Driving Growth: A Focus on England's Universities' Intellectual Property and Commercialisation Landscape 2023–24.

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To	Heads of Research England-funded higher education providers
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Contents

Director's Statement

Knowledge exchange is a cornerstone of the UK's innovation system, underpinning more than £6 billion of activity annually and helping to maintain the globally competitive performance of our universities. England's higher education sector continues to rank among the strongest internationally, with recent comparisons to US data highlighting the scale and impact of our commercialisation efforts. Overall KE income has shown stability, with strengths in collaborative and contract research, but there are continued pressures in areas like consultancy and CPD/CE. Additionally, regeneration activity faces continued pressure following the end of ERDF funding.

Engagement patterns show steady SME interactions, softer performance with large businesses, and renewed momentum with non-commercial partners. Spinout activity remains strong over the decade, and long-term IP income growth underscores the UK's ability to translate research into impact. This mixed picture underlines the importance of maintaining a high-quality, up to date evidence base to guide policy and investment in a complex landscape.

A driving role for Research England is to steward and strengthen the KE data system in England. To this end, our development of the Spinout Register this year marks a significant milestone in our ability to understand commercialisation pathways in greater depth, and this year's data provides a baseline for richer analysis going forward. As we reflect on the trends discussed in this report, transparent data remains essential not only for monitoring performance, but for encouraging the sharing of best practice across the sector. This is how we ensure universities continue to drive innovation, skills, and growth for the UK.

Simon Hepworth, Director of Knowledge Exchange, Research England

Executive Summary

Data and metrics underpin Research England's approach to knowledge exchange (KE) funding and policy. Income metrics collected through the Higher Education Business and Community Interaction (HE-BCI) survey provide a proxy for demand and therefore likely impact of university expertise through KE, by representing and represent a minimum estimate of the monetary value of KE activity. Reviewing these data is essential to assess impact, monitor institutional performance, improve practice, and track sector trends over time to inform policy and evidence investment outcomes.

The government's Post-16 Education and Skills White Paper highlights universities as engines of innovation and skills, central to driving economic growth. Understanding how KE activities contribute to this mission requires robust analysis of available data. This report examines the latest HE-BCI release, identifying sector-level trends and performance patterns with the following key findings:

Overall KE income (UK): Sector income remained broadly stable in 2023–24, with a marginal 0.2% real-terms increase following last year's sharp decline. This stability continues a five-year trend of stagnation, though over the longer 10-year period (2014–15 to 2023–24) KE income has grown by 6.9% in real terms.

Activity level trends (UK): Collaborative research (up by 4.6%) and contract research (up by 6.7%) were the main areas of strength in 2023–24, with smaller gains in facilities and IP income. However, regeneration funding fell sharply by 40.5% due to the end of ERDF funding, and declines were also recorded in consultancy (down by 8.2%) and CPD/CE (down by 0.8%). These mixed results underline the importance of continued monitoring of sector performance.

England vs UK overall: KE income trends in England closely mirrored UK-wide patterns in 2023–24. England experienced slightly higher growth in collaborative research (6.1% vs 4.6%) and contract research (7.6% vs 6.7%) compared to the UK averages, while also seeing steeper declines in consultancy (8.2% vs 2.2%) and CPD/CE income (2.7% vs 1.6%). Facilities and equipment services income rose more in England (4.5%) than the UK (1.8%), while IP income growth and regeneration income decline for England were in line with the UK averages. Examining longer-term trends between 2014-15 and 2023-24 we also see similar trends in changes across all the KE activity areas in England and UK.

Partner engagement (England): When considering partnerships with different types of organisations, in 2023–24, KE income from SMEs remained stable in real terms, while income from large businesses declined by 2.4%, continuing a downward 2-year trend. In contrast, income from non-commercial partners rose by 7.0%, after the previous year's decline of 5.3%. Across individual KE activity types, engagement with non-commercial organisations increased consistently in 2023-24, while income from business partners showed a mixed pattern of growth and decline. Over the 10-year period from 2014–15 to 2023–24, overall growth in university income from interactions increased by 20.8% with SMEs, 1.7% with large businesses, and 7.7% with non-commercial organisations.

Spinouts and commercialisation (England): In 2023–24, the number of newly registered spinouts decreased by 3.5% (five spinouts), a change broadly similar to that observed in 2022–23 following the spike observed during the covid pandemic. However, the longer-term trend over the ten-year period from 2014–15 to 2023–24 shows growth of 17.4%, rising from 115 to 135 spinouts. This suggests an overall positive trajectory for this type of activity, though noting a potential stagnation in most recent years. The launch of the Spinout Register provides a new lens on commercialisation performance, offering deeper insights into factors such as company types, investment pathways, and comparative trends. University Commercialisation and Innovation Policy Evidence Unit (UCI) has conducted an initial analysis of this dataset, and we will consider how best to incorporate ongoing evidence from the register into future annual reporting.

International comparison (UK): Comparative analysis with AUTM data reveals notable differences in commercialisation performance between the UK and US. Long-term comparisons between the two countries highlights that while the US has seen larger absolute increases in research resources and spin-out activity, the UK is generating more outputs per unit of research resource. This is evident in both spin-outs and patents, where the UK requires fewer research resources to produce each output compared to the US. Over a 10 year-long period (2014-15 to 2023-24), IP income growth has also been stronger in the UK (32.7%) than in the US (27.4%), highlighting the resilience and effectiveness of the UK's innovation system.

Introduction

1. The Higher Education Business and Community Interaction (HE-BCI) survey is an essential source of information on university knowledge exchange (KE) in the UK. Unlike other datasets, HE-BCI captures the full breadth of KE activity across the entire higher education sector, from collaborative research and consultancy to public engagement and intellectual property. Its comprehensive scope and consistent methodology make it globally leading—few, if any, international equivalents provide such detailed, sector-wide coverage. This completeness ensures that HE-BCI is not only a high-quality dataset but also a trusted evidence base for policy, funding, and benchmarking. As a result, the analysis presented in this report draws on one of the most robust and authoritative sources available, offering unparalleled insight into how UK universities create economic, social, and cultural impact through knowledge exchange.

2. 'Business' in this context may refer to private, public, and third-sector partners of all sizes[1]. 'Community' in this context means society as a whole outside higher education providers (HEPs), including all social, community and cultural organisations, individuals, and the public, both nationally and internationally.

3. The survey records information on a wide range of interactions with external partners and the wider world, such as collaborative and contract research, consultancy, continuing professional development, regeneration and development programmes, the exploitation of intellectual property and other activities with a direct social benefit, such as hosting events in museums and giving public lectures.

4. The data is collected annually by the Higher Education Statistics Agency (HESA, part of JISC). All publicly funded HEPs in Wales, Scotland and Northern Ireland; and for the 2023-24 reporting period HEPs registered as Approved (fee cap)[2] in England were required to submit data to the HE-BCI survey. HEPs provided data for activity occurring during the academic year 2023-24. All UK HEPs who completed the HE-BCI survey for 2023-24 have been included in the report.

5. The HE-BCI survey includes the collection of various sources of KE income to HEPs, which, of the data currently available, is considered the most robust metric for the impact of their KE activities, although notably, this functions as a proxy for impact[3]. The main types of KE activity for which income to HEPs reflects the market value of these resources in the economy and society are collaborative research, contract research, consultancy, equipment

[1] The 'third sector' refers to voluntary and community groups, social enterprises, charities, co-operatives and mutuals.
[2] FE and sixth form colleges are excepted from the requirement to submit to HE-BCI. The basis for requirement to return HE-BCI data in England changed from 2024-25 onwards.
[3] See 'Allocating HEIF: The suitability of knowledge exchange income as a proxy for outcome performance'.

and facilities, continuing professional development (CPD), regeneration funding, and intellectual property (IP) income. In addition, external investment into spin-outs can also be deemed a reasonable indirect proxy for impact[4].

6. To account for inflation and present the data in real terms, the nominal values of KE income were converted to 2023-24 real terms income using GDP deflators. The section on IP-Related International Comparisons (pages 31–39) also presents comparisons between the UK and the US in real terms, using GDP deflators to adjust for inflation. UK data has been adjusted using the ONS MNF2 series, and US data using the BEA GDP Implicit Price Deflator (rebased to 2023 as the reference year). This approach provides a more accurate view of trends in IP activity and income across the two countries, enabling meaningful benchmarking while accounting for differences in economic contexts. These GDP deflator rates can be found at Annex A.

[4] See 'Assessing the Gross Additional Impacts of the Higher Education Innovation Fund (HEIF)'

The UK's Knowledge Exchange Health

Key Findings:

- Knowledge exchange (KE) income to universities in the UK remained broadly stable in 2023–24, increasing by 0.2% in real terms after a sharp decline the previous year.
- Growth was driven by collaborative and contract research, while consultancy and CPD saw declines and regeneration income fell sharply due to the end of ERDF funding.
- The findings are reflective of long-term stagnation since 2019–20. Over the past decade however, KE income has grown modestly by 6.9% in real terms.

7. Understanding the health and dynamics of knowledge exchange income is critical, not just to track overall trends, but to uncover which activities are driving growth or decline and what these patterns signal for the future. The following section provides a detailed analysis of these trends, breaking down sector performance by activity type and interpreting changes in the context of long-term trajectories and external influences.

8. This section outlines the overall sources of KE income in the UK and England in 2023-24 as collected in the HE-BCI survey, and as highlighted above examines how these sources of income have changed over time in real terms (adjusted for inflation based on 2024 prices). In 2023-24, the total KE income in 2023-24 increased marginally by 0.2%. Real terms income for different types of KE income in the UK is illustrated in Figure 1 below.

9. In 2023–24, the real-terms increase in KE income of 0.2% represents stability in the sector following the previous year's 6.4% decline. This shift counters earlier concerns of continued decline and aligns with the five-year trend of stagnation since 2019–20. However, looking at the longer 10-year period from 2014–15, KE income has grown by 6.9% in real terms, highlighting that despite recent flatness, the sector has achieved modest long-term growth in real terms.

10. As shown in Figure 1 below, the overall real terms stability in KE income was driven by;

    a. Collaborative research income: increased by 4.6%

    b. Contract research income: increased by 6.7%

    c. Facilities and equipment-related services: increased by 1.9%

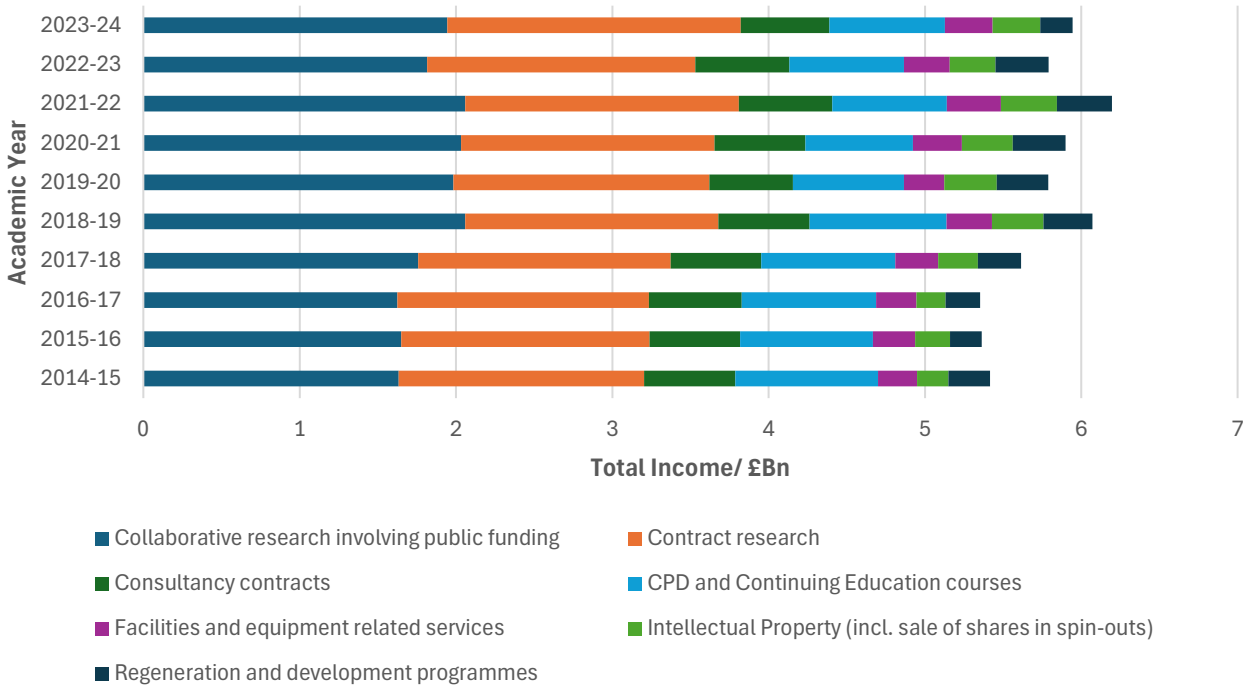
    d. Intellectual property income: increased by 1.8%

e. Consultancy contracts: decreased by 8.2%

f. CPD and continuing education activities: decreased by 0.8%

g. Regeneration and development programmes: decreased sharply by 40.5% (linked to the end of ERDF funding)

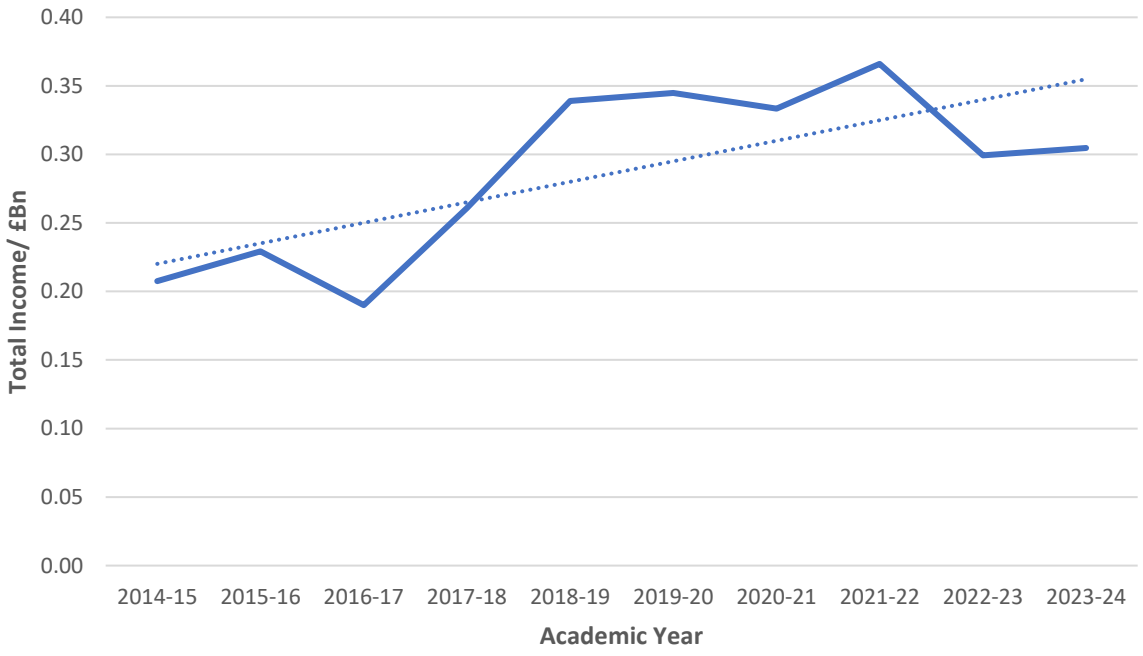
Figure 1: Real terms total income for each KE category across all UK providers stacked for each academic year from 2014-15 to 2023-24.



11. As shown in Figure 1 above, collaborative research income, the largest area of knowledge activity as measured by income, rose by 4.6% in real terms, reaching £1.95bn in 2023–24. This marks a return towards the stable levels seen prior to the significant 11.6% decline experienced in 2022–23. The second largest contributor, contract research, also saw growth, increasing by 6.7% in real terms to £1.88bn, following a modest 1.8% decline in the previous year. In contrast, regeneration income experienced the most substantial decline, falling by 40.5% in real terms. This sharp drop is largely attributed to the conclusion of the European Regional Development Fund (ERDF), which had previously accounted for a significant portion of regeneration funding and reached its final year in 2023.

