

Unit-level environment template (REF5b)

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| Institution: University of Bath |
| Unit of Assessment: Economics and Econometrics |
| <p>Section 1. Unit context and structure, research and impact strategy</p> <p>Unit context. Economics at the University of Bath is a vibrant discipline, which, over the past six years, has experienced transformative growth designed to build a critical mass of researchers around strategically important areas. This growth resulted from the concerted, collaborative, and ambitious efforts of staff within the UoA coupled with significant support, commitment and investment from the University and is reflected by an increase in Category A staff of over 50% (25 FTE on 31/7/2013 to 38.2 FTE on 31/7/2020) at the Department of Economics.</p> <p>This has led to a clear step change in research culture and capacity of the UoA. For example, over this REF-period the UoA experienced transformational growth in outputs published in internationally-leading field and general-interest journals. Furthermore, scientific exchange at the highest level has intensified significantly, as evidenced by a large increase in the number of high-profile international conferences and workshops with guest speakers of the highest scientific standing held at the University of Bath.</p> <p>In REF2014 staff contributed across four different Units of Assessment (Business and Management Studies, Computer Science, Education, and Social Work and Social Policy), reflecting the interdisciplinary nature of much of our work. The transformative development of Economics at the University of Bath, in both quality and quantity, enables us, for the first time, to make a single, cohesive and robust submission to UoA16 for REF2021. This submission comprises the Department of Economics which is part of the Faculty of Humanities and Social Sciences and two staff-members from the School of Management whose research straddles the interdisciplinary boundary between Economics and Management.</p> <p>Mission. From its inception as the Political Economy Group when the University of Bath was founded in 1966, the UoA's mission has been to conduct rigorous and innovative research of the highest international quality aimed at making impactful contributions to important real-world challenges. As such challenges often transcend disciplinary boundaries, the UoA actively seeks to connect and cross-fertilise its research with that of other disciplines at the University of Bath.</p> <p>Research Strategy. The goal of our research strategy throughout the REF2021-assessment period was to strengthen the UoA's vitality and sustainability of research and to carefully embed our mission. Detailed strategic objectives which underpinned our pursuit of innovative, rigorous, and impactful research of the highest international quality were:</p> <ol style="list-style-type: none"> (1) to expand and sustain world-wide research-partnerships of high repute; (2) to hone a distinct profile and expertise in two areas of research excellence that build on our heritage while positioning the UoA to capitalise on future opportunities arising from national and international priorities. <p>Our first area of excellence is Public Economics, especially Political Economy and Environmental Economics. It continues our long-standing heritage in these fields and underpins our dedicated Research Themes 'Governance of Institutions and Systems' and 'Sustainable Living'. The second area of excellence is encapsulated by our Research Theme 'Social Determinants of Health'. The UoA's Research Themes are depicted in Figure 1 and described in more detail below.</p> |

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- (3) to strengthen our capacity for interdisciplinary research, for creating impact with our research outside the academic community and for attracting external research funding;
- (4) to strengthen the alignment between our research and teaching, empowering our graduates to think in a critical, research-aware manner;
- (5) to enable all academic staff to contribute to a thriving shared research culture built on diversity and inclusivity.

The following parts of this environment statement detail our pursuit of these objectives over the REF2021-assessment period. Building on our achievements, we aim to take our development to the next level on this strategic path by additionally focussing our future efforts on:

- strengthening the capacity of our research to address newlyemerging real-world challenges;
- increasing public and international recognition of our research expertise by establishing one or more formal research centres which (in the longer run) could be supported by external funding, e.g. from the ESRC;
- further enhancing our vibrant and dynamic research culture by higher levels of staff diversity and lived inclusivity.

COVID-19 Impact. While the full impact of the COVID-19 pandemic on our research is still unknown, the UoA has shown excellent responsiveness in addressing this emerging real-world challenge through its research. For example, Martin has produced research and blogs for the wider public about the impact of the COVID-19 pandemic on the UK labour-market and appropriate policy recommendations. Between April and September 2020, Martin had more than 100 appearances on BBC and other radio- and TV-stations. We also aim to strategically embrace new opportunities that digital tools provide for increasing research productivity, e.g. in collaborating with researchers nationally and internationally, and for communicating research. The UoA recognises that staff are affected differently due to diverse backgrounds, needs, and caring responsibilities, for example, child-care. The UoA offers additional support where needed, such as temporary relief from management duties, while acknowledging individual challenges when reviewing performance.

Research structure. Over the past six years, we have substantially strengthened and optimised our organisational and research infrastructure to reflect and support our strategic commitment to research excellence, underpinned by a range of external funding sources, which will generate strong societal impact. Under this infrastructure, depicted in Figure 1, the UoA has organised its research activities around **Research Groups** and **Research Themes**. The Research Groups, reflecting the sub-fields and methodological approaches in Economics, were formed in 2013 to boost the quality of publications and contributed to our transformative publication success in this REF-assessment period. In an effort to increase our research-grant capture, research impact and interdisciplinarity [strategic goal (3)], the Research Themes were created in 2017 and have already delivered tangible benefits as detailed below. The Research Themes cluster academics in the UoA around important real-world challenges that typically transcend classical Research Group and disciplinary boundaries and, importantly, align with funder priorities. As the diagram below illustrates, the boundaries between Research Groups (central 'cake' in Figure 1) and Research Themes (outer ring in 'cake' in Figure 1) are permeable to capitalise on synergies in research expertise. This is evidenced, firstly, by members of different Research Groups and Research

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Themes engaging in joint projects and, secondly, by many staff belonging to more than one Research Theme or Group, allowing for easy flow and cross-fertilisation of research ideas.

Alongside the UoA's Research Groups and Themes, Figure 1 displays support structures at UoA and institutional level that enhance the UoA's efforts to create high-quality outputs, generate and communicate impact, acquire research income, ensure highest ethical standards, and foster diversity and equality in the research process. While this section specifies how we interact with, and make strategic use of, the available research support structures, these structures themselves are described in detail in dedicated sections, especially Section 3 below.

