

May 2013/11

Policy development

Report on survey

This report is for information

This report analyses the results of the 2011 Higher Education – Business and Community Interaction Survey for UK higher education institutions, referring to the academic year 2011-12.

Higher Education – Business and Community Interaction Survey

2011-12

BIS | Department for
Business Innovation & Skills

 Scottish Funding Council
Promoting further and higher education

 Department for
Employment
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Higher Education Funding
Council for Wales **hefcw**

HIGHER EDUCATION **hefce**
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Key findings of this year's survey

- Universities in the UK contributed £3.4 billion to the economy in 2011-12 through services to business, including commercialisation of new knowledge, delivery of professional training and consultancy.
- Analysis by HEFCE shows that the total value of the services which UK universities provide to the economy and society increased by 4 per cent to £3.4 billion in 2011-12, from £3.3 billion in 2010-11.
- Particularly significant is the 11 per cent increase in activity benefitting small and medium-sized enterprises which gain a competitive advantage from their association with universities – for example through access to specialist knowledge (via consultancy) or facilities (such as rapid prototyping or computer-aided design).
- Engagement with large businesses increased by around 5 per cent overall, including a notable rise (6 per cent) in contract research income, from £343 million in 2010-11 to £364 million in 2011-12. This not only shows UK higher education institutions responding to the needs of business at home, but investment from overseas seeking to take advantage of the UK's world-class research.
- Public and third-sector organisations also increased their engagement with universities (by 5 per cent overall) for research, consultancy, training and access to intellectual property.

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Higher Education – Business and Community Interaction Survey

2011-12

To	Heads of UK higher education institutions
Of interest to those responsible for	Knowledge exchange; Innovation; Enterprise and entrepreneurship; Interactions between higher education and business, public and third sectors; Contract and collaborative research; Continuing professional development; Public engagement; Strategic planning; Economic development
Reference	2013/11
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Executive summary

Purpose

1. The Higher Education – Business and Community Interaction (HE-BCI) Survey is in its 12th year and is an essential source of information on knowledge exchange (KE) in the UK.
2. The exchange of knowledge described here takes place between higher education institutions (HEIs) and the wider world of business and the community. All 161 publicly funded UK HEIs provided data for this report¹.
3. Data reported in this survey provide valuable intelligence for higher education (HE) senior managers, KE practitioners and policy makers. The report also provides an in-depth commentary on the extent of, and trends in, KE activity in the UK.
4. This report builds on data published in previous HE-BCI survey reports, the most recent of which analysed 2010-11 data and was published in July 2012 ('Higher Education – Business and Community Interaction Survey: 2010-11', HEFCE 2012/18)².
5. In this latest survey, the fourth to be carried out by the Higher Education Statistics Agency, HEIs provided data for activity occurring during academic year 2011-12. Data on strategy and infrastructure (which are not numeric or financial) relate to the end of the academic year (July 2012).
6. The HE-BCI survey covers a range of activities: from commercialisation of new knowledge, through delivery of professional training, consultancy and services, to

¹ Data from University of Buckingham and Universities of East Anglia and Essex; Joint Provision at University Campus Suffolk are excluded from this report as they are not publicly funded HEIs.

² All HEFCE publications may be read at www.hefce.ac.uk/pubs

activities intended to have direct social benefits. 'Business' in this context refers to private, public and third-sector³ partners of all sizes, with which HEIs interact in a broad range of ways. 'Community' in this context means society as a whole outside the HEI, including all social, community and cultural organisations, individuals and the public.

Key points

7. Data collected for academic year 2011-12 show a continuing increase in the overall exchange of knowledge between UK HEIs and the public, private and third sectors. The growth rate – in cash terms – for the UK is around 4 per cent, from £3,302 million in 2010-11 to £3,431 million⁴. Over the longer term income has risen – in real terms – by 45 per cent since 2003-04. Annex A contains a summary of the full data set for the UK and separate sub-sets for England, Scotland, Wales and Northern Ireland.

8. These results are impressive, particularly (as highlighted in previous HE-BCI reports) given the context of wider economic uncertainty and other factors that impact on HEIs' interactions with their partners⁵.

Income by partner

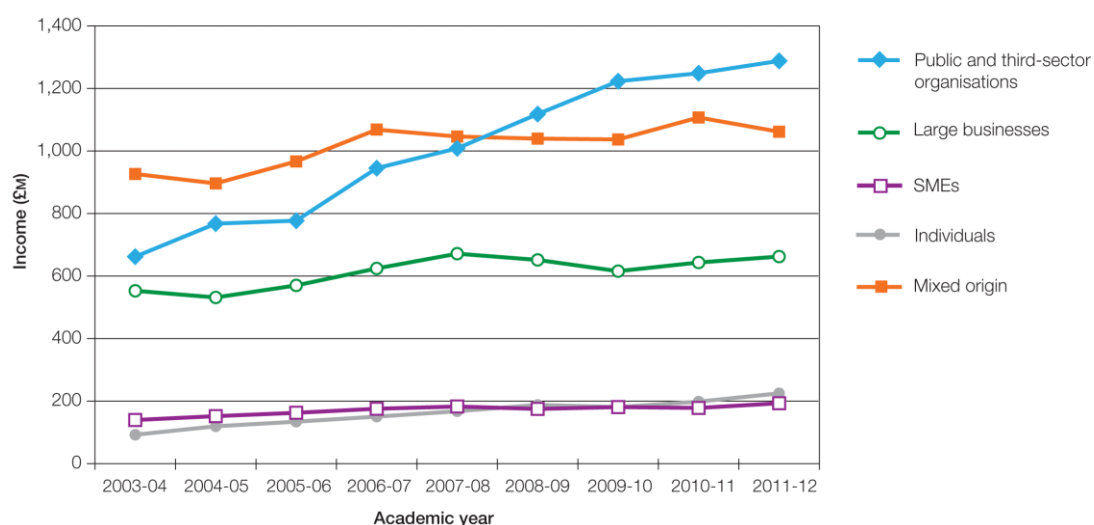
9. Spending by large businesses increased in nominal terms over the previous year by 5 per cent from £629 million to £663 million, while small and medium-sized enterprises (SMEs) increased their total spending on engagement with UK HEIs by 11 per cent from £174 million to £193 million. Partners in the public and third sectors – charities and social enterprises – increased their spending by 5 per cent from £1,221 million to £1,288 million (see Figure 1).

³ The 'third sector' refers to voluntary and community groups, social enterprises, charities, co-operatives and mutuals.

⁴ Unless stated otherwise, data refer to changes over the period 2010-11 to 2011-12.

⁵ This dynamic is considered further by PACEC in 'Strengthening the Contribution of English Higher Education Institutions to the Innovation System: Knowledge Exchange and HEIF Funding' available at <https://secure.pacec.co.uk/documents/HEIF11-15-FullReport.pdf>