12. As shown in Figure 2, IP income (including the sales of shares in spin-outs) also saw an increase of 1.8% to £305m in 2023-24. This follows a substantial decline in IP income in the previous year of 18.2% and reflects the notable year-on-year fluctuations often seen in IP income. At a sector level, this high degree of year-on-year variation is also due to IP income often being contingent on the activities of a relatively small number of providers generating high incomes. The UK increase in 2023-24 is predominantly a result of the increase in IP income in England of 1.5% to £276m. This is accompanied by an increase of £14m in Scotland and fluctuations in IP income in Northern Ireland and Wales, which will be discussed in more detail later in this report at paragraphs 47 - 51.

Figure 2: Real terms income from IP activities (including sale of shares in spin-outs) by HEPs in the UK 2014-15 to 2023-24



13. There was a substantial year-on-year decrease in regeneration and development income in nominal terms in 2023–24, falling by 38% (40.5% in real terms). This decline reflects the ongoing reduction in funding and is indicative of the ERDF funding cycle, as already noted in paragraph 13. The 2023–24 academic year marks the final year for expenditure under the 2014-2020 ERDF programme allocations. In 2022-23, ERDF allocations accounted for 41.3% (£138m) of all regeneration and development income. However, in 2023-24, the ERDF programme contributed only 16% of total regeneration income. In the coming years, it will be important to consider how the conclusion of the 2014-2020 ERDF programme,

alongside the introduction of new UK-based funding streams - such as the UK Shared Prosperity Fund, now in its second year, will impact regeneration and development income across the sector.

14. Income from consultancy activity reduced by 8.2% to £566m from £593m in 2022-23. This reversed the trend of year-on-year increases seen in 2020-21 (9.0%), this decline is similar to the decline experienced during 2019-20 COVID period of 8.3%. This decline in consultancy income may reflect wider economic pressures and shifting priorities across both universities and businesses in the 2023-24 academic year. Similarly, income from CPD and CE saw a decrease of 1.6% in 2022-23 from a previous year-on year increase of 0.5%. Factors like inflation, tighter budgets, and evolving strategic focus may have influenced external consultancy spend and CPD and CE engagement with universities.

England's Knowledge Exchange Health

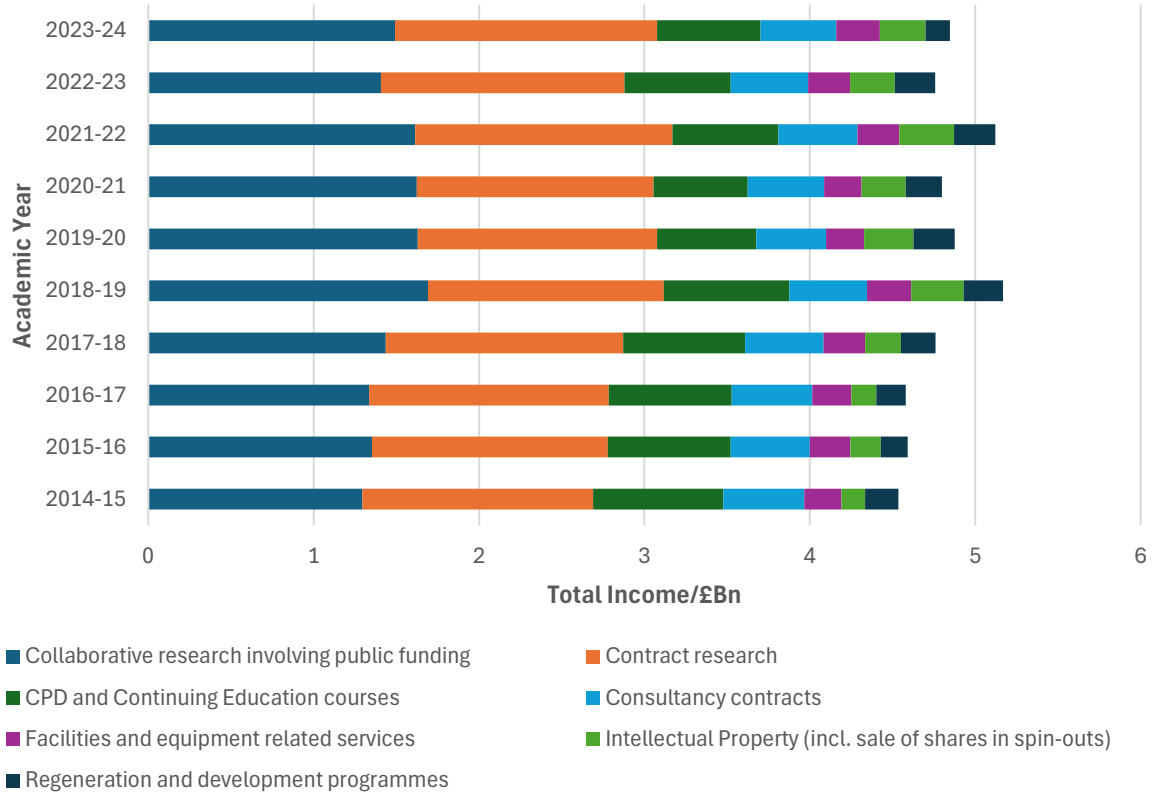
Key Findings:

- Similar to UK-wide trends, KE income for English providers remained broadly stable in real terms in 2023–24.
- Growth was concentrated in collaborative and contract research, while regeneration income fell significantly, and consultancy and CPD saw modest declines.
- Over the longer term, KE income in England has followed the UK pattern of modest growth, indicating resilience despite recent financial pressures.
- Specialist clusters such as STEM and Arts recorded modest gains in 2023–24, contrasting with declines in broad discipline clusters.
- Interactions with non-commercial partners grew substantially, while engagement with large businesses continued to decline, indicating a shift in collaboration patterns across the sector. However, over the longer term (decade), university interactions have increased moderately with SMEs and non-commercial organisations, while growth with large businesses has been marginal.

15. The total nominal KE income for English providers in 2023-24 was £4.85 bn. This reflects a 5.9% (£271m) nominal terms increase from 2022-23. However, in real terms, it reflects a 0.9% (£44m) decrease compared to 2022-23 as shown in Figure 3 below, which is reflective of the wider UK-level trends of relative stability in overall KE activities after a period of significant challenges and financial pressures on both universities and external partners, which saw a slowing of the KE interactions of 5.8% in 2022-23.

16. The annual decrease in overall KE income is primarily driven by reductions in income from regeneration activities (down 40.2%), as well as smaller declines in CPD and CE income (2.7%) and consultancy (2.2%), mirroring UK-level trends in 2023-24. However, as illustrated in Figure 3, other areas of KE activity have seen growth, most notably contract research (up 7.6%), collaborative research income (6.1%), and facilities and equipment-related services (4.5%). Intellectual property income also increased slightly by 1.5%, with all of these areas broadly reflecting the UK-level trends discussed above.

Figure 3: Real terms total income for each KE category across all English HEPs stacked for each academic year from 2014-15 to 2023-24.

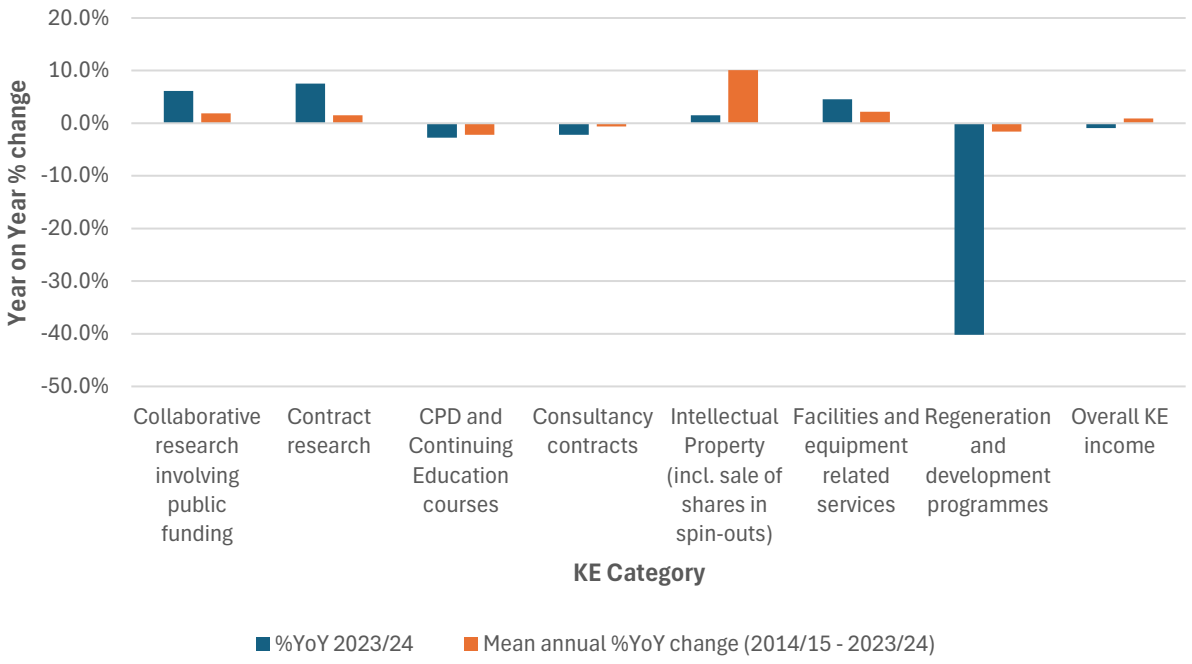


17. Knowledge Exchange (KE) clusters provide a useful way to analyse how KE activity and income have evolved across the sector, particularly in assessing the potential impact of financial pressures on different types of Higher Education Providers (HEPs). Several broad discipline-based clusters reported real-terms declines in overall KE income across the seven KE activity areas in 2023–24 compared with 2022–23, ranging from 0.8% (Cluster X), 3.0% (Cluster J), and 6.1% (Cluster E) to 14.4% (Cluster M). In contrast, specialist clusters saw increases: the STEM cluster reported a 2.1% rise in overall KE income, and the Arts cluster recorded a 2.7% increase. Lastly, Cluster V (very large, very research-intensive broad

discipline-based cluster) reported a 5.8% increase. Overall, broad-based discipline clusters generally experienced real-terms declines in KE income in 2023–24, while specialist clusters (Arts and STEM) saw modest growth, indicating a divergence in performance across the sector within the current financial context.

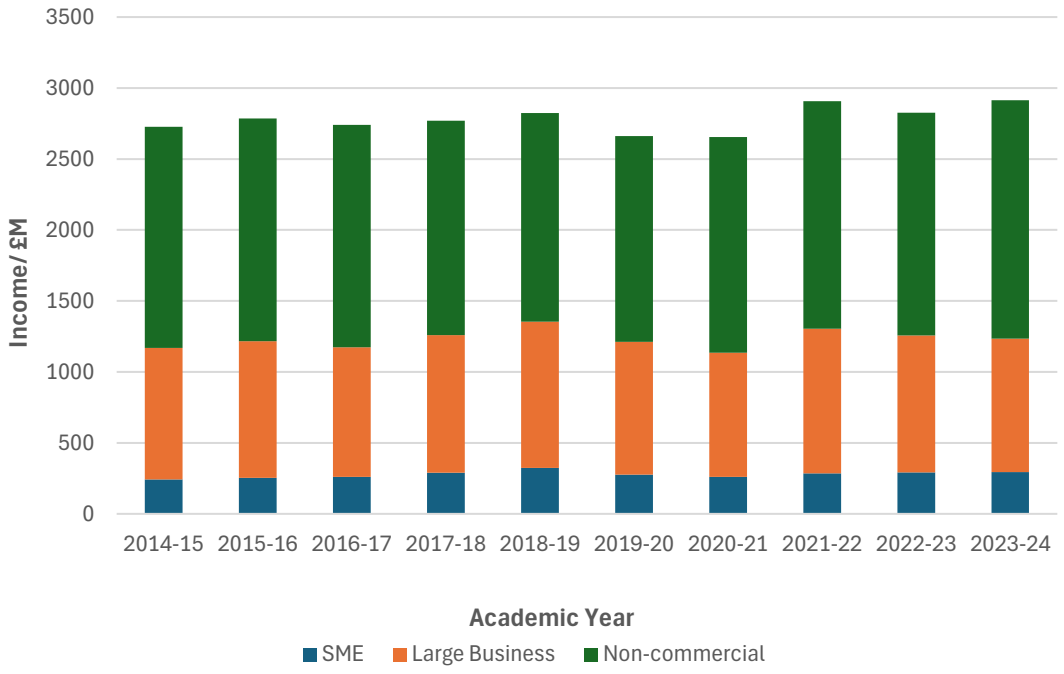
18. Changes in the composition of KE income in England closely mirrored UK-wide trends in 2023-24, continuing the pattern seen in recent years and contributing to the overall UK-level stability trend. Regeneration income fell by around 40% in both England and the UK, which is responsible for the overall decline in regeneration income across the UK. The reduction in consultancy income was higher in England (8.2%) compared to the UK overall (2.2%), while the decline in CPD and CE income was slightly larger in England (2.7%) than in the UK (1.6%). On the other hand, areas such as collaborative research and contract research saw increases across both the UK and England, with England recording slightly higher growth of 6.1% vs 4.6% in the UK for collaborative research, and 7.6% vs 6.7% for contract research respectively. Facilities and equipment services income also rose in both England and the UK, with a 4.5% increases in England, compared to 1.8% in the UK. While intellectual property income and increased in England by 1.5% compared to a 1.8% in the UK.

Figure 4: Year-on-year percentage change in real terms income for each category in 2023-24 and the average annual Year-on-year percentage change from 2014/15 – 2023/24 in England



19. Of particular interest is the relative activity of universities with different partner organisation types (see Figure 5). The total income across all KE activity types[5] from SMEs remained the same in real terms at £293m in 2023-24 compared to 2022-23, and for large businesses[6] there was a decline of 2.4% to £942m continuing a decline of 5.3% in 2022-23. Turning to income from non-commercial partners, this increased by 7.0% to 1.68bn after a decrease of 2.4% in 2022-23. Growth in commercial KE income during 2023-24 was concentrated in three areas: contract research for large businesses increased to £510m (1.8% increase from 2022-23), CPD and CE courses for SMEs grew by 2.6% to £25.9m and facilities & equipment income increased by 11.8% to £82.9m. All other KE interactions with business partners declined or remained flat, with biggest decline being a £10m (8.9%) decrease in CPD income for large businesses. On the other hand, interactions with non-commercial organisations saw increases across all KE activity types. Contract research drove the largest increase, rising to £1Bn (an 11.7% increase in 2023-24), while facilities & equipment income increased to £102m (+7.0%) for non-commercial organisations and IP income from non-commercial organisations rose by 18.1%, to £29m. Over the 10-year period from 2014–15 to 2023–24, overall growth in university interactions increased by 20.8% with SMEs, 1.7% with large businesses, and 7.7% with non-commercial organisations.

Figure 5: Real terms KE income in England for each organisation type, 2014-15 to 2023-24.



[5] where partner type is disaggregated in HE-BCI, which is the case for contract research, consultancy, CPD, facilities and equipment, and intellectual property.
[6] References to 'large commercial businesses' refer to the 'non-SME commercial businesses' category in the HE-BCI collection throughout.

Intellectual Property Income, Patents and Spin-Outs

Commercialisation and the exploitation of research are widely recognised as critical engines of innovation, productivity, and long-term economic growth. They enable universities and research organisations to translate knowledge into products, services, and processes that benefit society and strengthen the UK's competitiveness in global innovation ecosystems. A report from the University Commercialisation and Innovation (UCI) policy unit identifies commercialisation as one of the four key dimensions of a healthy knowledge exchange system that lead to growth Understanding trends in intellectual property income, patents, and spin-outs is therefore essential for assessing system health and identifying opportunities to accelerate impact. Robust evidence on these patterns informs strategic decision-making by government, funders, and institutions, ensuring that policy interventions are targeted and effective. This section examines real-terms changes in income and investment, providing insights that will help shape decisions to maximise the societal and economic benefits of research commercialisation.

IP income

Key Findings:

- IP income for English providers showed a modest real-terms increase in 2023–24, after the sharp decline of the previous year.
- Growth was driven by a substantial rise in sales of shares in spin-outs, while subtotal IP income fell slightly, reflecting the highly variable nature of IP revenues.
- Over the longer term however, subtotal IP income has grown significantly, indicating sustained progress in commercialising research outputs despite short-term volatility. However, income remains highly concentrated among a small number of providers.
- Interactions continue to be dominated by commercial partners, but with recent marginal declines in activity with large businesses and SMEs in contrast to notable growth with non-commercial organisations.

