How to talk to policymakers about research

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Contents

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Foreword

Professor Nick Jennings, Vice-Chancellor and President of Loughborough University and the UK Government's first Chief Scientific Adviser for National Security

I am delighted to have the opportunity to support this insightful report about policymakers' perspectives on the value of research. It has never been more important to make the case for research to be recognised and exploited, to maintain and further develop Britain as an Innovation Nation, punching above its weight on a world stage.

Developing innovative solutions to real-world problems often requires fundamental research advances, which can take many years to come to fruition. Applying these solutions generates further research challenges. This coupling lies at the heart of an impactful research and innovation ecosystem, requiring research that is also undertaken for curiosity and discovery.

In my own research field, of Artificial Intelligence (AI), there have been many twists and turns since Alan Turing's pioneering theoretical work that began in the 1930s. The funding cuts and declining interest of the 1970s and 1980s might be long behind us and extraordinary and transformative impacts have been achieved, but there remain many challenges to make AI a successful reality for all.

The use of research to support and drive policymaking is an increasingly well recognised and valued route to generating impact, alongside the diverse ways in which research-related knowledge and skills benefit humanity by fostering economic performance, enhancing quality of life, health and creative output.

The independent knowledge and evidence base that is established must serve all stakeholder groups through a range of delivery means, to help address challenges and maximise opportunities for the short and longer term, as well as those we cannot currently foresee.

As I learnt from my time as a Government Chief Scientific Adviser, greater understanding and appreciation by policymakers of what research is and is not, balanced with how the academic community can better meet government needs, is needed. There must be a coordinated understanding of what research in universities should and should not be, and the purpose it serves, so that the higher education sector can know what is expected of it and match this with the needs of all stakeholders.

Methodology

This report includes interviews with former University Ministers, Special Advisers (Spads) and Policy Advisers (Pads) who have served ministers across the political spectrum as well as those who have worked in research funding policy and used research to aid in parliamentary scrutiny. They include:

- Dr Diana Beech – former Policy Adviser for three Ministers for Universities, Science, Research and Innovation (2018-19)

- Ben Johnson – former Policy Adviser to Minister of State for Universities and Science (2019-21)

- Lord Jo Johnson – former Minister for Universities and Science (2016-18 and 2019)

- David Sweeney CBE – former Executive Chair of Research England (2017-22)

- Professor Graeme Reid – Chair of Science and Research Policy at UCL and a former civil servant

- Stian Westlake – Policy Adviser to the Minister for Universities, Science, Research and Innovation (2017-19)

- Professor Andy Westwood – former Special Adviser at the then Department for Innovation, Universities & Skills (2007-09)

- Giles Wilkes – Special Adviser to the Secretary of State, Department for Business, Innovation and Skills (2010-14), and Special Adviser in Number 10 Downing Street (2017-19)

- Lord David Willetts – former Minister for Universities and Science (2010-14)

While the term 'policymakers' can be nebulous, it is used to refer to the following three groups: political actors (such as Ministers and Spads), those involved in parliamentary scrutiny and non-political actors such as civil servants. These groups have different aims and methods and so tend to conceptualise the value of research in different ways.

Executive summary

This report features interviews with former university ministers, Special Advisers (Spads) and Policy Advisers (Pads) as well as others involved in research policy and leadership. Several broad insights emerge.

- Policymakers broadly conceptualise the value of research in two categories: applied research and research used as evidence in policymaking.

- Despite enthusiasm for what research can accomplish, long timescales and lack of control over research outcomes can frustrate policymakers, who typically want more immediate results and linear causal links between research funding and economic growth.

- There are significant opportunities for academics to advise Government in their area of expertise, but generally only if they present as neutral knowledge brokers – for example, academics' social media can create a barrier to them having access to and advising policymakers.

- While proof that R&D funding has leveraged local business investment can create a compelling argument for further funding, there is also an appetite among policymakers for non-utilitarian arguments about the value of research.

- Interviewees agreed that there is substantial scope for the sector to present a vision for the value that higher education research adds to the United Kingdom, but any attempts to do so must also take into account the various financial and wider political pressures facing any government.

The purpose of this report is to reflect on how research has been conceptualised as both an integral part of the R&D ecosystem and a national asset.[1] It focuses specifically on research conducted by higher education institutions, which in 2019 received £9.1 billion, or 24% of the overall UK R&D budget.[2] While several strands of agreement arose across these interviews, the picture that emerges is not without contradictions.