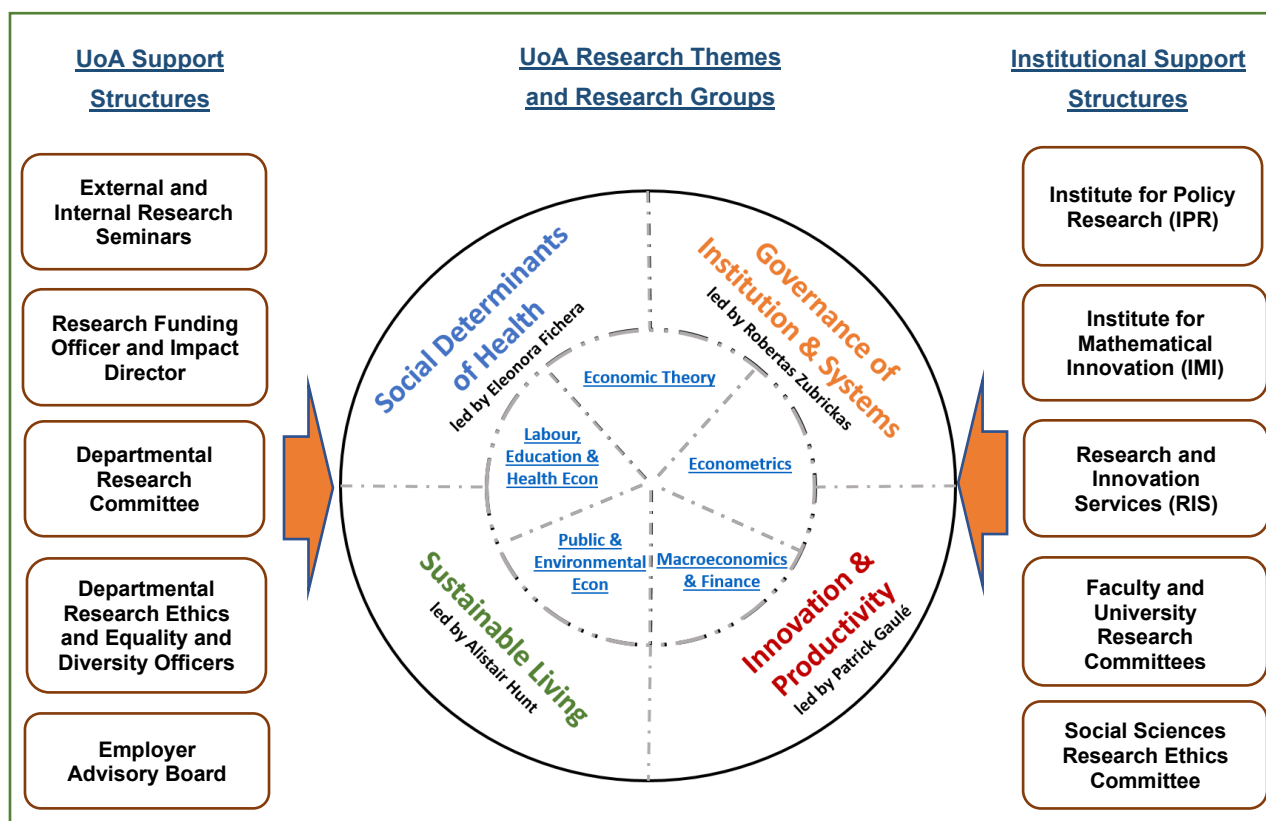


Figure 1 UoA Research Structure

Research Groups. The UoA's collegial and dynamic Research Groups in 'Economic Theory', 'Macroeconomics and Finance', 'Labour, Education and Health Economics', 'Public and Environmental Economics', and 'Econometrics' foster academic excellence and high-quality publications based on compelling theoretical reasoning and rigorous empirical analysis by realising disciplinary and methodological synergies within the UoA and communicating our research to the international academic Economics community. The Research Groups organise reading-groups, internal brown-bag seminars, research visits by high-profile external speakers and topical high-level academic workshops. Key examples of international academic workshops and prestigious conferences organised by the Research Groups include the 2nd Environmental Protection and Sustainability Forum: Towards Global Agreements on Environmental Protection and Sustainability, 2015, the 48th Money, Macro and Finance Annual Conference, 2016, and the [European Society for Population Economics \(ESPE\)](#) conference, 2019.

Research Themes. The Research Themes 'Governance of Institutions and Systems', 'Social Determinants of Health', 'Sustainable Living', and 'Innovation and Productivity' were conceived and established in 2017, to boost our capacity to generate external research funding,

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research impact, interdisciplinarity and engagement with wider audiences. Therefore, they deliberately reflect national priorities identified by the government (e.g. through its Industrial Strategy) and other research-funding bodies such as UKRI and the ESRC. The Themes also seamlessly link into the University's research focus around Sustainability, Digital, and Healthy Living. Making our research expertise more accessible to the wider public, the Research Themes facilitate discussion and collaboration with external stakeholders on topical issues (such as with policy-makers, e.g. through the recent project (led by Schneider, Hunt, and Papps) supporting the development of a local industrial strategy for the Swindon and Wiltshire Local Enterprise Partnership, thus contributing to the Place-agenda in the UK government's Industrial Strategy). The Themes also help to raise the UoA's media profile and disseminate our research outputs and insights as widely as possible. The Research Themes' focus on important real-world challenges significantly elevates our capacity for interdisciplinary research, while fostering impactful research and enhancing our accessibility to non-economists. More detail about each Theme is given below.

Governance of Institutions and Systems [Lead: Zubrickas (SL); Members: Bajoori (SL), Baker (L), Chowdhury (R), Cubel (SL), Feldmann (R), Franke (SL), Khalmetski (SL), Lavi (SL), Meier (P), Mishra (SL), Papps (SL), Postl (SL), Rivas (SL), Roy (P), Schneider (SL), Stimmelmayer (SL)]

The Governance of Institutions and Systems Research Theme explores the nature and evolution of political, market, and social institutions and their implications for economic welfare. The Theme's approach is distinctly interdisciplinary, complementing economic perspectives with social, political, and legal angles.

Under this Research Theme several major international workshops were hosted such as the "2nd Annual Conference of the Political Economy UK Group" in 2018 (organizers: Rivas, Schneider) and the "Micro- and Macro-Foundations of Conflict" workshop in 2018 (organizer: Chowdhury) funded by the British Academy Rising-Star Engagement Award (BARSEA).

Externally-funded research includes Mishra and Tsutsui's work on corruption in economic systems with poor governance (funder: British Academy), Zubrickas' work on crowdfunding for public goods, which also possesses high future impact potential regarding applications on internet-platforms (funder: Schmidt Sciences, USA) and Papps' research on the economic and social role of the National Minimum Wage (funder: UK government's Low Pay Commission), forming the basis for our submitted impact case study 'Improving our understanding of the National Minimum Wage to benefit low-paid workers in the UK and Ireland'. Further, Lavi, the newest Theme-member, provides an interdisciplinary focus by combining Computer Science and Economics in his research on Algorithmic Game Theory. Lavi provided consultancy on auction design for major companies including Google, Microsoft Research and Yahoo!, thereby strengthening the UoA's links with ART-AI, the University of Bath's interdisciplinary UKRI Doctoral Training Centre on Artificial Intelligence.

Social Determinants of Health [Lead: Fichera (R); Members: Clifton-Sprigg (L), Hunt (SL), James (SL), Gaule (SL), Liberini (L)]

As improvements in life expectancy have stalled across many countries, health inequalities and mental-health problems are widening, there is increasing recognition that the health-care system alone cannot resolve these issues. People's physical and mental well-being also depends on the socio-economic determinants of health. Therefore, this Research Theme takes a wider approach

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by spanning fields in economics, the social and the environmental sciences to inform the design and evaluation of cross-sectoral health policies.

Since 2016, the Theme-members have consistently increased their success in research-grant capture. While having been investigators on research grants from funders such as the EC-FP7, the ESRC-SDAI, MRC/DFID/Wellcome Trust/ESRC, [MRC-UKPRP](#) and from local organisations, the strategic goal was to increase the funds benefitting the UoA directly. A recent success in this regard has been the MRC-UKPRP initiative, where Fichera and Hunt collaborate on a project examining the effect of the urban environment on health ([TRUUD](#)), funding a total exceeding £800K including a PhD-student and a Research Associate. This multidisciplinary project also possesses significant future impact potential. Further research impact is developed around James' research on 'Incentives and children's dietary choices' influencing the composition of school meals.

Members of this Research Theme have actively expanded their research links and collaborations, for example with the University's Institute for Policy Research, the Centre for Development Studies, and with the Centre for Healthcare Innovation and Improvement (Chi²) which led to a commissioned report for the Cwm Taf University Health Board (Fichera). Theme-members also participate in the newly instituted South-West Academic Network of Health Economists (SWAN-HE), a collaboration between health economists at the Universities of Bath, Bristol, Exeter and Cardiff.