20. In this section, we explore IP income as a proxy for research impact - because income from intellectual property signals that knowledge is being successfully commercialized and generating economic value. It provides an important indicator of how research outputs are moving beyond academia into applications that contribute to the economy and society.

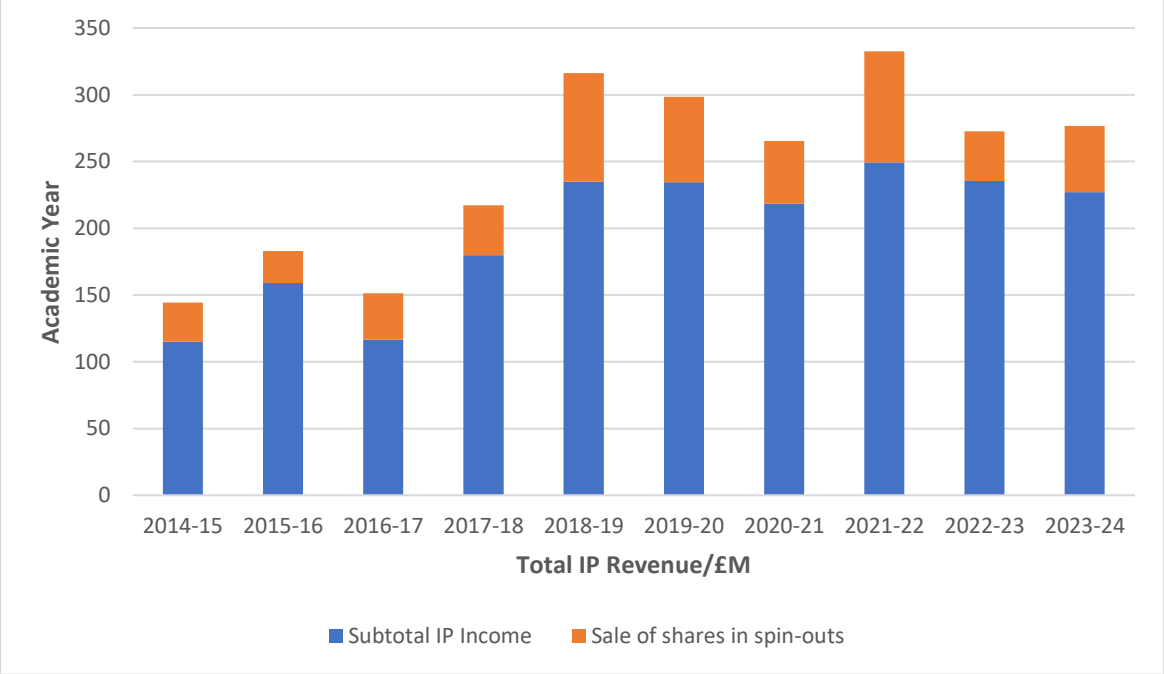
21. The HE-BCI survey collects data on the total IP income received by providers which can be divided into income due to sales of shares in spin-outs and the subtotal IP income. In

addition, the subtotal income can be further categorised by the source of income (software licences, non-software licences, and other IP) and the type of partner organisation.

22. Income to English providers from IP increased to £277m which in nominal terms was an increase of 6% from 2022-23, however in the real terms, this translates to a 1.5% increase in IP income in 2023-24. This growth is an improvement in the previously observed decrease in IP income in 2022-23 of 18%.

23. The increase in IP income in 2023-24 can be attributed to increases in sales of shares in spin-outs, of £49.7m (33.7%). A significant increase from the previous year's 55.3% year-on-year decrease. On the other hand, subtotal IP income decreased marginally by 3.6% in 2023-24. However, it should be noted that IP income can be particularly variable year-on-year due to the lumpy nature of sales of shares, given its dependence often on relatively infrequent high-value activities, compared to measurement of other KE activities. It will be important to continue to observe future changes in IP income. The proportion of total IP income coming from subtotal IP income decreased from 86% in 2022-23 to 82% in 2023-24. However, over the last 10 years, subtotal IP income has grown from £115m in 2014-15 to £227m in 2023-24 a significant growth of 97%.

Figure 6: Combined real terms total of the sale of shares in spin-outs and the subtotal IP income for each academic year from 2014-15 to 2023-24.

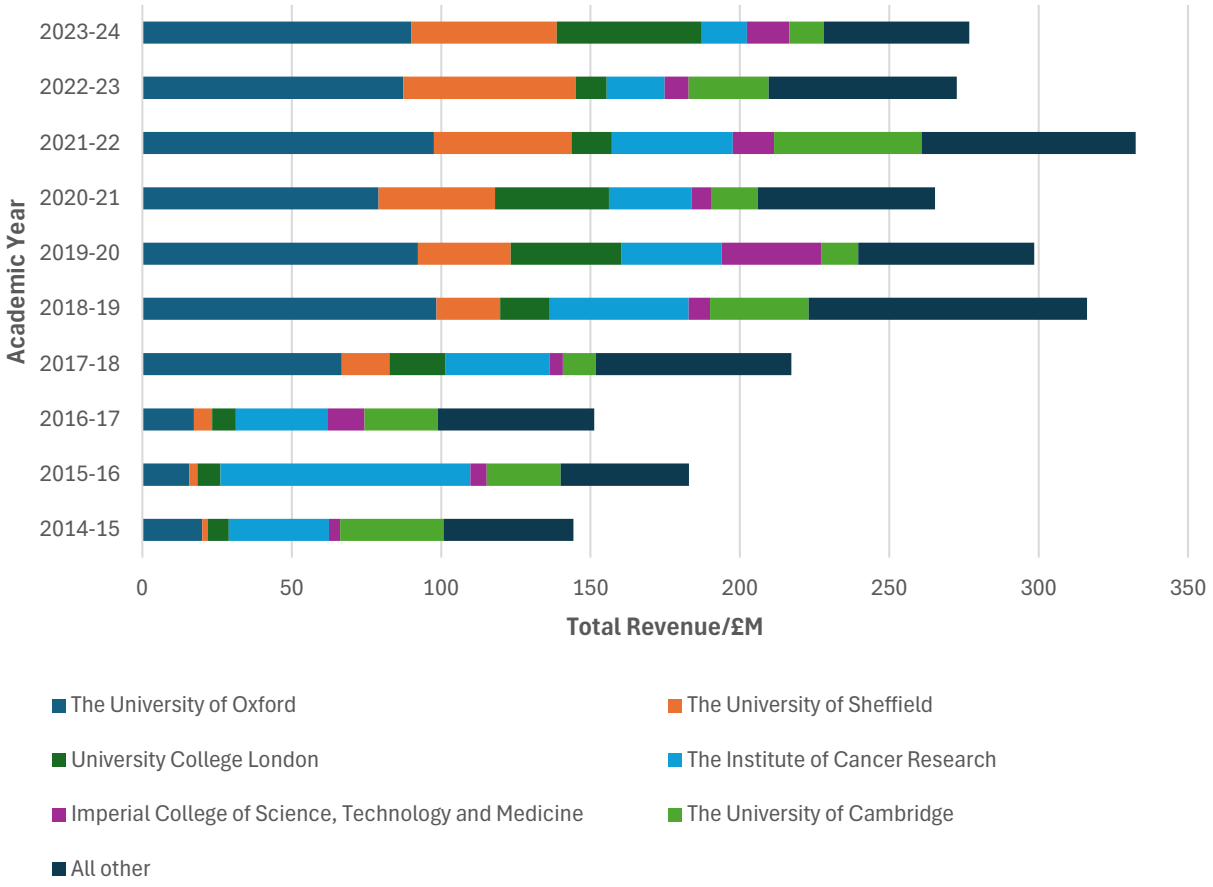


24. As noted previously it is important to note that sales of shares are highly variable in nature and due to activity being relatively concentrated in a small proportion of the sector, overall sector trends can be highly dependent on fluctuating year-on-year activity of individual providers. The 2023-24 increase can be attributed to significant increases in sales by University College London which saw a nominal 1,235% (1,184% in real terms) significant increase in income to £27.7m from the sales of shares in spin-outs, compared to £2.1m (£2.2m in real terms) in 2022-23; Imperial College of Science, Technology and Medicine saw an increase of 180% (170% in real terms) increase to £10.6m compared to £3.8m (£3.9m in real terms). Additionally, the University of Bristol saw a 47% increase (41% in real terms) in the sale of shares in spin outs from £688K (£716m in real terms) in 2022-23 to £1m in 2023-24.

25. Similarly, it is also important to note that trends observed in the total IP revenues, similar to sales of shares in spin-outs, are highly dependent on changes in a small number of providers (though fluctuates less year-on-year). As illustrated by Figure 7[7], in 2023–24, six providers accounted for 82% of total IP income, compared with 78% in 2022–23 and 73% in 2014–15. This shows that while the distribution remains highly concentrated, the degree of concentration has gradually increased over the past decade. The specific providers in the top six change from year to year, so Figure 7 should be viewed as a snapshot rather than evidence of a fixed long-term trend.

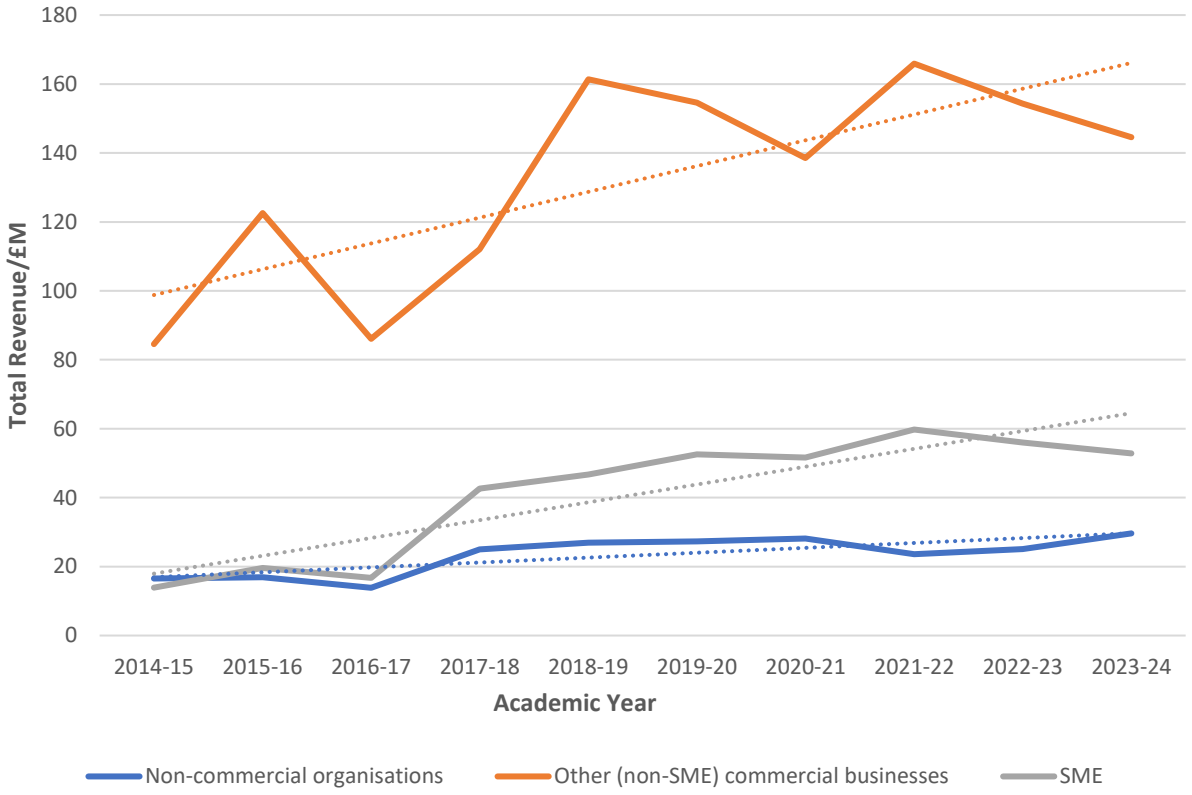
[7] While the top six providers in 2023–24 differ from those in previous years since 2014–15, income data has been consistently reported for all six across the full ten-year period.

Figure 7: Total real terms IP income (including sale of shares in spin-outs) across English HEPs for each academic year from 2014-15 to 2023-24, highlighting the proportion contributed by the six providers with the greatest total IP incomes in 2023-24.



26. Subtotal IP income can be disaggregated by the type of organisation the income is from, and this is illustrated in Figure 8. Subtotal IP income is predominantly driven by interactions with commercial partners, which contributed 65.6% of income in 2023-24 and which reduced to £227m from £235m in 2022-23. This is underpinned by a reduction of 6.3% in the income recorded from large businesses to £145m, and a reduction in activity with SMEs of 5.6% to £53m. However, income from activity specifically with non-commercial organisations increased by 18.1% from £25m to £30m.

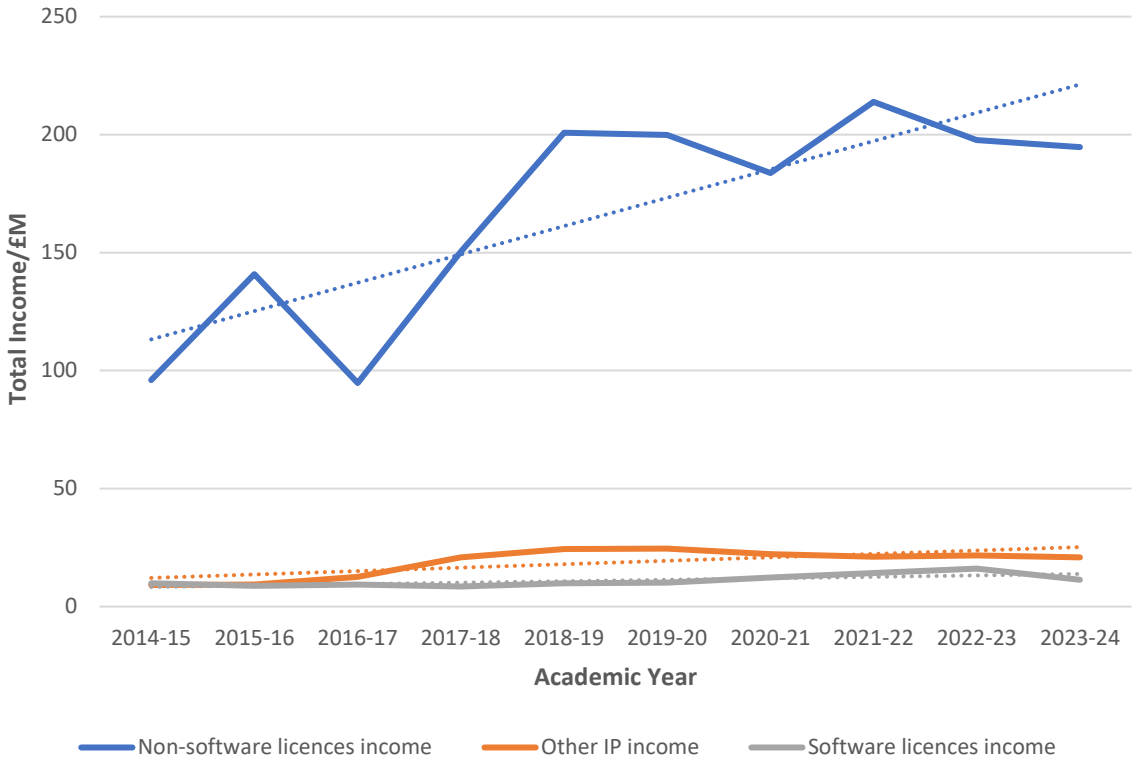
Figure 8: Total real terms subtotal IP income for different organisation types for each academic year from 2014-15 to 2023-24.



27. Subtotal IP income can also be disaggregated across all organisation types by the source of IP income and is displayed in Figure 9. The relative distribution of income between different sources has remained consistent since 2019-20, with non-software licencing remaining the predominant source of income with 85.8% of the total in 2023-24, and software and other IP income contributing 5.0% and 9.2% respectively.