Figure 1 Total income by partner 2003-12 (real terms)⁶



Source: HE-BCI Part B Tables 1, 2, 3 and 4c

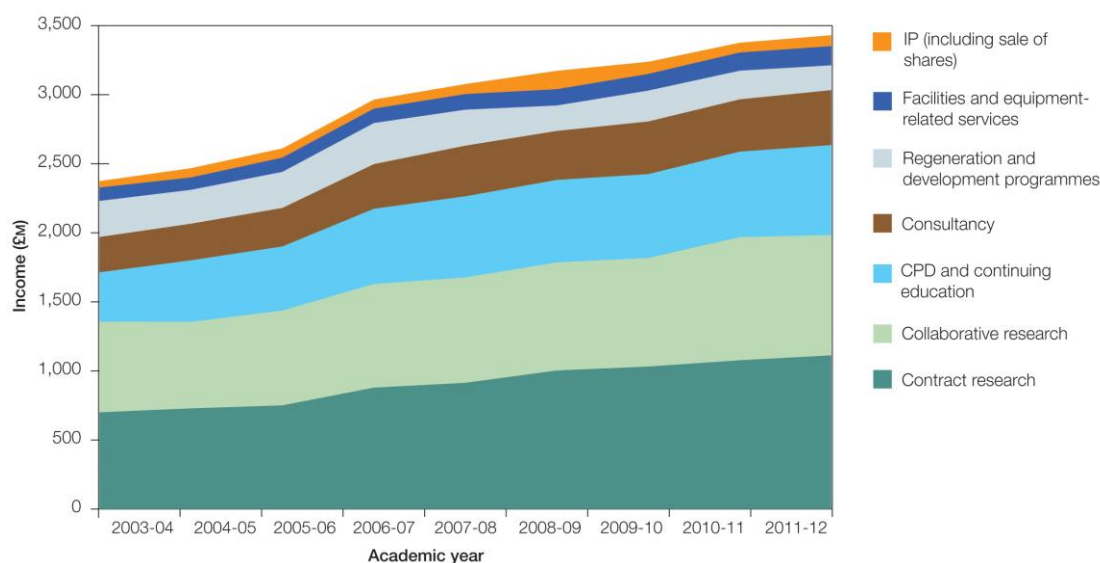
Research-based interactions

10. Total income from collaborative research was relatively stable (£872 million in 2010-11 and £871 million in 2011-12, see Figure 2) although the detailed figures show an increase of 8 per cent in programmes with European Union funding and a 9 per cent drop in programmes funded by UK government departments. To measure collaborative research, HEIs provide to the survey figures on public contribution (in money) and both money and in-kind contributions from the external partner, because this provides the most complete proxy for the value of the activity. Of the total £871 million, around 79 per cent was from public sources (meaning public funders, including the HEI's own funds); cash and in-kind contributions from external partners made up 8 per cent and 13 per cent respectively.

11. Income from contract research has risen by nearly 6 per cent from just over £1.05 billion in 2010-11 to £1.11 billion (see Figure 3). SMEs invested a roughly similar amount to the previous years, while large businesses and public and third-sector partners increased their engagement by 6.2 per cent and 5.8 per cent respectively – an increase of nearly £60 million between them.

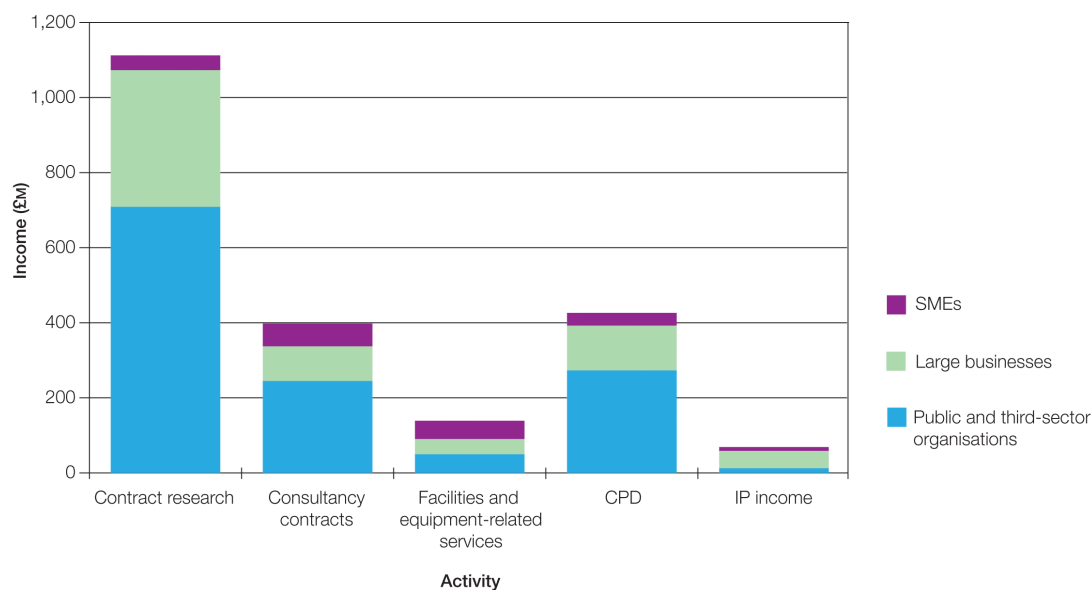
⁶ 'Mixed' refers to income from activities such as collaborative research, regeneration and sale of spin-off shares where – for reasons of practicality and/or administrative burden – the source of income has not been requested.

Figure 2 Selected HE-BCI income streams 2003-12 (real terms)



Source: HE-BCI Part B Tables 1, 2, 3 and 4c

Figure 3 Income by activity and partner 2011-12



Source: HE-BCI Part B Tables 1, 2 and 4c

Consultancy

12. Consultancy income increased by over 7 per cent from £370 million in 2010-11 to £398 million in 2011-12. The increase was common to all partners, with SMEs showing the highest proportional increase (9.4 per cent), and public and third-sector partners the largest increase by volume (over £20 million).

Equipment and facilities

13. Income from use of facilities and equipment (for example, prototyping equipment or digital media suites) rose by around 8 per cent overall to £139 million; SMEs account for the majority of the spending increase of £49 million in 2011-12, an increase of over 20

per cent from the previous year. Spending by large businesses increased by 2 per cent and public and third-sector partners increased by around 1 per cent.

Education and continuing professional development

14. Income from continuing professional development (CPD) and continuing education activity rose by around 7.5 per cent from £606 million in 2010-11 to £651 million. SMEs increased their spending by the largest proportion (around 20 per cent). Large businesses and public and third-sector parties increased their spending by over 2 per cent each.

Regeneration

15. Income from regeneration programmes fell again in 2011-12, continuing the recent expected trend following the abolition of the Regional Development Agencies (RDAs) in England and general reduction in public expenditure due to austerity measures. The overall decrease in regeneration income to UK HEIs was 11.5 per cent from £203 million to £180 million. There were however increases in some regeneration funding including from the European Union, with income from the European Regional Development Fund now being the largest of the regeneration income streams at around £67 million.

Intellectual property and enterprise

16. We have previously highlighted the fact that institutions are waiting for investment conditions to improve before focusing on later investment and sale of technologies. There has been a substantial increase (14 per cent) in IP income, from £69 million in 2010-11 to £79 million in 2011-12. This includes over £10 million raised from the sale of shares in IP-based spin-off companies.

17. Patent data should be viewed over a longer time series because of the time lag between applications and grants. In 2011-12 all patent indicators increased from 2010-11, including a 9 per cent increase in patents granted (from 757 in 2010-11 to 826 in 2011-12); this may imply there has been an improvement in strategic decision-making in recent years by HEI IP offices.

18. There was a drop in the number of new IP-based companies created by UK HEIs from 268 in 2010-11 to 191 in 2011-12; however the number surviving for three years or longer increased over the same period from 997 to 998. Fewer new enterprises were started by recent graduates (from 2,848 in 2010-11 to 2,726 in 2011-12), while start-ups by academic staff remained constant at 87. There were increases in both staff and graduate companies surviving three or more years, which suggests that, overall, HEIs are becoming better at strategic commercialisation, especially given the wider economic context.

Social, community and cultural activities

19. The HE-BCI survey also collects data on public events run by HEIs. These illustrate the wide-ranging civic, community and cultural contributions that HEIs make, though they describe only a small part of that range.

20. There were a number of substantial increases in attendees at public events. Exhibitions attracted around 11 million visitors in 2011-12, up from around 7 million in 2010-11.

Strategy and infrastructure

21. There has been a continued reduction in some infrastructure indicators, such as the percentage of HEIs offering an enquiry point for SMEs. However, all of these indicators are still at a high level.

Action required

22. This report is for information. No action is required.

Background and context

23. The aims of the annual Higher Education – Business and Community Interaction (HE-BCI) Survey are:

- to provide data on the continuing development of interaction between higher education institutions (HEIs) and business and the wider community
- to provide reliable and relevant information to support the continued public funding of Knowledge Exchange activity in the UK
- to give HEIs good benchmarking and management information
- to develop a source of indicators at the level of the individual HEI, some of which can be used to inform funding bodies' allocation of continued funding.