Sustainable Living [Lead: Hunt (SL); Members: Fichera (R), Morley (L), O'Shea (SL), Schaefer (SL), Schneider (SL), Tsutsui (SL), Zeppini (L)]

This Research Theme aims to encourage people and societies to move towards lifestyles with less adverse impacts on the environment. This includes finding ways to encourage economic activity to be de-coupled from environmental degradation, developing and analysing policies that result in more equal societies as well as developing indicators providing a broader guide to human well-being than conventional economic measures such as GDP.

The members of this Research Theme participate in numerous externally-funded projects focussing on 'Green lifestyles', reducing waste, and climate change funded by the European Commission, DEFRA, ESRC, the Joseph Rowntree Foundation, the Daiwu Foundation, MRC, the Belmont Forum and Urban Europe, as well as the European-Commission funded 'IN-STREAM'-project undertaking qualitative and quantitative assessments for linking mainstream economic indicators with key well-being and sustainability indicators.

Sustainable Living Theme-members have consistently expanded and deepened their range of interdisciplinary cross-university research initiatives, including work with the Institute for Mathematical Innovation, Department of Mathematics (Zeppini, Hunt), involvement with the Mongolian Air Quality project at the Institute for Policy Research, the Water Innovation and Research Centre at the Department of Chemical Engineering (Hunt, O'Shea), the co-leadership of the Water in the Circular Economy research-group at the Institute for Policy Research and School of Management (Hunt, Fichera). Outside the University, O'Shea has advised the Department for the Environment, Food and Rural Affairs (DEFRA), whilst Hunt provides technical support to the Climate Change Committee's Third UK Climate Change Risk Assessment.

This Research Theme continues our rich legacy of success in high-impact research on the environment and climate change, reflected by the submitted impact case study 'Informing

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international and organisational policy and decision-making around climate change' (Markandya), and now carried on by Hunt with the submitted case studies 'Developing an economic valuation of environmental damage' and 'Strengthening national vehicle pollution policy and standards'. Continuing this deep-rooted tradition of strong research impact into the future, there is considerable potential around the aforementioned externally funded research project on Tackling the Root Causes of Unhealthy Urban Planning (Fichera and Hunt) as well as around the externally part-financed project on improving the measurement of Natural Capital (Schneider).

'Innovation and Productivity' [Lead: Gaule (SL); Members: Asimakopoulos (SL), Camilli (L), Clifton-Sprigg (L), Delaney (SL), Jackson (P), Martin (P), Papps (SL), Schneider (SL), Stimmelmayer (SL), Zeppini (L)]

Innovation and improvements in productivity are key drivers of long-run economic growth. This has spurred research – both in economics and other disciplines - into the determinants of innovation and its diffusion within the economy.

Spanning various methodological approaches ranging from very abstract to very applied work, this Research Theme has become instrumental in fostering discussion and dissemination of recent research findings in the economics of innovation and productivity to wider audiences beyond the economics academic community. For example, Theme-members organised research workshops in 2018 and 2019 with speakers from management schools and hosted a public lecture by distinguished visitor Kirk Doran (University of Notre Dame) on knowledge and the economy. This has also led to regular interaction with the Centre for Entrepreneurship and Innovation at the School of Management.

Responding to the Place Agenda in the UK's Industrial Strategy, in 2019, Theme-members engaged in a research project with the Swindon and Wiltshire Local Enterprise Partnership to provide an evidence base for their Local Industrial Strategy. The Research Theme 'Productivity and Innovation' is also expanding existing links (via Ben Gardiner, Cambridge Econometrics, who is a member of our Employer Advisory Board) with the Productivity Insights Network and with the SETsquared Bath Innovation Centre, whose head (Bennett) regularly visits as a guest speaker in the undergraduate final-year module 'Economics of Innovation and Entrepreneurship' (taught by Schneider) connecting research-led teaching with real-world application. In this Research Theme, there is high impact potential around the previously noted research by Martin on policy responses that mitigate productivity and labour-market shocks of the COVID-19 pandemic and expedite recovery.

Impact Strategy

Benefitting the wider economy and society with our research is a central part of the UoA's mission and a key strategic objective. Therefore, the UoA created the role of **Impact Director** (Papps), who regularly liaises with staff to identify potential research impact. The Impact Director supports UoA- staff in establishing contact with potential research users and guides impact creation through all stages culminating in documentation of the final impact case. Through our external-facing and accessible Research Theme webpages, the UoA showcases its research to potential users. Additionally, and as further detailed in Section 3, the UoA proactively pursues opportunities for impact creation leveraging its connections to industry via our Employer Advisory Board and to policymakers via the Institute for Policy Research (IPR).

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As indicated previously, the submitted Impact Case Studies directly relate to research in the different Research Themes and in each of them we highlighted ongoing research with high impact potential to demonstrate the vitality and sustainability of the UoA's future research impact. Moving forward, we aim to expand this impact by leveraging more extensively and effectively our existing structures, e.g., by regularly inviting policy-makers and research users as speakers and participants in Research Theme workshops and public lectures, collaborating with the IPR and the UoA's Employer Advisory Board to access their vast networks with UK policy-makers and industry leaders.

Support for Interdisciplinary Research. According to our mission and strategy, we encourage research on important issues that cross disciplinary boundaries and we actively foster interdisciplinary networks for scientific exchange and collaboration. First, a central function of our four Research Themes is to support interdisciplinary research by increasing the accessibility of our research to academics from other disciplines, thereby facilitating the formation of cross-disciplinary research teams to tackle important real-world challenges. The UoA strongly encourages and supports the participation of researchers and policy-makers from relevant other disciplines at workshops, especially those organised under the Research Theme banners. Examples include workshops organised under the Innovation and Productivity Theme with speakers from Management, the 2nd Environmental Protection and Sustainability Forum organised together with the Institute for Policy Research, the Economics of Crime workshop with speakers from Social and Policy Sciences and several workshops in Political Economy which included speakers from Political Science. Moreover, UoA-members both organise and participate in 'sandpits' around specific research topics aimed at forming interdisciplinary research teams capable of research-grant capture.

To foster interdisciplinary research, the UoA maintains and expands a vibrant network with other departments and institutes including the **Institute for Mathematical Innovation (IMI)**, a research institute specialising in complex data analysis, mathematical modelling and machine-learning algorithms. Under the IMI umbrella, UoA-members collaborate with researchers from the Departments of Mathematics and Social and Policy Sciences on cyclicalities in directed social network structures with applications in trade, R&D and financial markets. This work resulted in three interdisciplinary publications and various applications for external research grants (Zeppini). UoA-members have also been successful in attracting funding from the IMI's Undergraduate Research Internship scheme, under which a researcher works with an undergraduate (typically final-year) student on a joint research project (Bajoori, Franke, Postl).

Other existing institutional links for interdisciplinary research include the Centre for Healthcare Innovation and Improvement (CHI²), co-producing a commissioned report for local public institutions (e.g. Cwm Taf University Health Board). Furthermore, UoA-researchers collaborate closely with the IPR and the School of Management on a large research grant (TRUUD) funded by the Medical Research Council (MRC), and led by the University of Bristol Medical School. Our strong interdisciplinary links between Management and Economics are exemplified by Baker's and Jackson's research at the boundary between both disciplines. They also provide a valuable and reliable link between the School of Management and the Department of Economics. More key examples of existing interdisciplinary research are detailed in Section 4 of this document.