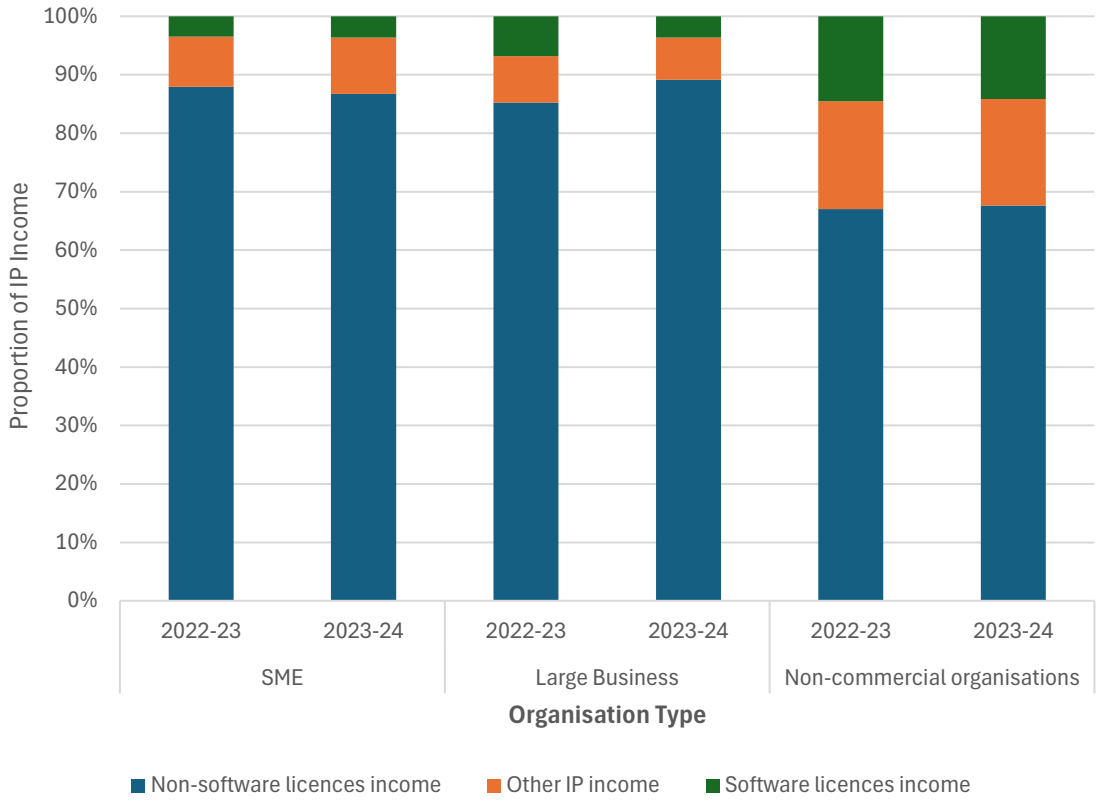
28. Of note however is the 29.1% decrease in software licensing income in 2023-24, after a significant 12.7% increase in 2022-23, which had been on a positive year-on-year trajectory since 2018-19. On the other hand, income from non-software licencing income and other IP income decreased by 1.5% and 3.5% respectively, hence the marginal decrease in the subtotal IP income of 3.6%.

Figure 9: Total real terms IP income across all organisation types for different sources of income for each academic year from 2014-15 to 2023-24.



29. Figure 10 below compares the sources of IP income from each organisation type. Between 2022-23 and 2023-24, of the IP income relating to non-software sales, the proportion from SMEs decreased slightly while the proportion with non-commercial organisations, and with large commercial businesses both increased slightly. Of the income relating to other IP, the proportion with large businesses and SMEs decreased, while for non-commercial organisations it increased. For SMEs and Non-commercial organisations the proportion of their income derived from software licences increased in 2023-24, but this decreased for large businesses.

Figure 10: Proportion of IP income from different sources for each organisation type in 2022-23 and 2023-24.



Disclosures and patents

Key Findings:

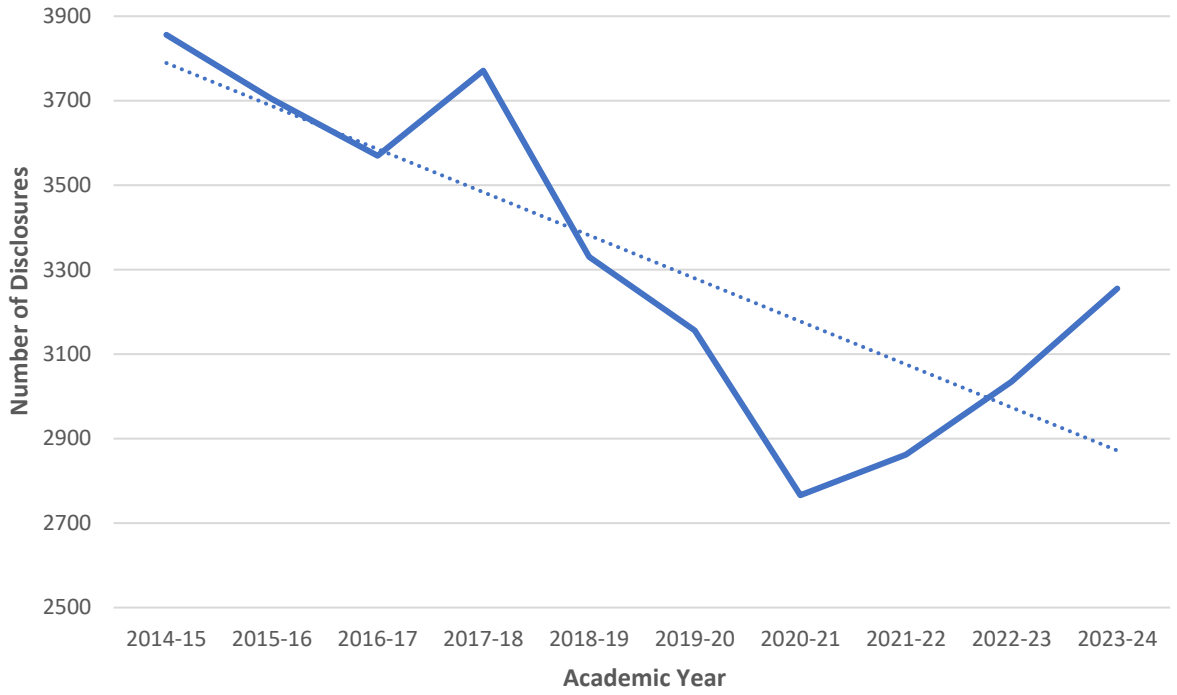
- Patenting activity increased in 2023–24 after two years of decline, with significant growth in patents granted and continued increases in disclosures, signalling renewed momentum in innovation following pandemic-related constraints.
- Over the longer term, the cumulative patent portfolio has remained relatively stable, while filings by external parties have steadily increased, now accounting for the majority of patent activity involving providers.
- Patenting remains highly concentrated among a small number of institutions, reflecting both strategic choices and sector dynamics.

30. In this section, we explore patenting activity as an indicator of research impact. Filing a patent signals that an institution or individual is investing resources to protect an idea, reflecting its perceived value and potential for commercialization. Patents are important as they create a formal marker of innovation, suggesting that research outputs are moving toward applications that can generate economic and societal benefits.

31. The HE-BCI survey records a range of data relating to IP, including numbers of disclosures, patents filed, patents granted, cumulative patent portfolio (and patents filed by an external party). However, caution should be taken when discussing trends in disclosures as there may not be a consistent definition between providers as to what qualifies as a disclosure.

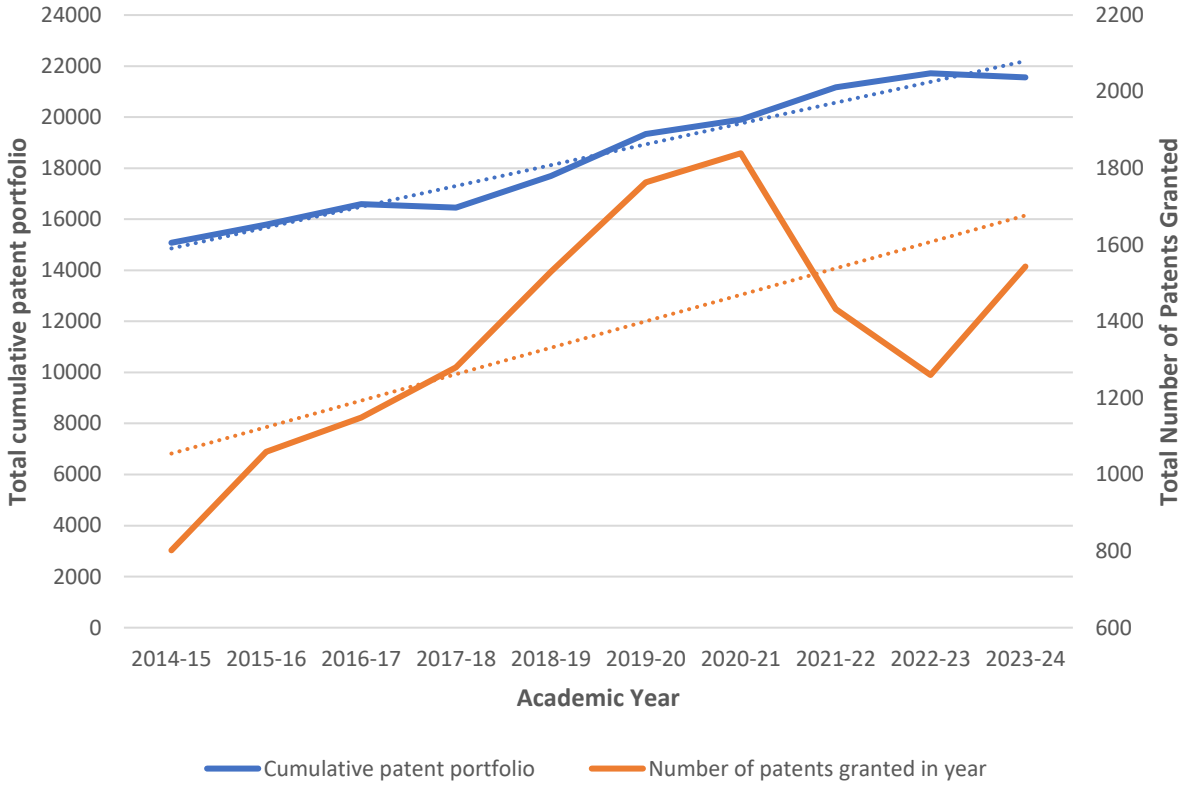
32. As shown in Figure 11, in 2023-24 the number of disclosures increased by 7.2%, representing a continuation and increase in growth from 2022-23 where the number of disclosures grew by 6.0%. This continued growth is notable as it is contrary to the wider trend of a decrease in the number of disclosures over the period since 2014-15.

Figure 11: Total number of disclosures for each academic year from 2014-15 to 2023-24.



33. As shown in Figure 12, patenting activity rebounded in 2023-24 following two consecutive years of decline. The total number of patents granted across the sector increased by 22.5%, marking a significant recovery from the decreases of 12.0% in 2022-23 and 22.1% in 2021-22. These earlier declines were previously attributed to Covid-19 related effects, as activity to develop products and ideas was restricted. This initially resulted in a notably greater decrease in disclosures in 2020-21, which may have contributed to the subsequent drop in granted patents in the following years. Despite the fluctuations in annual patents granted, the total sector cumulative patent portfolio continued to grow steadily, increasing by 2.61% in 2022-23 and then slightly contracting by 0.76% in 2023-24. Taken together, new patent filings can be viewed as a proxy for the health of the pipeline of ideas, while the size of the cumulative portfolio reflects the overall stock of potentially impactful inventions. The recent rebound in filings suggests renewed momentum in innovation activity following pandemic-related constraints.

Figure 12: Total number of patents granted and the cumulative patent portfolio across all providers for each academic year from 2014-15 to 2023-24.



34. Consideration of the identity of the party filing the patents is also of interest and is illustrated in Figure 13a. The number of patents filed by external parties naming the HEP as an inventor continued to increase in 2023-24 with a growth of 4.5% to 3,844 compared to 2022-23. And grew by 216% since 2014-15. However, this pattern appears to be driven by very high numbers from a small group of institutions, with around 80% of new patents filed by external parties in 2023-24 concentrated in just four providers. This suggests that while the overall trend points to greater involvement of external parties, the underlying dynamics may vary significantly across the sector. In Figure 13b on the other hand, we observe that the proportion of patents filed directly by providers has steadily declined overtime, falling by 9.8% in 2023-24 to 1,394 compared to 2023-24, and by 19.9% overall since 2014-15. This indicates a decrease in direct provider new patent filings over time.

Figure 13a: Total number of patents filed by external parties naming the HEP as an inventor for each academic year from 2014-15 to 2023-24.

