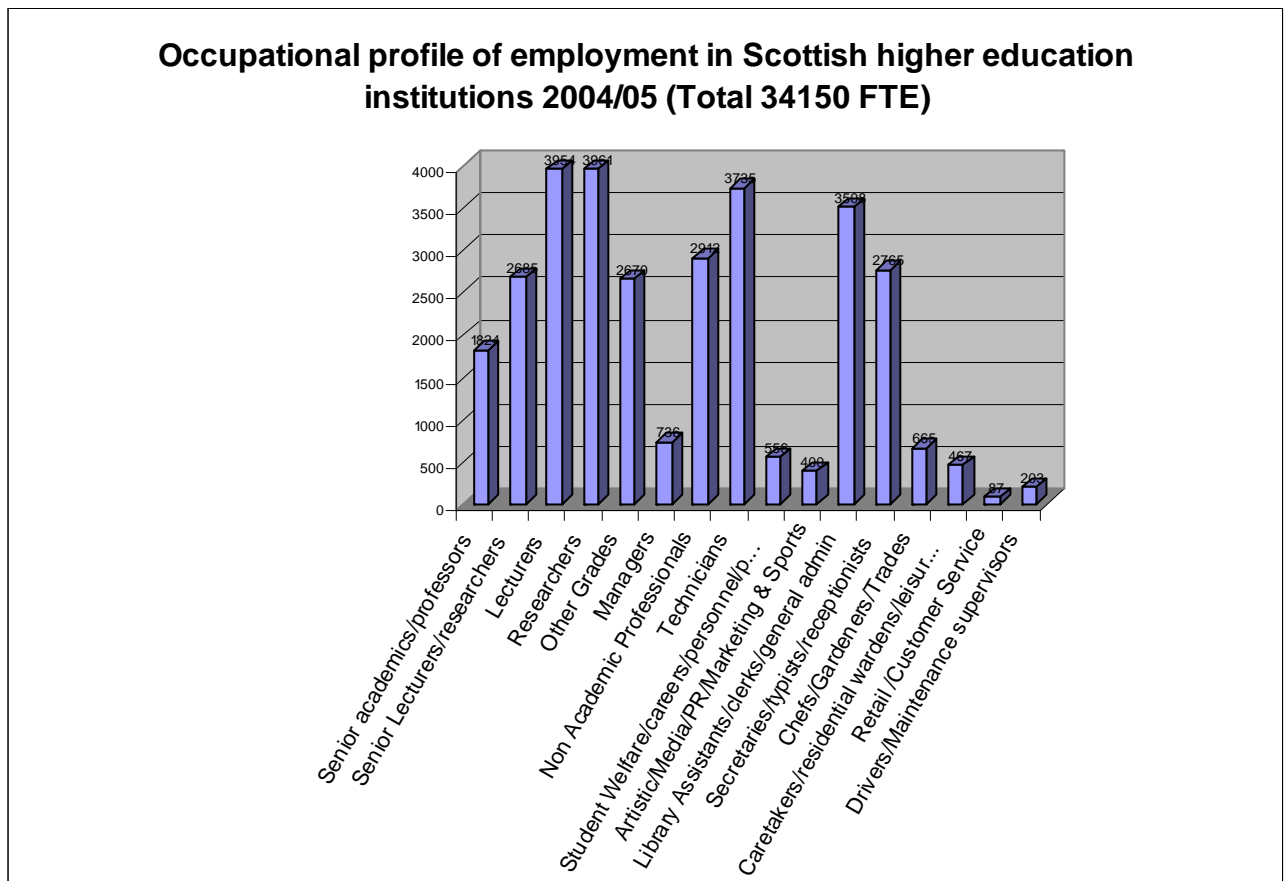
## Export earnings

- The HEIs' international revenue of nearly £181 million together with the estimated off-campus expenditure of international students (£172 million)<sup>3</sup> represents a total of £353 million of export earnings.