The UoA's long-standing support for interdisciplinary research has not only produced tangible results regarding outputs and cross-disciplinary research-grant applications and success, but also regarding research impact. For example, the impact case study 'Improving our understanding of

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the National Minimum Wage to benefit low-paid workers in the UK and Ireland' (Papps, submitted) is based on work with researchers from Social and Policy Sciences and the IPR. Research by Jones together with the Department of Psychology, which was commissioned by the UK government's Department for Work and Pensions, led to impact on 'Changing behaviour to extend working lives' (not submitted), while the submitted impact case studies by Hunt and by Markandya involve strong interdisciplinary research collaboration with Biology, Health, and Climate Science.

Mechanisms for Developing and Reviewing Strategy and Performance

Within the UoA, responsibility for developing strategy, overseeing its implementation and reviewing performance against targets lies with the Head of the Department of Economics (HoD, Postl) and the Department Research Committee (DRC) chaired by the Director of Research (DoR, Schneider) and comprising the Impact Director and Research-Funding Officer, the PGR-representative and the Research Group and Theme leaders. Strategy development is guided by the UoA's mission, the overarching University strategy and the principles of equality, diversity and inclusivity. The DRC regularly reviews data about the UoA's number of publications, the journals where they were published, citations, as well as research-grant applications and success to gauge the UoA's progress. Such data informs, but does not govern the UoA's assessment of research-performance or the construction of our REF-submission, which closely adheres to the Principles of Research Assessment and Management, published by the University in 2017 and only the second University in the UK to do so.

The research strategy and expectations regarding publication quality, research funding and impact are communicated to members of the UoA individually, e.g. in regular Staff Development and Performance Reviews (now termed Career Conversations) and at staff meetings and feedback is integrated into all decisions. All DRC-members have successfully completed training on unconscious bias and on equality and diversity. Decisions about research strategy and implementation consider potential impacts on staff mental-health, disabilities, or on staff with (parental) caring responsibilities. Equality, Diversity and Inclusion is a standing agenda item of the department staff meetings. Staff are actively encouraged to seek support from the HoD and Equality and Diversity officers (Bajoori and Franke) if any measures imply undue strain on their mental-health or conflict with personal responsibilities and circumstances revolving around culture, faith, caring responsibilities or disabilities.

Research integrity and Open Access. We ensure that all our research and associated research activities are subject to rigorous ethical scrutiny. All UoA-members complete the 'Concordat to Support Research Integrity' training course. A Departmental Research Ethics Officer (DREO) provides oversight and guidance for the ethical dimensions of all research.

The UoA works closely with the University of Bath's Library in progressing an Open Research Environment aligned with the Concordat on Open Research Data and FAIR principles. It offers a permanent data-management service, supporting researchers in the planning, curation, preservation and publication of research data and software. We ensure all research outputs adhere to a minimum of green open access by requiring upload of manuscripts accepted for publication to the University of Bath's research portal within three months of the acceptance date. This is monitored by the DoR using the library's regular open-access reports.

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Section 2. People**Staffing Strategy and Staff Development**

Staffing and recruitment strategy. Following the UoA's strategic objectives and mission, our staffing strategy aims to attract research excellence in terms of outputs and research leadership combined with potential for impact, interdisciplinary research and research-grant capture. Consequently, we continued to focus on building an excellent internationally-recognised research environment by recruiting and retaining highly talented early- and mid-career researchers. A particular strategic focus has been on strengthening further our expertise in Political Economy/Public Economics and Health Economics as well as on growing our capacity for applied empirical research.

The UoA's staffing strategy embraces diversity of all backgrounds as a valuable cornerstone of successful research. Among other things, this is demonstrated by our academic staff coming from 14 different nationalities. Any UoA-member participating in the recruitment process has completed the courses 'Recruitment training: Panel and Chair', 'Diversity in the Workplace' and 'Unconscious Bias', and we appoint mixed interview-panels to eliminate bias and include a variety of perspectives. We have also reviewed our promotional material and job advertisements to ensure they reflect the diversity of staff and students and attract talent of all genders and with diverse backgrounds. In interviews we point out our actions (as listed below) to create an inclusive, family-friendly work environment, embracing equality and diversity and supportive of a healthy work-life balance.

Implementation of staffing strategy. The UoA has experienced transformational changes regarding the number and profile of academic staff since 2014, continuing to thrive by expanding from 25 staff employed at the Department of Economics in July 2013 to 39 in July 2020. We compete internationally for the best talent and research excellence, e.g. in December 2019 at the European Job Market in Rotterdam. These investments have contributed strongly to our success in increasing the UoA's overall research excellence, e.g. indicated by the vastly higher number of high-quality publications of our staff in internationally-leading field and general-interest journals relative to the start of this REF-period. With our recruitments at Senior Lecturer and Lecturer level, the UoA successfully advanced and deepened a rich, dynamic and vibrant research culture with many highly motivated early- and mid-career researchers who represent an exciting promise for future growth in research excellence at highest international standards.

Our recruitments reflect our strategic aim of strengthening our excellence in Public Economics, including Political Economy and Environmental Economics, with ten of the recruited staff since 2014 bringing strong expertise in this area (Asimakopoulos, Chowdhury, Cubel, Franke, Liberini, Roy, Schaefer, Schneider, Stimmelmayer, Zubrickas). This investment boosts our Research Themes 'Governance of Institutions and Systems' and 'Sustainable Living' and has resulted in a stream of high-quality publications written and published at Bath. To strategically strengthen our second envisaged area of excellence around 'Social Determinants of Health', one recruitment has been made (Fichera) and future recruitment will seek to further develop this Research Theme.

Furthermore, thirteen UoA-members who have joined since 2014 specialise in empirical research, reflecting our strategic aim of successively expanding the amount of applied empirical research.

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By way of example, our latest three starters (Delaney (L), Khalmetski (SL) and Lavi (SL)) joining in July 2020 illustrate how our staffing strategy reflects our strategic goals and mission of combining research excellence with capacity for impact, interdisciplinary research and research-grant capture. All three starters have shown excellent research potential through high-quality outputs, strengthen our Research Themes (Khalmetski and Lavi are part of Governance of Institutions and Systems, Delaney of Productivity and Innovation) and increase our capacity for interdisciplinary work, impact and research-grant capture (as mentioned earlier, Lavi works at the intersection of Game Theory and Computer Science and has experience in working with companies such as Google, Khalmetski works at the intersection of Game Theory and Psychology and Delaney at the intersection of applied Economics and Education and provides a connection between the UoA and the Office for National Statistics.)

Internal promotions. The UoA's positive development over the past six years has been supported by six internal promotions, five from Lecturer to Senior Lecturer (Bajoori, Hunt, James, Tsutsui, Zubrickas) and one from Senior Lecturer to Reader (Fichera). Building on these successes, a key future goal of our staffing strategy is to retain excellent researchers in the longer run through internal promotions.

We highly welcome that two of the five promotions were women (Bajoori and Fichera) and two had a BAME background (Bajoori and Tsutsui) reflecting the UoA's inclusive support for promotion.

Staff Development

We foster a supportive and agile research environment in which academic careers at all levels can thrive. In providing development opportunities, we account for individual circumstances, diverse backgrounds and needs so that each staff-member can realise their full potential. Our efforts to recruit and develop staff align with the 2008 **Concordat to support career development of researchers** as well as its updated version of September 2019. The UoA's mechanisms for staff development include:

Staff Development and Performance Review (SDPR). All non-probationary staff complete annual SDPRs, which enable them to receive feedback on their performance, discuss and set objectives for the coming year together with their SDPR mentor, a senior staff-member. From 2020, the SDPRs have been renamed 'Career Conversation'. All SDPR/Career Conversation mentors are trained in how to deliver an effective review.