24. HE-BCI data for academic year 2011-12 were collected and validated by the Higher Education Statistics Agency (HESA) on behalf of all UK HEIs and the national funding bodies. The overall process, including this report, is overseen by the HE-BCI Stakeholders Group which includes: the UK higher education (HE) funding bodies; the Department for Business, Innovation and Skills (BIS); the Research Councils; the Technology Strategy Board; and other representative bodies such as Universities UK, GuildHE and the Confederation of British Industry.

25. The 12th HE-BCI survey is essential intelligence for all those interested in HE and the knowledge economy. Data from HE-BCI are used to develop policy and inform funding decisions for knowledge exchange (KE) and related activities in England, Wales and Northern Ireland, and are now a condition of grant in Scotland. Data are also valuable as management information, and support benchmarking for a range of organisations, notably HEIs and their funding partners. They also provide a basis for international comparisons.

26. This is the fourth time that HESA has carried out this survey. Although some variations in practice relating to data capture mean that this report contains a number of caveats, the overall data set is considered informative and fit for purpose⁷. Caution may be needed when viewing some data and trends in this report: any specific concerns are highlighted in the text.

27. This is the first year that HE-BCI has been a condition of grant in Scotland, and as a consequence three HEIs in Scotland returned data this year when they had not for the previous survey. Some of the reported increases may therefore be due to increased reporting. In general terms we expect HEIs to improve their reporting systems year-on-year, but we are confident overall that the data are fit-for-purpose in terms of providing insight into the level and direction of interactions between HEIs and the economy and society.

28. Standard practice in the HE-BCI survey is to present the current and previous year's data in cash terms, but to adjust for inflation on any time series of three or more years. The latest gross domestic product deflators are used for each survey, and the

⁷ Only summary data are included in this report; full data can be obtained from HESA (www.hesa.ac.uk).

figures in real terms are updated (hence there may be slight differences between annual reports). This approach is common across the annual series of HE-BCI reports.

29. Most financial income data are collected by partner type:

- commercial – small and medium-sized enterprises (SMEs)⁸
- commercial – large businesses
- non-commercial – public and third sector.

For some indicators (collaborative research, regeneration and sale of spin-off shares) data are not available by type of partner. Such data are shown as 'mixed', though they will doubtless include elements of the main categories.

30. While HESA's published data on the HE-BCI survey includes all HEIs who respond to the Finance Statistics Return, this publication excludes the University of Buckingham and University Campus Suffolk. This is because they are distinct from the majority of publicly funded HEIs in the UK (for example, they are not eligible for KE funding under HEIF). While this will have only a negligible effect on overall income indicators between the HESA and HEFCE reporting, it may affect proportion calculations (for example, where data have been rounded up or down).

31. In 2005-06 the timing of the survey was changed to bring it closer to the relevant academic year and two years of financial/numeric data were collected at one time. To limit burden, only one year of qualitative data was collected hence there are some qualitative time-series data where points are assumed⁹.

The survey and the wider economic context

32. Previous HE-BCI reports have highlighted that results need to be seen in the context of wider economic and other conditions that impact on HEIs' interactions with their partners. In the early years of the HE-BCI survey the economy was fairly stable, and at that time we highlighted that data and trends need to be viewed in the context of change factors in the HE environment, including the establishment of the survey itself. Since the credit crunch of 2008, we have emphasised that the wider conditions impacting on the economy and society – not least the UK government policy to reduce the deficit – are likely to influence data and trends, and this may continue for some years. These wider conditions include:

- a. The negative effect of the global credit crunch in 2008, and the economic uncertainty in the UK and in the wider global economy since then which affect the confidence of business to invest in innovation and skills.
- b. The decision made by the UK Government to reduce the budget deficit. Insofar as the public sector is currently the largest funder of HEIs, their spending restraint may impact on the confidence of co-investors in knowledge exchange with HE.

⁸ <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/>

⁹ See HEFCE document 2007/17 for further detail.

- c. A number of policies across the UK to help businesses and the unemployed during the recession, which have resulted in reduced-cost or even free support from HEIs for activities such as training or consultancy.
- d. As part of deficit reduction, the decision in England to wind down the Regional Development Agencies, which both invested in HE knowledge exchange and were clients of HE services. Also there are now differences across the nations of the UK in government policy on sub-national growth, which may affect the broader eco-system and therefore HE knowledge exchange.
- e. There have been changes to core funding for KE as well – for example, in England, KE funding through Higher Education Innovation Funding (HEIF) has been made more selective since 2011, which may affect the infrastructure and income indicators captured in this survey in future years.

Next steps

33. Because the HE-BCI survey is a formal part of HESA's official Finance Statistics Return, collection of the data may be considered part of normal HE processes. However, as with most data returns, improvements can be made in terms of process and content. These will be balanced against the need to maintain consistency and comparability of survey data and the need to respond to changing policy dynamics.

34. HESA reviewed HE-BCI data in 2012-13 with support from an expert group which included HEIs, KE professionals and policy makers. As a result, a number of small improvements have been suggested along with the removal of indicators that were seen to be of limited use given the considerable administrative burden associated with HE-BCI. Changes will take effect from academic year 2013-14 to allow HEIs sufficient time to adapt data systems (the data will therefore be published early in 2015). Further information is available on the HESA web-site at www.hesa.ac.uk/c13031.

Analysis

35. Overall the 2011-12 data show that the UK higher education sector is holding up well, with increases in KE activity across most indicators and an increase in total income of 4 per cent from 2010-11 (£3.3 billion) to 2011-12 (£3.4 billion). Despite increases in funding from the EU, there has been an overall reduction in regeneration funding; this was expected given the austerity measures taken by Government. If we exclude regeneration income from this year and last, there is a like-for-like growth in total KE income of 5 per cent.

36. SMEs invested 11 per cent more in KE from UK HEIs in 2011-12 (£193 million) over 2010-11 (£174 million). Large businesses increased investment by 5 per cent from £629 million in 2010-11 to £663 million in 2011-12, while public and third sector partners

increased investment by 5 per cent from £1.2 billion to £1.3 billion over the same period¹⁰.

Strategy and infrastructure

37. Indicators relating to strategy and infrastructure are collected under Part A of HE-BCI (as opposed to financial and numeric metrics collected in Part B)¹¹; these tend to be self-assessed responses where HEIs either select from a range of options – such as how IP is handled – or benchmark questions which allow respondents to place themselves on a scale of development (such as weak, medium or strong incentives to engage with business and the community).

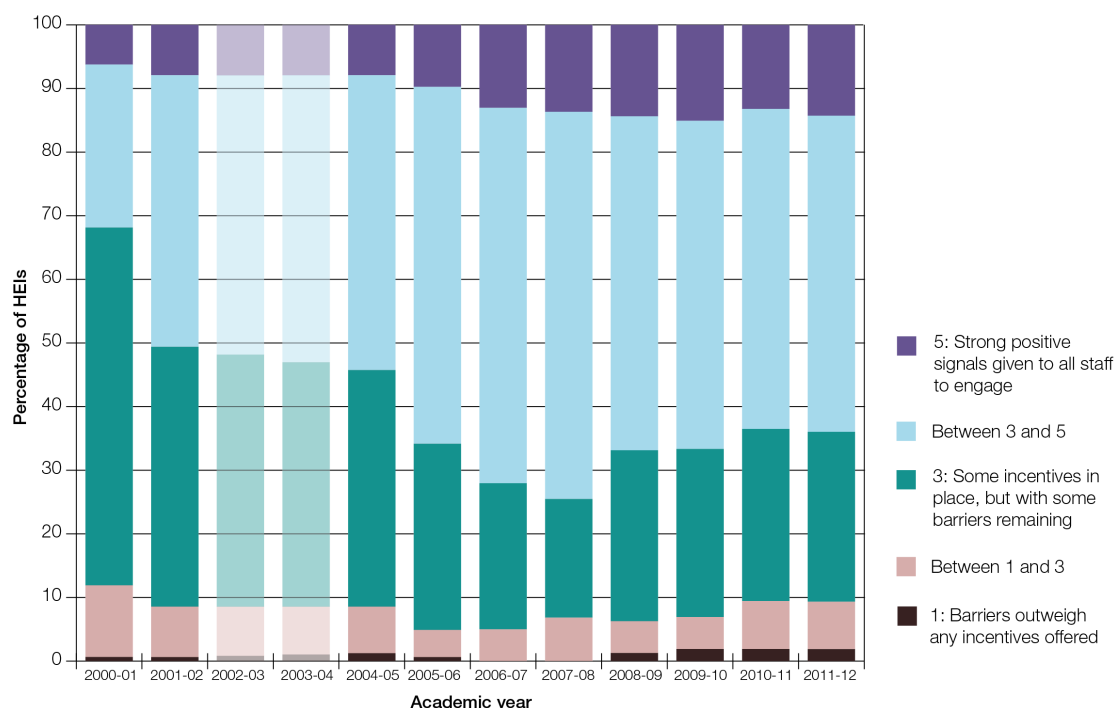
38. Data relating to strategy and infrastructure for 2011-12 are mostly consistent with those collected in 2010-11. 'Access to education' remains the most important single contribution HEIs make to economic development, while 'Research collaboration with industry' is the next most cited.