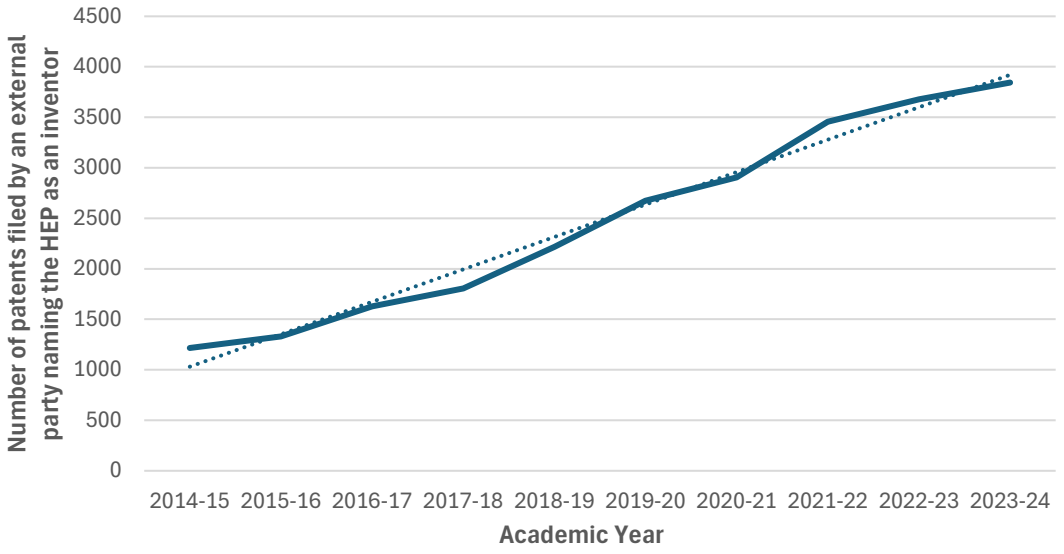
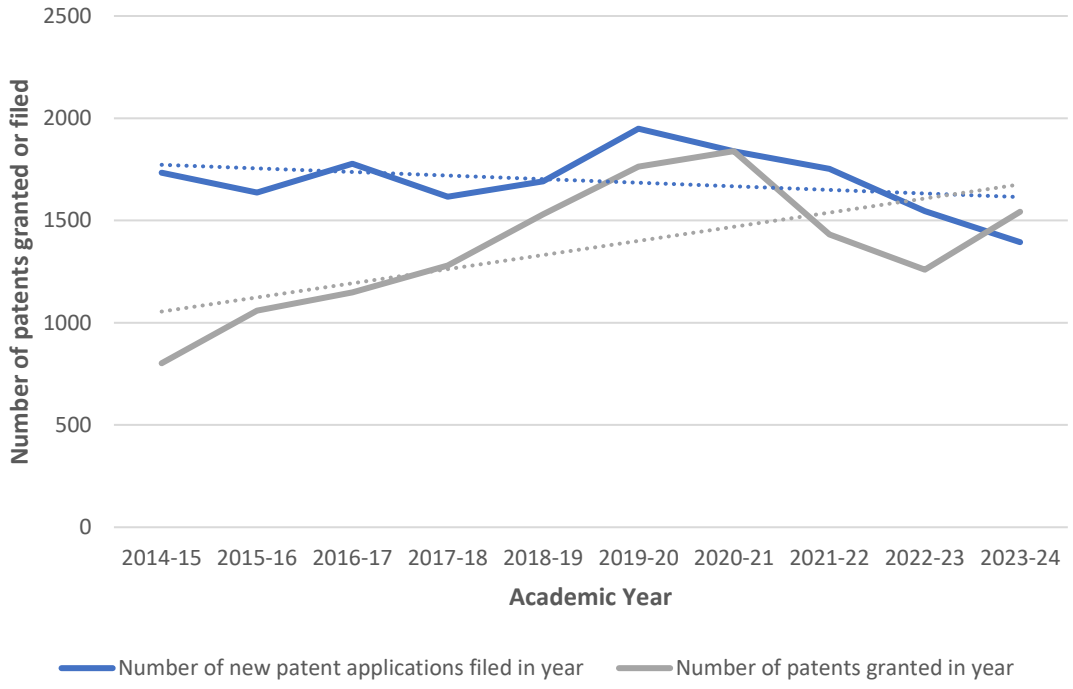
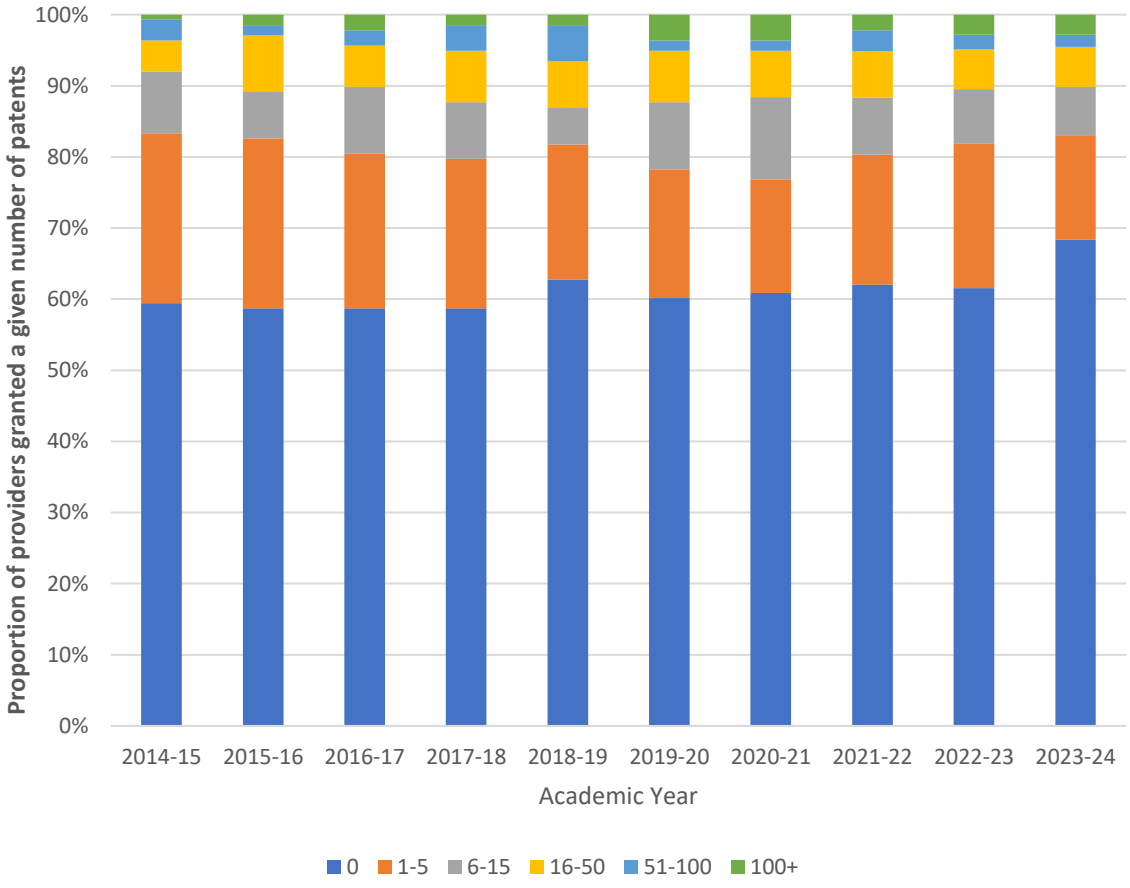


Figure 13b: Total number of patents granted, and total patents filed by providers for each academic year from 2014-15 to 2023-24.



35. The proportion of providers which had a given number of patents granted in an academic year can also be calculated to and is shown in Figure 14. In 2023-24 the proportion of providers with zero patents was relatively stable at 68.4%. There was a 10.3% decrease in the number of providers reporting 1-5 patents and a 25% increase in the number reporting 16 – 50 and 100+ patents. Compared to 2022-23 there was therefore a marginal shift in the concentration of patenting activity, becoming more polarised with increases in the 6-15, 51-100 and 100+ groups, however over the medium to long term the sector's patenting profile has also been relatively stable.

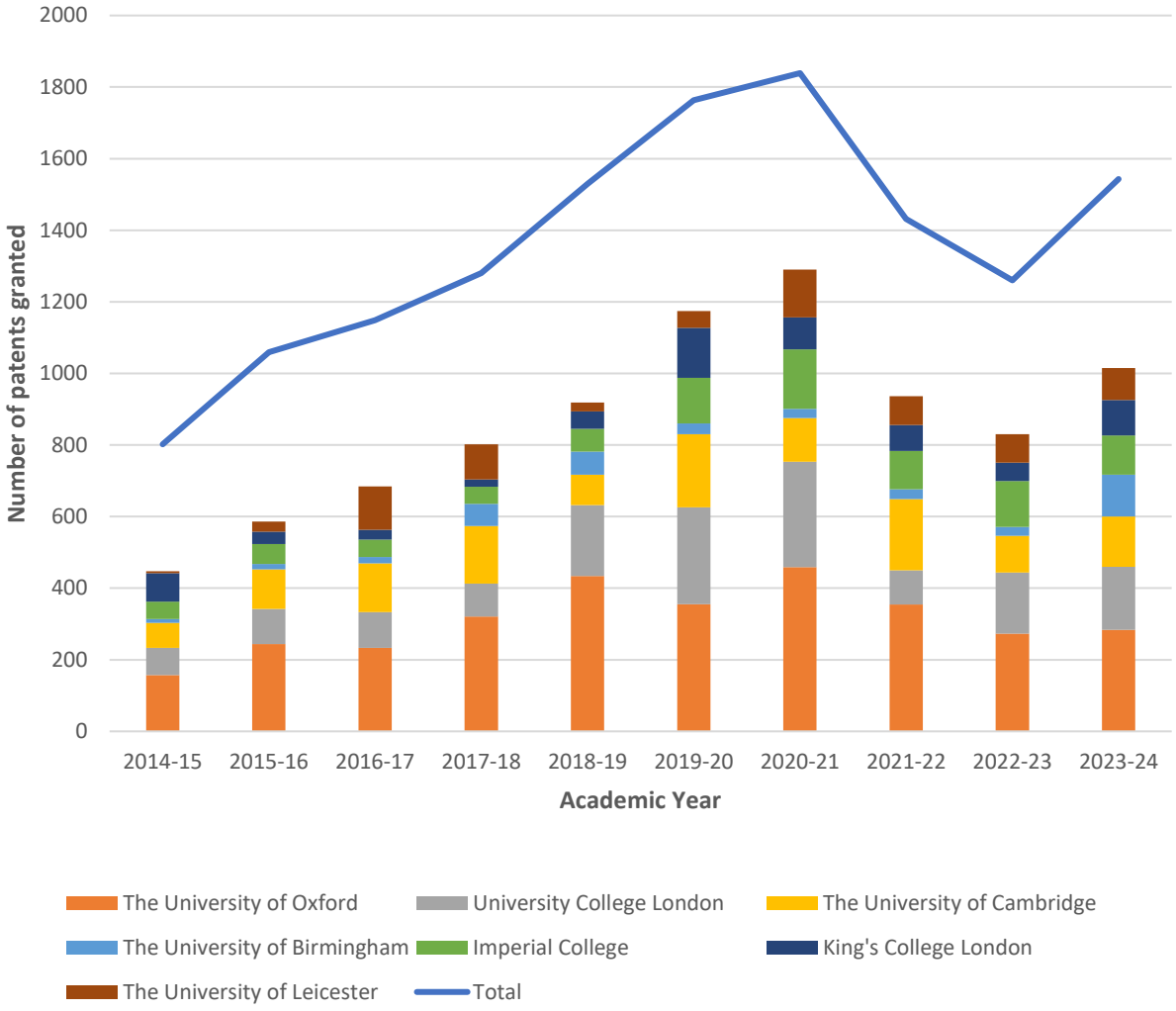
Figure 14: Proportion of the total number of providers that has a given number of patents granted each academic year from 2014-15 to 2023-24.



36. Notably, the top seven providers (University of Oxford, University College London, University of Cambridge, University of Birmingham, Imperial College London, King's College London, and University of Leicester) accounted for 65.7% of all patents granted across the sector in 2023–24. The year-on-year increase in patents from 2022–23 to 2023–24 was largely driven by these institutions, as illustrated in Figure 15. Among them, Imperial College London was the only institution to experience a decline, with a 14% decrease in patents granted (from

128 to 100). In contrast, the University of Birmingham saw a significant increase of 368% (from 25 to 117 patents).

Figure 15: Total number of patents granted across the whole sector, and for individual providers, for each academic year from 2014-15 to 2023-24.



37. It is important to be mindful when discussing patent data that, in some cases, trends may be reflective of a provider's strategic approach to IP, rather than being indicative of a provider not producing potentially patentable IP.

Spin-out company formation

Key Findings:

- Spin-out activity remained broadly stable in 2023–24, with a slight decline in new formations but strong long-term growth, indicating a positive trajectory for this pathway of research commercialisation.
- External investment returned to typical levels after last year's exceptional outlier, reflecting underlying stability and gradual growth over the decade.
- Employment within spin-outs and survival rates have increased substantially over the long term, suggesting improving resilience and quality, though activity remains concentrated among a small number of providers and subject to significant year-on-year fluctuations.

38. In this section, we explore spin-out companies as an important pathway for translating research into real-world impact. Spin-outs represent a key mechanism for commercializing inventions, ideas, and technologies developed within higher education institutions. By creating new businesses rooted in academic research, spin-outs drive innovation-led growth, attract investment, and contribute to the wider economy and society. They provide a tangible indicator of how research outputs are being transformed into products and services with commercial potential.

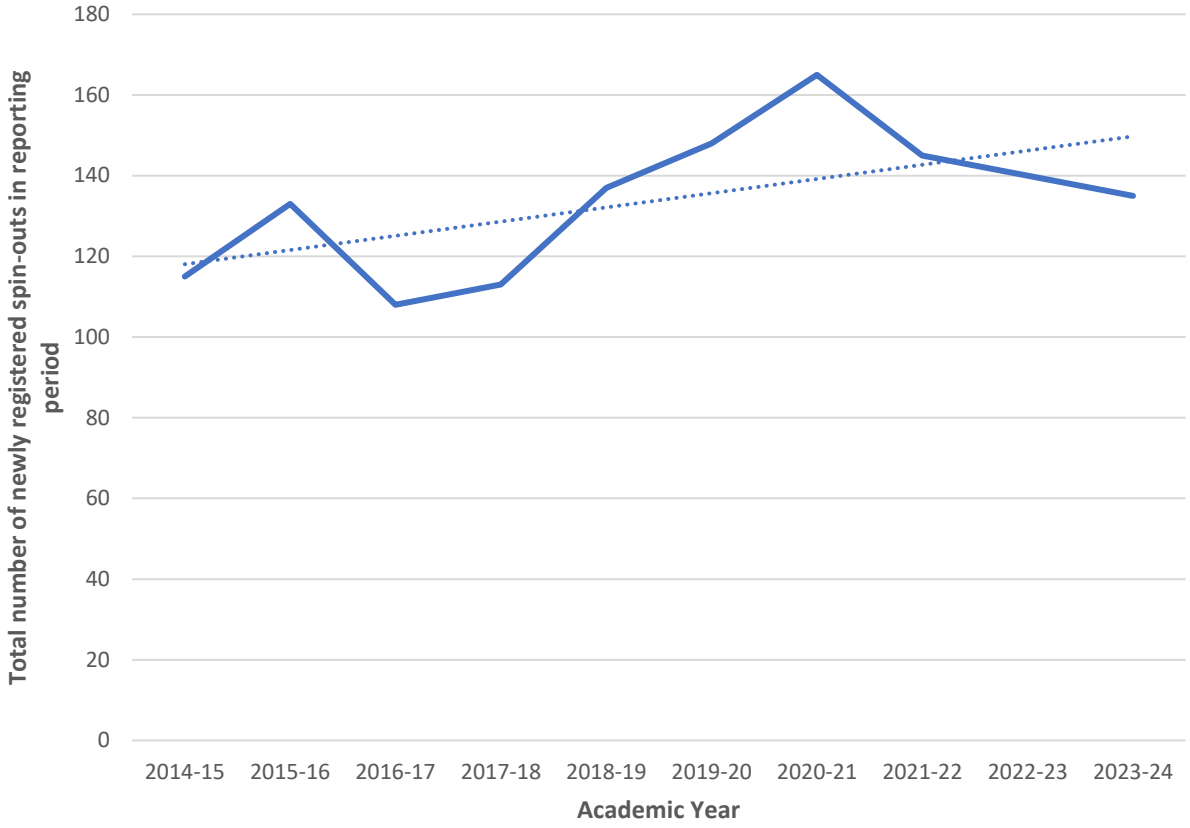
39. For the purpose of this report, spin-outs are defined as firms founded primarily to commercialise intellectual property (including ideas, information, and knowledge) created by university staff, where the IP either belongs to the university under general law or under the terms of the contract of employment, or the member of staff has assigned the IP to the university to enable it to be commercialised, or where significant university resources (e.g. funding, facilities) were used to generate the IP. This definition of a spinout constitutes an update introduced for the 2023/24 HE-BCI survey collection, therefore it is important to consider that changes in reported spin-out data for this data year may be in places be due to this change in definition.

40. While spin-out companies are an important pathway for commercializing research, their number or survival rate should not be interpreted as a direct measure of institutional performance. Spin-out formation is influenced by factors such as market conditions, investor appetite, and sector-specific dynamics, which vary widely and are often beyond the control of the provider. As such, these figures are best viewed as indicators of activity rather than definitive benchmarks of success.

41. In 2023–24, the number of newly registered spinouts decreased by 3.5% (five spinouts), a change broadly similar to that observed in 2022–23. However, the longer-term trend over the ten-year period from 2014–15 to 2023–24 shows growth of 17.4%, rising from 115 to

135 spinouts. This suggests an increasingly positive trajectory for activity in this area, as illustrated in Figure 16. Given that spinout formation fluctuates year on year, it is more meaningful to focus on long-term trends rather than short-term changes.

Figure 16: Total number of newly registered spin-outs in the reporting periods for English HEPs, each academic year from 2014-15 to 2023-24.



42. Despite a challenging economic outlook, the ability of spin-outs across the sector to attract investment can be a reflection of their underlying quality. In 2023–24, estimated external investments fell in real terms by 87%, totalling £4.1bn (see Figure 18a). This marks a significant drop from £31.8bn in 2022–23, which was however an unusually high figure driven by likely one-off returns from the University of Cambridge, which reported £28.3bn in external investment, a 1,577% increase, accounting for 92.6% of the sector's total that year.

43. In contrast, the 2023–24 figure is more in line with previous years, such as 2021–22, when the sector recorded £4.7bn in external investment. Excluding the income from University of Cambridge in 2022-23, the change in external investment is a 151% increase between 2022-23 and 2023-24. This return to trend suggests that, while headline figures may fluctuate due to outliers, the sector's capacity to attract investment remains broadly stable, which has steadily grown from around £1bn in 2014–2015. Among the six high-performing

providers, it is notable that spin-outs from the University of Oxford, University College London, and King's College London saw increases in estimated external investment of 15.1% (£860m), 50.5% (£771m), and 66.7% (£190m) respectively. The University of Bristol also saw a substantial increase of 557.3% (£559m), while the University of Manchester experienced a 53.9% decrease (£75m) and University of Cambridge saw a drop of 97% down to £890m in 2023-24. However, caution should be exercised when using external investment as a proxy for value across the sector, as investment requirements can vary significantly depending on the spin-out's sector and stage of development.

Figure 18a: Estimated real terms external investment received by all spin-outs totalled for all providers, and for individual providers, for each academic year from 2014-15 to 2023-24.