1. Applied research and research as evidence

Two categories emerged within the interviews of how policymakers value research: applied research that has a demonstrable impact on society, health or the economy; and research as used to improve policymaking.

Applied research

Ben Johnson (former Policy Adviser to the Minister for Universities and Science from 2019 to 2021) summarised the general benefit higher education research contributes to UK industry:

> *The government recognises that industry needs to be incentivised to invest and remain in the UK. A very effective way that governments can do this is by subsidising R&D, de-risking industrial activity. Research investment, particularly into universities, is central to this because it creates a pipeline of ideas and people to meet a key industrial need.*

In this regard universities have a natural ally in industry and in business leaders, who rather than looking for the next 'big breakthrough' are often simply looking for graduates and the kinds of talented people who tend to flow out from universities.

In terms of disciplines, Dr Diana Beech (former Policy Adviser to three Universities Ministers between 2018 and 2019) suggested policymakers 'do not see the value of the humanities until it comes to the implementation, and it is seen as part of the process of a wider scientific project'. For example, she said, 'if you want to get rid of the Ebola

pandemic, you need the science to do the vaccine, but then you also need the cultural anthropologist to be able to implement it – you need the lawyers, you need the historians'. While Beech said policymakers may struggle to see the value of many purer humanities research projects, there were exceptions to this rule when it comes to those connected to national heritage – for example, the discovery of Richard III's skeleton in Leicester.[3]

Former Universities Minister Lord Jo Johnson, however, was keen to emphasise that science funding is simply not a priority or thought about much at all by those in government, precisely because it is not thought about much by voters: 'the science budget really is a third-order consideration for voters, and therefore politicians as well'. In terms of disciplines, humanities research is even less of a priority, and only thought about in the 'pejorative' sense, as in 'we should be doing less of it'.

Research as evidence for policymaking

New Labour's declaration of 'what counts is what works' in its 1997 manifesto signalled an emphasis on the importance of evidence in UK policymaking.[4]

Yet it is only recently that the potential importance of academia in this pipeline of evidence has been more fully explored. Professor Graeme Reid (Chair of Science and Research Policy at University College London (UCL) and a former civil servant) describes the situation as analogous to how business previously used to interact with academia, saying that 'academic-policy relations are probably in the place that academic-business relations were 20 years ago'. However, the past few years have seen a flurry of new publications in this

space exploring how to create academia-policy relationships that could facilitate evidence-based policymaking.[5] New initiatives such as Capabilities in Academic Policy Engagement (CAPE) have coordinated nation-wide efforts to develop academia-policy links through a range of fellowships.[6]

Reid drew attention to the key role that evidence can play, specifically in the parliamentary scrutiny process. Advising the House of Lords Science and Technology Committee during the Brexit period, Reid would regularly go on the hunt for academics to give evidence across a variety of topics. Here, Reid drew the distinction between the value of research and researchers' expertise; rather than drawing on a specific piece of research, it was the accreted years of expertise that academics could draw on that proved especially valuable.

In searching for witnesses, Reid was not necessarily searching for policy recommendations; the more academics tended to come to the table with specific standpoints as opposed to facts, the less desirable they tended to be as witnesses, particularly in highly politicised contexts: 'We really did not need witnesses to come in and tell us that Brexit was a good idea or a bad idea', he said, 'because that was not what we were asking about'. The more witnesses could address the specific questions at hand dispassionately, the more highly valued their expertise was. This is broadly in line with synthesised guidance produced by academics Kathryn Oliver and Paul Cairney on the topic, which recommends that academics wanting to engage in the policy process must decide whether to become an 'honest broker' of knowledge or an advocate for a policy position early on.[7]

This engagement also requires academics to be proactive and attuned to the research needs of those in government. Former Universities Minister Lord David Willetts said:

> *One of the things that has always surprised me in my different spells in government, including as a civil servant, for example, working in the Number 10 Policy Unit, was how infrequently researchers asked, what are you working on?*

This, he said, was not to say researchers should then turn the entirety of their time and attention to Government priorities, but there may nonetheless be natural synergies with what they are already working on.

Reid also drew a distinction between the aims of evidence for parliamentary scrutiny and policymakers more generally. While the kind of questions asked by parliamentary select committees tend to be quite open-ended, thriving on ambiguity, civil servants would always be more interested in the best way to deliver specific policy objectives. This focus on policy analysis might make their range more restricted in terms of the evidence required, but they were nonetheless still open to evidence that contradicted their initial thinking. Ministers and SpAds, by contrast, Reid said, will 'often be drawn to evidence that supports their existing plans'.