39. Over 60 per cent of the sector reports strong incentives offered for their staff to engage with external partners beyond teaching and research (see Figure 4), which is a similar level to the previous year. We will continue to monitor this, particularly given the wider economic context discussed above.

¹⁰ Income from collaborative research, regeneration and sale of shares in spin-off companies are not collected by partner type, and so are not included in this breakdown.

¹¹ The full questionnaires are available at www.hesa.ac.uk/index.php?option=com_collns&task=show_colln&Itemid=232&c=C11031&s=5&wvy=any&wvs=1&isme=1

Figure 4 Incentives for staff to engage with business and the community 2000-12¹²



Source: HE-BCI Part A Question 8¹³

40. A five-point benchmark assesses the extent to which business support strategy is embedded at HEIs. The data show an increase in those selecting the top category (a strategic plan developed as a result of an inclusive process across the whole HEI), from 39 per cent in 2010-11 to 42 per cent in 2011-12. A similar five-point scale is used to indicate the strategy for public and community engagement, where 31 per cent of HEIs now select the highest category (up from 24 per cent in 2010-11).

41. Before discrete HEFCE funding for KE existed there was evidence that identifying and engaging with academics was a barrier for external clients (particularly SMEs)¹⁴. Over the last decade the HE-BCI survey has tracked increases in the numbers of staff in HEIs whose role is dedicated to assisting external partners and facilitating interactions. The 2011-12 data show a slight increase in the number of staff employed in a dedicated business and community role¹⁵: from 7,944 to 8,128 in 2011-12. Data are broadly consistent across the UK nations.

42. Figure 5 shows a downward trend for infrastructure, with levels looking similar to what they were in 2007-08. This may be a result of changes in HEIs' priorities within their

¹² In response to the question 'How would you rate the level of incentives for staff at your HEI to engage with Business and the Community?'

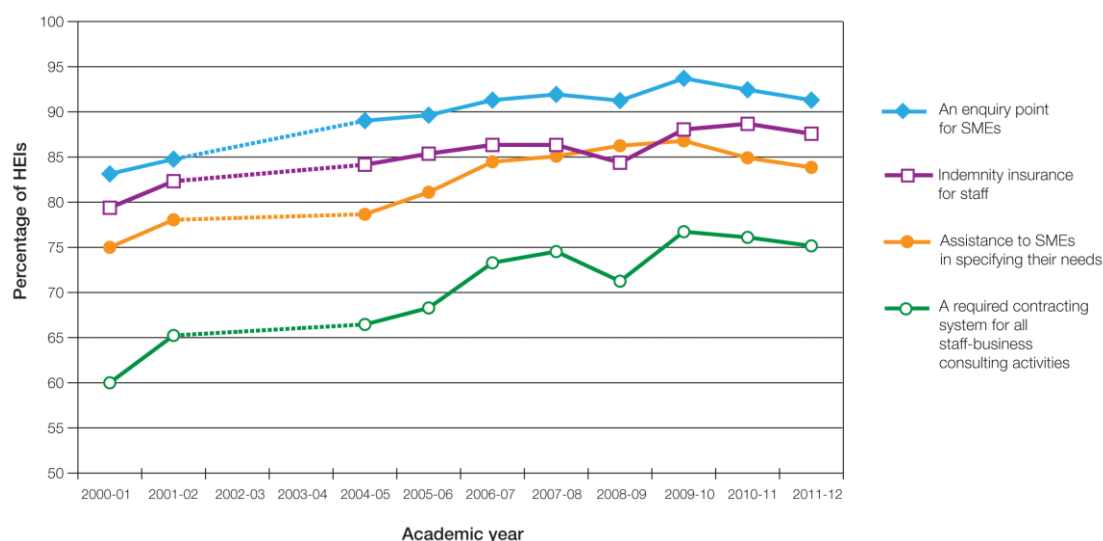
¹³ Data for 2002-03 and 2003-04 are assumed given developments made to timing of the survey; further detail is available in HEFCE 2008/22 page 8.

¹⁴ For more details see 'Industry-Academic Links in the UK' (HEFCE 98/70).

¹⁵ Such staff are often embedded across the HEI in many roles from careers advice and guidance to research contracts, for example.

KE strategies (perhaps influenced by changes in funding) or the anticipation of continued sluggish growth for the main economy¹⁶.

Figure 5 Selected infrastructure indicators 2000-12



Source: HE-BCI Part A Question 11 (data for 2002-03 and 2003-04 are assumed – see paragraph 33)

43. Not all HEIs have a sufficient ‘pipeline’ of technology to warrant a dedicated unit or employment of specialist staff (such as IP lawyers) to commercialise research but some do employ private-sector intermediaries. In 2011-12 12 per cent of HEIs report no dedicated support facility, a higher proportion than the previous year (9 per cent). However, 37 per cent of HEIs report having both in-house and external KE support, a 2 per cent increase over the previous year.

44. The data on how IP rights are managed show little change from the previous year, with slight increases in each category. Many HEIs manage IP rights in multiple ways, so responses sum to more than 100 per cent. The fact that 17 HEIs (unchanged from 2010-11) consider the indicator inapplicable is not unreasonable given that course material and publications fall under different IP processes – usually copyrights – which do not require processes of application and assessment as patents do.

45. The most common response (61 per cent HEIs) is that IP rights are handled by an external organisation, but 37 per cent of HEIs selected in-house or collaborative arrangements (with other HEIs), and 52 per cent noted other actions taken¹⁷. In 81 per cent of HEIs, staff are rewarded for the IP they produce (if and when royalties are received); this is a drop of 3 per cent from 2010-11 and warrants further investigation.

¹⁶ As evidenced by the Office for National Statistics’ Gross Domestic Product Preliminary Estimate, Q4 2012 (www.ons.gov.uk/ons/dcp171778_296664.pdf).

¹⁷ HEIs may select more than one category, so responses sum to more than 100 per cent.

Research-based interactions

46. Research-based interactions cover a very wide spectrum of activities: from collaborative research¹⁸ (perhaps the most distant from the market) through to the commercialisation of ideas and the establishment of new companies (close to the market). Many organisations that operate partnerships with HEIs note that direct engagement in collaborative research is particularly valued for sparking new ideas and approaches.

47. Although income from IP is a useful measure of an HEI's strategy in commercialising its research, collaborative research may be more useful for understanding the value of long-term relationships between HEIs and its partners in business and the wider community. Collaborative research is often multidisciplinary and individual to the context of a particular project and its partners; it is not a linear process. To complement other sources of data (such as industrial research income as collected in the main HESA Finance record), the HE-BCI survey collects only a subset of collaborative research, in which income should be recorded only where the activity has a defined aim and there is input from at least three parties (the HEI; an external partner, commercial or otherwise; and a public project-funder).

