

Congratulating Scottish Universities on Research Excellence Framework (REF) 2021 Results

Members' debate, 28 September 2022

Key points from Universities Scotland:

- University research is an area in which Scotland is “world-leading” in terms of quality and excellence. Research is a significant asset for Scotland propelling innovation, economic growth, the emergence and acceleration of new industries, creating jobs and attracting foreign direct investment (FDI). Research will be fundamental to the realisation of many of the ambitions in the National Strategy for Economic Transformation (NSET).
- Every £1million the Scottish Government invests in university research generates an average economic return of £8 million. This rises to a return of £12 million where research funds from UKRI are concerned, given Scotland’s past success in winning UKRI funds.
- As a sector, the strength of university research in Scotland has grown over the last seven years, between REF assessment periods. 86% of the research submitted to the assessment was judged to be at the two highest possible ratings of 4* and 3*, which equates to “world-leading” and “internationally excellent” respectively. But, there are signs that Scottish HE could be losing its competitive edge to the rest of the UK. Economically, Scotland cannot afford to let that happen.
- Whilst Scotland’s research performance has improved, investment levels in Scotland have not. Eight universities saw cuts to their research funding only weeks after the REF results. Four of those institutions saw more than £1 million cut from their research budgets.
- A pattern of underinvestment in HE research in Scotland since 2014/15 is already having a quantifiable impact on universities’ ability to compete and win research income from the rest of the UK. Scotland’s competitive share of resources has fallen from 15.4% in 2014/15 to 12.9% in 2019/20. It is not the case that falling levels of public investment can be compensated for by research income from other sources. It will undermine universities’ ability to win other funding.
- Scotland needs action now. In the short-term, we call on the Scottish Government to ring-fence and pass on to Scotland’s universities the Barnett consequentials from the UK Government’s 35% funding increases to university research in England (over three years, in cash terms). This is important so Scotland has a chance at staying competitive. It is important we take action over the next two-three years to have an impact on the next REF.

Why is research important?

- Funding research is a smart investment with significant economic returns. Evidence from London Economics, cited in Universities Scotland’s publication [Prosperity and Inclusion: Higher Education and the Wellbeing Economy](#), demonstrates that every £1m of Scottish Government investment in university research generates £8m of economic growth.
- Scotland’s global strength in research gives our nation a competitive asset that we should take every opportunity to maximise for regional and national growth. Many of Scotland’s high-performing economic sectors have their origins or growth based in or linked to university research. Sectors like life sciences and computer games, informatics, quantum technologies, the creative industries, renewables and green hydrogen.
- As university research seeks to advance the existing body of knowledge in all disciplines of study, it is a fundamental foundation of our nation’s innovation potential. Universities’ “blue-sky” research is high-risk and exactly the kind of research that many commercial enterprises,



particularly Scotland's SME sector, are unlikely to invest in themselves. As such, university expertise is integral to Scotland's innovation landscape.

- University research is valuable in itself for advancing the frontiers of human knowledge; is key to addressing the great challenges of the 21st century, including how we live well and sustainably on our planet; is the foundation of university teaching.

What is the Research Excellence Framework?

- The Research Excellence Framework (REF) is an assessment exercise that takes place only once every five-to-seven years. The REF is a periodic assessment of the quality of research of all UK universities, across all disciplines.
- The latest set of results were published in May 2022 (despite being called REF2021. The delay was due to the COVID-19 pandemic).
- It is carried out by [34 expert panels](#), each looking at a different subject area of research, assessing the submissions made by universities and their academics between 2013 and 2020.
- Research is rated according to a 4-point scale, with a 4* rating denoting research that is found to be: "world-leading".
- As well as an overall quality profile, the REF looks at performance in three distinct areas of research: output, impact and environment (which is the culture and conditions in which researchers do their work) to arrive at an overall rating of excellence.
- The Funding Councils in Scotland, England and Wales use the RE results to determine their allocations of research funding to institutions, with the funding methodology heavily weighted towards world-leading excellence (research rated as 4*).

What were the sector-level results for Scotland in REF2021?

