

Understanding a research-intensive university's business model for educating students

- 1.1 Russell Group universities are educating the skilled workforce of the future and producing world-class research and innovation to deliver advances in knowledge and technology that will help drive economic growth and productivity. Their positive impact is felt in local communities and across the UK, acting as anchor institutions for a wide range of other economic, social and cultural activity. However, delivering these benefits is becoming increasingly challenging as the costs of delivering higher-quality education and impactful research are not being met by funding from tuition fees and government grants.
 - (a) For research: In 2014/15, on average UK universities received 76% of the full cost of research from funders, this dropped to 69% in 2021/22. Consequently, **UK universities invested £2.9bn to subsidise research activity in 2014/15 and £5bn in 2021/22.**
 - (b) For education: In 2022/23 UK students paid, on average, less in fees than it cost for universities to deliver their courses. Our modelling shows that on average it cost £23,500 a year to educate a student studying medicine; £14,000 for STEM courses such as engineering and £10,500 for those in classroom-based subjects such as history.
 - (c) **We estimate that English universities supplemented the cost of undergraduate education by an average of £2,500 per student per year in 2022/23.** Without a change in government policy and with fees capped at £9,250 per year, we conservatively project this to increase to £5,000 per student per year by 2029/30.
- 1.2 Universities subsidise education and research with surplus-making activities, primarily the teaching of international students. This paper describes the current university business model including the main areas of spend on education and explores why universities cannot meet the rising level of subsidy required simply by reducing costs in education without impacting on the quality. For example:
 - (a) reducing salaries would impact the university's ability to retain and attract talented staff,
 - (b) reducing spend on maintenance would be detrimental to the learning environment,
 - (c) reducing spend on support services would impact students' well-being and outcomes,
 - (d) reducing scholarships and bursaries would impact the most disadvantaged.
- 1.3 The paper explores the challenges our universities face in trying to cover the rising level of investment required in other ways and why, at the scale that is likely to be needed in future, these are highly impractical or even impossible. For example:
 - (a) **increasing efficiencies** will not cover the deficit unless the business model of the university changes radically,
 - (b) **increasing international student numbers** is possible but there are practical limits for universities and their communities, and doing so increases organisational risk,
 - (c) **increasing other income sources** is possible but the scale of what could be achieved is likely to be insufficient, income would typically be restricted to new activities, and these sources are not reliable enough in the long term or require significant investment.
 - (d) **using surpluses** draws from investment needed to remain competitive,
 - (e) using **unrestricted reserves** is a short-term possibility to cover losses in some circumstances but requires selling off assets and is, therefore, only a one-off solution.
- 1.4 Universities cannot address increasing pressures and continue to deliver the same level of benefits to students and the UK without additional investment. **A more sustainable approach to funding higher education is therefore needed – one that can offset the impact of inflation on the unit of resource, and one that is fair and affordable for students and taxpayers, while safeguarding the pipeline of science, skills and innovation necessary for the growth and prosperity of the UK economy.**

2. The current research-intensive university business model

- 2.1 Research-intensive universities generate income primarily from tuition fees, government grants and in part through philanthropy¹ and commercial activities. This is used to fund research, teaching, and civic responsibilities. It is now rare for universities to be able to meet the cost of educating UK students and performing research activity from the income they receive to deliver these activities. Universities subsidise the remainder of the cost through activities that generate a surplus – primarily fee income from teaching international students.
- 2.2 This is at the core of the research-intensive university business model in the UK and in many other leading countries such as the USA, Canada and Australia. It means the financial sustainability of our universities relies for the most part on our competitiveness internationally and a stable geopolitical environment. As charities, universities do not have shareholders; all surplus is used to support university activity.
- 2.3 For research activity, while we recognise the importance of organisations having a financial interest in research outcomes, the escalating level of subsidisation by the university is making it hard to sustain the same level and quality of research activity. **In 2014/15², on average UK universities received 76% of the full cost of research from funders, this dropped to 69% in 2021/22³. Consequently, UK universities invested £2.9bn to subsidise research activity in 2014/15 and £5bn in 2021/22.**
- 2.4 For education, until 2015/16⁴, educating UK undergraduate students was, on average, fully funded through a combination of government grants and student fees – although even then, some institutions were having to cross-subsidise elements of their provision. However, **our latest modelling suggests that in 2022/23 English universities on average supplemented the cost of educating each UK undergraduate student by £2,500 per year. Without an increase in financial support, we conservatively project this to increase to £5,000 per student per year by 2029/30⁵.** This is being driven by student fees and government grants not increasing in line with inflation and does not account for the expected increase in demand for support services and digital provision or educating more UK 18-year-olds in future years.
- 2.5 While UK universities do not charge differential fees at undergraduate level, the average cost varies across subjects due to different requirements in terms of staff contact hours, facilities and equipment. For example, we estimate that **on average in 2022/23⁶ it cost £12,500 per year to educate one undergraduate student in England** but it cost on average:
- (a) £23,500 to educate a student studying a subject such as medicine,
 - (b) £14,000 to educate a student studying STEM subjects such as engineering,
 - (c) £10,500 to educate a student studying classroom-based subjects such as history.
- 2.6 This means that, on average across all subjects, undergraduates pay less in fees than it costs to deliver their courses. In universities offering high-quality provision, these costs will