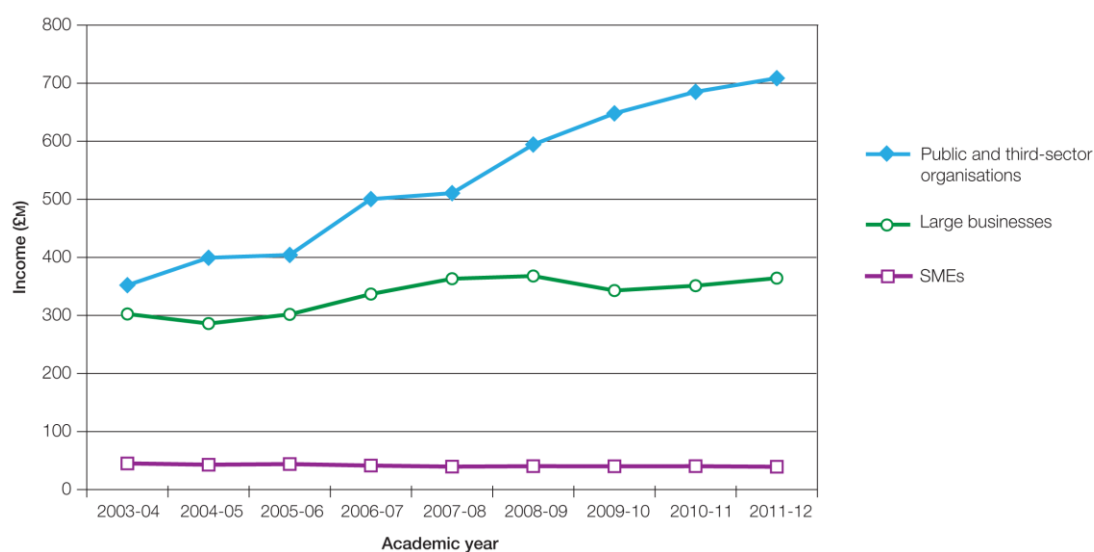
48. The total reported income for collaborative research was roughly stable since last year at £871 million. Data regarding the detailed breakdown of the three sources of funding (public cash, external cash and external in-kind) show a mixed picture. Public income increased overall but this is mainly due to a substantial increase in UK HEIs receiving funding from the EU (a 14 per cent increase from £233 million to £265 million in 2011-12). External contributions dropped overall (although there were also notable increases in the external cash associated with BIS Research Council grants for example although this may be due in part to improvements in data capture)¹⁹.

49. Contract research is a more simple transaction, where the benefit is assumed to be primarily on the side of the external partner, rather than providing the mutual gains obtained by collaborative research. Total income from contract research rose by around 5.7 per cent to £1.11 billion in 2011-12. Spending by SMEs was roughly stable, while large businesses and public and third-sector partners increased spending by 6.2 per cent and 5.8 per cent respectively (see Figure 6), which is encouraging given the global economic context.

¹⁸ Collaborative research is academic research undertaken in partnership with other universities or research organisations, with business, with Government or with the third sector (charities, for example).

¹⁹ The request to provide the detailed breakdown for collaborative research income is relatively recent having been first used in 2008-09.

Figure 6 Contract research income 2003-12 (real terms)



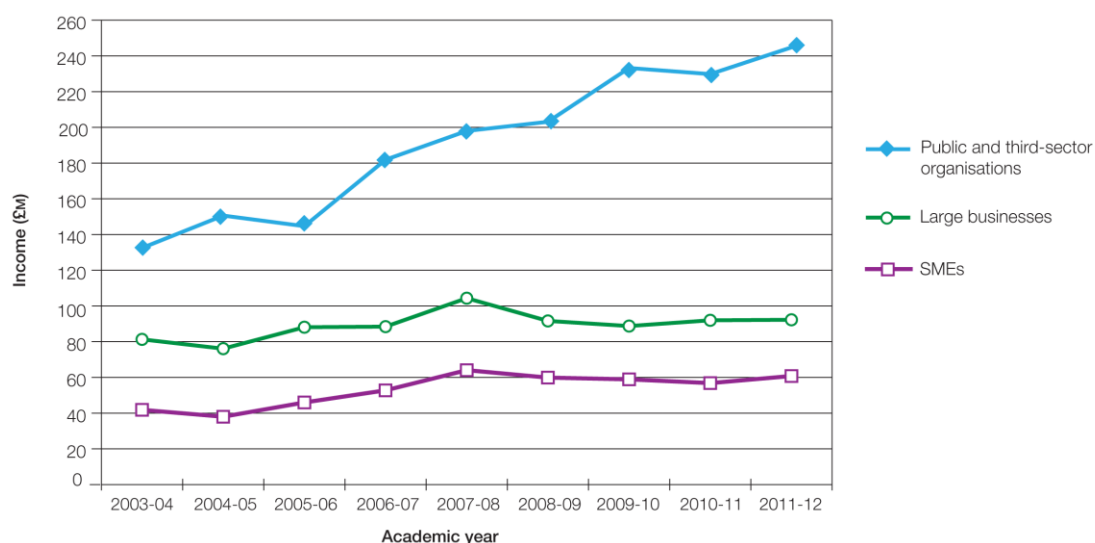
Source: HE-BCI Part B Table 1b

50. In this survey HEIs' innovative application of existing knowledge to an outside party is defined as 'consultancy', and this may be the preferred method to access expert advice and less tangible knowledge (rather than more formal research). The knowledge itself may not be new, but it can often provide more immediate innovation. Indeed, this may be a useful route for the development of 'open innovation' practice, where IP rights are less important than the usefulness of the knowledge to a particular situation or problem.

51. Figure 7 shows encouraging growth in HEI income from consultancy: from £370 million in 2010-11 to £398 million in 2011-12 (a 7.4 per cent increase). The largest proportional increase was from SMEs, who spent 9.4 per cent more on HE consultancy – from £56 million in 2010-11 to £61 million in 2011-12. However, much of this increase results from a 92 per cent increase in Scotland²⁰ while there was an 8 per cent decrease in England. Public and third-sector partners accounted for the largest increase in volume: from £225 million to £245 million in 2011-12 (a rise of 8.9 per cent). Large businesses increased their spending by around 2.6 per cent over the previous year (from £90 million to £92 million).

²⁰ See paragraph 27.

Figure 7 Consultancy income 2003-12 (real terms)



Source: HE-BCI Part B Table 2a

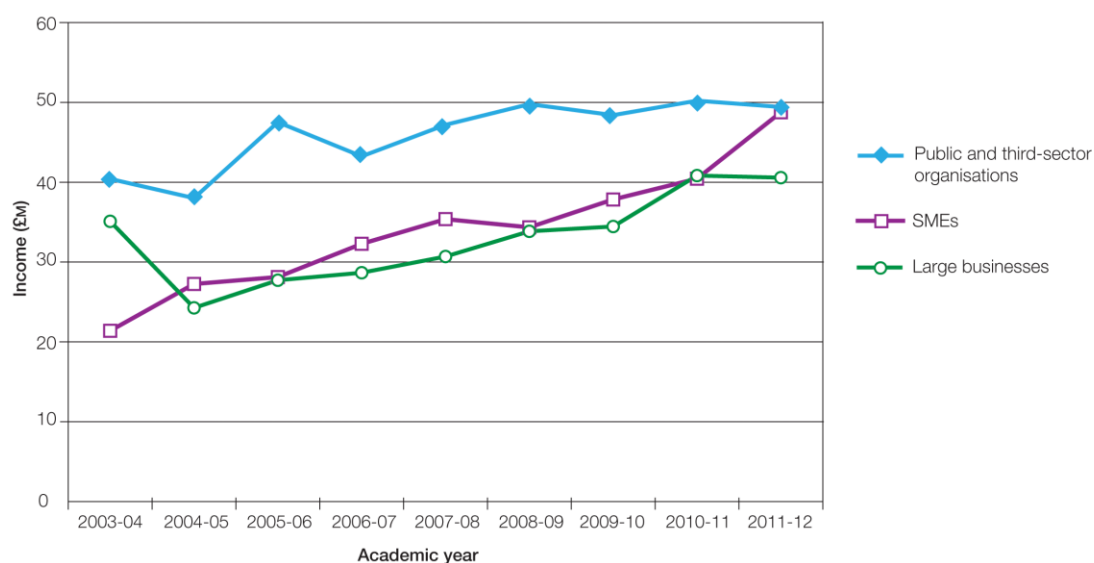
52. HEIs' specialist equipment and facilities, such as wind tunnels and digital media suites, support their teaching and research. There are many benefits from providing access to these resources for partners, including income and relationship building. The external partner benefits, and gains access to facilities that they may not have the scale to secure in-house. This indicator appears to be especially important for SMEs— where access to equipment for prototyping can be vital in the early stages of the company generating value; indeed SME spending has passed that of large businesses and is only just below that of public and third-sector partners.