There are of course opportunities for academics to interact with policymaking outside of parliamentary scrutiny, and even with ministers themselves – within limits. Diana Beech described the impact that social media had on what kinds of meetings ministers choose to take with academics. Before taking any meeting with an academic, for example, Spads

often check their social media – and those who have been publicly outspoken against the Government are significantly less likely to be received.

2. Mismatches

Interviewees pointed to several areas in which the expectations and perceptions of universities and government tend to be mismatched: for example, around timescales, outcomes of research and the best ways for universities to engage with policymakers.

i. Timescales

Different timescales between policymaking and research activity can frustrate those in government. Many research grants can last up to five years – and that is long before any of the benefits from commercialisation or economic impact can be realised. Diana Beech framed the issue in terms of electoral cycles:

> *Even with the best government in the world, you have got a four-year term. And if the government were to commission something, they know that that is not going to happen in their time in office – and that is the most frustrating thing for them, because they want to own it. They want the outcomes.*

During Beech's time as a Policy Adviser, ministers did not even last a year. This mismatch in timescales means that policymakers have to commit to funding research priorities knowing that they will almost certainly not oversee the benefits. These longer timescales are not the fault of academics; but they have to be taken into consideration when making the case for research.

ii. Causality and outcomes

Giles Wilkes (former Spad for Vince Cable and, later, Theresa May) pointed to how a key frustration in government with universities is that 'they are not really controllable'. Universities are a 'part of the state in the sense that there is a lot of public money and public policy affected' by them, but at the same time, in keeping with the Haldane principle, what researchers research is up to them.

According to Wilkes, it is this lack over control over not only higher education research itself, but also the broader causality between research and economic growth that policymakers find frustrating. He said, they tended to want a linear narrative, in which research is just the missing ingredient in economic growth, and more R&D funding means more ideas, which will in turn produce companies, which will then produce jobs. Simply increasing funding to R&D, in this view, would automatically translate into amplified economic benefit:

> *Just increase R&D spending and that way, the country will become more innovative and grow more, and it seems from that point of view to be this magic essence that can take that £20 billion budget and turn it into £2 trillion economy value.*

In Wilkes's view, what frustrates some parts of government then is the lack of control they have over the precise effects that funding research tends to have. It was a source of frustration that increasing the science budget would not necessarily boost economic growth in a straightforward short-term way.

How to talk to policymakers about research

It is also partly because of this frustration that policymakers are less likely to believe arguments from the sector that assert an easy causal relationship between R&D funding and economic benefit. Giles Wilkes noted that arguments which assert X amount of funding will produce Y amount of economic benefit tend to be distrusted by anyone with economic influence in government: 'The Treasury will shrug and say well, how would I ever know which extra job out there was because of this piece of R&D spending?'. (This was not unique to the research sector, he noted, but common across other sectors' lobbying efforts as well.)

Stian Westlake (Policy Adviser to the Minister for Universities, Science, Research and Innovation from 2017 to 2019) agreed. 'It depends what you are trying to do. If you are trying to provide something for a politician to put in a speech, then those kinds of return multiples might be somewhat useful', he said, 'but it is not going to be helpful in negotiating funding settlements between No. 10 and the Treasury'. The more generalised and expansive these assertions are, the less compelling the figures become.

These attitudes reflect the difficulty that academic research into the relationship between science funding and economic growth has encountered. Research in the US context has found that science funding 'is not a guarantee of short-term economic growth and job creation'.[8] 'The econometric evidence for R&D is about as good as it can be', Westlake said, 'but it is not really that strong'.

But some work in this area has still had influence and some areas of government have also made similar economic

arguments.[9] David Sweeney made the point that the sector has often felt pressure to play this game because of the terms through which government understands funding: 'I am not sure what the other option is, because the terms of a trade from the government are: "tell us about the return we will get for our investment". So the sector find a methodology to provide an answer even though the returns are often not easily captured in a single number'. He pointed to the power of case studies for those in ministerial positions, who tend to find these more convincing than calculations of economic returns.

Ben Johnson warned against relying too heavily on utilitarian arguments for research, however. 'I think one of the great risks of saying "spend money on science and you will get guaranteed outcomes" is that it is not true', he said. 'Quite a lot of the time the only outputs from science spending are paywalled PDF journal articles, of interest only to other scientists, and often with no immediate utility beyond academia'. Framing things purely in terms of making the next breakthrough could also be a mistake, as there are no sure bets: 'Science is inherently uncertain. All research is inherently uncertain.'