Feedback in developing research. Regular internal seminars allow staff to present their research and receive feedback from colleagues. Further inspiration and feedback from external researchers can be obtained via the UoA's well-resourced and professionally organised external seminar programme which is of international standing, hosting some of the world-leading economists including Daron Acemoglu (MIT), Jerome Adda (Bocconi), Scott Barrett (Columbia), Kaushik Basu (Cornell), Wouter Den Haan (LSE), Nabuhiro Kiyotaki (Princeton), and Ricardo Reis (LSE) in this REF-assessment period.

Research funds and research time. All staff are provided with a research budget for research-related expenses such as attendance at international conferences. In addition, staff have the opportunity to apply for further funds which are subject to approval by the DRC. In exceptional cases larger sums may be applied for and approved by the HoD together with the DRC, e.g. for presentations at high-quality conferences in the USA or for the organisation of strategically

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important workshops or conferences. Moreover, all staff on Teaching and Research contracts are provided a protected allocation of time per year for research.

Early-career support. Over the REF2021-assessment period, early-career researchers benefited from the University's Bath Course - a work-based programme to develop early-career researchers' understanding of academic practice. The Bath Course has now ended and is replaced by the Pathway to HEA-Fellowship (PHEAF). During their probationary period, early-career researchers choose a probation-mentor within the UoA to help them develop their research career and guide them through the probation process.

Furthermore, early-career staff at the UoA are provided with additional research funding, on top of what is granted to each researcher, during each year of their probationary period. They are also allocated additional time for research, which reduces to the standard allocation on a sliding scale through their probation.

Part-time and fixed-term staff are informed by the HoD about career-pathways at the UoA and are supported in their career development, for example, via the University's fast-track to a permanent position such as Almer, a former UoA-member, who progressed from his Prize-fellowship to probationary lecturer in 2016.

Training and Supervision of PGR

Our close-knit and dynamic community of PhD-students is integral to the UoA's research culture. Our PhD-programme provides them with opportunities to undertake original research into a wide variety of areas aligned with the UoA's Research Themes and covering all mainstream fields of Economics

Structure. The (full-time) PhD-programme runs for four years. Starting in 2017, the UoA formalised research education in a Master of Research (MRes) programme, which prepares prospective PhD-students for their future research activities combining modules on Microeconomics, Macroeconomics and Econometrics for research-students with 'research apprenticeships' where students develop their own research question and methodological approach to answering it. Further, the UoA organises a series of PhD-Masterclasses on Macroeconomics, Microeconomics and Empirical Research Methods delivered by leading experts external to the UoA, including over recent years Nicola Pavoni (Bocconi), 2017, Ray Rees (LMU Munich), 2017, Francesco Squintani (Warwick), 2017, Parikshit Ghosh, (Delhi School of Economics), 2019, Sarah Smith (Bristol), 2019, Partha Sen, (Delhi School of Economics), 2019.

Monitoring and support. Every research-student has a primary Research-Group affiliation and is required to attend regularly that group's seminars and workshops. The UoA's outstanding workshops and conferences, provide excellent opportunities for PhD-students to meet nationally- and internationally-leading academics for inspiration and feedback.

Furthermore, the UoA has a long-standing history of organizing regular PhD-workshops attended by staff where students present their work-in-progress and get valuable feedback. They are also encouraged to present their work in the internal research seminars. In this assessment period, the UoA has also started to organize regular workshops to prepare PhD-students for the academic job-market and other research careers.

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A mandatory mid-term PhD-confirmation review process assesses the students' ability to successfully complete on time and, importantly, provides developmental feedback from academic staff internal to the University but independent from their supervisory team.

The Doctoral College works closely with the University's Student Services to ensure the support of students with additional needs. Those with disability are encouraged to speak to an advisor who helps tailor a Disability Action Plan with the support they need. International students can contact the International Experience Coordinator in Student Services for bespoke advice. Induction sessions inform international students of life in the UK and help them settle in. Student Services also have a dedicated Wellbeing Team and a Mental-Health Team to support PhD-students and the Doctoral College host numerous events promoting positive mental health and well-being.

Further resources for PhD-students. Research-students are encouraged to present their work at international conferences and are eligible for generous funding for conference attendance. Each student is allocated a desk and desktop computer, access to the library, and standard software needed to pursue their PhD-research. In addition, they may take advantage of an annual internal research-support fund.

Recruiting. We recruit high-quality students with diverse backgrounds from across the globe in a fair and transparent recruitment process providing equal access and support for all protected characteristics. We offer competitive scholarships through department, University, and ESRC funding opportunities as part of our membership of the South-West Doctoral Training Partnership together with the Universities of Bristol, Exeter, Plymouth and West of England. The PGR-director works proactively with new staff-members to help them in the management processes around recruiting and supervising PhD-students to reduce the time required to adjust. As the following table indicates, except for one part-supervision of a professional doctorate, all our research students pursue the degree of PhD.

| Degree type | 2013/4 | 2014/5 | 2015/6 | 2016/7 | 2017/8 | 2018/9 | 2019/0 | Total |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| Professional doctorate | 0 | 0 | 0 | 0 | 0 | 0.50 | 0 | 0.50 |
| PhD | 6.88 | 3.21 | 5.06 | 3.00 | 7.75 | 4.50 | 8.70 | 39.10 |
| Total | 6.88 | 3.21 | 5.06 | 3.00 | 7.75 | 5.00 | 8.70 | 39.60 |

Equality and Diversity

The UoA considers inclusion, diversity, and openness to a wide range of experiences as crucial in giving everyone the best chance to fulfil their potential. Attracting researchers from a wide range of backgrounds and specialisms is critical to the success of our research strategy. We are entirely committed to, and supportive of, the Athena SWAN Charter and principles and actively encourage gender equality, representation, progress and an environment supportive of success for all. The Department of Economics was awarded the Bronze Athena SWAN award in April 2020.

Across the University, we have specific policies on Trans-equality, Dignity and Respect, Recruitment and Selection Code of Practice, Flexible working-hours scheme, Maternity rights, Occupational Stress Management and Childcare which are published and regularly reviewed. The University's Dignity & Respect policies apply to all staff (including casual workers), honorary and visiting staff, students and third parties (e.g. contractor, client or customer of the University). In 2019, the University established a Gender Pay Gap Working Group, jointly with the Trade Unions, to investigate gender pay gaps and to identify systemic causes that might be addressed. As a

Unit-level environment template (REF5b)

result, an action plan, focusing on recruitment and progression, was developed and is being implemented. At unit level, we have built on these efforts to ensure that all staff engage in Equality and Diversity training and we promote equality through our structures and processes, which include:

Equality and Diversity Officers. Two members of staff, Bajoori and Franke, as Equality and Diversity officers, can be approached by staff when any form of discrimination is experienced or witnessed. In addition to the UoA's general actions to foster inclusion and diversity, Bajoori and Franke organise bespoke support for staff and research-students with caring responsibilities, ill-health, mental well-being, or other needs related to any protected characteristics. Such bespoke support aims to reflect the special situation of every staff-member beyond the general UoA- and University-wide support and is agreed with the HoD. This can relate to enabling conference attendance or other necessary travel, support for submission of funding applications, access to internal funds, research-related promotion and reward procedures, recruitment for research-related leadership roles, sabbaticals and training or support for staff and research-students returning from periods of leave (including parental leave) or ill-health, managing long-term illness, or with caring responsibilities.