53. Overall, income from facilities and equipment grew by 7.9 per cent, from £129 million in 2010-11 to £139 million (see Figure 8). SMEs increased spending by 23 per cent from £40 million to £49 million. Spending by large businesses and public and third-sector partners rose by 1.6 per cent and 0.6 per cent respectively.

54. The UK figures, mask some significant differences between nations. England and Northern Ireland saw increases across all indicators. Data for Wales show a drop of 38 per cent in income from public and third-sector partners. HEIs in Scotland reported an overall drop in income for this indicator of 14 per cent although there was a significant jump (95 per cent) from SMEs²¹.

²¹ See paragraph 28

Figure 8 Facilities and equipment 2003-12 (real terms)



Source: HE-BCI Part B Table 2b

Intellectual property and enterprise

55. The translation of basic research into exploitable technology can be a long process, and then further time is required for the technology to prove itself in the marketplace. Once the research is complete and the HEI has acquired formal intellectual property rights (IPR) – through patents, copyright, design registration or (more rarely) trade marks – it is common to either license the innovation to an existing company or set up a new (spin-off) company which will likely take even more time to generate significant financial returns.

56. When a new company is set up, the HEI may choose to own it outright, retain a proportion of the stock, or float it all. The HE-BCI survey measures the income from the sale of (shares in) such companies. Hence, to gain a complete picture of the return from an HEI's IPR one should always consider both the licensing and spin-off routes.

57. The timescales associated with the formal commercialisation of IPR are especially long for fields linked to medicine or defence. In 2008-09 one English institution accounted for nearly half of all UK IP income due to the sale of a company (in the space sector) that had been in development for around 25 years.

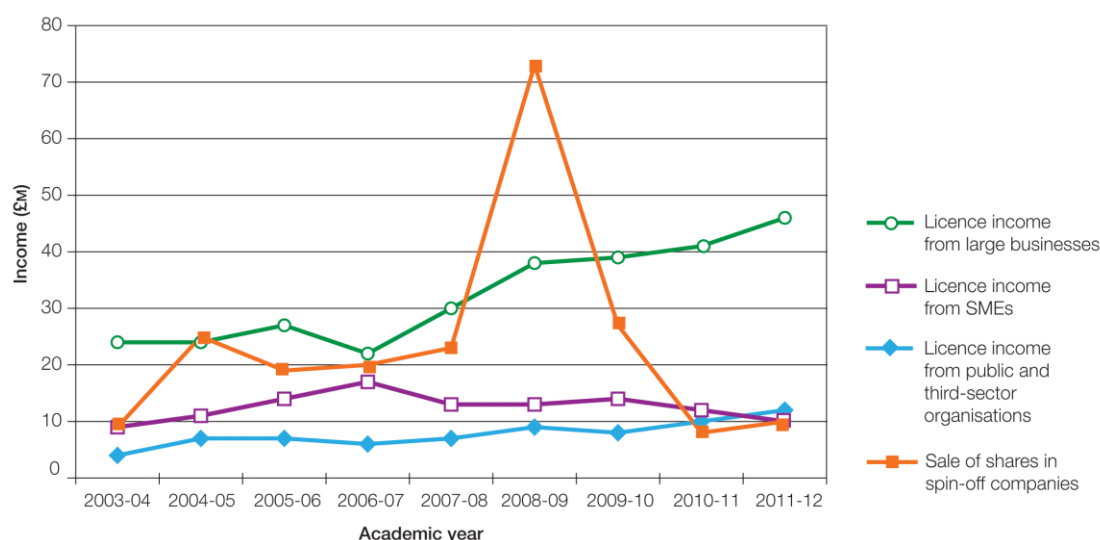
58. When we look at the income from licensing only (that is, excluding the sale of spin-off companies) there is a substantial increase of 14.2 per cent from £69 million to £79 million in 2011-12. Data are collected separately for software and non-software licences because the former, typically, have shorter life-spans and lower values (though this does not mean they are less important). For example, incremental improvements to software can be made far more readily than, say, changes to the engine of a passenger jet.

59. There is no clear trend in the detailed data by partner and type of licence (see Figure 9). SME spending dropped by around 10 per cent: from around £11.6 million in 2010-11 to £10.5 million in 2011-12. Large businesses increased spending on licences

from £39.8 million in 2010-11 to £45.9 million in 2011-12 (15 per cent), and public and third-sector spending increased by around 25 per cent from £10.0 million to £12.5 million.

60. Income from non-software licences grew by the largest proportion – from £45.8 million in 2010-11 to £52.9 million in 2011-12 (a 16 per cent rise). Software licenses and ‘Other’²² are much smaller categories than non-software licences, with the former dropping by 1 per cent and the latter rising by around 4 per cent.

Figure 9 Income from intellectual property 2003-12 (real terms)

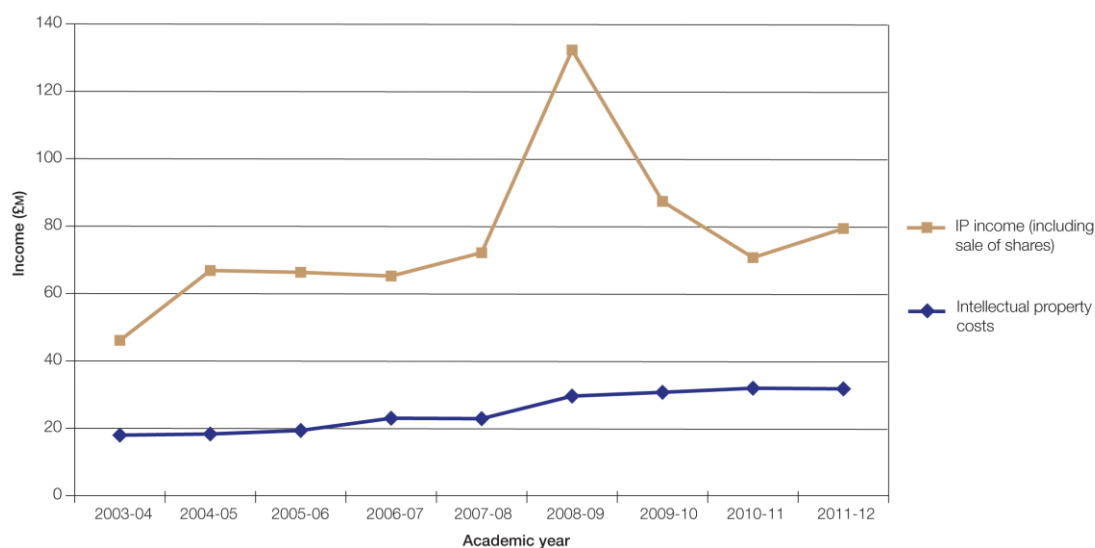


Source: HE-BCI Part B Table 4c

61. Data for 2011-12 show a 1 per cent increase in IP protection costs to reach £32 million. These figures include formal fees for patents and associated staff costs (for example, patent lawyers). As illustrated in Figure 10, the sector as a whole receives more than twice as much income from licensing and spin-off equity than it spent on IP protection. The majority of HEIs report that income exceeds expenditure, with only 23 per cent of HEIs in 2011-12 spending more on protection. The peak in 2008-09 that appears in Figures 9 and 10 was due to one HEI selling its remaining stake in a very successful company (this sale alone accounted for around half of UK IP income in that year).