David Willetts pointed to the incentive structure that universities face, which tends to direct them away from applied research and towards a focus on research metrics and rankings. 'There is a gap between the incentive and prestige structure – which ministers themselves often promote – and a separate interest in much more applied research'. Shifting this incentive structure was in large part why the impact element of the REF was introduced. But the REF has still not entirely changed the underlying structures of reward in academia; David Sweeney made the point that much of how UK research

funding is structured still centres on the individual – whether that is the individual researcher applying for a grant, or an individual institution – and this has created a system where rewards are tied to how many publications bear an individual's name.

For Jo Johnson, however, the fact most researchers are not interested in delivering the Government's agenda is no bad thing. He spoke of the enduring importance of the Haldane idea – or the idea that says decisions on individual research proposals are best taken by researchers themselves through peer review – and thought it was 'entirely right' that government has no say in the outcomes of science research, as they are not necessarily best placed to direct that funding.[10] He was critical of mission-oriented funding schemes as well, which he worried could tie higher education research to passing trends in government.[11]

iii. University engagement

Several interviewees noted universities do not always help themselves when it comes to making the case for supporting research. In particular, the standard mode of doing university ministerial visits may need revision. The temptation to show off the newest research facility is understandable – but, as Beech points out, a tour of a multimillion-pound facility followed by an argument about how underfunded research is tends to jar with ministers who have many competing funding priorities. 'What we show policymakers does not help our case', she said, 'and we have got to think holistically'.

There is also a risk around lapsing into technical language that leaves many out, particularly around concepts such as

full economic costing (FEC) – which refers to the extent to which universities recover the costs of an activity through the funding received. Andy Westwood (former Spad at the then Department for Innovation, Universities and Skills between 2007 to 2009) said:

> *People will go straight from science superpower to full economic costing. But immediately you lose a lot of people, including the public, a wider constituency that could offer you legitimacy for what you are doing and how much it costs. You will end up in an obscure room in the Treasury where someone sort of whispers, 'what are they talking about?'*

Arguments around increasing full economic costing for research were particularly difficult, Westwood said, precisely because universities have been so successful in making the current levels of funding work. Giles Wilkes agreed on this point; if government paying full economic costing for research 'just simply means you need to pay 15% more for the same thing, that is always going to be a tough pitch'.

3. Making the case for research

However present the risks facing university finances may be, it must be contextualised within the overall fiscal outlook facing the Government. A lack of awareness of the pressures that other sectors and the general public are under can risk making the sector look out of touch, or as one former adviser put it, 'at best, a bit needy' and at worst, 'entitled and tone deaf'. Ben Johnson framed the issue within the funding choices politicians must make on a regular basis:

> *The base budget for R&D is around £15 billion a year. From a politician's perspective, they might see an opportunity to knock a few pence off a litre of petrol with that. So what political outcomes does the government get for the investment in R&D? That is when it starts to get a little more difficult.*

The value of research must be proven – not necessarily from a utilitarian perspective, Ben Johnson said, but from 'first principles'.

More creative thinking, then, may be needed. David Willetts agreed that there is room to broaden the scope of arguments used to support research in ways that do not exclude the instrumental view entirely but complement it. He used the example of a Shakespeare academic:

> *The argument that the cultural industry is one of Britain's great successes – and that the arts and humanities contribute to that – is a good one. We know that is not why an academic is researching Shakespeare, but equally they have to accept the evidence that this body*

of work around Shakespeare itself is a national economic asset. Drawing attention to that is not a reductionist interpretation of their motives in doing their research; there is some kind of sensible position where you can draw attention to the economic benefits without having to prescribe motives to individual researchers.

In other words, the arguments around the value of research can be expanded in a way that allows the applied benefits and any intrinsic cultural value to exist simultaneously. Willetts referenced the famous US Senate hearing in 1969 over the funding of what would become Fermilab, America's particle physics and accelerator laboratory. In relation to the new lab, Senator John Pastore asked scientist Robert Rathburn Wilson, 'Is there anything here that projects us in a position of being competitive with the Russians, with regard to this race?' Wilson replied:

Only from a long-range point of view, of a developing technology. Otherwise, it has to do with: Are we good painters, good sculptors, great poets? I mean all the things that we really venerate and honour in our country and are patriotic about. In that sense, this new knowledge has all to do with honour and country but it has nothing to do directly with defending our country, except to make it worth defending.[12]

Andy Westwood recommended placing more emphasis on the power of narratives to demonstrate the value of research: 'Tell stories about research, rather than assume people know and tell stories that land not just in those obscure rooms in the Treasury or the minister's office'. In particular, this work

How to talk to policymakers about research

with politicians is best underpinned by telling stories to the 'wider public that, as we know, have the potential to be pretty sceptical about the value of universities more broadly'. Such stories may include the COVID vaccine, of course, but also, for example, narratives about the R&D underpinning of supplies sent to the war in Ukraine. Stian Westlake agreed, saying 'sometimes really specific anecdotes can be incredibly helpful for giving some sort of specific locus to stick in people's minds'. It is these stories, however anecdotal, that remain more convincing than much of the other evidence on the table.