It was a very positive outcome. Scotland surpassed its performance relative to the last exercise, held in 2014.¹

- Every one of Scotland's 18 universities² undertakes research judged to be of "world-leading", also referred to as "4*" quality on the overall profile.
- 86% of the research submitted by Scotland's universities has been judged to be world-leading (4*) or internationally excellent (3*) in its overall quality profile. The equivalent figure for all UK universities is 84.37%.
- Universities in Scotland, England and Wales all improved their performance between REF exercises. One area of concern, going forward, is that Scotland's rate of progress is slowing relative to other UK nations. Scotland's comfortable competitive edge over the rest of the UK is slipping. That will have further, direct consequences for our ability to leverage economic benefits from research and development.

Funding pressures in Scotland mean the REF results have not been rewarded

- Despite a sector-best performance, eight universities in Scotland saw their research funding cut in spring this year, following the REF results, due to insufficient investment in the Research Excellence Grant (REG) as allocated by the Scottish Funding Council. Four of our high-performing universities saw cuts of greater than £1 million.

¹ Methodological changes between the REF in 2014 and the 2021 REF mean that direct comparisons cannot be made between the data. The relative position between 2014 and 2021 refers to the percentage of research submitted that was rated 4* and 3* in both assessment exercises.

² Scotland has 19 universities and higher education institutions however the Open University in Scotland submits to the REF through the Open University.



- Without action, there's an expectation of further cuts in academic year 2023/24 as the cuts to each institution were capped at 10% by the SFC for 2022/23 as part of a one-year transition. Based on institution's own modelling, some universities might see cuts to their research funding of more than 30% in 2023/24.
- Cuts specific to academic year 2022/23 sit on top of a period of chronic underfunding of university research in Scotland, since 2014/15, where the overall pattern has been a cumulative real-terms cut of 31% in real terms between 2014/15 and 2022/23.

Competitive pressure coming from the rest of the UK

- In contrast to projections of real-terms cuts to research in Scotland over the next three years, Research England's Quality Research grant³ for HEIs has risen by 10.4% in cash terms between 2021/22 and 2022/23⁴ and is forecast to increase by 34.8% (cash terms) for the three-year period from 2022.⁵ We estimate that this rising in investment will generate somewhere in the region of an extra £45 million of Barnett consequentials for Scottish Government.⁶
- We want to see this sum ring-fenced and passed on to Scottish HEIs. Doing so, will give Scottish HE a chance to leverage more resource into Scotland, creating economic impact, high-skill jobs and supporting the ambition as set out in the Scottish Government's Nation Strategy for Economic Transformation.
- The relative underfunding of university research in Scotland is already a problem and is negatively impacting on the success of Scotland's institutions in winning competitive research grants from UKRI. Scotland used to out-perform the rest of the UK and win 15.4% of the UK share, based on excellence, in 2014/15. That has fallen to a 12.9% share in 2019/20.

Action we want to see now

- We need to see an end to consecutive real-terms cuts to university research budgets.
- We are asking the Scottish Government for a [£45 million increase in university research funding in 2023/24](#). We estimate that this will be the amount Scotland receives in Barnett consequentials from the UK Government's increased investment in university research in England.
- We have called on the Scottish Funding Council to undertake a thorough but swift analysis of the REF results to understand why Scotland's performance (though improved) is not increasing at the same rate as other UK nations between REF cycles. We need the outcome of this review to be delivered efficiently so it can inform a sector-led strategy for the next REF over the next couple of years, as this time frame is when it will have most potential impact.

Annexe A: examples of research impact

Supporting an ageing population: a better quality of life for people living with dementia due to improvements in the social, built and care environments they live in. **Stirling University's** multidisciplinary research led to principles of good design for dementia which have been incorporated into a freely available app, IDIRIS, for use by carers and occupational therapists. The research is commonly co-produced with the beneficiaries, and the academic team continues to innovate in working with vulnerable research participants. As well as Scotland, the app has been used in Australia, New Zealand, the States and was awarded the 'Best Collaborative' prize in an international contest

³ The Quality research Grant is England's equivalent to Scotland's Research Excellence Grant.

⁴ [UKRI \(2022\) Funding Budgets 2022-25](#) Table 1

⁵ BEIS (2022) [research and development allocation 2022 - 2025](#) Table 1.

⁶ Universities Scotland's estimate based on the Barnett formula.



held to ‘discover and champion brilliant concepts, designs and products that have the potential to help people live independently’⁷.