## Employment

- The universities and colleges provided 34150 full time equivalent jobs across a wide range of occupations. The occupational profile of HEI employment is shown in Figure 1 below:

**Figure 3: Occupational profile of employment in Scottish higher education institutions**



Source: HESA *Resources of higher education institutions 2004/05*

<sup>3</sup> Student expenditure was estimated using the most recent expenditure survey of Scottish students (Callender et al 2005). International student expenditure was assumed to be similar to the median expenditure of the over-25 Scottish student and adjusted downwards to reflect monies paid to the institution for accommodation etc

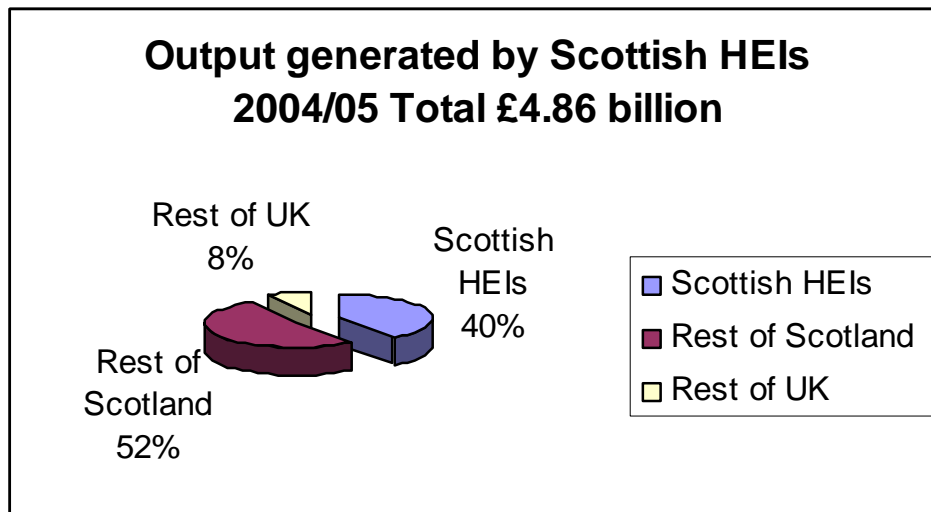
## Expenditure

- The expenditure of Scottish higher education institutions, their staff and students, generated economic activity through secondary or ‘knock-on’ effects. The total impact was significant.
- In 2004/05 Scottish higher education institutions spent just over £1.9 billion<sup>4</sup>.
- The institutions also attracted over 29,900 students from outside the UK and these international students spent an estimated additional £172 million off-campus.

## Output generated

- The HEIs own output was £1.9 billion. Through ‘knock-on’ effects the universities and colleges generated an additional £2.9 billion in other industries throughout the UK, with the majority accruing in Scottish industries.

**Figure 4: Output generated by Scottish HEI expenditure**



<sup>4</sup> HEI expenditure ( £1.92 billion) was very similar to HEI revenue in the study year (£1.94 billion), which is a characteristic of non-profit-making institutions.

**Figure 5: Secondary output generated by Scottish HEIs**

<b>SECTOR</b>	<b>OUTPUT £MN REGION</b>	<b>OUTPUT £MN RUK</b>
<b>Agriculture, Forestry and Fishing</b>	<b>51</b>	<b>0</b>
<b>Mining and Quarrying</b>	<b>46</b>	<b>0</b>
<b>Manufacturing</b>	<b>603</b>	<b>93</b>
<b>Electricity, Gas and Water Supply</b>	<b>117</b>	<b>0</b>
<b>Construction</b>	<b>173</b>	<b>0</b>
<b>Wholesale and Retail Trade</b>	<b>270</b>	<b>74</b>
<b>Hotels and Restaurants</b>	<b>82</b>	<b>0</b>
<b>Transport Storage and Communication</b>	<b>215</b>	<b>48</b>
<b>Financial Intermediation</b>	<b>253</b>	<b>0</b>
<b>Business Activities</b>	<b>464</b>	<b>110</b>
<b>Public Administration</b>	<b>168</b>	<b>27</b>
<b>Other Services</b>	<b>95</b>	<b>29</b>
<b>TOTAL</b>	<b>2538.66</b>	<b>382.57</b>