²² Given the diverse nature of IP there are examples where HEIs receive financial income without a formal license being in place, such as development of training material for a third party.

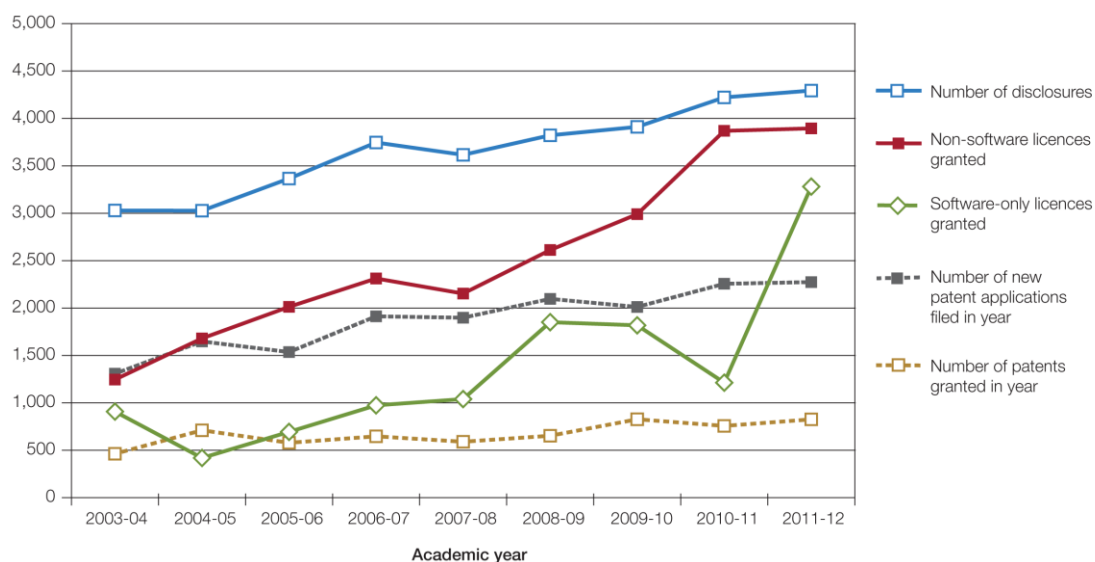
Figure 10 Income and expenditure on intellectual property 2003-12 (real terms)



Source: HE-BCI Part B Table 4c

62. Figure 11 shows that there has been growth overall across all the non-financial IP indicators. The trend is encouraging: since 2003-04, HEIs have seen more disclosures from their staff that have translated into increased patent applications, as well as higher numbers of patents granted. Growth in the number of non-software licences granted has flattened for 2011-12, while software license numbers have not only recovered from the previous year's fall but have more than doubled. The long-term trend overall seems to be positive despite short-term fluctuations (such as the dip in 2007-08), but the economic turbulence we are experiencing will undoubtedly affect strategy and expenditure by HEIs and their external partners.

Figure 11 Disclosures and patent numbers 2003-12



Source: HE-BCI Part B Tables 4a and 4b

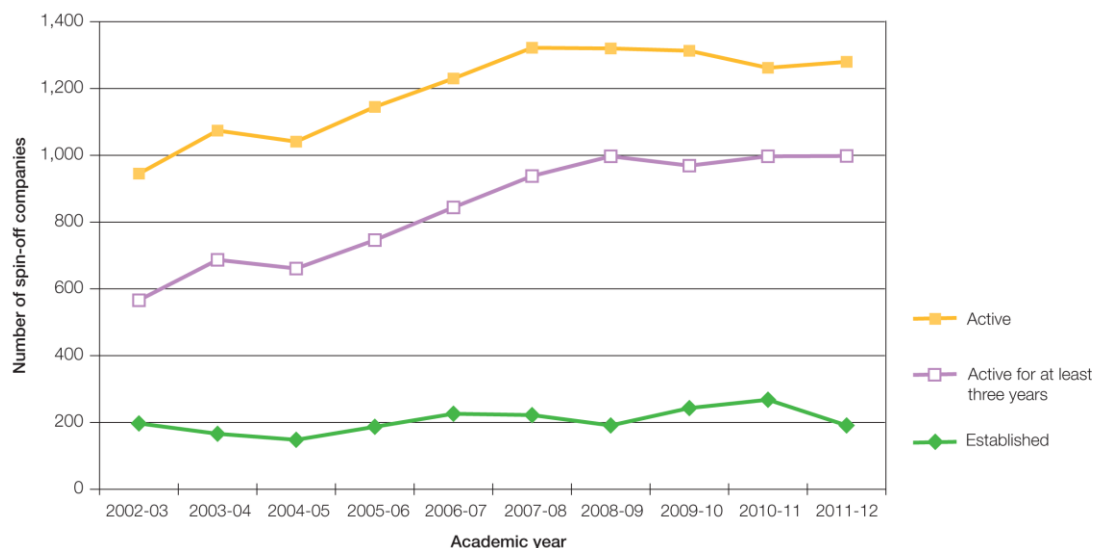
63. The licensing of new inventions to an established company is usually the most efficient way of exploiting IP. But in some contexts (such as when there is a lack of

suitable clients) creating a spin-off company is the best choice. Spin-offs are unlikely ever to be the main option for exploiting IP, but for some particularly promising ideas they can be the best way to maximise impact and value for the HEI and for the economy more broadly.

64. The HE-BCI survey collects data on formal spin-off companies based on IP:
- where the HEI maintains some ownership (which is the majority of cases)
 - on those that are sold outright.

For total spin-off numbers these two data sets are summed (see Figure 12). Data from 2011-12 broadly follow the trend of recent years: some fluctuation in the number of new companies formed, but a slight increase in those surviving for three or more years. The decrease in number of new spin-off companies is notable: from 268 in 2010-11 to 191 in 2011-12. Those surviving three or more years have held up, with 998 active firms in 2011-12 (one more than the previous year)²³.

Figure 12 Spin-off companies formed 2003-12



Source: HE-BCI Part B Table 4d

65. The number of start-up companies (new businesses not based specifically on HEI IP, as distinct from spin-offs which arise from IP-related innovation) set up by HEI staff remained at a similar level to 2010-11, with 87 new enterprises formed. Such start-ups that have survived three or more years increased by 13 per cent, from 232 in 2010-11 to 263 in 2011-12. Data on company formation are likely to be incomplete however, so must be treated with caution. HEIs are still developing systems to capture such data, which are not collected by their central systems because these businesses are external to the institution. Estimated turnover of formal spin-offs and estimated staffing both fell slightly in 2011-12; by 2 per cent and 1 per cent respectively. See paragraph 70 for discussion of graduate start-ups.

²³ The majority of these companies will have been formed on IP discovered long before the recession; economic uncertainty and the non-linear process of exploitation of IP mean that trend analysis, while illustrative, cannot provide a robust indication of future growth.

Social, community and cultural activities

66. The HE-BCI survey looks at the commitment made by HEIs to public and community engagement by counting attendees at public events, such as dance, drama, performance, film and public lectures. We acknowledge that attendance levels are an imperfect proxy for the range of activity that engages the public. Data for 2011-12 show significant changes over the previous year²⁴. For example, the number of attendees at free public lectures decreased by 5 per cent while there was a 21 per cent increase in the number of attendees at public lectures that charged an entrance fee. And there were significant increases in the number of attendees at both free and charged exhibitions: 63 per cent and 102 per cent respectively.

67. To illustrate the scale of HEI commitment to social, community and cultural activities: if we assume a basic consultancy rate for academics of £500 per day, the value of the total academic time devoted to public events is just over £54 million (a fall of about 2 per cent over the previous year).