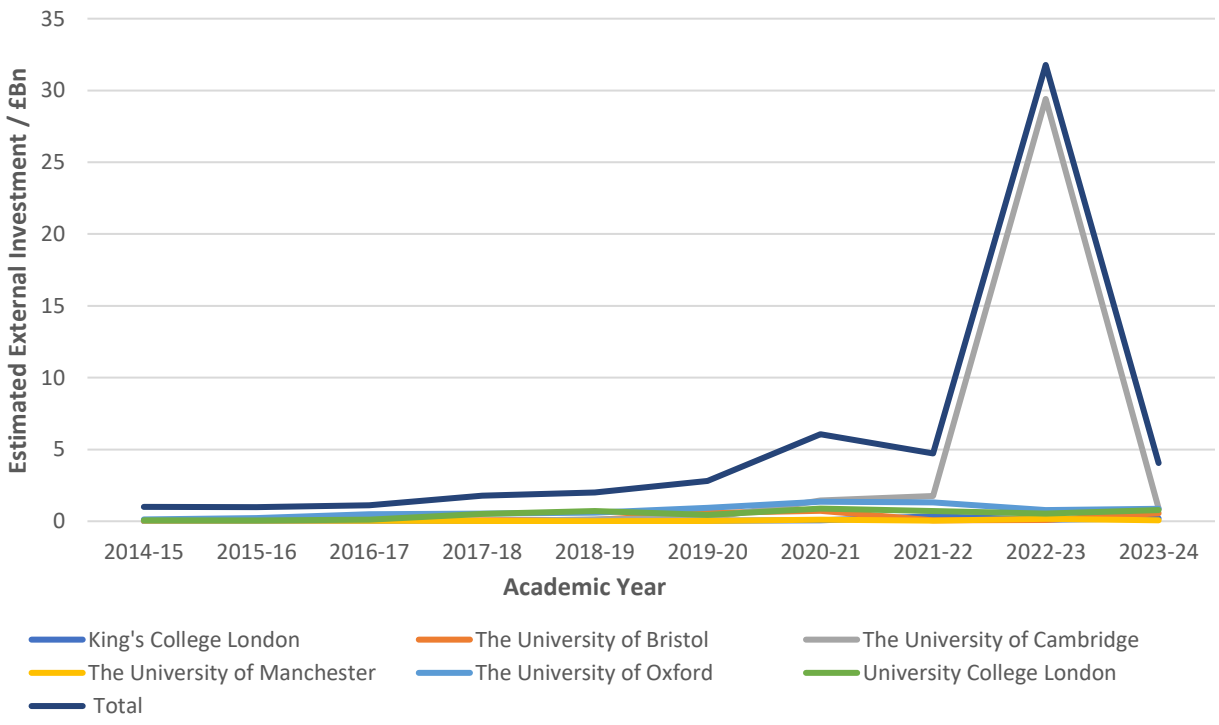
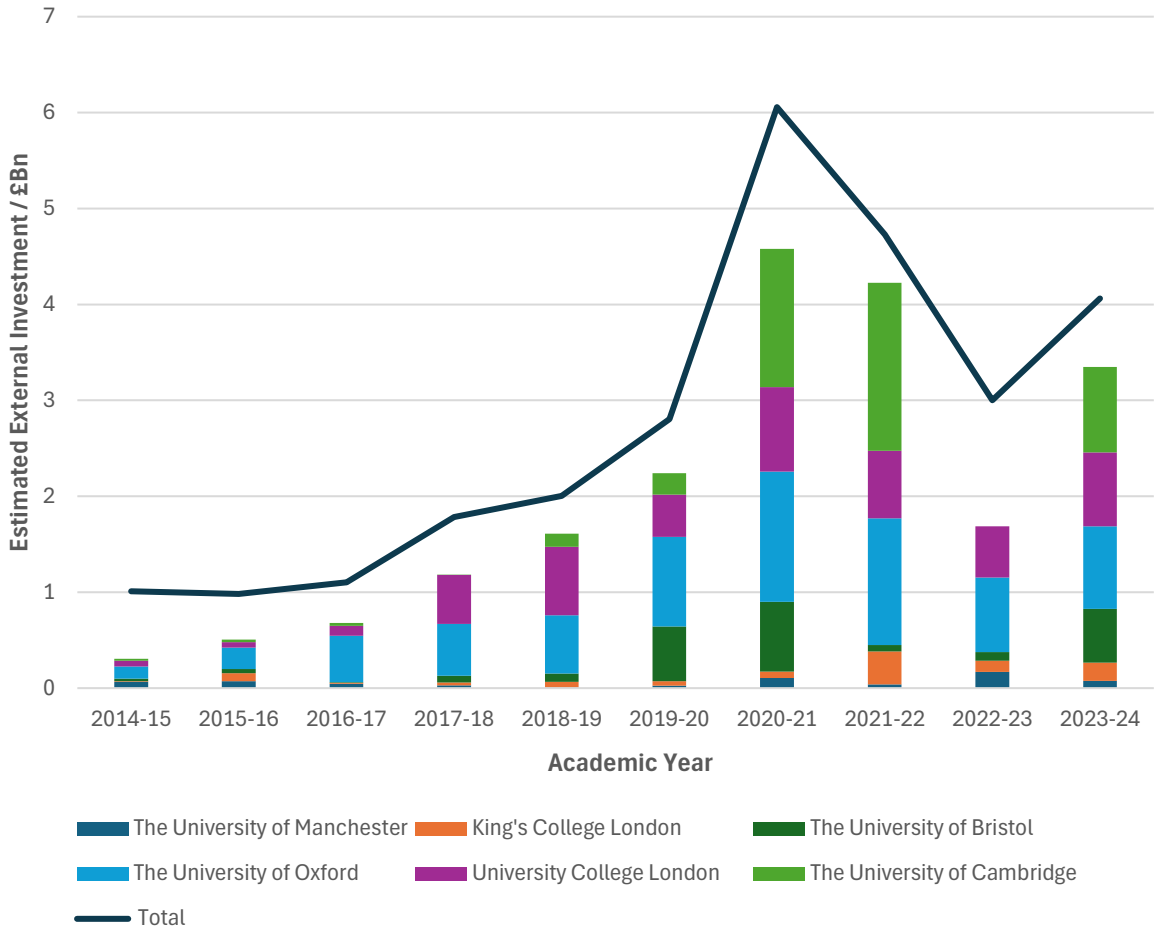


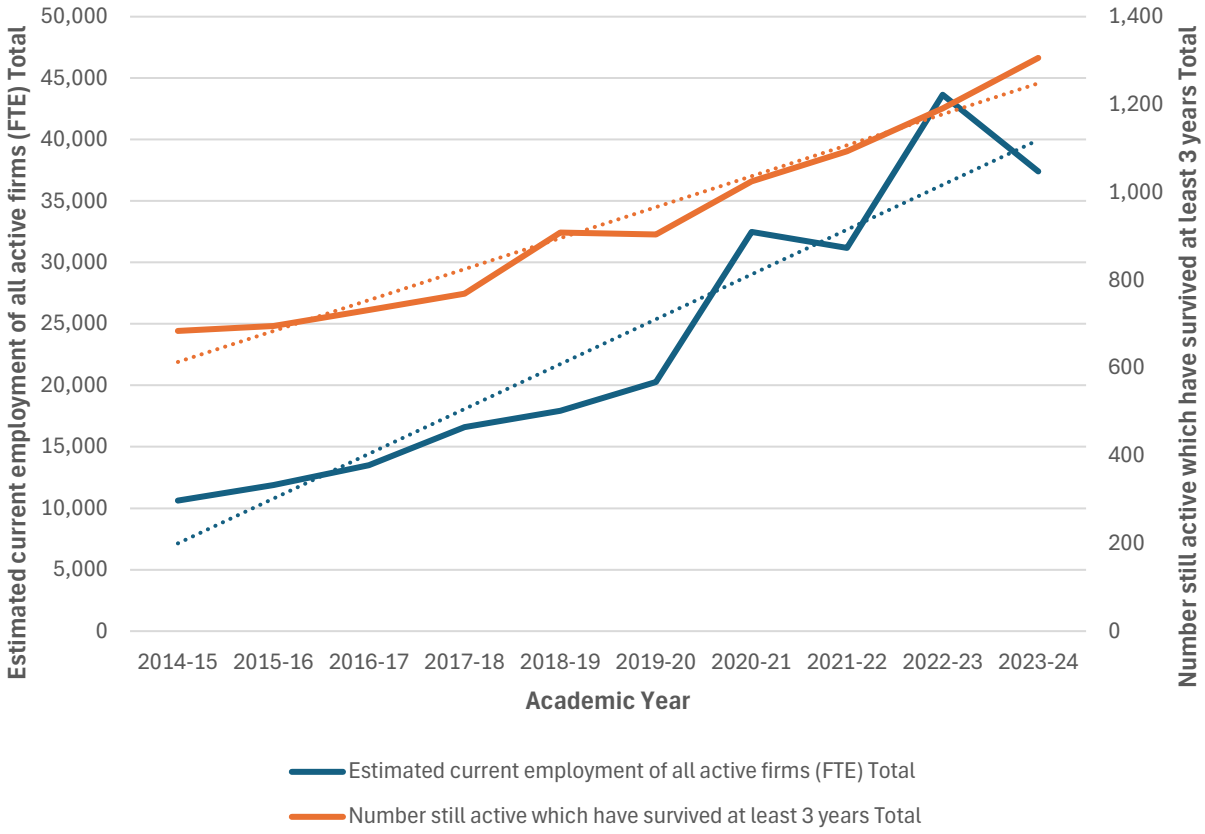
Figure 18b: Estimated real terms external investment received by all spin-outs totalled for all providers, and for individual providers, for each academic year from 2014-15 to

2023-24. (Extract from Figure 18 at a smaller scale, omitting the University of Cambridge from the sector total for 2022-23).



44. The total estimated current employment of all active firms may also be used as a partial indicator of the success of the spin-outs across the sector, although is also heavily influenced by the differing staffing requirements of different types of businesses. Total estimated current employment also decreased in 2023-24 by 14.3% following a substantial increase in 2022-23 of 39.9%. However, as shown in Figure 19, over the 10years between 2014-15 to 2023-24, estimated current employment has grown by a substantial 252% from 10,623 to 37,408. It should also be noted that large swings in this data should be anticipated as spin-outs are acquired or cease to be eligible for return. It should be noted that this area is dominated by a small number of companies and therefore it is more valuable to consider long term trends, rather than year-on-year changes.

Figure 19: Estimated employment and number of currently active spin-outs to have survived at least three years, for each academic year from 2014-15 to 2023-24.



45. Examining trends in employment and investment alongside each other may provide some, although limited, insights into the longer-term health of spinning out. The number of active spinouts surviving at least three years rose by 10% in 2023–24, from 1,191 to 1,306. Over the longer term, from 2014–15 to 2023–24, active spinouts surviving at least three years have grown by 91%, indicating a positive trend in university spinout survival rates. It should be noted, however, that these indicators are heavily influenced by institutional changes, as a small number of providers account for most of these trends. Nevertheless, these observations are indicative of overall spin-out quality as they are attracting substantial business investment suggesting confidence from business, employing more people, and creating more jobs.

46. In future years, the spinout register could provide valuable data on newly registered and active spinouts, enabling more granular analysis of early-stage activity and survival trends. Incorporating this source would strengthen insights into the pipeline of emerging spinouts and their progression over time.

Comparison of England with the UK

Key Findings:

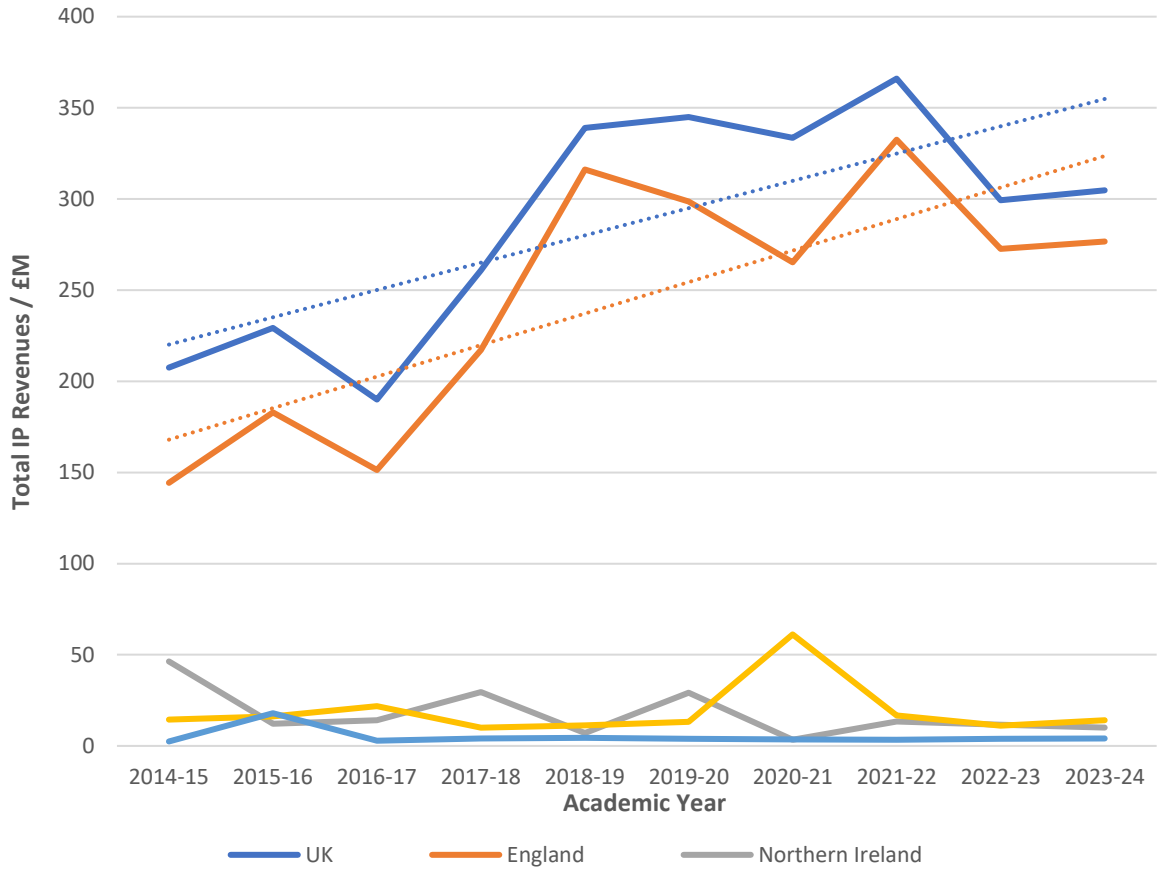
- IP income trends in England closely mirror UK-wide patterns, with both showing modest growth in 2023–24 and broadly similar long-term trajectories.
- Scotland and Wales experienced sharp year-on-year fluctuations and Northern Ireland continued a downward trend, these variations largely reflect the small number of providers and the influence of individual institutions.
- When normalised per provider, performance across nations is broadly comparable, though Northern Ireland consistently reports higher averages due to concentration at Queen's University Belfast.

47. It is also of interest to compare trends in IP behaviours, specifically income from IP, in England to that of the UK and the devolved nations in more detail. IP income increased for England to £277m and for the UK as a whole to £305m and on a similar scale in 2023-24 (increases of c.2% in both), there was a notable difference between the year-on-year changes in IP income for England and that of the other nations within the UK. Figure 20 displays total IP income for the UK as a whole, and each nation individually.

48. IP income in Scotland increased by 27.1% to £14m, a significant rise following a notable 35% decrease in the previous year. These fluctuations underscore the volatility of income generated from the sale of shares in spin-outs, which may not accurately reflect broader trends in overall IP income. Similar year-on-year variability is evident in Wales, as IP income rose by just 1.4% to £4m in 2023–24, compared to a 17.2% increase the year before. Northern Ireland, meanwhile, showed a more consistent downward trend, with a 14.3% decrease following a 12.6% decline in the previous year.