¹ In 2021/22, income from donations and endowments was less than 2% of total income. Most universities would need to spend similar amounts or more on their development teams to meaningfully increase this income stream. TRAC 2021/22.

² TRAC 2014/15

³ TRAC 2021/22. Note: Price Group A is slightly higher at 73%. The reasons for this are unknown.

⁴ TRAC 2015/16

⁵ Assumptions: it costs on average £11,000 to teach each undergraduate student per year in England in 2019/20 (TRAC data and ratios from KPMG [report](#) 2014); costs rise each year by a combination of pay inflators and CPI; the income from capital grants, undergraduate fees and the SPG increase as agreed until 2023/24 and then are constant in cash terms.

⁶ Calculated based on 2019/20 OfS [published](#) costs, accounts for the difference in UG and PGT using cost ratios from a 2014 KPMG [report](#) and assumes that costs rise each year in line with a combination of pay inflators and CPI.

often be notably higher than the sector average due to the smaller classroom sizes, state-of-the-art equipment and facilities and the student support services provided.

- 2.7 Funding pressures in the devolved nations mirror and often exceed those in England. **In Northern Ireland, higher education funding has decreased by 40% between 2010/11 and 2021/22, with an additional 10% cut in the 2022/23 settlement. In Wales, the undergraduate tuition fee is capped at £9,000 resulting in a shortfall of £22m in fee income for the Welsh sector in 2020/21 compared to England. In Scotland, government funding per Scottish student has fallen by £2,325 per student in real terms between 2014/15 and 2021/22, and there was a funding gap of £4,000 to £7,000 per student in 2022/23, depending on the subject studied⁷.**
- 2.8 The increasing financial burden on universities for both research and education is unsustainable, especially as the demand for higher education rises⁸. Without policy change, universities may be forced to make a range of difficult and potentially unpalatable choices, such as reducing the number and types of courses available across all disciplines, increasing international student intakes, and/or cutting back on research. The sections below discuss why such options may be necessary given the limited options to reduce spending without impacting quality or employ alternative ways to subsidise education costs.

3. The five areas of spending essential to high-quality education

- 3.1 In this section we examine the five core areas of spend that make up the cost of delivering high-quality education. We also set out why reducing spend in these areas is likely to reduce the quality of provision, which could impact the international ranking of our universities and therefore their ability to attract international students and generate income in the future to reinvest in education and research. Ultimately, reduced quality would be to the detriment of UK skills, with resulting impacts on productivity and the economy.
- 3.2 The five areas that make up spend on educating students are described below. Approximately 60% of a university's spend on education is on salaries. The other 40% is made up of maintenance and running costs, IT and digital services, support services and regulation and scholarships and bursaries⁹. The proportion of the cost made up by each will vary across institutions.

Salaries

- 3.3 Currently, **academic, technical and professional services staff salaries account for around 60% of university spending on undergraduate education.** Employing leading experts who integrate cutting-edge research into teaching is highly valued by students¹⁰. This fosters a unique learning environment where students can learn from the best and contribute to new knowledge and innovation. Academic staff are responsible not only for teaching but also assessment, and pastoral care and will often be performing their own research, knowledge exchange and civic activities. To attract and retain these high-performing, versatile professionals, universities must offer competitive salaries, state-of-the-art research facilities and non-pay benefits.
- 3.4 In the future, there will be increased competition for highly qualified staff as research organisations globally invest in improving their offer to attract talent. Previously we struggled to compete with the US, however, increasingly countries like Germany, Australia, New

⁷ [Higher education in Scotland: Funding shortfalls, off-quota students and research blockages](#), HEPI, Dec 2022

⁸ UCAS predicted that a population bulge would result in a 30% increase in demand for university places by 2030, [Journey to a million](#), UCAS, March 2023

