

MillionPlus

The Association for
Modern Universities



POLICY BRIEFING

Is science and research funding
in higher education meeting the
challenges of the 21st century?

Executive Summary

Political parties throughout the UK have long agreed that research and innovation are key drivers of economic growth and smart innovation. Universities are at the heart of delivering this agenda, showing particular strength in the quality and impact of their research.

The vote in June 2016 to leave the European Union, and the potential risks Brexit will bring, means that it is vital for the UK government to consider how best to fund science and research at universities.

Within the UK there has been a surprising lack of new thinking about the way in which taxpayer investment in research is allocated to universities. By and large historic reputation has been taken as an indicator of future success and a protection of the status quo has reigned supreme.

As a result public resources for research have been heavily focused on and concentrated into a small number of universities. This has worked to the detriment of the staff in the majority of universities and the talents and potential of both undergraduate and postgraduate students.

Concentration (or hyper-concentration as is often the case) of resource has resulted in significant under-investment in staff in modern universities when compared to older universities. This lack of investment in staff and the research and academic infrastructure, including in new and emerging disciplines and markets, will prevent the UK from developing and maintaining the strong research base necessary for it to meet the global challenges of the 21st century. This status quo also leads to poor value for money.

As the new analysis in this briefing illustrates, concentration of research funding in a small number of universities in England is an issue not just nationally

but also regionally. Across the country, three institutions receive 25% of the funding, and in most regions in England the modern universities that make up around 50% of the sector receive less than 10% of the quality-related research funding for that region. This is despite their very strong performance in the Research Excellence Framework when compared to the historically low levels of investment in research that they have received. A similar pattern can be discerned in Scotland.

The last year of quality-related research funding allocated by the Higher Education Funding Council for England (HEFCE) based on the 2008 Research Assessment Exercise (the precursor to the Research Excellence Framework), in 2014/15 saw 13% of investment go to modern universities.

The Research Excellence Framework assessments that included new evidence on the impact of research activity, demonstrating significant successes in the sector, first influenced funding allocations in 2015/16. Despite a different approach to research assessment, with a new focus on the impact of the research carried out by universities and significant increases in levels of excellent research, the funding picture still looks remarkably similar to how it has always looked. In 2015/16, HEFCE allocations to modern universities made up only 14% of the total amount of quality-related research funding allocated to English universities. This risks harming the sector buy-in for future assessment exercises if the financial rewards do not match the efforts and the results.

IN 2015/16

3 UNIVERSITIES,
JUST 2% OF THE SECTOR IN
ENGLAND, RECEIVED 25%
OF THE TOTAL RECURRENT
RESEARCH FUNDING

24 UNIVERSITIES,
20% OF THE SECTOR, RECEIVED
75% OF THE FUNDING

36 UNIVERSITIES,
30% OF THE SECTOR IN
ENGLAND, SHARED 1% OF
THE RECURRENT RESEARCH
FUNDING

77 UNIVERSITIES,
64% OF THE SECTOR IN
ENGLAND, SHARED 10%
OF THE FUNDING



Just three universities receive 25% of the total recurrent research funding allocated, while 75% of the funding goes to 24 universities (only 20% of the total number in England). In fact, in 2015/16,

- Thirty-six universities – 30% of the sector in England – shared 1% of the available funding between them
- Seventy-seven universities – 64% of the sector in England – shared 10% of the available funding between them.

This policy briefing examines the current patterns and parameters of research funding with a focus on the English regions, providing new evidence about the differential levels of regional and institutional research investment provided by the public purse. Bearing in mind low levels of regional economic

growth, the need to improve productivity and support the research and innovation requirements of businesses, the SMEs which make up 99% of the UK's businesses and the not-for-profit sector, we argue that current research funding policies should be changed.

This briefing outlines the need for a more dynamic system – one that is more competitive, that supports higher levels of investment across all regions and ensures that all universities can support the next generation of excellent researchers. A new approach would be more equitable for students, more likely to harness the talents of postgraduates and undergraduates, bring wider societal and economic benefits, and support the UK government's ambitions to promote productivity and growth.

Key principles for a new approach to research funding in universities:

- The UK's current investment of 1.7% of GDP in science, innovation and research should be increased to at least the 2.4% average of competitor countries in the OECD
- A new fund for translational research, targeted at universities which currently receive lower levels of public research funding, should be established to support innovation and economic growth across the country
- All universities with research degree awarding powers should be awarded baseline research funding linked with student numbers
- Revised and rebalanced assessment criteria to increase the value of the impact of a university's research activity should be included in any future research excellence framework exercise
- The criteria and processes used by the Research Councils to award grants should be the subject of an independent review to examine the extent to which current procedures act to embed historic patterns of funding

Introduction

Modern universities play a huge role in increasing the volume of research produced in the UK that is world-leading or internationally excellent. They have made major contributions to a body of research that is judged to have outstanding or very considerable impact on the economy and society. Since modern universities achieve these results on lower levels of investment for their research activity – both in total amount received and per individual staff researchers – the success suggests significant value for money.

This obviously highlights what more could be achieved with higher levels of investment in research and development: an area where the UK has consistently been outperformed by other countries when the percentage of gross domestic product invested is considered.¹

The definitions of research excellence, and the formula used to allocate funding to universities, have changed since 2009 in such a way as to shift investment away from research that is of such high quality that it is recognised internationally for its originality, significance and rigour. This research underpins the UK's capacity, and is fundamental to ensuring the next generation of researchers are able to maintain the country's record in world-leading excellent research. However, this research no longer receives any direct funding from government. Instead, successive policies, whether from the UK government, the devolved administrations, or the individual funding bodies, have increased the concentration of taxpayer investment in a decreasing number of universities.

In November 2015, the UK government published *Fulfilling our potential: teaching excellence, social mobility and student choice*, a Green Paper on future policy for higher education. This was followed by a White Paper (*Success as a knowledge economy: teaching excellence, social mobility and student choice*)² and a Higher Education and Research Bill³ in May 2016.

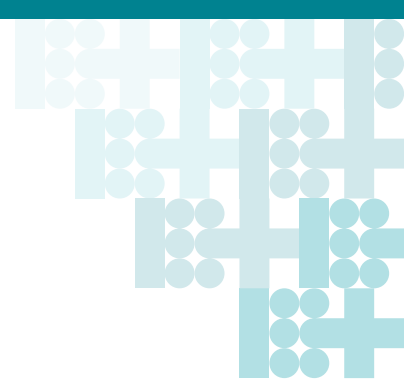
The White Paper and the Bill propose the creation of a new Office for Students (OfS), derived from the existing Higher Education Funding Council for England (HEFCE), but acting as a consumer regulator. As it stands, this new organisation will be explicitly pro-choice and pro-competition, leaving behind the vital work that HEFCE has done in ensuring the strength and diversity of the sector. New providers will be able to enter the HE market faster, with lower barriers than currently in place to safeguard quality.

The Bill also proposes that the OfS decides on standards, removing this role from individual, autonomous institutions;

1 OECD data shows that the UK invests 1.7% of GDP in research and development, compared to an OECD average of 2.4%. This has been consistent since at least 2000.

2 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523396/bis-16-265-success-as-a-knowledge-economy.pdf

3 <http://services.parliament.uk/bills/2016-17/highereducationandresearch.html>



something that has been a long-standing feature of the UK higher education system. A centralised approach to standards risks losing the rich variety that has ensured the global reputation of UK universities.

A new organisation called UK Research and Innovation (UKRI) will be created by the Bill. This will incorporate the seven current research councils, which will each lose their royal charter status, as well as the independent Innovate UK and the research funding functions carried out by HEFCE (a new committee called Research England will be established for this purpose).

In advance of any parliamentary debate on the Bill, Ministers moved quickly to appoint an interim Chair for UKRI to

support its establishment as a shadow organisation pending legislation. It is not at all clear that the grand ambitions set out for UKRI in the White Paper will be realised, and the Bill itself raises significant questions for governments and universities of Scotland, Wales and Northern Ireland. These questions are examined in detail in this policy briefing. Whether or not parliament approves UKRI as currently proposed, there is no suggestion that UK Ministers have considered the consequences of current research funding policies beyond repeating a commitment to retain and protect the dual support system.

The machinery of government changes introduced by the UK government in July 2016 established a new Department for

Business, Energy and Industrial Strategy to oversee the UK's science and research activity, and transferred responsibility for higher education to the Department for Education. This splits the main activities of universities across two different government departments which will bring risk and opportunity. The risk is that, without effective joint working between the two departments, policy may become fragmented and lack cohesion. Teaching, research and knowledge exchange are fundamentally intertwined at universities and need to be seen as part of an entire package of activity. However, the split may mean that the new department is able to concentrate its focus and attention on science and research activity in universities.

Key points

- Successive policies, whether from the UK government, the devolved administrations, or the individual funding bodies, have increased the concentration of taxpayer investment in a decreasing number of universities
- The new Office for Students will be explicitly pro-choice and pro-competition, leaving behind the vital work that HEFCE has done in ensuring the strength and diversity of the sector
- New providers will be able to enter the HE market faster, with lower criteria than currently in place to safeguard quality
- The establishment of the new organisation UK Research and Innovation risks significantly impacting how funding for research is allocated to universities across the UK

The research funding time warp

Since 2005 most of the significant changes to higher education policy within the UK have been focused on the funding of teaching. As a result, the undergraduate landscape looks very different to that which operated in England at the beginning of the decade – and the English landscape now stands in sharp contrast to that in Scotland; while in Wales future policy is under review.⁴ In comparison, reform of policy related to research funding has been minimal with the few changes that have been made, particularly in England, designed to ensure the least amount of change and disruption.

Policy on research funding is a virtual time-warp. Apart from some changes to the way in which research is assessed, how things look in 2016, is very similar to how things looked five, 10 or even 20 years ago. Most research funding policy changes have, if anything, been implemented to maintain a long-standing status quo. The working assumption has been that this provides stability which has, in turn, resulted in improvements in the quality and standing of UK research. The million-dollar question is whether such outcomes have been achieved at the expense of encouraging ideas and innovation and, crucially, whether they remain the right approach in the future.