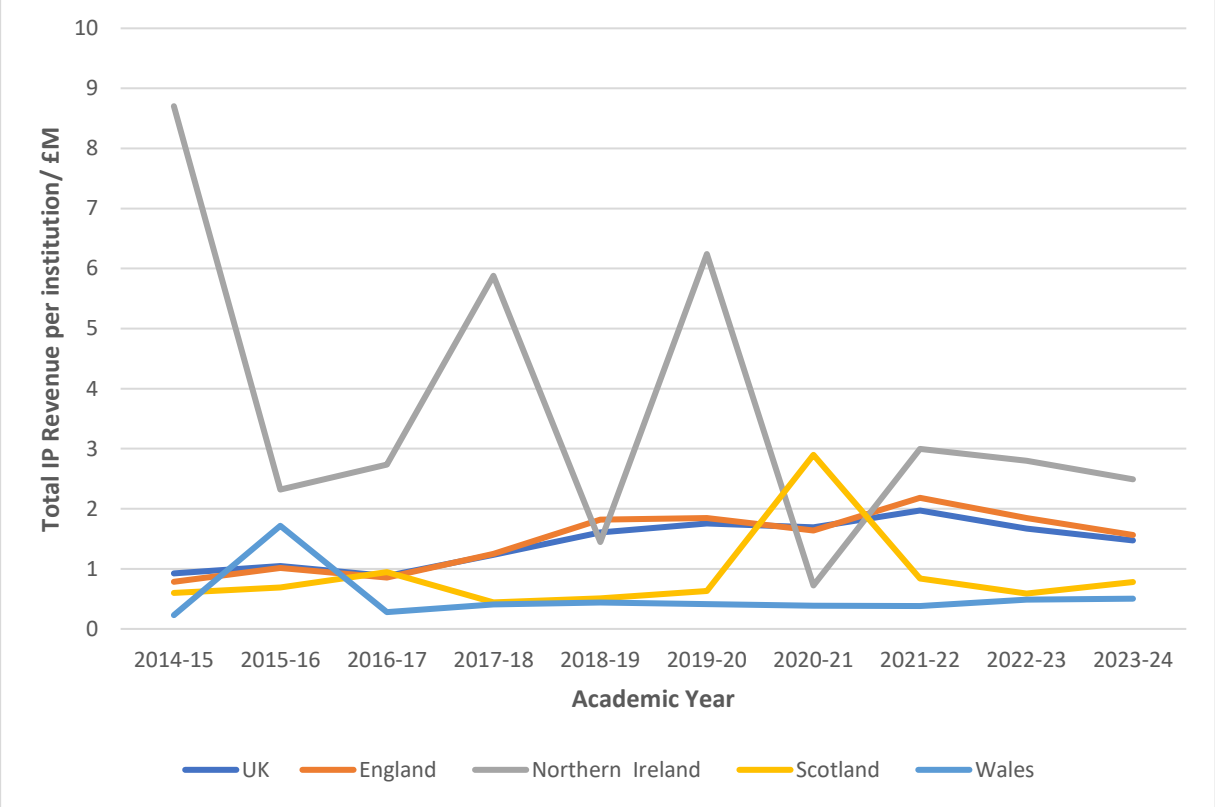
49. The overall trend in IP income in England and the UK since 2014-15 is broadly very similar as depicted by the trendlines in Figure 20. This could be argued to be the more representative measure of IP income due to the large fluctuations that can occur at an institutional level year-on-year as a result of the sale of shares in spin-outs, and following slightly differing effects during the Covid-19 pandemic in 2019-20 and 2020-21.

Figure 20: Total real terms IP revenue for the UK and the devolved nations for each academic year from 2014-15 to 2023-24.



50. While these figures do show differences between the nations of the UK, it is important to be mindful of the relatively small number of providers outside of England. When the total IP income for each nation is normalised by their respective total number of providers, similar trends and therefore performance is observed across England, Wales, and Scotland and therefore are more similar to that of the UK overall, as illustrated in Figure 21. Total IP income per provider in Northern Ireland is generally significantly greater than that of any other nations and the UK, other than in 2020-21 and 2018-19, and has always been dictated by fluctuating income to Queen's University Belfast.

Figure 21: Total real terms IP revenue per provider for the UK and the devolved nations for each academic year from 2014-15 to 2023-24.



51. The relatively small number of providers outside of England also means that institutional changes have a greater effect on the broader trends in the devolved nations. The total IP income for Queen's University Belfast is almost equal that of the Northern Irish total, and similarly the total IP income for Wales is predominantly that of Cardiff University. The total IP income for Scotland is less dependent on individual institutional changes, with the exception of the driving effect of the significant increase in income for the University of Dundee in 2020-21. Whereas in England individual providers have relatively a smaller impact on total compared to elsewhere in the UK due to the greater total number that generate revenue through IP.

IP-Related International Comparisons

Key Findings:

- Comparative analysis with US AUTM data shows the UK remains broadly competitive when research resource is considered. Despite lower overall resources, the UK demonstrates greater efficiency in generating spin-outs and patents, requiring fewer resources per output than the US.
- Patenting activity in the UK grew strongly in 2023–24, while the US saw a slight decline, and IP income trends over the decade indicate stronger growth in the UK.
- Industrial contributions to research have remained stable in the UK, contrasting with a decline in the US, underscoring sustained industry engagement. These findings highlight the UK's improving effectiveness in converting research into commercial and societal impact despite resource constraints.

52. Assessing the health of the UK's intellectual property (IP) and technology transfer ecosystem requires situating its performance within an international context. Comparative analysis helps identify strengths, gaps, and opportunities for improvement, ensuring that UK institutions remain competitive in global knowledge exchange and innovation. For this report, the United States has been selected as the primary comparator nation. This choice is driven by the availability and granularity of US data on technology transfer activities. The US maintains comprehensive datasets covering active institutions, licensing agreements, and related IP metrics, enabling robust benchmarking. In contrast, equivalent data for other countries is either limited or inconsistent, making meaningful comparison challenging. By focusing on the US, we can leverage detailed, reliable information to explore differences in scale, structure, and outcomes of IP-related activities. This comparison provides valuable insights into how UK universities and research organisations perform relative to a mature and well-documented technology transfer environment, informing policy and strategic decisions aimed at strengthening the UK's innovation landscape.

53. Commercialisation activities in the UK can be compared with that in the US by comparing HE-BCI data and elements of the OfS Annual Finance Return, with the US AUTM Licensing Survey. Reasonable caution should be taken when comparing this data, because the US AUTM surveys, UK OfS Annual Finance Returns and HE-BCI surveys are not identical, where different definitions and accounting periods are used.

54. UK data are collected by official bodies, HESA and the OfS. These data undergo a more comprehensive validation than data collected from the US, which are submitted to sector-representative bodies.

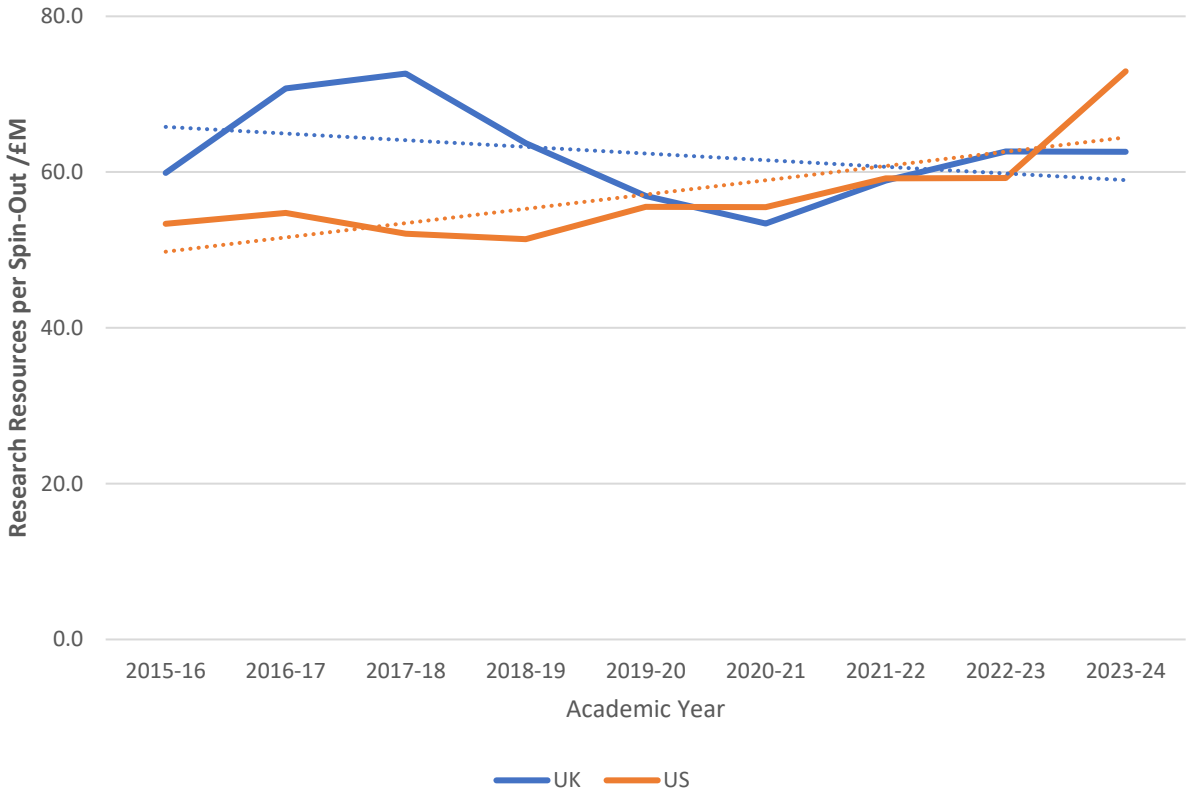
55. As the number and size of higher education providers (HEPs) varies between nations, some indicators are normalised using a measure of ‘total research resource’ as available (income from all sources to undertake research in the UK, or expenditure on research in the US). For example, the total research resource available is divided by the number of patents granted to give an indication of the research resource required per patent granted.

56. Comparisons of the UK and US data should be treated with caution. HESA/OfS data included in our analysis represents the entire UK HEP sector whereas the AUTM data used consists of a self-selected group (in 2023-24, 159 of the approximate 1,400 that comprise the whole sector). Consequently, the identity of the US providers contributing data varies each year, including providers with high volumes of activity and can make not insignificant contributions to the data. Thus, comparisons year-on-year should be treated as approximations, and longer-term trends having most value.

57. With these caveats in mind, Tables 1a and 1b below demonstrates that the UK continues to remain broadly comparable with the US when research resource is taken into account. However, total research resource for the US increased in 2023-24 by 15.9% to £58.4m and slightly decreased in the UK by 3.7% in 2023-24 to £10.0m. In both nations there has been a decrease in the numbers of spin-out companies formed, by 5.9% (to 800) in the US and 3.7% (to 160) in the UK.

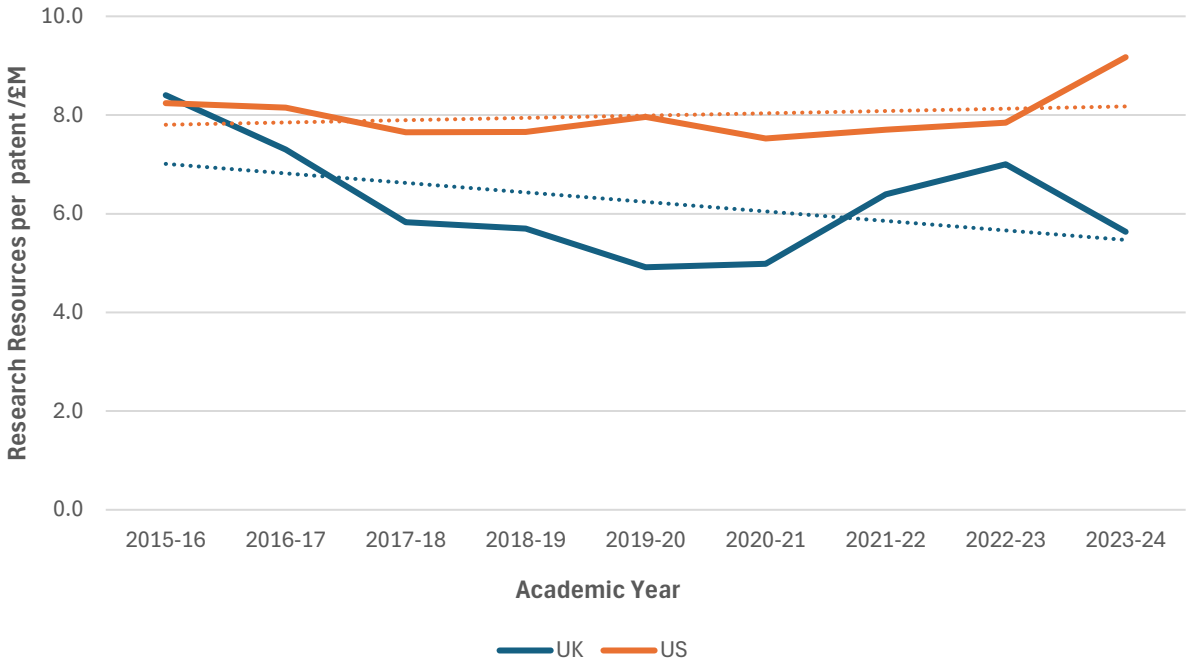
58. As shown in Figure 22 below, between 2022–23 and 2023–24, research resources per spin-out grew sharply by 23.2% in the US, while the UK saw a slight decrease of 0.1%, indicating relative stabilization. Over the longer term, from 2015–16 to 2023–24 however, the UK research resources per spin out has grown modestly by 4.5% whereas the US has shown larger growth throughout the period by 36.7%. This is a positive observation for the UK, as it suggests greater efficiency in generating spin-outs from its research base compared to the US.

Figure 22: Real terms Research Resources per Spin-Out for UK vs US for each academic year from 2015-16 to 2023-24.



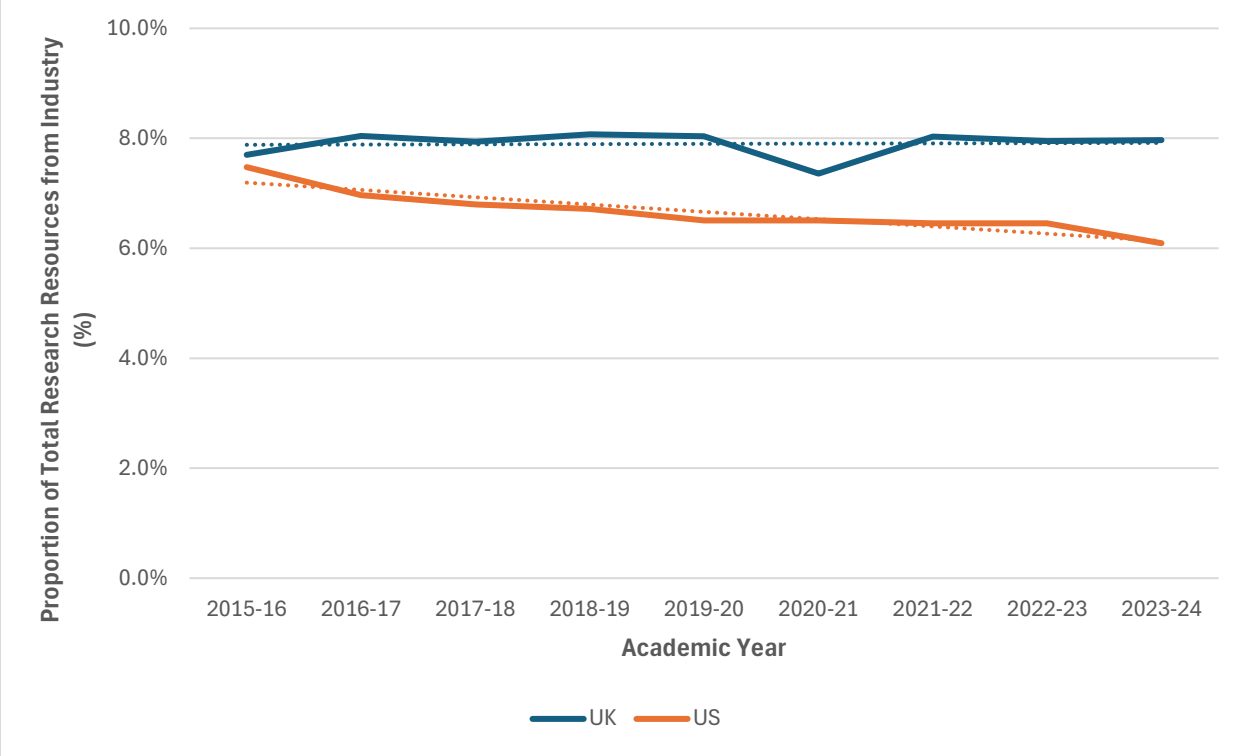
59. The UK's patenting activity increased by 19.8% in 2023-24 compared to a small decrease of 0.9% in the US. This is an improvement in patenting activity following decreases of 8.5% and 12.6% in the UK and US respectively in 2022-23. The research resource per patent of £5.6m remains lower in the UK than the £9.2m for the US, and the longer-term trends as shown in Figure 23 suggest that resources per patent in the UK are on a downward trajectory, having declined by 33% since 2015–16, while over the same period the US has seen an increase of 11.3%. Similar to the trend in the research resource per spin-outs, this is also a positive observation, as it indicates the UK is becoming more effective in producing patentable inventions from its research base, achieving outputs with comparatively fewer resources.