⁹ Russell Group estimate based on interview with CFOs

¹⁰ [The Teaching-Research Nexus](#), The British Academy, June 2022

Zealand, France, the Netherlands, and Italy are attracting UK researchers by investing in their facilities and offering more competitive packages. We are also losing professional services staff including finance professionals to the private sector. As highlighted in **the Office for Students (OfS) 2023 financial sustainability report¹¹**, **UK universities will need to invest rather than cut spend to attract and retain the world's best talent.**

Maintenance and running costs

- 3.5 Running and maintaining education spaces and facilities is the second largest expenditure category for universities, covering lecture theatres, libraries, labs, and other amenities. Our universities' running costs are notably high due to state-of-the-art labs, extensive physical and digital resources, special collections, learning support options, and realistic simulated facilities. For instance, **the University of Edinburgh spends approximately £7m annually on energy alone for their Advanced Computing Facility.** Universities face significant cost pressures in this area but, unlike businesses, they cannot pass these costs onto consumers.
- 3.6 To give a sense of scale, we understand a general principle suggests allocating at least 3% of asset resale value for annual maintenance expenses. As an example, **a medium-sized Russell Group university with a £500m education estate would need to allocate £15m per year for running costs and maintenance, which is equivalent to the income from 1,600 UK students paying the maximum fee.** Due to constrained resources, many universities will end up allocating less than needed. As a comparison, the government annually spends 14% of the value of its £158bn estate on maintenance¹².
- 3.7 In addition to maintenance, many Russell Group university campuses are comparable in size to a small village¹³, or even a small town in terms of staff and student numbers, necessitating significant additional services such as shops, waste disposal, security, and transportation.
- 3.8 Funding pressures and the impact of Covid-19 have led to the postponement of maintenance work, resulting in a backlog that must be addressed to provide the best environment for students. However, universities are now faced with increased costs due to inflation, energy prices, and supply chain expenses, and government support is not of the right scale to address the need¹⁴. In addition, our universities have concerns about the spending required to update their facilities in line with international standards and to meet student expectations and needs. More information on this is in the annex of this paper. Cutting spending on maintenance would risk our ability to provide university estates that are safe, a conducive learning environment and remain internationally competitive.

IT and digital services

- 3.9 In recent years, spending on IT services has rapidly increased in response to rising student expectations and the need to adapt to a changing digital landscape. Universities are now expected to provide hybrid learning options, digitised course materials, and will need to respond appropriately to new technologies like generative AI and significantly enhance their cybersecurity to ensure the safety of their students and staff. For example, **one member is expecting to spend £2m alone to digitise their archives to make them more accessible for students.**

¹¹ [Financial sustainability of higher education providers in England](#), May 2023

¹² [Government plans to manage UK-wide property portfolio lacking ambition and out of date](#), Dec 2022

¹³ For example, Nottingham campus has an internal area of 0.7km²

¹⁴ In 2020/21, the OfS provided the university sector in England with only £147m to cover capital costs. This is a reduction compared to the years before the increased fee limit. The largest difference is a 70% reduction between 2009/10 and 2020/21. The policy rationale for a decrease in capital support was that universities would be able to cover the costs with the surplus they would make through the increased domestic fee, for most this is no longer possible.

- 3.10 Universities need upfront capital investment to update their digital provision and services, including their outdated back-office functions. This would enable them to be more responsive, improve performance while lowering costs, and compete in a quickly moving global market. **One member noted that between 2018 and 2022, they increased their spending on IT and digital provision by c.160% to £24m and they are expecting this to increase by at least another 45% over the next five years.** Despite the need, universities have not been able to transform their IT and digital services at the necessary rate due to financial constraints. As noted in EY's report on financial sustainability, the solutions universities are implementing "often involve cheap, tactical, point solutions rather than strategic transformation of the student and staff experience¹⁵".
- 3.11 To keep pace with technological developments and offer students the cutting-edge learning environment associated with high-quality education provision, universities will need to increase spend in this area. They will also need to respond to external changes for example, journal costs are expected to rise. One member is reporting this will increase their spend by over 50% to £8m over the next five years. Cutting IT and digital services would therefore not be a viable option for cost reduction. Indeed, as this activity is not fully funded by other sources increased surpluses will be needed but we would expect this investment to result in cost savings in the long term.