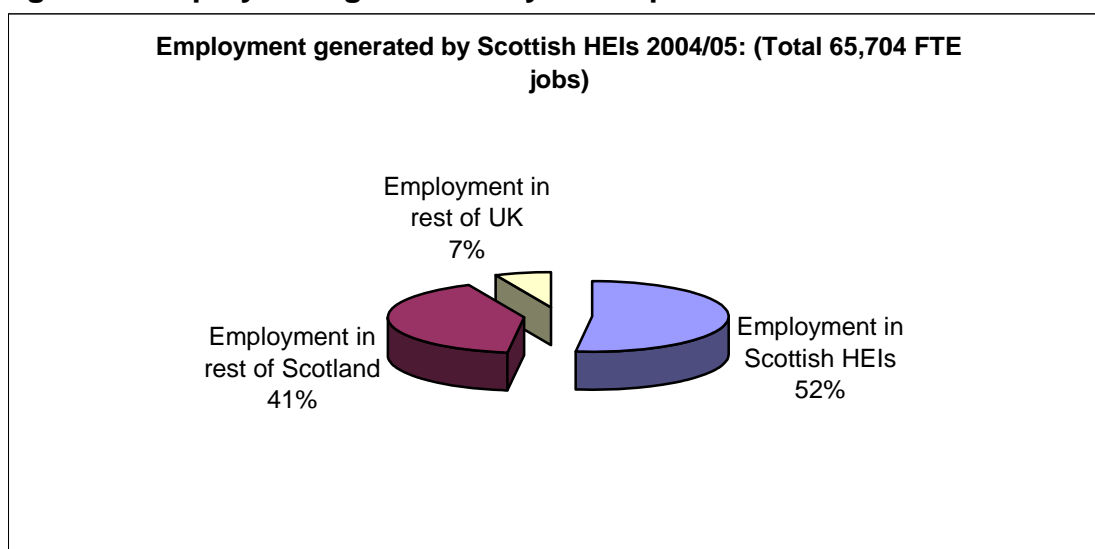
- This indicates a UK-wide output multiplier of 2.5 (with a regional output multiplier of 2.3). In other words, for every £1 million of HEI output, a further £1.5 million is generated in other UK industries, of which £1.3 million is in industries located in Scotland.

## **Employment**

- In addition to providing over 34,100 full time equivalent (FTE) jobs directly in higher education, institutional expenditure generated additional jobs in other parts of the economy.
- A further 31,554 FTE jobs were generated outside the HEIs, with the majority in Scotland.



**Figure 6: Employment generated by HEI expenditure**



**Figure 7: Secondary employment generated by Scottish HEI expenditure**

SECTOR	EMPLOYMENT REGION (FTEs)	EMPLOYMENT RUK (FTEs)
Agriculture, Forestry and Fishing	412	0
Mining and Quarrying	93	0
Manufacturing	4146	610
Electricity, Gas and Water Supply	131	0
Construction	1729	0
Wholesale and Retail Trade	5879	936
Hotels and Restaurants	2531	0
Transport Storage and Communication	2006	229
Financial Intermediation	1769	0
Business Activities	4347	1826
Public Administration	2874	547
Other Services	1323	167
<b>TOTAL</b>	<b>27239</b>	<b>4315</b>

- The employment generated indicates an overall UK employment multiplier of 1.9 (1.8 within Scotland). In other words, for every 100 jobs within an HEI, a further 90 jobs were generated in other industries in the UK, of which 80 were in industries located in Scotland.

- The UK employment-output multiplier value for the Scottish HEIs is 33.9 FTEs per £M. That is, £1 million of HEI output generated 33.9 FTE jobs, of which 17.6 were in the institutions themselves and 16.3 were in other UK industries.

### **International student expenditure**

- It has been highlighted that the Scottish HEIs attracted over 29,900 students from outside the UK to study in Scotland. In addition to any fees or other monies paid to the HEIs ( eg for halls of residence fees etc), these students spent an estimated £172 million off-campus.
- This off-campus expenditure generated £267 million of output and over 2440 full time jobs throughout the UK.

The overall impact of Scottish HEI and international student expenditure is indicated in Figure 8 overleaf.