Figure 23: Real terms Research Resources per Patent for UK vs US for each academic year from 2015-16 to 2023-24.



60. As a proportion of total research resource, industrial contribution in the UK continues to compare well with the US, and UK has seen stability in the proportion of research resource from industry which remained stable at 8% in 2023-24. The US proportion of research resource from industry fell to 6.1% after being static at 6.5% since 2019. This stability in the UK is a positive observation, as it reflects sustained industry engagement in research funding, supporting collaboration and commercialization opportunities.

Figure 24: Percentage of Industrial Contribution to Total Research Resources for UK vs US for each academic year from 2015-16 to 2023-24.



61. Although IP-related activities are broadly similar in the UK and US, there is a notable difference in overall IP income. In 2023–24, the UK recorded a 1.8% increase in IP-related income, while the US saw a 5.4% decline. The UK's growth was driven primarily by the sale of shares in spin-outs, whereas the fall in US income reflects a reduction in cashed-in equity. Examining the longer-term trend from 2015–16, real-terms IP income has grown by 32.7% in the UK and 27.4% in the US. It will be important to monitor US trends in future years, particularly given the contrasting patterns in equity sale income. This sits within the context of the UK's total research resource increasing marginally by 0.2% to £10.02bn in 2023–24, compared with a substantial 20.2% rise in the US to £58.4bn.

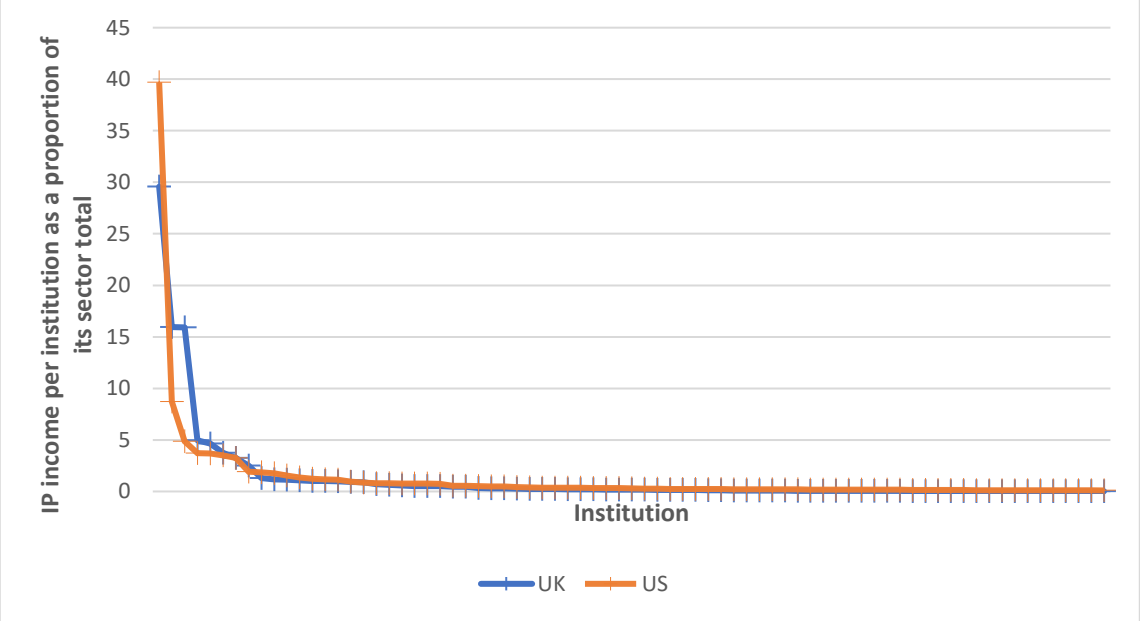
62. Whilst comparisons of the concentration of IP income in the US and UK are not straightforward, below is our attempt at analysing the two datasets. There are a number of caveats to this analysis which are discussed in more detail. There may also be further alternative ways of doing this not discussed here, such as comparing groups of universities with similar characteristics.

63. One consideration is again the self-selection of institutions that report to AUTM, as this sample potentially represents more providers that conduct a larger amount of IP-related

activity and therefore are more likely to opt to submit data. However, it is a reasonable assumption that most institutions in the US sector with significant IP incomes will have opted to report to the AUTM licensing survey, and therefore comparing an absolute number of institutions in the UK and the US serves as a reasonable approximation for comparing the distribution of activity amongst those who are likely to be active in this area. In addition, the differing size and nature of research funding in the UK and US should be considered. The distribution of IP income in both countries is generally concentrated in large, research-intensive institutions.

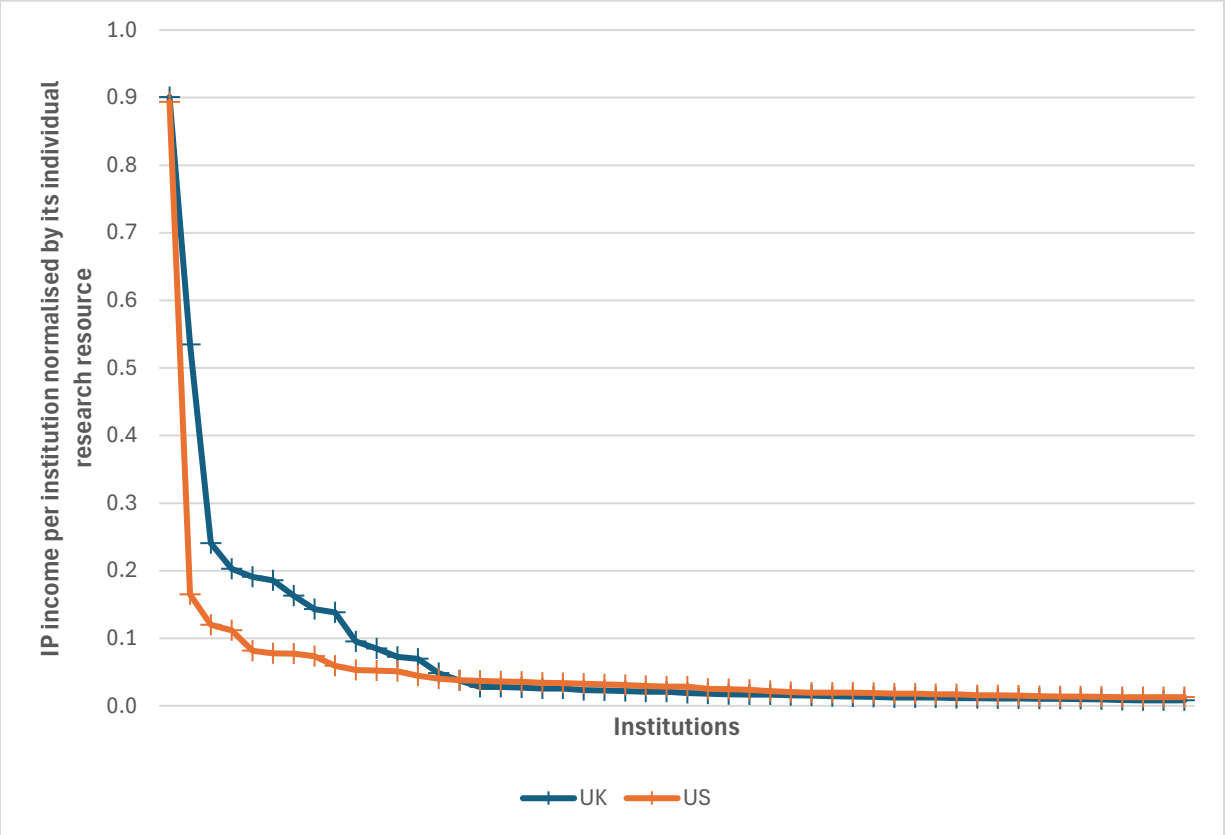
64. When considering an equal sized sample from each country, Figure 25 below demonstrates that this concentration of IP income is more apparent in the UK than in the US. In 2023-24, 86.3% of the UK's IP income was attributed to 13 institutions, compared with the top 13 institutions contributing 77.1% to the national total in the US. This represents a slight increase in concentration compared with 2022-23, when the top 13 institutions in the US contributed 76.3%. Similarly, the concentration of IP income in the UK continues to be apparent when looking at a smaller sample of the most active providers, as 66.4% of the UK's IP income was attributed to 4 institutions in 2023-24 compared with 57% in the US. It should be noted that this sample reflects only a small proportion of the US sector, in comparison to the UK, and therefore overall, it is likely that the concentration of IP income across the whole sector in the US is more pronounced than in the UK.

Figure 25: IP income per institution, for the 75 institutions with the greatest IP incomes, as a percentage of its sector total for the UK and the US in 2023-24.



65. The IP income for each institution can be normalised by its research resource in order to provide a more balanced comparison of the concentration of IP income in the US and UK sectors. Figure 26 suggests that when the structural differences of institutions are taken into account, IP income in 2023-24 remained slightly more concentrated in the UK than in the US based on the institutions submitting data (particularly when looking beyond the couple of highest contributing institutions). When comparing this analysis to that in our previous publication, it is important to emphasise that the identity of the institutions submitting to AUTM varies year-on-year and therefore can contribute to any changes in trends.

Figure 26: IP income per institution normalised by its individual research resource in 2023-24, for the 50 institutions with the greatest normalised IP incomes, in the UK and the US[8].



[8] Two US institutions with exceptionally high IP income - exceeding their total research resources and representing statistical outliers, have been excluded from this list.

Table 1a: Real-terms Commercialisation activity for the US 2015 - 2023

US Financial Year (AUTM)	Total research resource (£M)	IP income including sales of shares in spin-outs (£M)	IP income as percentage of total research resource	Spin-out companies formed	Research resource per spin-out (£M)	Patents granted	Research resource per patent (£M)	Industrial contribution (£M)	% industrial research	US cashed-in equity (£M)
2015	50,470	1,559	3.1%	946	53.4	6124	8.2	3,773	7.5%	57.7
2016	52,033	1,555	3.0%	950	54.8	6385	8.1	3,624	7.0%	197.7
2017	51,633	1,646	3.2%	991	52.1	6751	7.6	3,510	6.8%	56.2
2018	51,749	1,190	2.3%	1007	51.4	6761	7.7	3,474	6.7%	61.1
2019	53,005	1,082	2.0%	954	55.6	6659	8.0	3,450	6.5%	96.9
2020	56,058	1,350	2.4%	1010	55.5	7450	7.5	3,646	6.5%	145.4
2021	56,550	1,485	2.6%	955	59.2	7343	7.7	3,648	6.5%	305.1
2022	50,338	2,100	4.2%	850	59.2	6417	7.8	3,250	6.5%	181.3
2023	58,351	1,986	3.4%	800	72.9	6362	9.2	3,555	6.1%	74.4

Table 1b: Real-terms Commercialisation activity for the UK 2015/16 – 2023/24[9]

Academic Year	Total research resource (£M)	IP income including sales of shares in spin-outs (£M)	IP income as percentage of total research resource	Spin-out companies formed	Research resource per spin-out (£M)	Patents granted	Research resource per patent (£M)	Industrial contribution (£M)	% industrial research	UK Sale of spin-out shares (£M)
2015-16	9,866	221	2.2%	171	57.7	1,219	8.1	759.6	7.7%	45.0
2016-17	9,834	184	1.9%	143	68.8	1,386	7.1	791.1	8.0%	45.4
2017-18	10,039	253	2.5%	142	70.7	1,770	5.7	796.7	7.9%	54.6
2018-19	10,336	329	3.2%	167	61.9	1,867	5.5	834.4	8.1%	80.3
2019-20	10,018	347	3.5%	175	57.2	2,027	4.9	804.9	8.0%	98.3
2020-21	10,264	331	3.2%	194	52.9	2,078	4.9	755.2	7.4%	101.7
2021-22	10,360	366	3.5%	176	58.9	1,622	6.4	831.9	8.0%	95.1
2022-23	10,371	299	2.9%	166	62.5	1,485	7.0	824.4	7.9%	47.0
2023-24	10,017	305	3.0%	160	62.6	1,779	5.6	798.0	8.0%	61.1

'IP' = 'intellectual property'.

[9] Values in the table for a given year may vary from that included in this report in previous years, as the table is reflecting the most recently updated published data.

Further notes on Table 2 data

66. AUTM data used in Table 2 was extracted on 09 April 2025.

67. The exchange rate used is the Purchasing Power Parity (PPP) adjusted exchange rate published by the OECD. The US dollar ($) to GB Pound (£) conversions for 2015 - 2023 are summarised below:

    - 2015: $1.444 to £1
    - 2016: $1.452 to £1
    - 2017: $1.465 to £1
    - 2018: $1.455 to £1
    - 2019: $1.462 to £1
    - 2020: $1.451 to £1
    - 2021: $1.477 to £1
    - 2022: $1.536 to £1
    - 2023: $1.464 to £1.

68. Note that previous international comparisons published by HEFCE in 2017 used a different methodology and as such, the published numbers for AY15-16 will differ slightly from those presented here.

69. We use data from the AUTM Statistics Access for Technology Transfer database, for US universities only, AUTM category 5U excluding hospitals and institutes that appeared in this category for 2019 only in order to maintain reasonable consistency with previous years.

70. AUTM allows for confidential returns, which have been excluded from the figures presented here. Their exclusion does not have a significant effect on the key indicators.

71. The start-up companies defined in the AUTM survey are those dependent on institutions' technology for initiation and so are equivalent to the spin-out companies recorded in the HE-BCI survey. Research expenditure is taken over the fiscal years and is taken as being the available resource for US universities.

72. Income from cashed-in equity is recorded in the AUTM survey and is assumed to be broadly equivalent to the income from the sale of shares in spin-out companies collected in the UK HE-BCI survey. For further information about the AUTM survey see https://autm.net/surveys-and-tools/databases/statt

73. The total number of UK HEI spin-out companies in Table 2 is derived from the HE-BCI survey, including those companies with some HEI ownership and those that use HEI-generated IP (formal spin-outs).

74. UK HEIs are free to use their total (research and teaching) block grant funds from funding councils for either research or teaching as they feel appropriate. Since full expenditure details for the block grant are not collected, it is assumed in this calculation that all of the research block grant funds and other research income are spent on research.

75. For the UK, HESA data on research income from industry, commerce and public corporations from UK and overseas sources is used to give the industrial contribution. For US universities, expenditure from industry is used.

Annex A: GDP deflator data

76. A series for the GDP deflator in index form is produced by the Treasury from data provided by the Office for National Statistics (ONS), in this report the following GDP deflator rates (28 March 2025)[10] were used.

- 2015: 75.12
- 2016: 76.59
- 2017: 78.02
- 2018: 79.51
- 2019: 81.21
- 2020: 85.43
- 2021: 85.31
- 2022: 89.94
- 2023: 96.15
- 2024:100

77. A series for the GDP implicit price deflator in index form is produced by the U.S. Bureau of Economic Analysis (BEA). For this report, the following GDP deflator rates were used, retrieved from FRED, Federal Reserve Bank of St. Louis - Gross Domestic Product: Implicit Price Deflator [GDPDEF], (1 December 2025)[11].

- 2015: 79.52
- 2016: 80.27
- 2017: 81.71
- 2018: 83.58
- 2019: 84.96
- 2020: 86.09
- 2021: 90.01
- 2022: 96.43
- 2023: 100

[10] https://assets.publishing.service.gov.uk/media/67e698bcb79d8c9841eaddcc/GDP_Deflators_Spring_Statement___QNA_March_2025_update.xlsx

[11] U.S. Bureau of Economic Analysis, Gross Domestic Product: Implicit Price Deflator [GDPDEF], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPDEF , December 1, 2025. The values were rebased from the original 2017 reference year to 2024 for consistency with UK data.