Even when there has been change, it has been to support increasing concentration of investment in a smaller number of institutions. This approach has diverted funding away from research that is of high enough quality as to be internationally excellent in terms of its originality, significance and rigour or that is recognised internationally in terms of the same. The weightings

used to calculate research funding to universities have been amended to increase the value of 4* research (the highest level in the assessment)⁵ in the overall calculation, reducing the value of internationally excellent research (3* level). The effect of this is to shift funding away from this research.

Since 2010 research assessed at 2* level (recognised internationally in terms of its originality, significance and rigour) has been marginalised when it comes to funding calculations. In 2011-12, the weighting attributed to this research was reduced to zero, meaning that no public investment is supporting research that is of a high enough quality to be recognised internationally. The results of the Research Excellence Framework 2014 reveal that 20% of the research produced by UK universities between 2009 and 2013 was of this high quality.

The stasis in research funding allocation policies – especially those operated by the Higher Education Funding Council for England on behalf of the Department for Business Innovation and Skills – has led to an excessive and disproportionate concentration of funding in a small number of universities. This hyper-concentration is often based on historic reputations and prejudices. It under-rewards the majority of institutions for excellent research performance, and means, in turn, lower levels of public investment for staff and research in these universities. The amount of quality-related research funding per research active individual is significantly lower for academics working in modern universities.⁶ There are obvious and massive disparities between different universities with

similar numbers of research active staff; this is the result not of any lack of talent, but rather the effect of disproportionate allocations of research funding.

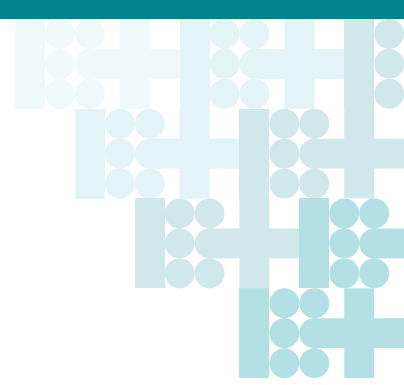
Under-investment in the research capacity of the UK's universities has two obvious consequences. First, it affects the ability of universities to fully support the development of researchers at early stages of their career to ensure that they are able to continue the excellent research that has made the UK world leading. Second, the lower levels of investment per staff available in the majority of universities impacts on the opportunities available for students to work with research active staff. Overall, this results in fewer opportunities for postgraduates and PhD students to work with excellent research staff, and fewer projects with which students can engage as part of their studies, including as undergraduates.

Decisions about research funding allocations are currently limiting the experiences of students and the postgraduate market, promoting inequality and inequity and restricting the potential for universities to meet the research needs of private and not-for-profit organisations. Such an approach should have no standing in a 21st century higher education system. This is particularly important when considering how best to maximise opportunities for small and medium sized enterprises. These are located everywhere, and so should not be penalised if that location happens to be away from one of the small number of universities that receive the lion's share of research investment.

4 The Diamond Review of the Welsh Fees and Funding system commissioned by the Welsh Government is scheduled to deliver its final report in September 2016

5 The Research Excellence Framework 2014 had five separate levels: unclassified, and then rising from 1* to 4*.

6 £11,000 compared to £23,000 in universities that gained title before 1992 – see page 13 for more information.



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More needs to be done to better support collaboration between all universities and the SMEs that make up 99% of economic activity in the UK, employing 60% of the population and with a combined total turnover of £1.8tn.⁷

Hyper-concentration of research funding undervalues the impact that translational research (where universities apply research finding to real-world challenges) has on local businesses and the not-for-profit sector. It creates a situation where research investment is heavily concentrated in particular regions, and means that important government funding is not able to benefit the whole country.

Since this is public investment, and universities work for the benefit of society and the economy both nationally and locally, the disparities raise huge questions about the fairness and equity of the spread of taxpayer funding.

The real risk is that the current ‘closed shop’ approach to research funding is further embedded when, more than ever before, the UK needs to encourage and exploit the talent, ideas and research impact of all universities.

Key points

- Policy on research funding is a virtual time-warp. Most research funding policy changes have, if anything, been implemented to maintain a long-standing status quo
- The stasis in research funding allocation policies has led to an excessive and disproportionate concentration of funding in a small number of universities
- Under-investment in the research capacity of the UK’s universities affects the ability of universities to fully support the development of researchers at early stages of their career to ensure that they are able to continue the excellent research that has made the UK world leading and impacts on the opportunities available for students to work with research active staff
- More needs to be done to better support collaboration between all universities and the SMEs that make up 99% of economic activity in the UK, employing 60% of the population and with a combined total turnover of £1.8tn

⁷ October 2015 BIS Statistical Release on Business Population Estimates for the UK and Regions 2015
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/467443/bpe_2015_statistical_release.pdf

UK Research and Innovation

The government's May 2016 White Paper, *'Success as a Knowledge Economy: Teaching Excellence, Social Mobility and Student Choice'* and the subsequent Higher Education and Research Bill, have adopted proposals from the Nurse Review of the Research Councils⁸ to reorganise the administrative responsibilities of Research Councils UK into a new organisation called UK Research and Innovation (UKRI).

This Bill means a change in statutory status of the current seven research councils into committees⁹ of this new organisation, which will be given the right to change the focus or rename any of these seven, as well as the incorporation of Innovate UK and the transfer of the Higher Education Funding Council for England (HEFCE) research functions into the new body. This new committee will be called Research England (the current quality-related (QR) arrangements in the devolved administrations will remain as they are), as part of a protected committee within UKRI. The White Paper confirms that Research England will "be established to undertake the England-only functions in relation to research and knowledge exchange that are currently performed by HEFCE."¹⁰

This proposal has the potential to undermine the links between teaching and research and in particular the holistic oversight of universities and the student interest as currently exercised by the

Funding Councils. In particular, it ignores the links between postgraduate masters and PhD students, many of whom are currently supported by Funding Council QR funds and 50% of whom do not go into academia.

Transferring QR funding to UKRI risks further ossifying the approach to research funding policy at the very time when it needs to be re-thought and re-invigorated. The new organisation will also incorporate Innovate UK (as a new and separate research council). This has the potential to stretch and squeeze even more the envelope of QR funding currently available to universities, unless firm rules for the continuation of the dual support system are put in place. The Higher Education and Research Bill will place a dual support system on a statutory footing, but there is no clear information on whether funding levels will continue as now. The funding for Research England will be delivered as part of the overall grant to UKRI – which will have a range of competing priorities. Therefore, although the Secretary of State is unable to direct how Research England makes spending decisions, it is by no means clear that Research England will retain the same level of funding as is allocated currently by HEFCE.

A second area of risk with the creation of Research England is that over time the investment in university research provided through QR will

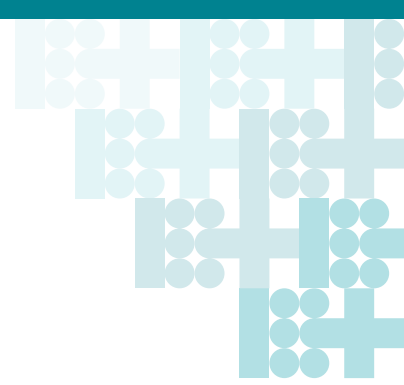
become even more dominated by a science, technology, engineering and mathematics bias when, for example, research in the allied health professions and the creative industries is vitally important. Unlike current Research Council funded postgraduates, the majority of postgraduates currently funded via HEFCE QR do not enter academia. There are risks that under the UKRI umbrella the long-term future of the support provided for this part of the postgraduate market will reduce.

A third risk is the impact the creation of UKRI and in particular Research England will have on research funding and administration with the other UK nations. Universities in Scotland, Wales and Northern Ireland are entitled to bid for, and are successful in winning, funding from the research councils. There is no clear information in the White Paper or in the Bill as to how universities in these countries will be affected. The White Paper states that it is the England-only functions of HEFCE that are being transferred to the new Research England. One function HEFCE currently does on behalf of all four UK higher education funders is manage the Research Excellence Framework. Will Research England be expected to take this on, and if so, how will it manage it to ensure that the Secretary of State remains completely independent of any future process?

8 <https://www.gov.uk/government/publications/nurse-review-of-research-councils-recommendations>

9 The Higher Education and Research Bill 2016 established the new organisation UKRI as the body corporate, and mandates that it has 7 committees reflecting the current names of the existing research council, but also gives the Secretary of State the power to add, omit or change the name of a council. This power does not extend to Innovate UK or Research England (Sections 83 and 84). The Royal Charters for the current research councils are revoked by Section 101 (1) of the Bill.

10 *Success as a Knowledge Economy*, BIS/16/265, p72



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The remit of UKRI should be revised to ensure that it can convince parliament, universities and researchers that it will have the right solutions for research in the face of Brexit

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Separately, the *Stern Review of the Research Excellence Framework*¹¹ makes recommendations on how the next research assessment exercise might be done differently in order to achieve greater efficiency and lower effort. There is a risk that recommendations from the review could further emphasise the concentration of research activity, even if indirectly, in a small number of institutions. It is an approach that is likely to favour larger units of research, those institutions already operating at scale, and those that are established. It may be harder for newer units of research and small units of research to break through, and so harm the existing principle of identifying and funding excellence wherever it is found.

These developments – the creation of UKRI and the changes to the next REF in 2020 – will be overseen by a new government department and Secretary of State for Business, Energy and Industrial Strategy. The new department has the opportunity to reform science and research funding to be far more dynamic, less rooted in historic reputation, and

better focused on supporting the areas of research that can make a difference to small and medium enterprises in all regions of the country. In some respects, the government's ambitions for a new focus for research funding and innovation are right. Funding allocations and awards have become something of a closed shop, disappointing researchers and universities alike. But there are other ways of achieving these ambitions, and the remit of UKRI as set out in the Higher Education and Research Bill falls well short of ministers' lofty objectives. The remit of UKRI should be revised to ensure that it can convince parliament, universities and researchers that it will have the right solutions for research in the face of Brexit.