Figure 8: Overall impact of Scottish HEI and international student expenditure

<b>OUTPUT £ MILLION</b>						
Category	Direct (£ Mns)	Total Knock on Impact on UK	Of Which Total Knock On Impact Accruing to Scotland	Of Which Total Knock on Impact Accruing to RUK	Total Impact on UK (Direct Plus Knock on) UK	Total Impact on Scotland
Scottish HEIs	£1,936.3	£2,921.23	£2,538.66	£382.57	£4,857.57	£4,475.00
Non-UK Students	£0.0	£267.96	£234.37	£33.59	£267.96	£234.37
<b>Total Combined Impact of HEI Activity</b>	<b>£1,936.3</b>	<b>£3,189.19</b>	<b>£2,773.03</b>	<b>£416.16</b>	<b>£5,125.53</b>	<b>£4,709.37</b>
<b>FTE EMPLOYMENT</b>						
Category	Direct (FTEs)	Total Knock on Impact on UK	Of Which Total Knock On Impact Accruing to Scotland	Of Which Total Knock on Impact Accruing to RUK	Total Impact on UK (Direct Plus Knock on)	Total Impact on Scotland
Scottish HEIs	34150	31554	27239	4315	65704	61389
Non-UK Students	0	2448	2108	340	2448	2108
<b>Total Combined Impact of HEI Activity</b>	<b>34150</b>	<b>34002</b>	<b>29347</b>	<b>4655</b>	<b>68152</b>	<b>63497</b>

## **Conclusions**

The study shows Scottish higher education institutions to be of significant economic importance.

- The institutions directly employ large numbers of people in occupations spanning the whole spectrum of skills and qualifications.
- Institutional expenditure generates substantial additional employment and output in other UK industries.
- Scottish higher education operates in a global market, attracting students from over 114 different countries.
- The international revenue earned by the institutions, together with the expenditure of the international students they attract, means that Scottish higher education institutions are important service sector export earners for Scotland.

## Appendix One

### Methodology and Data Sources

The primary focus of the study was the Scottish HEIs as operating businesses and the impact generated by their activity during the academic and financial year 2004-2005. The study also examined the impact of the off-campus expenditure of international students who were studying at Scottish HEIs in that year.<sup>5</sup> The expenditure of UK-based students was excluded (as arguably those monies cannot be regarded as additional to the UK economy.)

The study utilised a two-stage approach to the estimation of the economic impact of Scottish higher education. The impact of the Scottish HEIs 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 Scottish higher education institutional impact on the UK likely to have accrued to Scotland.

The model used was a 'Type II' input-output model based on actual UK data derived from the 2001 UK Input-Output Tables (Office of National Statistics) together with Labour Force Survey and Annual Business Inquiry data. The modelling system was purpose-designed for UK higher education institutions and constructed for Universities UK.

The results of this study should not be directly compared with those of earlier studies of the impact of Scottish HE as a different modelling approach with different assumptions ( a UK top-down approach with location quotient analysis) was used for this study rather than a stand-alone model of Scotland.

6

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<sup>5</sup> In this context 'International students' refers to all students whose permanent domicile is recorded as outside the UK, including other parts of the EU as well as non EU students.

<sup>6</sup> A well-known characteristic of the LQ 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.

## Appendix Two

### Scottish Higher Education Institutions included in the study

- 1.The University of Aberdeen
- 2.University of Abertay, Dundee
- 3.Bell College
- 4.The University of Dundee
- 5.Edinburgh College of Art
- 6.The University of Edinburgh
- 7.Glasgow Caledonian University
- 8.Glasgow School of Art
- 9.The University of Glasgow
- 10.Heriot-Watt University
- 11.Napier University
- 12.The University of Paisley
- 13.Queen Margaret University College, Edinburgh
- 14.The Robert Gordon University
- 15.The Royal Scottish Academy of Music and Drama
- 16.The University of St Andrews
- 17.Scottish Agricultural College
- 18.The University of Stirling
- 19.The University of Strathclyde
- 20.UHI Millennium Institute

### References:

*Resources of Higher education Institutions 2004/05* Higher Education Statistics Agency 2006

*Students in Higher education Institutions 2004/05* Higher Education Statistics Agency 2006

*Higher and Further Education Students' Income, Expenditure and Debt in Scotland 2004 – 2005: A report to the Scottish Executive* Callender, Wilkinson, MacKinnon & Vegeris (September 2005)

*The Universities UK economic impact modelling system* Kelly, McLellan & McNicoll Universities UK 2006