Support services and regulation

- 3.12 Universities allocate a portion of their income to services that support students during their studies and prepare them for future success. This investment is effective, with **84% of Russell Group university graduates in employment or further study 15 months after graduation¹⁶.** Investment in services includes funding the student union, careers services, counselling, mental health support, and administrative costs related to delivering undergraduate courses. In addition, there are mandatory costs associated with complying with an array of requirements from different regulatory bodies.
- 3.13 Spending in these areas has increased, driven by the demand for mental health and well-being support and regulation requirements. For example, **one Russell Group member currently spends upwards of £17m a year on student support, experience, and enrichment. This is a significant increase from 5 years ago and has been driven by demand for mental health and well-being services.** The burden of regulatory compliance has also increased in recent years and this has inevitably impacted costs. For example, one member has estimated that a recent change in requirements by the OfS for universities to retain assessed work for five years will incur set-up costs of around £5m and annual running costs of £1m.
- 3.14 In the future, universities expect the demand for support services to increase and this will only be exacerbated by capacity issues in the NHS. As universities aim to increase the number of widening participation students, they anticipate higher spending to provide diverse support and ensure successful student and staff experiences, meaning universities will need to increase rather than cut spend in this area.

Scholarships and bursaries

- 3.15 In 2021/22 English universities spent £700m on scholarships and bursaries for undergraduate students, Russell Group universities made up £336m of this spend. When the undergraduate student fee limit was increased in 2012/13 to £9,000 there was an expectation that universities charging the higher fee (£9,000 instead of £6,000) would spend

¹⁵ [How are you balancing the books for a digital future?](#), EY, May 2023

¹⁶ 84% of Russell Group full-time undergraduates who responded to the HESA graduate outcomes survey in 2020/21 were in full-time employment or full-time further study, or employment and further study 15 months after graduation.

a proportion of this on access and participation - primarily scholarships and bursaries¹⁷. **In 2012/13 English Russell Group universities spent 24% of the higher fee on access and participation activities (which included scholarships and bursaries), in 2021/22 they spent 134% of the higher fee in real terms¹⁸.** This increase is partly driven by a commitment from Russell Group universities to this area of activity but mostly by inflation driving down the value of the fee.

- 3.16 The investment our universities are making is driving progress in this area; across all English Russell Group universities, the proportion of students from the least represented areas starting full-time undergraduate courses increased each year between 2018/19 and 2021/22¹⁹. Our members have set ambitious targets to further improve progress and a reduction in spending would have a direct consequence on access and outcomes.²⁰ Given the educational inequalities exacerbated by the pandemic and cost of living pressures, particularly affecting disadvantaged learners, this work is becoming even more important.

4. Other possible cost-cutting measures and limitations

- 4.1 This section outlines other ways in which universities might look to find the funds necessary to supplement undergraduate students outside of making cuts to areas of spend as outlined above and explains the limitations of these options.

Increasing efficiencies

- 4.2 During the Covid-19 pandemic universities reviewed their efficiency and reduced costs through a range of activities. Specific measures in place at our universities include purchasing consortia, centralisation of decision-making and services, process automation, and resource sharing with other universities. **For example, the University of Exeter shares campuses, residences, and services with Falmouth University, and King's College London relocated their IT services to Newquay.**
- 4.3 All of our universities continue to seek opportunities for efficiencies, but it will be increasingly difficult to make notable additional savings without significantly changing their business models and radically cutting staff numbers which would impact outputs, international competitiveness and returns to the economy. **The OfS supports this conclusion, noting that further efficiencies “will require substantial investment in IT and infrastructure over many years”²¹,** while EY's financial sustainability report highlighted that “financial sustainability will not be achieved by merely trimming the academic payroll, using contractors, re-organising internally or paring back on professional services.”²²

Increase income from other sources

- 4.4 The largest surplus-generating activity by far for universities is tuition fee income from educating international students. As described in Section 2, this cross-subsidisation is at the core of the research-intensive university business model, meaning the financial sustainability of universities is closely linked with international student recruitment. In the short term, this is where universities can be most agile, but there are inherent risks of increasing reliance on one, potentially-volatile, income stream to support the UK's domestic education and research activity which can be affected by other policy decisions around visas and immigration, or

¹⁷ In 2021/22 English Russell Group universities spent £0.5bn on access and participation, 66% of this spend was on scholarships and bursaries

¹⁸ Russell Group analysis of HESA data, 2012/13 and 2021/22

¹⁹ Furthermore, the ratio between students from the most and least represented areas fell by 22% over this period (from 6.7:1 to 5.2:1. Access and Participation OfS data, 2021/22

²⁰ For more information you can read our 2023 Pathways for potential [report](#)

²¹ [Financial sustainability of higher education providers in England](#), OfS, May 2023

²² [How are you balancing the books for a digital future?](#), EY, May 2023

wider geopolitical shifts²³. Progress in diversification is being made but competition for international students is fierce globally and delivering change is a long-term strategy that also requires support from the government²⁴.