Key points

- The White Paper proposals have the potential to undermine the links between teaching and research and in particular the holistic oversight of universities and the student interest as currently exercised by the Funding Councils
- Transferring QR funding to UKRI risks further ossifying the approach to research funding policy at the very time when it needs to be re-thought and re-invigorated
- The creation of UKRI and in particular Research England will impact on research funding and administration in the other UK nations

11 <https://www.gov.uk/government/publications/research-excellence-framework-review>

Challenging the status quo

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In 2014/15 publicly-funded research cost taxpayers £3.2bn. This was composed of £1.9bn in recurrent research funding distributed by the four funding bodies and £1.3bn awarded in grants by the Research Councils

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Since 2010 the UK government has promoted significant reform in the way undergraduate teaching is funded as part of its aim to reduce public spending and as a mechanism to increase opportunities for students. Potential applicants, parents, students and employers have all been offered a succession of new data, evidence and information to enable them to make choices and judgements about the quality and value of the teaching that takes place in our universities. In comparison, research policy has been very much 'status quo' in spite of the scale of public investment.

In 2014/15 publicly funded research cost taxpayers £3.2bn. This was composed of £1.9bn in recurrent research funding distributed by the four funding bodies¹² and £1.3bn awarded in grants by the Research Councils.¹³

Recurrent research funding is dominated by quality-related (QR) funding, which is allocated on the basis of policies determined by the relevant Ministers in England and the devolved administrations. However, judgments about the quality of research are made independently by a peer review process referred to since 2010 as the Research Excellence Framework (REF). The REF now requires universities to demonstrate the impact of their research. Although challenging to implement, it is hard to argue that this reform and the relatively low weighting given to the impact criteria (20%) introduced significant innovation into research funding allocations.

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The government should consider whether the research funding policies that have been in place for two decades remain fit for purpose to support an innovative, transformational, dynamic economy

COMPETITIVE NOT CONCENTRATED FUNDING

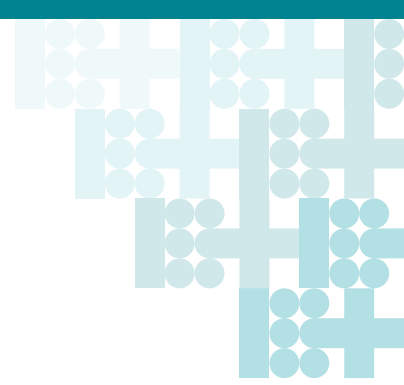
It is not enough to simply ring-fence funding for quality-related research, or to amend organisational structures. Instead, government should consider whether the research funding policies that have been in place for two decades remain fit for purpose to support an innovative, transformational, dynamic economy.

The key question for Ministers going forward is whether tweaking the current system (with the potential to create even greater concentration of research funding) will act as a barrier to new entrants and limit the capacity of the majority of universities to act as challenger institutions in the UK's research landscape. Arguably rather than teaching reform, it is the UK's research funding policy and overall investment that require a rocket boost to make them fit for a 21st century in which global economies remain subject to significant uncertainties and low growth.

The current approach (and that of previous governments) is a highly concentrated research funding system. Outcomes are predictable, based on historic reputation, largely impervious to change and arguably out of date. The UK does not spend enough on science, research and innovation compared to its competitors but what is spent is invested in the same institutions and in the same places around the country, holding back ideas, economic growth and opportunity. Even in London and the South East the same pattern of institutional research funding can be identified. These areas have recovered more quickly from the economic recession in spite of, rather than because of, research funding policy. This is despite some attempts to improve the approach to research assessment.

12 Higher Education Funding Council for England (HEFCE), Scottish Funding Council (SFC), Higher Education Funding Council for Wales (HEFCW), Department for Employment and Learning in Northern Ireland (DELNI)

13 HESA Finances of Higher Education Providers 2014/15



DYNAMISM NOT STASIS

The long-standing principle in research assessment of identifying excellence wherever it is found means that policy makers and funding organisations have had to look beyond a narrow group of universities with long-standing research investment. This has meant a concerted effort to recognise that research takes place in every university to the benefit of all students in UK universities. It has benefited the development of new research specialisms and provided support to early-career researchers. The recent REF also went to great efforts to promote equality and diversity of research staff.

The advantage of this approach to identify, encourage, support and reward excellence wherever it is found is apparent when looking at the results of the REF 2014. This identified that 53% of research at modern universities¹⁴ is judged as world-leading or internationally excellent. It also confirmed that 61% of research at modern universities is judged to have impact

that is outstanding or very considerable in terms of reach and significance. This demonstrates the value of investing in research capacity across the sector, rather than concentrating funding on only a few institutions. Maintaining a diverse research base – both in terms of type and location of university – results in increasing levels of excellence. Modern universities are often assumed to be only of regional importance, but with their global recruitment and their performance in research, it is clear that they are also major international players, and as such of huge benefit to the UK.

The results of the REF announced in December 2014 confirmed that excellent research continues to take place across the country in all areas of research in all universities and not just in a small number of institutions. It also confirmed that the proportion of research being judged at 4* and 3* level increased significantly over the previous six years – with around 20% more in 2014 than in 2008.

Evidence from research assessment confirms that excellent research is taking place in the nearly all of the universities across the country, and new emerging areas of activity are being developed that have significant impact on local economies. This supports businesses to grow and invest in these local areas and public organisations such as the NHS and local authorities to be more efficient and innovative. But the growth of this activity is limited by funding barriers based on outdated perceptions.

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Key points

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- Evidence from research assessment confirms that excellent research is taking place in the nearly all of the universities across the country, and new emerging areas of activity are being developed that have significant impact on local economies, supporting businesses to grow and invest in these areas

¹⁴ By which we mean any university that has gained title since 1992

Modern university research driving the UK economy

Modern universities are making significant contributions to important areas of the UK economy with their research activities. MillionPlus analysis of the results of the REF 2014 shows that much of the work that was assessed at 2* or 3* level – that is research that is internationally excellent or internationally recognised – were in vital areas that support the economy and society.



OVER 40% OF RESEARCH INTO SPORT AND EXERCISE SCIENCES, LEISURE AND TOURISM WAS CONDUCTED BY MODERN UNIVERSITIES



MODERN UNIVERSITIES WERE RESPONSIBLE FOR MORE THAN 1/3 OF INTERNATIONALLY RECOGNISED RESEARCH IN CREATIVE INDUSTRIES



ALMOST 1/4 OF INTERNATIONALLY RECOGNISED RESEARCH INTO ARCHITECTURE AND PLANNING WAS PRODUCED BY MODERN UNIVERSITIES

Just under 41% of research into **Sport and Exercise Sciences, Leisure and Tourism** assessed at 2* or 3* was conducted by modern universities. This is the kind of research that will help the UK to improve the health of the nation, fight obesity and drive the tourism industry that accounts for 9% of UK GDP.¹⁵

Modern universities were responsible for more than one-third of internationally excellent or recognised research in **key creative industries (art and design; communication, cultural and media studies)** and over 20% of research in computer science and informatics, including **computer games design**. The creative industries are valued at around £85bn a year.¹⁶

Almost a quarter of research into **architecture, built environments and planning** and almost a fifth of general engineering research that was assessed as internationally excellent or internationally recognised was produced by modern universities. Modern universities are making significant contributions to driving and building UK industry, and designing and building cities and regions for the future.

Modern universities also make significant contributions to areas that will be key for the UK in its desire to improve health, wellbeing and social care. Modern universities produced 30% of the research assessed at 2* and 3* in the disciplines of Allied Health Professions, Dentistry, Nursing, Pharmacy, Social Work and Social Policy. They were responsible for one-fifth of education research rated as internationally excellent or recognised.

Modern universities not only drive the economy and keep the country healthy, but also make important contributions to the UK's intellectual life. Two examples are History and English Language and Literature, with modern universities responsible for 19% and 16% respectively of the research in these areas that was assessed as 2* or 3* levels.

The long-standing position of successive governments to identify excellent research in whichever university it is found has led to a sector with a rich and diverse research base. This benefits the country significantly. There is a risk that the policies that have created a disproportionate and concentrated research funding system will threaten the long term sustainability of substantial amounts of research.

¹⁵ VisitBritain / Deloitte, 2013 https://www.visitbritain.org/sites/default/files/vb-corporate/Documents-Library/documents/Tourism_Jobs_and_Growth_2013.pdf

¹⁶ HESA Finances of Higher Education Providers 2014/15 <https://www.gov.uk/government/statistics/creative-industries-economic-estimates-january-2016>



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UNDER-INVESTMENT IN THE NEXT GENERATION OF RESEARCHERS

Despite more universities achieving higher levels of excellence in the 2014 Research Excellence Framework, the allocation of funding continues to be just as concentrated as ever. This has significant consequences for the amount of money available for universities – especially modern universities – to invest in the development of staff but also creates disparities within regions.

Discounting a number of relatively small institutions which focus on postgraduate study and research with very small staff bases, the funding per researcher does not vary massively between those universities that gained title prior to 1992. However, focusing on those institutions with 2,000 research active staff or less (a total of 114 universities), there is significant disparity between modern

universities and those that gained title before 1992. MillionPlus analysis identified that the average amount of quality-related funding invested in each research active member of staff in modern universities was £11,000 compared to £23,000 for universities that gained title before 1992. The under-investment in huge numbers of research active staff will undermine and cause long-term harm to the sustainability and viability of the research base. Excellent staff are the most important element of any universities research activity, but without proper investment, the sector as a whole will fail to develop the next generation of excellent researchers.

UNDER INVESTMENT IN THE UK ECONOMY

The changes to the funding formula that have led to no money for 2* research in universities and a squeezing out of the value of funding allocated to 3* research means that the funding has shifted away from this research. Concentration of funding can often enable and support excellence and competition, however what has happened since 2009 is a hyper-concentration of funding into less than a third of all research in UK universities.

World-leading research is obviously important to the UK's place as a world-leading economy and research base, however research that is recognised internationally and research that is internationally excellent is of vital importance to the UK. This research makes up a significant proportion of research activity in UK universities, driving innovation and ultimately fostering world-leading researchers who will go on to make a truly global impact.

In the REF 2014, the overall quality of submissions comprised 30% at 4* (world-leading), 46% at 3* (internationally excellent) and 20% at 2* (recognised internationally). Virtually all research was considered to be of an extremely high quality.