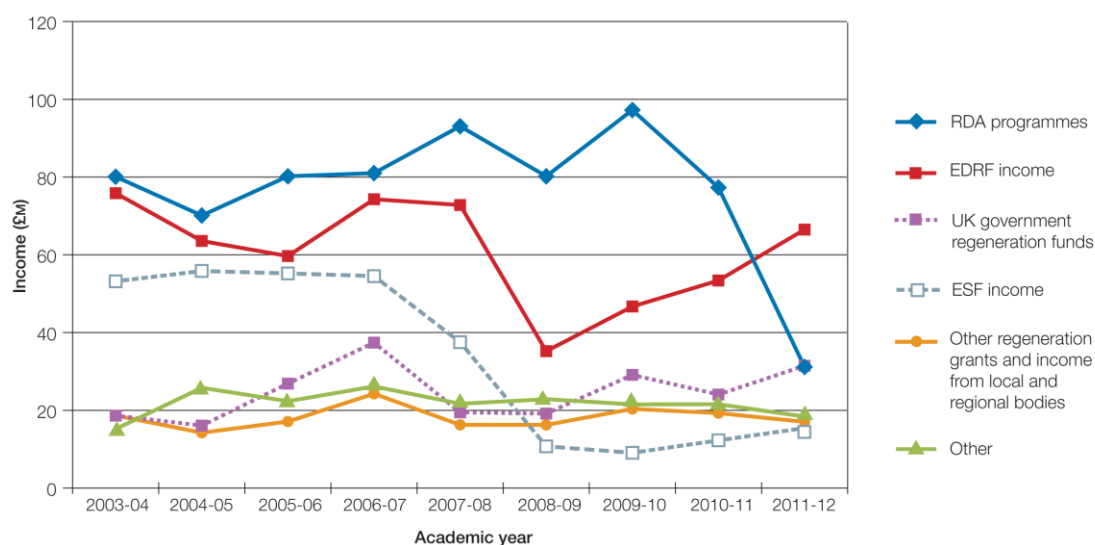
Regeneration

68. Regeneration activity covers a wide range of interactions, from urban renewal to community development. UK HEIs have continued to respond to difficult economic conditions by, for example, offering reduced-cost training to newly redundant individuals, or advice and training to graduates entering the labour market. HEIs are also involved in large-scale European structural regeneration projects, providing the intellectual input to public services and programmes.

69. Total income from regeneration activity dropped by 11 per cent from £203 million in 2010-11 to £180 million in 2011-12. By far the greatest factor in this reduction is the sharp fall in RDA investment in UK innovation that preceded their closure in 2012 (see Figure 13). Other UK government investment increased slightly compared with the previous year. A significant counter to this drop is the year-on-year growth of ERDF funding attracted by UK HEIs – now the largest single source of regeneration funding for HEIs at around £67 million in 2011-12.

²⁴ Note that these data are very difficult to collect consistently across the sector because they encompass a broad range of activities and are not directly used in funding.

Figure 13 Regeneration income 2003-12 (real terms)



Note: ERDF – European Regional Development Fund. ESF – European Social Fund

Source: HE-BCI Part B Table 3

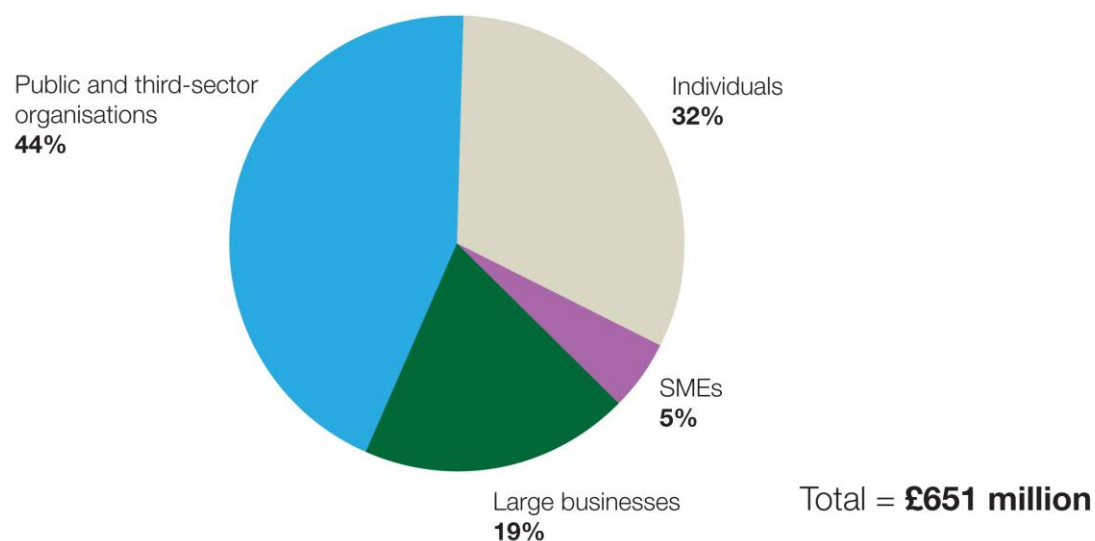
Education and continuing professional development

70. As KE activity is becoming embedded in HEIs there are many opportunities to share infrastructure across different activities. In the case of new company formation, access to resources such as business advice, mentoring and access to investment may be used for all new enterprises. Graduate start-ups (defined as companies formed within two years of graduation which may or may not be IP-based) showed a drop of around 4 per cent from 2,848 in 2010-11 to 2,726 in 2011-12, while the number surviving three or more years rose by 9 per cent to 2,824. Reported staff levels and turnover for graduate start-ups increased by 14 per cent and 27 per cent respectively from 2010-11 to 2011-12.

71. Some caution should be taken with figures related to enterprises. They are difficult for HEIs to track effectively because the data are only available where volunteered. It is also likely that some start-ups were formed as social enterprises. (HESA is considering how to further develop the HE-BCI survey to capture data in the most useful way.)

72. HEIs tend to see education as their primary economic impact overall – it is by far the most selected category in the survey. While much provision provides academic credit toward an award or qualification for undergraduates and postgraduates, UK HEIs also offer a range of courses for those either in employment or looking to retrain. Some continuing professional development (CPD) courses are relatively formal, enabling students to retain a licence to practise or gain membership of a professional, statutory or regulatory body; other CPD is more task-focused, for instance selecting particular modules from an MBA course to tackle a specific business problem. It is, however, very difficult for HEIs to collect complete, accurate data on the potential impact of CPD, given that any module may contain learners with a range of motivations.

Figure 14 CPD and continuing education 2011-12



Source: HE-BCI Part B Table 2c

73. Income from CPD rose by 8 per cent overall, from £606 million in 2010-11 to £651 million in 2011-12; increases were seen across all partner types. Income from activity with SMEs increased by the greatest proportion (20 per cent), with rises in income from large businesses, public and third sector and individuals of 3 per cent, 2 per cent and 16 per cent respectively. There were significant differences between UK nations however:

- SME income in England grew by 30 per cent but fell by 29 per cent in Scotland
- Northern Ireland and Wales saw income from SMEs grow by 5 per cent and 18 per cent respectively.

Total 'learner days' of CPD and continuing education (which, it should be noted, are difficult to calculate accurately) rose by around 17 per cent from 3.4 million in 2010-11 to over 4 million in 2011-12.

Annex A

Summary data by UK, England, Scotland, Wales and Northern Ireland

This annex is available as a separate Excel file alongside this publication at www.hefce.ac.uk/pubs.

List of abbreviations

BIS	Department for Business, Innovation and Skills
CE	Continuing Education
CPD	Continuing professional development
ERDF	European Regional Development Fund
ESF	European Social Fund
HE	Higher education
HE-BCI	Higher Education-Business and Community Interaction (Survey)
HEFCE	Higher Education Funding Council for England
HEI	Higher education institution
HEIF	Higher Education Innovation Funding
HESA	Higher Education Statistics Agency
IEF	Innovation and Engagement Fund
IP	Intellectual property
KE	Knowledge exchange
NI HEIF	Northern Ireland Higher Education Innovation Fund
PACEC	Public and Corporate Economic Consultants
RDA	Regional Development Agency
SIC	Standard Industrial Classification
SME	Small and medium-sized enterprise