Equality and Diversity Action Plan. In the recent past, principles of equality and diversity have been systematically integrated into the fabric of the UoA, most prominently in the context of the application for an Athena Swan Bronze Award. The application process was informed by an extensive and comprehensive self-assessment exercise, using administrative data, student and staff surveys as well as focus-group discussions to detect problematic issues but also to celebrate successful and effective initiatives and policies. This analysis shaped the adoption of a comprehensive Action Plan covering all aspects of activities, resulting in specific, measurable, achievable, relevant and time-bound initiatives and policies.

Key examples of actions taken. Some relevant examples for these actions directly impacting the UoA's research environment are presented in the following list:

- Supporting colleagues with child-caring or other commitments, all staff events, such as department staff meetings and research seminars, are scheduled in core hours (from 10am to 4pm).
- We support flexible and remote working by pooling important meetings and seminars on two days per week and plan to continue 'blended' meetings to allow staff to join remotely online.
- We actively promote all policies for equality, diversity and inclusion offered by the University through an annually organised information session and in staff meetings. Moreover, staff on parental leave have access to their individual research budgets during their period of absence.
- To increase the visibility of female and BAME role-models, the UoA commits to appointing at least one female and one BAME (of four) visiting professors each year as part of our distinguished visitor's scheme and to achieve a more balanced representation of gender and diverse backgrounds among the speakers at external and internal research seminars.
- To guarantee a fair and unbiased promotion process, we appointed an experienced and appropriately trained promotion advisor (a senior staff-member) to help and support all candidates in the promotion and application process, taking into account the specific needs and challenges of female candidates as well as candidates from diverse backgrounds, with caring responsibilities or with disabilities.

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Our commitment to diversity and inclusivity is manifested in practice as well as in high-quality research. At least six UoA-members actively engage in research activities around equality and diversity (Bajoori, Cubel, Clifton-Sprigg, Delaney, Fichera, Franke). Together with King's College London, the UoA (Schneider) organised the workshop 'Gender and Heterogeneity in Political Economy' in London in 2018.

Following the University of Bath's REF2021 Code of Practice, the output-selection procedures for our submission were consistent, transparent, accountable, and conducted in an inclusive manner and in accordance with our institutional values and existing policies, including Equality and Diversity policies. The UoA16 REF-lead (Schneider) has completed a specific Equality and Diversity training course for REF-leads at the University of Bath.

Section 3. Income, infrastructure and facilities**Research Income**

Strategy and support. An important strategic aim of the UoA is to support as much of our research by external research funding as possible. Therefore, the UoA incentivizes and provides extensive support for activities directed towards research-grant capture.

On the one hand, these efforts are directed at traditional funders, where the UoA has had successes with two EC-FP7 projects of around £350K each at the beginning of this REF-period (Finus, Hunt, O'Shea, Zeppini) and celebrated the recent success of obtaining £800K in research-grant money from the MRC for the next five years (Fichera and Hunt). On the other hand, the UoA aims to open up new ways of generating research income from external commercial organisations. A first success in developing this way of generating research income has been the UoA's work with the Swindon and Wiltshire Local Enterprise Partnership (SWLEP) on their Local Industrial Strategy in 2019, which is followed by a PhD-studentship co-funded by SWLEP (led by Schneider). These projects with SWLEP also possess significant potential for research impact. The UoA aims to further expand such cooperation by establishing externally-funded research connections via its vast network of employers participating in our hugely successful undergraduate work-placement scheme.

Generating research income is incentivised via the internal promotion and probation criteria, and grant success commensurate with the (sub-)discipline is mandatory for promotion to senior roles (Reader and Professor). Furthermore, we communicate the clear expectation that every UoA-member should submit at least one research grant proposal every two years. The UoA also recognises that it can be more difficult to attract research funding in some research areas and makes due allowance when reviewing performance.

In our strategic push to increase external research funding, we identified key reasons behind fluctuations in our funding success, which include the potential for better alignment of parts of our research with funder priorities, the fact that success was previously achieved by a few members rather than broadly across the UoA, the fact that, over the REF-period, the UoA experienced a shift towards a younger staff-profile with less experience in grant capture, and the fact that we hired many excellent international researchers with limited familiarity with the UK funding-landscape. Over the REF2021-period, we have strategically addressed these points with the following support measures:

Unit-level environment template (REF5b)

As indicated previously, the UoA's Research Themes have been purposefully created around research council funding priorities to exploit and develop research synergies in these areas and align our expertise with the national and international priorities. The strategic investments in these Research Themes, e.g. in terms of staff, will maintain the vital stream of highly impactful and externally-funded research related to the Theme "Sustainable Living" and strengthen the capacity for impact and research-grant capture in the other Research Themes as described in Section 1.

We appointed a **Research-Funding Officer** (Hunt) to help increase research-grant capture by providing advice on identifying funding calls, developing research plans and preparing detailed proposals. As described below, the Research-Funding Officer works closely with the University's Research and Innovation Services (RIS) who provide additional information and professional support in generating and managing external funding. Appreciating diversity and ensuring equality, the Research-Funding Officer, together with the DoR, provides additional support to staff with any special needs in relation to acquiring research funding or accessing scholarly or operational infrastructure to support their research and research productivity.

Recently, the UoA started to encourage internal presentations of work-in-progress research-grant proposals as part of our internal research seminars. This provides feedback and a valuable opportunity to share best practice to increase the quality and success of the UoA's research-grant applications. Furthermore, we have increased communication with new members of staff to inform them about the UK funding-landscape. We also actively encourage team-building between staff who are very successful in research-grant capture and those who are 'novices' wherever the topic of the research-grant proposal permits such collaboration.

These measures have substantially increased our number of research-grant applications and contributed to our aforementioned recent success in generating research funding, indicating a positive future development.

Further Support Structures for Research Impact and Research-grant Capture

In generating research income and impact, the UoA also works closely with the University's Institute for Policy Research, Research and Innovation Services and the UoA's Employer Advisory Board.

Institute for Policy Research (IPR). The IPR, established by the University in 2013, facilitates multi-disciplinary connections and enhances the UoA's engagement with policymakers and other research users within and outside the University. Over the REF2021-assessment period, thirteen members of staff have regularly engaged in exchanges with a number of visiting policymakers and civil servants from government institutions in the IPR's visitor programme. Further, UoA-members actively engage in IPR workshops and in (currently three) joint interdisciplinary research projects, e.g. on the feasibility of a universal basic income scheme and on the impact of the COVID-19 pandemic on developing countries (Martin). Regarding research grant capture and the creation of impact, the Research-Funding Officer and Impact Director work closely with the IPR to maximise the dissemination of the UoA's research.

Research and Innovation Services (RIS). The University's dedicated central RIS supports all aspects of securing, managing and optimising the outcomes of research funding. RIS at Bath takes a whole lifecycle approach to research funding with dedicated teams to support academic and research staff in all aspects from developing a funding idea and identifying appropriate funding

Unit-level environment template (REF5b)

opportunities, through bid development and submission, project management and financial oversight, to research commercialisation support.

The Research Development Managers focus on supporting strategic University and Faculty priorities, such as larger, complex or prestigious funding schemes as well as providing tailored and intensive support for individual fellowships and early-career researchers. The UoA have established weekly drop-in sessions by a Research Development Manager from RIS to support staff in the development of competitive research-grant proposals.

The Industry Partnership Managers facilitate new relationships with industry and interdisciplinary research collaborators, finding ways to support research through government funding schemes and/or private investment. The team also provides guidance on how the national, and the local, industrial strategy maps to research funding as well as sector-based research collaboration opportunities.