Much of this research is not fully supported by quality-related research funding. And the 2* research that is recognised internationally in terms of originality, significance and rigour is not funded at all through QR, despite accounting for at least 15% of research in all but three disciplines assessed in REF 2014. In some disciplines up to a quarter of research is assessed at this level – many of it in areas of huge significance to UK economy (see Figure 1).

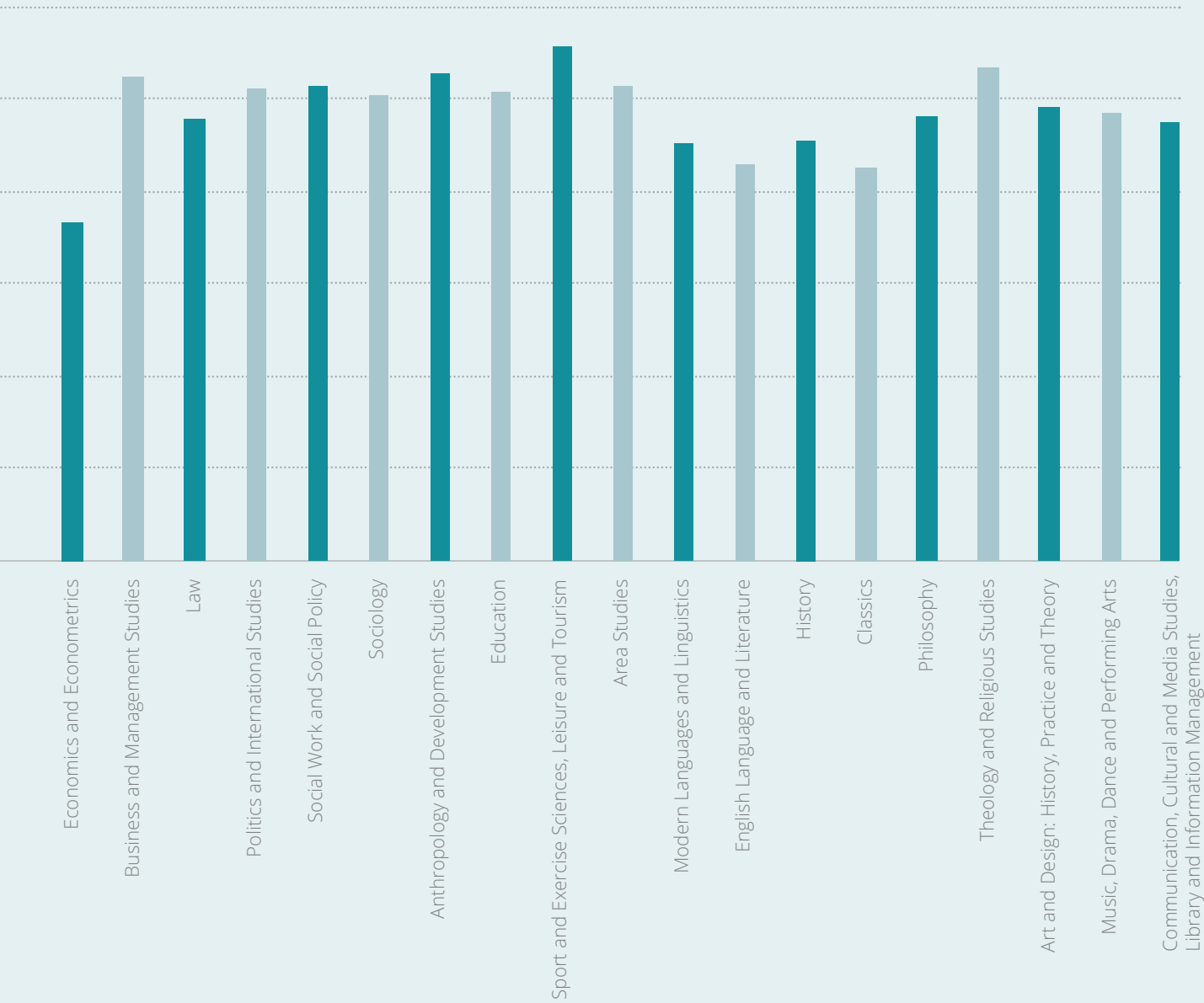
Key points

- Modern universities are making significant contributions to important areas of the UK economy with their research activities, but there is significant disparity in the funding allocations between modern universities and those that gained title before 1992
- MillionPlus analysis identified that the average amount of quality-related funding invested in each research active member of staff in modern universities was £11,000 compared to £23,000 for universities that gained title before 1992
- The changes to the funding formula that have led to no funding for 2* research in universities and a squeezing out of the value of funding allocated to 3* research means that the resources have shifted away from this research

Figure 1: Proportion of UK research rated 2* in Research Excellence



Despite 2* rated research accounting for 20% of research overall, universities do not receive any funding recognition for this work



Hyper-concentration remains a key feature of research funding policy

The approach to funding research activity in universities lacks dynamism. The results from the 2014 Research Excellence Framework show that the amount of 3* research in modern universities increased to 37.5% – up from 22.9% in 2008, an increase of 15 points. By comparison, the amount of 3* research in universities that gained title before 1992 only increased by seven points (to 47.2%). However, the funding allocation rules do not enable this increase in internationally excellent research to be properly rewarded. As research activity in the sector increased, and excellence improved, the goal posts were moved to further restrict funding so generating greater concentration not less.

Research funding continues to be concentrated in a small number of institutions and year on year follows predictable patterns. The last year of quality-related research funding allocated by HEFCE based on the 2008 Research Assessment Exercise (the precursor to the Research Excellence Framework), in 2014/15 saw 13% of investment go to modern universities. The Research Excellence Framework assessments that included new evidence on the impact of research activity, demonstrating significant successes in the sector, first influenced funding allocations in 2015/16. Despite a different approach to research assessment, with a new focus on the impact of the research carried out by universities and significant increases in levels of excellent research, the funding picture still looks remarkably similar to how it has always looked. In 2015/16, HEFCE allocations to modern universities made up only 14% of the total amount of quality-related research funding allocated to English universities. This risks harming the sector buy-in for future assessment exercises if the financial rewards do not match the efforts and the results.

In addition, these figures show that just three universities receive 25% of the total recurrent research funding allocated, while 75% of the funding goes to 24 universities (only 20% of the total number in England). In fact, in 2015/16,

- Thirty-six universities – 30% of the sector in England – shared 1% of the available funding between them
- Seventy-seven universities – 64% of the sector in England – shared 10% of the available funding between them.

THE REGIONAL IMPACT OF HYPER-CONCENTRATION

This concentration of research funding not only leads to market imbalance and inequity for students, but also undervalues the impact that translational research (where universities apply research finding to real-world challenges) has on local businesses and the not-for-profit sector. It creates a situation where research investment is heavily concentrated in particular regions, and means that important government funding is not able to benefit the whole country.

These problems were acknowledged by Jo Johnson MP, Minister for Universities and Science, in one of his first major speeches after being appointed in 2015:

“Forty-six percent of public investment in research goes to the golden triangle. This reflects the strength of internationally-renowned universities in London, Oxford and Cambridge. We must and we will continue to fund research on the basis of excellence and ensure we are competing with the very best in the world.

“But we do have to ensure we recognise that other parts of the country have proven research excellence in their universities, and ensure we fund excellence wherever

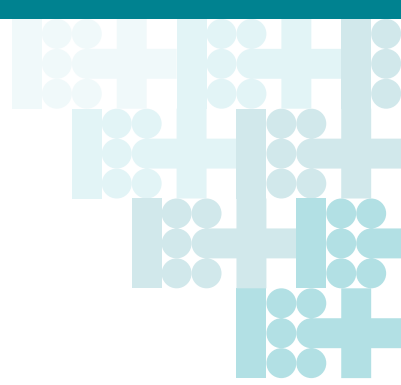
it is found in order to realise the productivity gains that we have seen in the Golden Triangle. To achieve this we need a new approach – one that promotes and protects our reputation for world-class science, and also drives growth and raises productivity for the whole of the UK.”¹⁷

The share of research funding between universities in each region proves the Minister’s case that a new approach is required to rebalance opportunity and competition between providers. There is the same pattern of significant concentration of research funding in a small number of institutions, which means the issue of under-investment in large numbers of staff (and so the long-term capacity of the research base) seen across each region.

Since this is public investment, and universities work for the benefit of society and the economy both nationally and locally, the disparities raise huge questions about the fairness and equity of the spread of taxpayer funding.

The UK currently gets back around £3bn more in EU research, development and innovation funding than it puts into those programmes. UK universities have been hugely successful in winning funding from the European Union – through programmes such as Horizon 2020, and through structural funds. In a written answer in Parliament, the Government confirmed that the UK had been awarded €1.84bn in the two years since Horizon 2020 was introduced. A further €1.6bn of European Structural and Investment Funding was earmarked for the theme of research, technological development and innovation in the UK. The vote by the UK to leave the European Union means that it has never been more important for the government to re-consider how best to fund science and research at universities to ensure the best result for all parts of

17 Jo Johnson MP, 16 July 2015: <https://www.gov.uk/government/speeches/one-nation-science>



the country. The access of UK universities to the funding programmes managed by the European Union may well come under risk as negotiations progress and Brexit moves closer. This means that international partnerships, not just those with EU countries, will be key and modern universities have a large global footprint already that could be better utilised with additional research capacity. That makes it vital for the government to

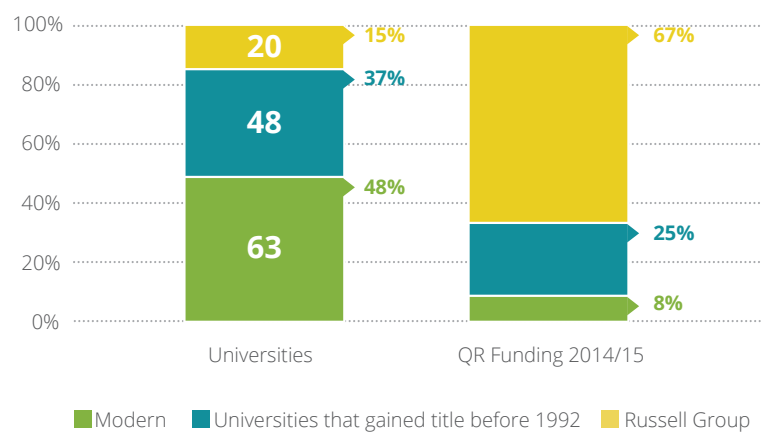
look at the areas of funding firmly within its control and consider how to make them work best for the whole country.