- 4.5 Whilst there are other income streams that universities could try and increase, these are either unlikely to reach the scale needed to cover the anticipated level of subsidy (e.g. renting out lecture theatres), are restricted to new activities that would need to be funded from the income (e.g. philanthropy), are not predictable enough to rely on for long-term planning (e.g. postgraduate taught student recruitment), or require significant upfront investment with long lead times (e.g. increasing commercialisation activities).

Use surpluses

- 4.6 Universities do not have shareholders and therefore invest their surpluses for the benefit of the institution. Surpluses are often accrued over time and then used either to support students, staff and university activity during income shocks such as Covid-19; or more commonly invested back into the university. Surpluses will be invested in activities that cannot be funded in full through other sources but are essential to maintain the international competitiveness of an institution. For example, building state-of-the-art facilities, infrastructure or pump priming innovative, novel R&I that is not yet ready for external funding. In recent years, due to reductions in government funding, universities have increased borrowing to support this essential spend. Going forward, surpluses will be required to pay back what was borrowed and, as the cost of borrowing increases, investment through this route will become less viable. In addition, year-on-year fluctuations such as pension provision changes, mean surpluses cannot be relied on to cover reoccurring running costs.

Use unrestricted reserves

- 4.7 Unrestricted income and expenditure reserves represent the accumulation of past surpluses for universities. However, these reserves are typically not held in cash as they have already been invested in capital programs such as buildings and equipment. Accessing these reserves would require selling off campuses, land, or buildings to pay off debts, pensions, and other liabilities, as indicated in the accounts. Selling off assets is a one-time solution which can also have impacts on the recurrent income meant to cover ongoing activities. It is also likely that a proportion of university buildings will not be attractive to developers e.g. a lecture theatre in the middle of a university campus, or will have been gifted and so have covenants preventing them from being sold for cash. Relying on unrestricted reserves is therefore not a sustainable long-term solution.

5. Protecting the contribution of education and research to the UK economy

- 5.1 Universities will not be able to sustain high-quality provision and deliver outstanding research in the future without policy change. A more sustainable approach to funding higher education is needed – one that can offset the impact of inflation on the unit of resource, and one that is fair and affordable for students and taxpayers, while safeguarding the pipeline of science, skills and innovation necessary for the growth and prosperity of the UK economy. We welcome the opportunity to work with the Government to evaluate possible solutions to this complex problem.

²³ For example, the number of EU students in UK universities in 2021/22 more than halved following changes to fee status and the loss of free movement resulting from Brexit. Following the removal of the post-study work visa in 2012, the number of Indian students enrolling at UK universities decreased by 62% from 2010/11 to 2015/16, HESA.

²⁴ [Diversifying international student recruitment](#), Russell Group, Oct 2022

Annex 1: Updating our student spaces

Current OfS funding for updating or building new student spaces is limited, with a maximum of £6m over three years through a bidding process and around £50,000 per year through formula funding. In 2021/22²⁵, this represented £150m for the sector, significantly less than when the funding peaked in 2009/10 at £572m. Universities are required to cover the remaining costs using surpluses, borrowing, and philanthropy. However, rising financial pressures, including increasing borrowing costs, are constraining the availability of funding available to invest in capital.

Teaching space: The need to update teaching spaces is a growing concern and is exacerbated by rising costs driven by global supply chain pressures. Some Russell Group university facilities are over 50 years old and will soon become inadequate for future teaching and research needs. One member estimates needing £1bn to update their facilities. Upgrading STEM facilities is particularly costly, and state-of-the-art facilities require ongoing investment to maintain their quality. **One member estimated updating their medical school alone will cost £67m.** Another member had to invest £16m solely in their Chemistry labs to meet contemporary standards and avoid closure, but this investment is expected to extend their use for only five more years. Updating teaching spaces is crucial for students and researchers. The quality of these spaces also affects a universities' competitiveness compared to international counterparts with purpose-built facilities. Investing to update spaces needs to be considered in addition to the increasing amount that universities need to subsidise to run and maintain their buildings.

Net zero: Given the scale and historic nature of many Russell Group campuses they face an especially critical need to update estates to reduce carbon emissions and ensure they are running their campuses at the lowest cost possible. Several members estimate that achieving this would cost upwards of £100m per institution and for one large institution, we understand this to be over £1bn²⁶.

²⁵ [Capital funding for financial year 2021-22](#), OfS, Dec 2021

²⁶ Achieving a net zero higher education sector is estimated to cost £37.1bn. [The Cost of Net Zero](#), AUDE, BUFDG, EAUC, July 2023