Employer Advisory Board. To develop and maintain two-way links with policymakers and the business community, the UoA has created an Employer Advisory Board leveraging its longstanding and extensive employer network established through its highly successful work-placement scheme and its large and successful alumni community. The Board's remit includes fostering of external involvement with the UoA's research to build impact, facilitate knowledge exchange, and explore alternative sources of research funding. It is co-chaired by the Head of Department and an employer board member (currently Kirsty Garrett, Managing Director at Standard Chartered Bank), and features eight representatives from key industries and sectors (among them the Office of National Statistics, investment banks, and consultancy firms (e.g. Cambridge Econometrics)).

General Infrastructure and Facilities

The Department of Economics is located in building 3 East on the Claverton Down Campus of the University of Bath. All academic staff of the UoA, except Baker and Jackson who are located in building 10 West of the School of Management, are housed under the same roof occupying large parts on all three floors of the building which also includes lecture theatres to host research seminars. The entire building has disability access and was recently renovated. All academic staff have their own personal offices and the arrangement of offices and desks for PhD-students in the same 3 East building is an important factor for the large degree of interaction and collegiality among faculty and students. To further foster the interaction among staff, the UoA organises weekly coffee mornings for which we purchased several Nespresso machines and provide biscuits and fruit. The general research environment greatly benefits from this cohesion.

The University of Bath is a thriving, research-intensive institution, with a well-established research infrastructure. Library, computing and online services provide comprehensive coverage of academic publications and electronic resources. The library allocates a subject librarian to Economics. The University's Digital, Data and Technology Services (DDaT) offer IT-support to staff and research-students, including training in specific computing packages and software as well as providing a repository for archiving data. All members of the UoA and research students are provided with a dedicated PC.

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4. Collaboration and contribution to the research base, economy and society

Alongside the strong and ambitious development regarding staff numbers, infrastructure and research quality, the UoA has successfully continued to expand and intensify its relationships with both the internationally-leading scientific community as well as wider beneficiaries and audiences outside academia. These vibrant and productive collaborations and networks enrich the research environment by promoting scientific exchange and international research projects at the highest level while providing access to joint research funding acquisition and impact creation. This is illustrated by more than 50% of our publications over the REF2021-assessment period involving co-authors at international Universities, by UoA staff participating in large research grants with international collaborators such as the three EC-FP7-financed projects, (GLAMURS, 'Economics of Climate Change Adaptation in Europe' and 'Nudge-it'), and by national-level initiatives such as the recently awarded MRC-funded project ('Tackling the Root Causes of Unhealthy Planning'). Another example of our long-standing tradition of international research collaboration with global reach is the submitted impact case study 'Informing international and organisational policy and decision-making around climate change' about the report for the Intergovernmental Panel on Climate Change that is underpinned by the UoA's research.

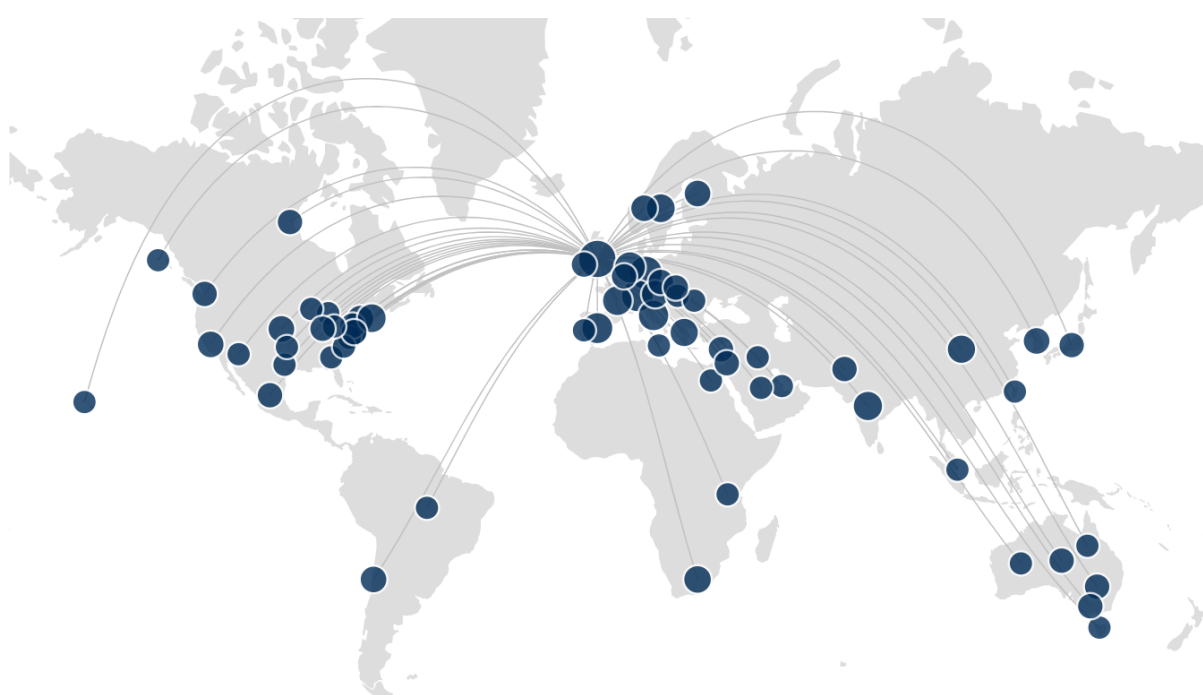


Figure 2: Location of co-authors on research publications of the UoA in the last five years

Research Collaborations and Networks

As illustrated in Figure 2, the UoA is deeply linked with the international research community in Economics, including world-leading Universities.

The University, through its International Relations Office, manages a broad portfolio of network-building activities, including delegation visits and research residencies, and encourages international research visits especially to the University of Bath's strategic partner Universities through an International Research Funding scheme. The UoA aims to magnify the effectiveness of research collaborations by providing office space for research visitors, maximising the contacts

Unit-level environment template (REF5b)

and exchanges of visitors with UoA staff, and by offering additional bespoke research funds and hours to establish and maintain important collaborations and research networks. The UoA also uses local collaboration to engage in and build research networks at the global level, e.g. via a GW4 Initiator Grant (2016, PostI) strengthening the research network between Bath, Bristol, Cardiff and Exeter, hosting joint workshops with internationally-leading researchers such as Larry Samuelson (Yale), Francoise Forge (Paris Dauphine) and Philippe Jehiel (Paris School of Economics).

Embracing diversity and equality in our research collaborations, we hosted many visitors with BAME backgrounds and pay attention to the gender mix and diverse characteristics when organising research events such as workshops and conferences. We provide bespoke support for visiting researchers with special needs, e.g. disability support. Further, as mentioned in Section 1, we welcome the increased use of digital tools for research seminars, workshops and conferences, aiding the inclusion of UoA staff with caring responsibilities and other special needs that limit travel. The UoA also fosters international research collaborations focussing on diversity and equality, such as Clifton-Sprigg's and Fichera's collaboration with the Stockholm School of Economics exploring the link between maternity leave policies and the gender pay gap, supported also by a GW4 Generator Fund award in 2020. In the following, we provide a selection of key collaborations over the REF2021-assessment period.