MillionPlus has analysed the amount of research funding allocated by HEFCE and the research councils to institutions in England in 2014/15 and compared this with the total number of full-time equivalent students.

Looking at this distribution pattern for English universities makes it clear that there is a significant imbalance in the way research funding is allocated. Figure 2 shows that 15% of the universities in England shared nearly 70% of the quality-related research funding, while 63 universities – amounting to 48% - received less than 10% of this funding.

Figure 2: Universities in England and the distribution of research funding

Proportion of universities by type in England and proportion of QR funding allocated in 2014/15



Key points

- The approach to funding research activity in universities lacks dynamism. The results from the 2014 Research Excellence Framework show that the amount of 3* research in modern universities increased to 37.5% - up from 22.9% in 2008, an increase of 15 points. By comparison, the amount of 3* research in universities that gained title before 1992 only increased by seven points
- Just three universities receive 25% of the total recurrent research funding allocated, while 75% of the funding goes to 24 universities (only 20% of the total number in England)
- Seventy-seven universities – 64% of the sector in England – shared 10% of the available funding between them

Annex 1 of this policy briefing contains charts for each English region, showing the distribution of research funding in modern universities compared with those that were granted university title before 1992, with a further analysis of the relationship with the number of research active staff in each region. The pattern for England as a whole is repeated in each region, demonstrating how across the country there are stark differences in the amount of funding different universities receive, notwithstanding their potential to contribute to the regional economy.

Conclusion

The analysis in this policy briefing shows that because of the lack of dynamism in the way research funding is allocated, most universities are being short-changed when it comes to overall investment in research. A change to the assessment criteria to increase the value attributed to the impact of a university's research activity, and a stronger emphasis on translational research would enable greater levels of investment in the next generation of research staff, in order to maintain and develop the country's research capacity.

The Research Excellence Framework (REF) of 2014 went some way to outlining the impact of research taking place in the UK's universities and provided new insights into the diversity and breadth of the UK's research activity. In particular, the REF confirmed that modern universities are more than pulling their weight in innovative, cutting edge research. This has been achieved against a background of very modest research funding allocations and Ministerial decisions which, since 2010, have reversed some of the gains made by modern universities in research funding in England following the 2008 Research Assessment Exercise. If the current government is concerned about 'bang for bucks' the future lies not in the historic assumptions about institutions and critical mass, but in an open and more responsive funding system.

The creation of UK Research and Innovation, and the new Department for Business, Energy and Industrial Strategy, provides the UK government with the opportunity to reform science and research funding so that a far more dynamic system is introduced to meet the needs to the challenges facing the UK in the 21st century.

For example, unlike in Scotland, the UK government has not accepted that all universities should be research-active and receive a minimum allocation of research funding. Unlike in some of the Nordic countries there is no link between baseline research funding and student numbers (which would help to increase investment in research staff capacity and improve opportunities for all students) – and in the UK research assessed to be internationally recognised and of national significance is not funded at all.

Research and innovation are key to economic growth and smart innovation. There are now strong arguments to look again at the principles which underpin research funding. Historic assumptions about research funding have had the effect of closing down opportunities for competition and challenge and create huge variability in the unit of resource for the academic

environment, investment in staff and opportunities in particular for postgraduate students.

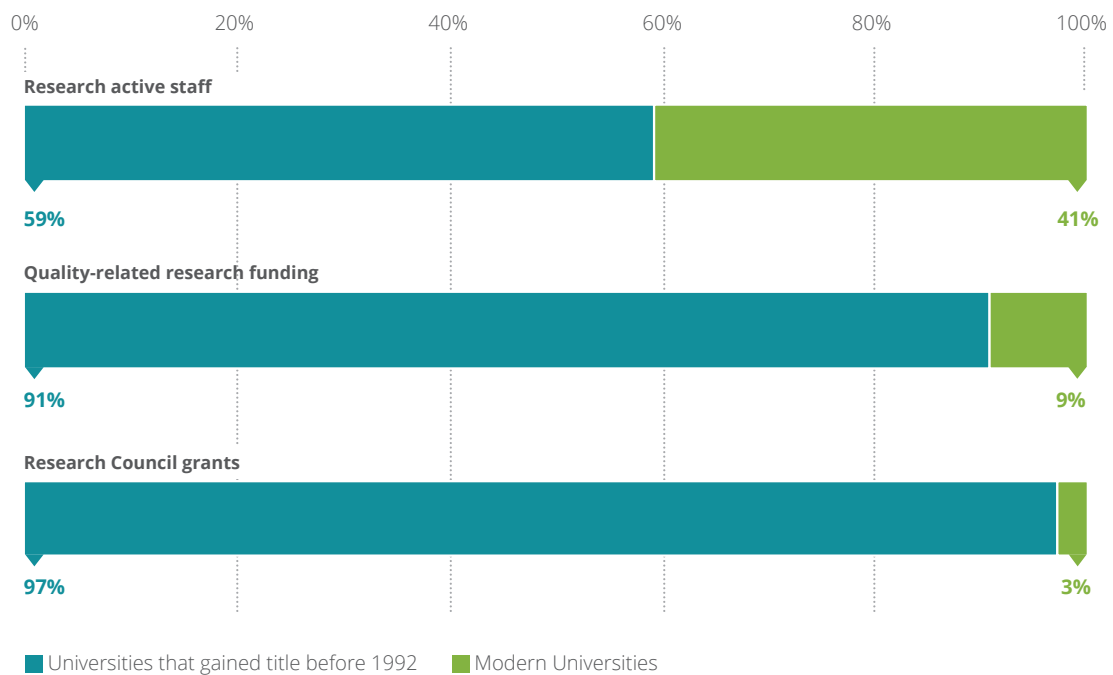
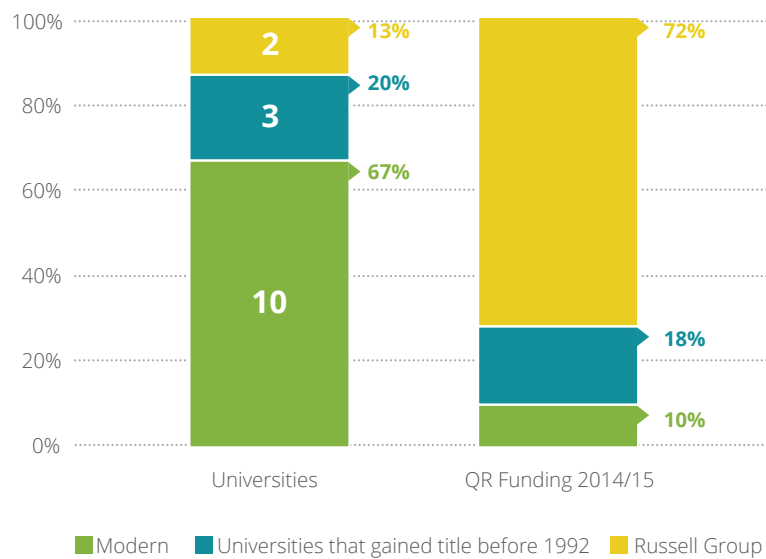
Even before the UK voted to leave the EU, there was a pressing need for change. Brexit, and the economic shocks that will result from it, make it even more vital that the government ensures that the system of funding for university research becomes more dynamic. As well as increasing the overall investment in science and research as a proportion of GDP, the government must ensure that the new system is more competitive and less reliant on past reputation, that all regions benefit, and that universities can support the next generation of excellent researchers.

A new approach to research funding in universities is required which should be underwritten by the following principles:

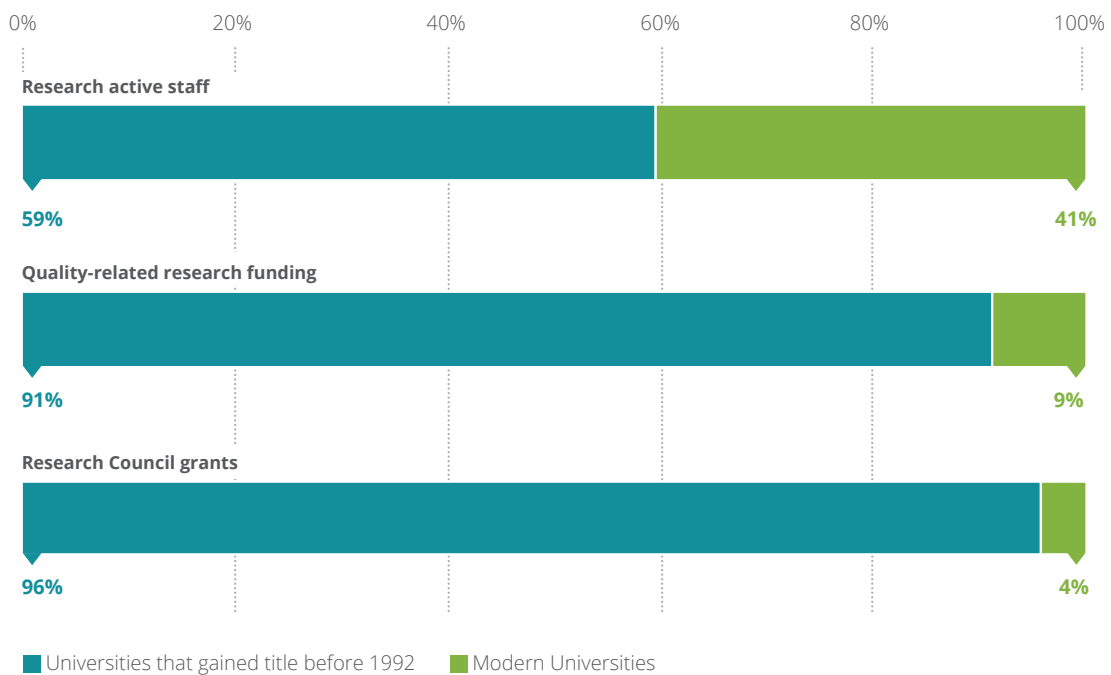
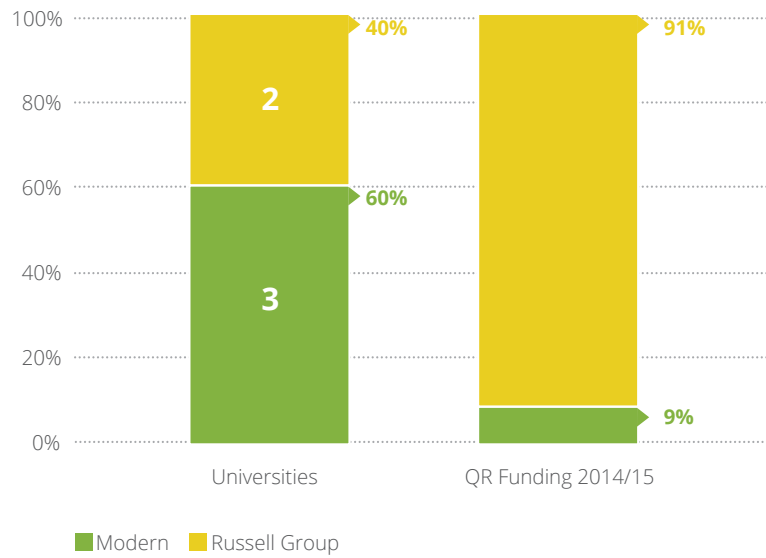
- The UK's current investment of 1.7% of GDP in science, innovation and research should be increased to at least the 2.4% average of competitor countries in the OECD
- A new fund for translational research, targeted at universities which currently receive lower levels of public research funding, should be established to support innovation and economic growth across the country
- All universities with research degree awarding powers (or which are applying for them) should be awarded baseline research funding linked with student numbers
- Revised and rebalanced assessment criteria to increase the value of the impact of a university's research activity should be included in any future research excellence framework exercise
- The criteria and processes used by the Research Councils to award grants should be the subject of an independent review to examine the extent to which current procedures act to embed historic patterns of funding.

Annex 1

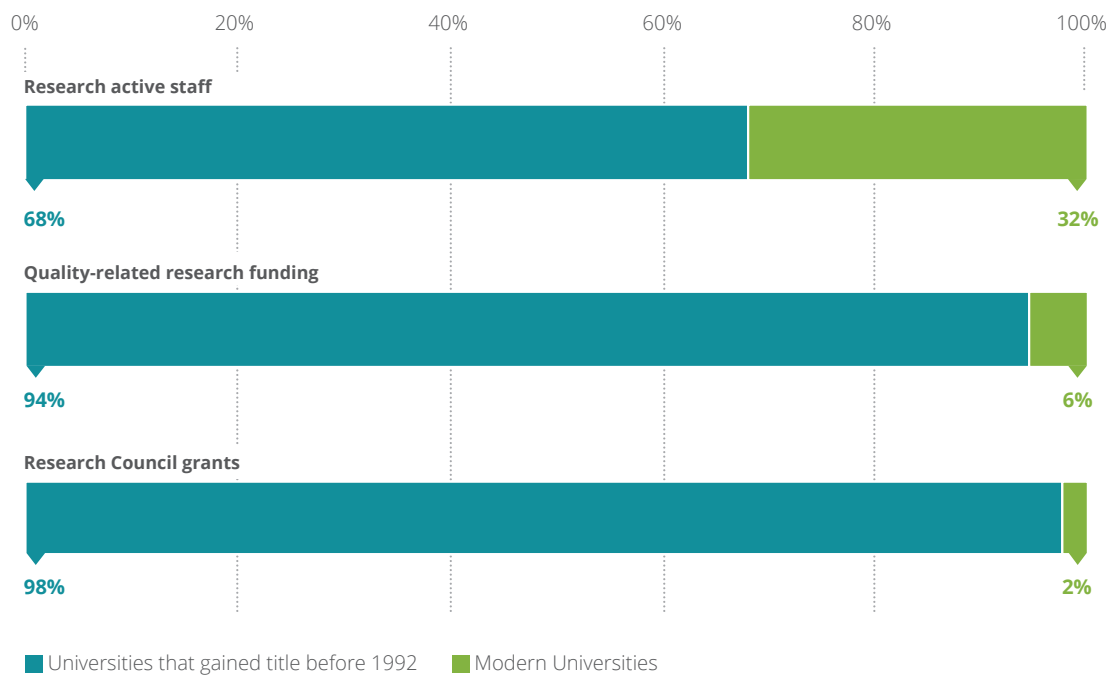
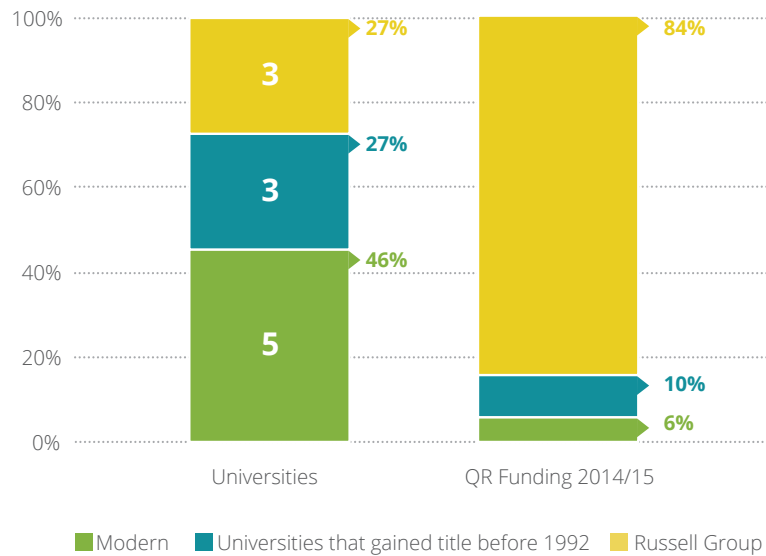
The distribution of research funding and relationship with the number of research active staff in North West England (2014/15)