Many interviewees also reiterated the importance of showing how university research contributes to the local area. David Willetts put this in terms of leveraging business investment, as business investment in the UK continues to be low despite government interventions.[13] He said an external partner advocating for their local university's value was multiple times more valuable than what universities could say about themselves; for example, a local employer who can say their university's research programme has helped with their own R&D programme, or a police service with strong links to the local university's criminology department.

David Sweeney said that above all, the sector should be talking about 'working in the public interest, with the desire for partnership', pointing to how the University of Manchester, he believed, had accomplished this particularly well. Diana Beech agreed: 'Local universities need to show they are doing research for local benefit'. Demonstrating how university research specifically is part of the wider civic university agenda creates a natural way to demonstrate value.

Conclusions and recommendations

There was a notable level of agreement about how to engage policymakers with UK research across the interviews, even among advisers that had served ministers of different political parties. The sentiments expressed were not without contradiction, however. For example, while there was a desire for evidence of causal links between R&D spending and economic growth, this was accompanied by a scepticism towards evidence that would seem to support that link.

For those wanting to engage with Government, either to change perceptions or simply influence them, three specific policy recommendations emerge.

i. **Higher education is just one sector among many.** Many of the frustrations from former advisers cite the lack of understanding that the sector sometimes displays to the other commitments and pressures faced by government. An awareness of these priorities and pressures should inform any requests made. Any requests must be contextualised within the wider economic context and difficulties facing crucial public services, many of which have a clearer linear relationship with economic and public health.

ii. **Local matters**. All of those interviewed agreed one of the most effective ways to make the case for research is showing what it does for the local community and economy. For example, showing how a university's research has leveraged business investment in the local area offers a concrete way of demonstrating its economic contribution. Regional inequalities will remain a pressing issue whatever government is in place. So the more universities can

do to show that they are anchors of local and regional economies, the better, and these localised arguments can be more convincing to those in government than ones that extrapolate the value of research economically to a national level.

iii. **Thinking beyond utilitarianism**. While concrete ways of demonstrating economic value (such as leveraged business investment) can be helpful, the scope of the argument should not be confined to the utilitarian. This final point is perhaps the most important point from these interviews. There is scope and appetite for articulating the value of research in ways that do not relate solely to its applied benefits – but to do so requires the imagination and boldness to formulate a vision of how the value of higher education research connects to the ideas of society.

For those who can create and communicate this vision, there is a huge opportunity for influence.

Endnotes

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4   New Labour Manifesto, 1997 http://www.labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml

5   Ariana Darvish, Sarah Chaytor and Robyn Parker, 'Lessons from literature and practice: how to support successful academic-policy engagement', CAPE, 15 July 2022 https://www.cape.ac.uk/2022/07/15/lessons-from-literature-and-practice/

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7   Kathryn Oliver and Paul Cairney, 'The dos and don'ts of influencing policy: a systematic review of advice to academics', *Palgrave Communications*, Volume 5, Article 21, 2019 https://doi.org/10.1057/s41599-019-0232-y

8   Julia Lane, 'Science innovation. Assessing the Impact of Science Funding, *Science*, Volume 324, Issue 5932, pp.1273-1275, 5 June 2009 https://www.science.org/doi/10.1126/science.1175335

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12 AEC Authorizing Legislation, Fiscal Year 1970: Hearings, Ninety-first Congress, First Session, U.S. Government Printing Office, 1969, p. 113.

13 Valentina Romei, '"Super deductor" tax break fails to boost UK business investment', *Financial Times*, 10 June 2022 https://www.ft.com/content/74eafecd-5f73-4e9e-a546-26b5c1032780

This report is based on interviews with a range of experienced politicians, political advisers and civil servants.

It looks at how policymakers currently engage with cutting-edge research and considers ways to improve the relationship between those who push at the boundaries of knowledge and those who govern the country.