Developing new technologies for a greener and sustainable planet. [Translating Hydrogen into Action](#) is a collaborative project based at the University of St Andrews, in partnership with the University of Strathclyde, that will assist companies throughout the hydrogen supply chain, from fuel cell manufacturers to energy specialists, with the aim of creating a strong manufacturing base of hydrogen-based component parts in Scotland. There’s potential for this new fuel to support 300,000 Scottish jobs. Scotland’s first hydrogen powered train, a conversion of a 40-year old stock and a product of this over-arching project, was showcased at the COP26 Climate Summit in Glasgow. The entire rail freight must be decarbonised by 2035 and hydrogen offers a practical alternative to rail lines that cannot be electrified. This builds on St Andrews’ newly formed [Hydrogen Accelerator](#), a partnership with Transport Scotland.

Transforming and improving the way that animal welfare is managed through the development of a robust scientific model, called the Qualitative Behaviour Assessment, that can measure how animals feel in their surroundings. **SRUC’s** methodology is used by a growing number of Governments and commercial organisations like Waitrose, which is working with SRUC to improve the wellbeing of captive animals by rolling-out QBA across its own-brand supply chains.

Driving major improvements in HIV testing in Scotland, the UK and Europe, following changes to the World Health Organisation health policy and NICE clinical guidelines based on **Glasgow Caledonian University’s** research. These policies have contributed to significant increases in HIV testing, and a reduction in undiagnosed HIV infection, HIV related ill-health and AIDS deaths, significantly improving quality of life and reducing the stigma for vulnerable populations of people living with HIV.

Improving understanding of UK plant biodiversity under climate change to aid landscape decision making. The **University of Glasgow** and the **University of Edinburgh**, in collaboration with other UK and International partners, are using simulation to assess the ability of plant species to adapt to different climate change scenarios in the presence and absence of mitigating land use policy. The research draws together human-influenced environmental change, climate change and land-use decisions to provide an urgently needed tool for predicting the biodiversity impact of landscape decisions, which can be scaled up to larger continental and even global scales beyond the UK. In collaboration with the Natural History Museum, work is in progress to translate the outcomes of the research into on-the-ground decision making projects in a range of developing countries, particularly within tropical Africa.

Scotland’s entire Salmon Industry is onboard with research-led rapid health assessment for aquaculture. The Wellfish diagnostics research led by the **University of the West of Scotland** has created a healthcare model for farmed fish which has reduced responsiveness from a five-to-ten day turnaround to just 24 hours. A novel and proactive approach of continuous sampling of 30 biomarkers provides a rapid and more accurate analysis of fish physiology and metabolic responses to complex events. This research is collaborative with industry; Scotland’s entire salmon industry are engaged in this research, a sector worth £450 million in export alone every year. The research is being commercialised with support from Scottish Enterprise with the spin-out company expected to launch

⁷ Blackwood Design Awards, 2018.



in autumn 2021. There are plans to export the technology to Norway initially followed by Chile and Canada.

Ensuring Scotland's vibrant culture and creativity lives on through the generations. Scotland has been successful in keeping young people's interest in music and performance vibrant and in contrast to significant declines elsewhere, thanks to a detailed study of youth music led by the **Royal Conservatoire of Scotland**, in co-production with Scotland's arts bodies, which provided the evidence base which led to the creation of the Youth Music Initiative. The research was a systematic inquiry into music making by young people and involved the contributions of over 230 youth music groups throughout the country. The study identified gaps in provision, issues with a supply-led system which did little to stimulate demand and cultural and social barriers to participation that could then be addressed in the Youth Music Initiative which reaches around 244,000 people aged between 0-24 years of age in 32 local authorities.

In public health: an international study into long-COVID led by the **University of Glasgow**, working with the World Health Organisation and multidisciplinary experts, will measure prevalence and risk factors of long-term health and psychosocial consequences of COVID-19. The multidisciplinary approach involves infectious diseases, rheumatology, neurology, intensive care, oncology, public health, psychology and rehabilitation. This builds on the University of Glasgow's central role in the research response to the virus in Scotland including vaccines, testing and treatment.²

Industry partnerships to give business an innovative edge. The Medicines Manufacturing Innovation Centre in Glasgow aims to scale-up the deployment of technologies for small molecule and advanced pharmaceutical manufacturing. It's a partnership between the **University of Strathclyde**, AstraZeneca, GlaskoSmithKline, UKRI and the UK's Centre for Process Innovation. The Centre aims to speed up the development of next-generation medicines and increasing technology opportunities within the medicines supply chain. The Centre also allows a way to address industry challenges and de-risk new technologies.

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