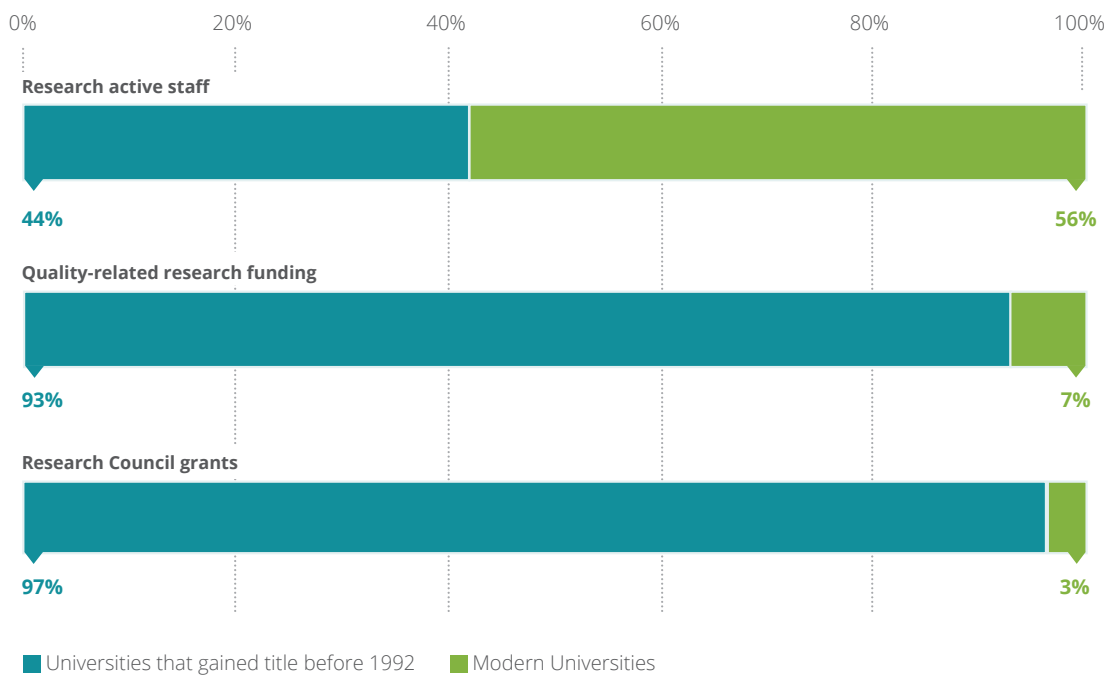
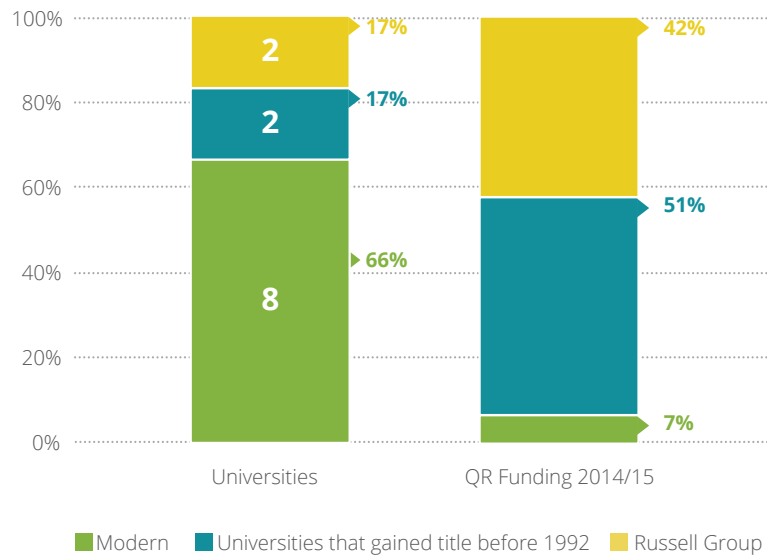
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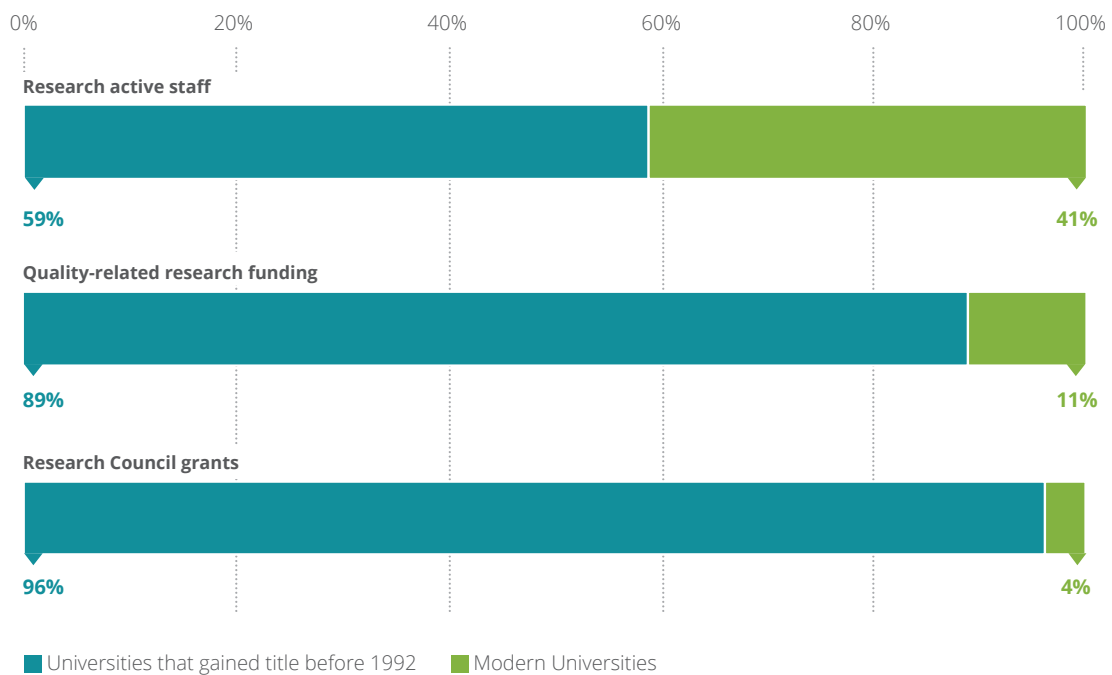
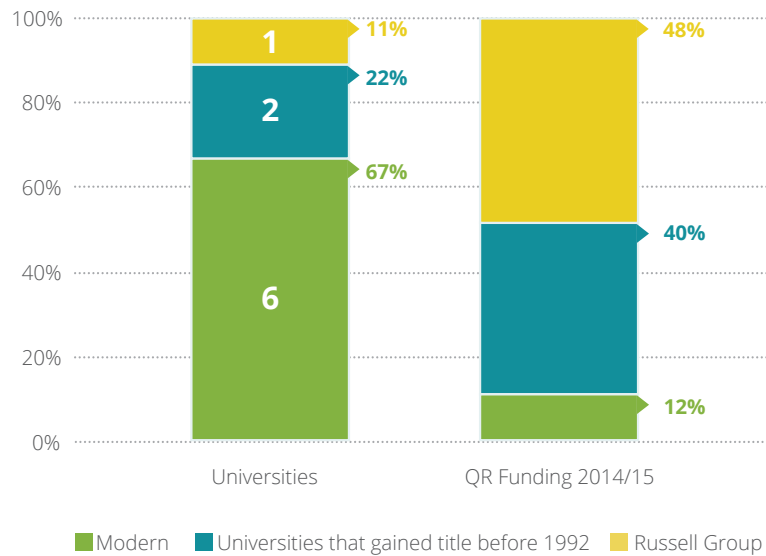
The distribution of research funding and relationship with the number of research active staff in Yorkshire and the Humber (2014/15)



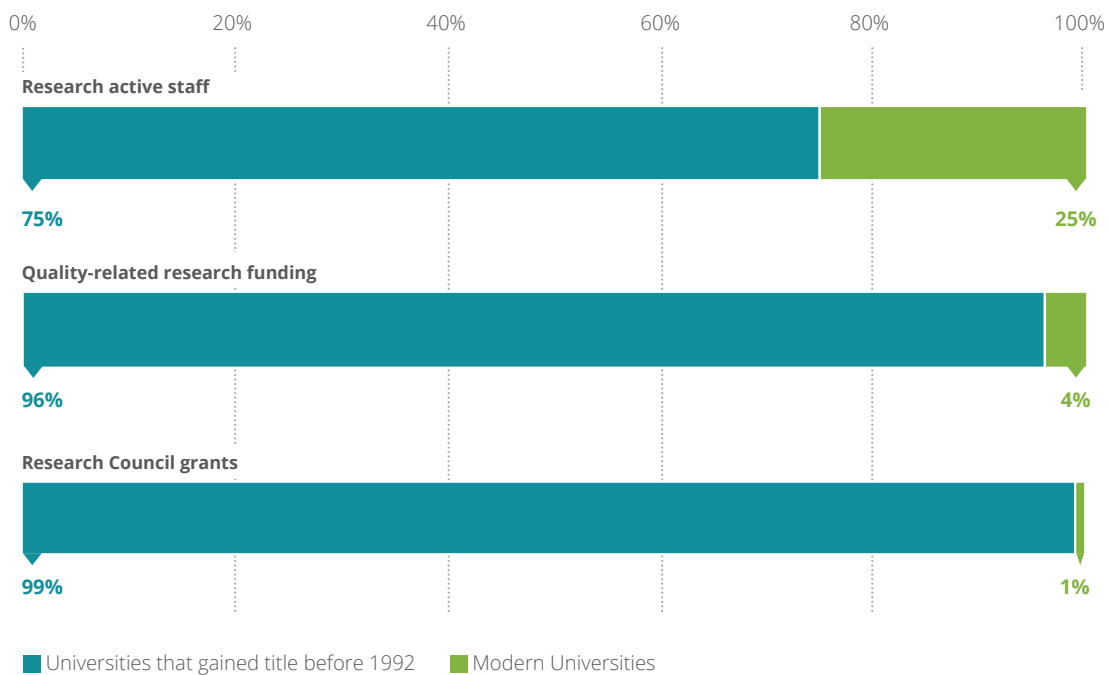
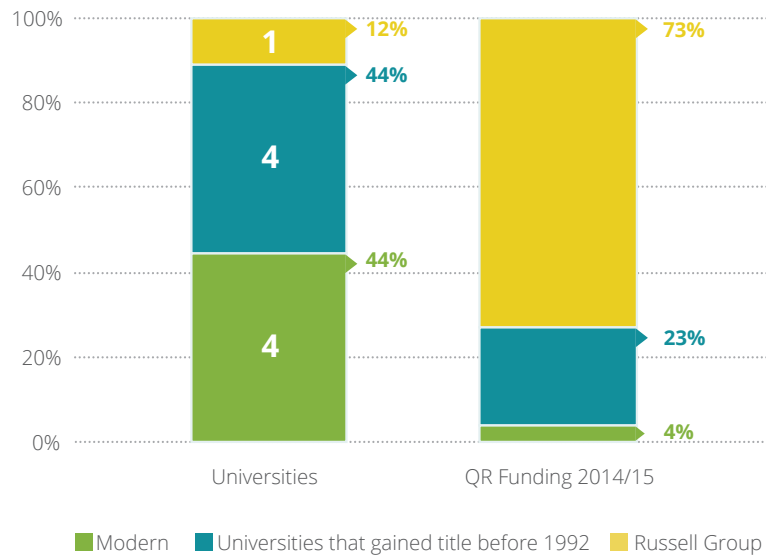
The distribution of research funding and relationship with the number of research active staff in the West Midlands (2014/15)



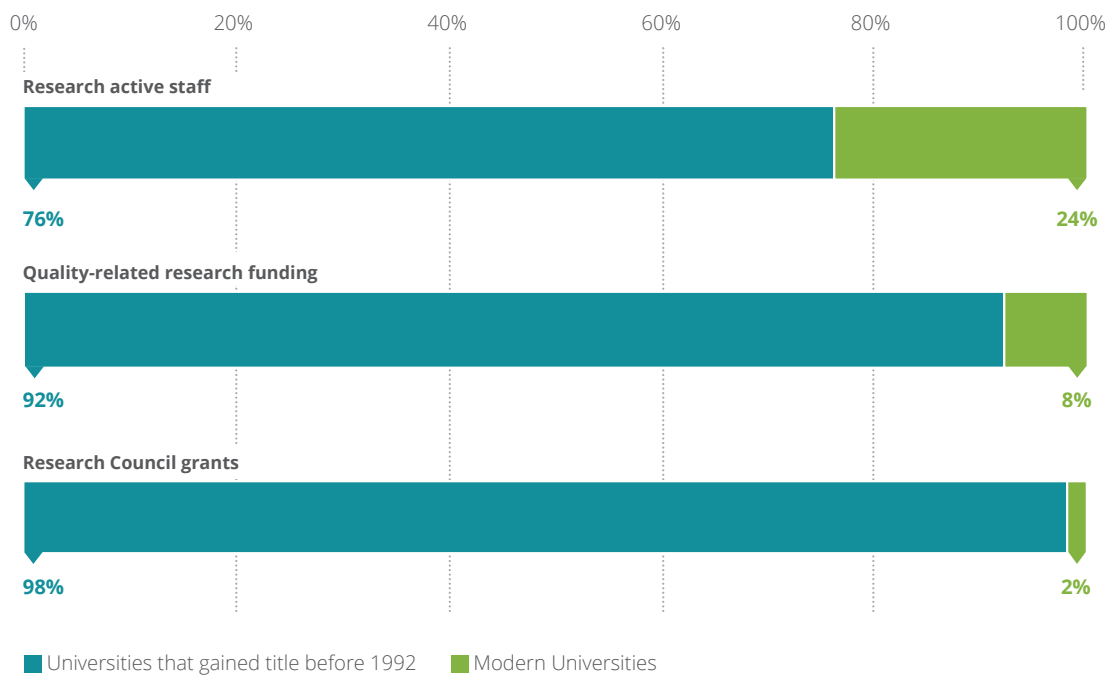
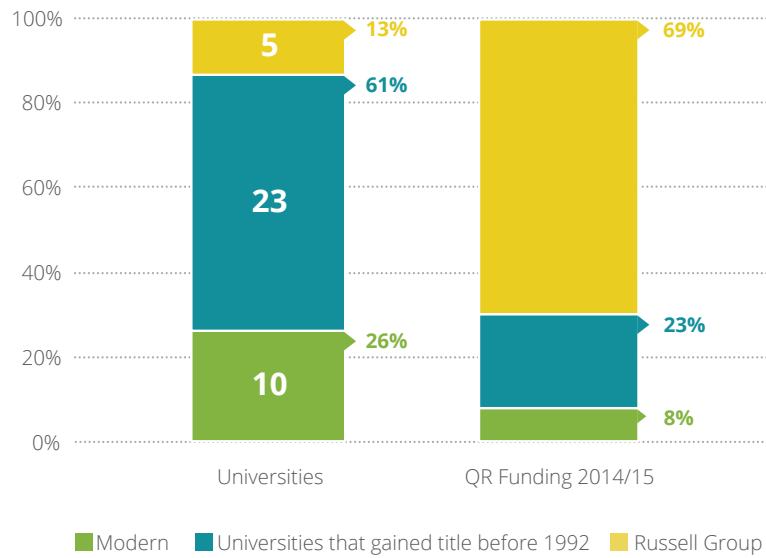
The distribution of research funding and relationship with the number of research active staff in the East Midlands (2014/15)



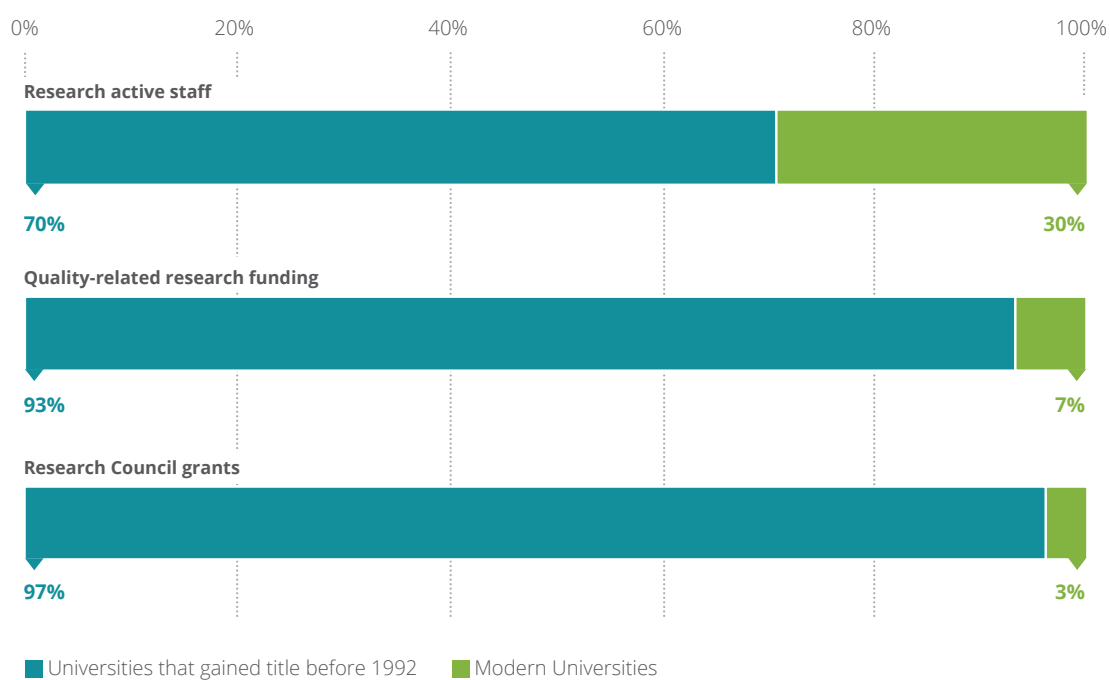
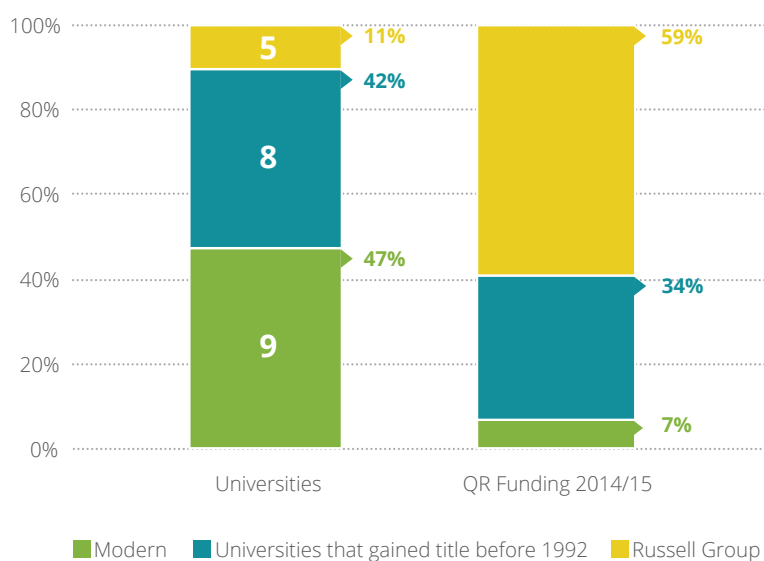
The distribution of research funding and relationship with the number of research active staff in the East of England (2014/15)



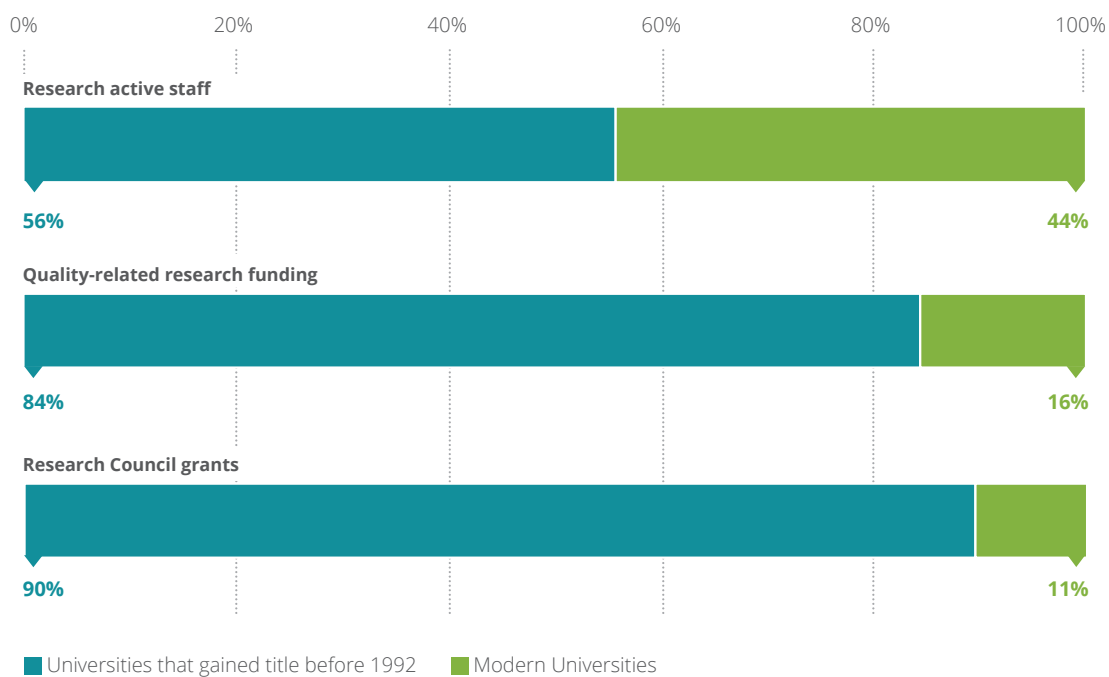
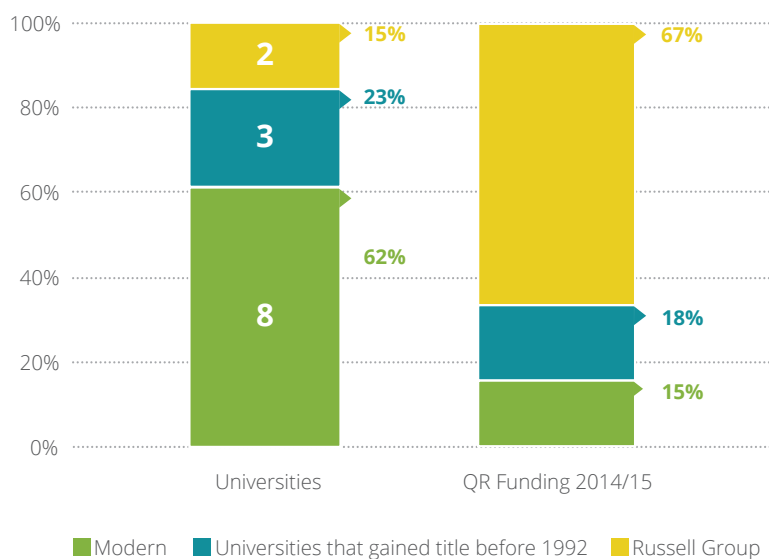
The distribution of research funding and relationship with the number of research active staff in London (2014/15)



The distribution of research funding and relationship with the number of research active staff in South East England (2014/15)



The distribution of research funding and relationship with the number of research active staff in South West England (2014/15)





MillionPlus

90 London Road, London, SE1 6LN

Phone +44 (0)20 7717 1655

🐦 @million_plus

Email info@millionplus.ac.uk

www.millionplus.ac.uk

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