Selected collaborations with researchers at leading national and international institutions include Cornell University, Harvard University, International Monetary Fund, Johns Hopkins University, MIT, World Bank, Yale, Bank of England, LSE, Oxford University, UCL, Bocconi, University of Bonn, European Central Bank, European University Institute, University Carlos III Madrid, LMU Munich, Stockholm School of Economics, University of Zurich, Monash University, Australia, Indian Statistical Institute, New Delhi, Peking University, China, Stellenbosch University, South Africa.

Selection of researchers visiting several days or longer include Daron Acemoglu (MIT), Rushir Agarwal (IMF), Kaushik Basu (Cornell University and World Bank), Tilman Börgers (University of Michigan), Alex Bryson (UCL), Timothy Cason (Purdue), Christian Ewerhardt (University of Zurich), Cesar Martinelli (George Mason University, USA), Nicola Pavoni (Bocconi University), Ray Rees (LMU Munich).

Selected extended research visits of staff at other institutions. UoA staff regularly visit prestigious institutions such as Cornell University, George Mason University, Harvard University, Simon Fraser University, Virginia Technic, University of Wisconsin Madison, World Bank, Bank of Canada, Universitat Autònoma de Barcelona, European University Institute, ETH Zurich, Stockholm University, Tinbergen Institute, Bank of England, University of Oxford, University of Warwick, UCL, the Indian Statistical Institute Delhi, Stellenbosch University, South Africa, Nanyang Technical University, Singapore.

Selected Workshops and Conferences hosted by the UoA in Bath. Over the past six years, the UoA hosted numerous international workshops and conferences, many referred to throughout this document, with world-leading economists as speakers such as Oriana Bandiera (LSE), Alessandra Casella (Columbia), Timothy Feddersen (Northwestern), Charles Goodhart (LSE), Martin Hellwig (Bonn), Keving Lang (Boston), Shelly Lundberg (UCSB), Albert Marcet (CREI), Cesar Martinelli (George Mason), Enrique Mendoza (University of Pennsylvania), Frank Smets (ECB), James Snyder (Harvard) and Guido Tabellini (Bocconi).

Unit-level environment template (REF5b)**Wider activities and contributions to the research base**

Memberships in scientific committees. Members of the UoA served on organisational committees of high-quality international conferences such as the Scientific Committees of the European Association of Labour Economists Conference 2019 (Clifton-Sprigg), the French Association of Environmental and Resource Economists Conference 2019 (Schaefer), the 2018 Annual Conference of the International Institute of Public Finance (Stimmelmayer), the International Health Economics Association, from 2017 (Fichera), the Royal Economic Society Conference 2017 (Papps), the European Society of Population Economics, 2016-2018 (James), and the International Economic Association's World Congress 2016 (Mishra).

In wider contributions to the research community, UoA-members have served on national and international scientific committees including the ESRC Expert Review Panels on the ESRC 2019 Centres Competition which awarded £25 million to five Research Centres across Social Science, and the 2017 ESRC-initiative "Rebuilding Macroeconomics" which awarded £5 million (Martin), the Board of the Institute for Sustainability Energy and the Environment (Finus), as external evaluator at the National Spanish Research Organisation (Franke), the Advisory Board for the Erasmus Centre for Applied Sports Economics (Papps), the Executive Committee of the Political Economy Group UK (Rivas, Schneider) and as General Secretary and Executive Trustee (2012–2020) and Chair of Trustees (from May 2020) of the British Accounting and Finance Association (Jackson).

Journal editorship and refereeing. During the REF2021-assessment period, UoA-members acted as referees for countless journals and served on the editorial boards of the Asian Journal of Economics and Finance (Asimakopoulos), the BE Journal of Theoretical Economics (Rivas), Environmental and Resource Economics (Finus), Health Economics Letters (Fichera), Journal of Economic Interaction and Coordination (Krause), Journal of Economic Behavior and Organisation (Mishra), Journal of Mathematical Economics (Franke) and as guest editors of the Journal of Economic Psychology, Economic Inquiry (Chowdhury) and the Journal of Public Economic Theory (Roy).

Prizes and Awards. Particularly our younger staff-members have won several prizes and awards such as the MRC Early-Career Fellowship in Economics of Health, University of Manchester, 2013-2016 (Fichera), 2014 Best Article Award by Economic Inquiry (Toth); Best Paper Award, Young Economists' Meeting 2015, Brno (Clifton-Sprigg); Swiss Society of Economics and Statistics Young Economist Award, 2018, (Camilli); Otto Wichterle Award for outstanding young scientists of the Czech Academy of Sciences (Gaule), the Isaac Manasseh Meyer Fellowship 2019-20 and the British Academy Rising Star Award 2018 (Chowdhury), and the Excellence in Refereeing for "Games and Economic Behaviour" Award (Franke).

Honorary Doctorates. Through the University of Bath's Honorary Degrees programme, the UoA established close ties with the three world-leading researchers Daron Acemoglu, MIT, Kaushik Basu, Cornell University, and Scott Barrett, Columbia University, who have been conferred the honorary degree of Doctor of Laws.

Interdisciplinary Research

The UoA is engaged in numerous successful interdisciplinary research projects.

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Around the Research Themes '**Social Determinants of Health**' and '**Sustainable Living**', key examples of **interdisciplinary research** include Fichera and Hunt's work with researchers from the University of Bristol's Engineering Department and Medical School on health impacts in the urban environment as part of the MRC-funded TRUUD project. In this project, epidemiologists from Bristol University and UWE establish quantitative relationships between features of the urban environment and public health effects whilst the UoA's Economists provide monetary valuation to mitigate adverse public health impacts. On another research project, Fichera also collaborates with a Professor at the Biostatistics and Health Informatics Department at King's College London, while in the context of the European Commission funded NextGen project Hunt collaborates with the Department of Chemical Engineering at the University of Bath on Circular Economy concepts.

Furthermore, as noted previously, James is involved in the multidisciplinary project Nudge-it, a European-Commission-funded initiative bringing together dozens of scientists from 16 institutions across six European countries, the US and New Zealand and, as part of that project, has written papers with researchers from the Social and Policy Sciences Department at the University of Bath.

Major examples of **interdisciplinary research** connected to the Research Themes '**Innovation and Productivity**' and '**Governance of Institutions and Systems**' include Franke's research with the Department of Mathematics at University of Würzburg on lottery and all-pay auction contests, Gaule's work with the Department of Mathematics at the University of Bath, his long-term collaboration with a paediatric oncologist at the Dana Farber Cancer Institute and collaborations with Management scholars at MIT Sloan, at Harvard Business School and the Strategy Department at the University of Lausanne.

In several projects on the digital economy, Liberini engages in a multidisciplinary collaboration between Economists and Computer Scientists. Martin collaborates with University of Bath's IPR on a funded research project on Universal Basic Income and the impact of Automation, and on the previously noted project exploring the economic impact of the COVID-19 pandemic. Zeppini continues his close collaboration with the Institute for Mathematical Innovation (IMI), working with two colleagues in Mathematics and one from Social and Policy Sciences, on a mathematical model of network formation funded by an IMI Secondment grant.

Responsiveness to national and international priorities and initiatives

The UoA's Research Themes are purposefully aligned with national priorities reflected in the UK Industrial Strategy and the priorities of key funding bodies, often reflecting longer-term and globally important developments. The UoA's research has shown excellent responsiveness to national priorities such as Brexit (Clifton-Sprigg, James, Liberini), as well as national and international priorities such as the COVID-pandemic (Martin), Artificial Intelligence and Automation (Martin, Schneider), or the Climate Emergency (Hunt, O'Shea, Zeppini).

Relationships with Key Research Users, Beneficiaries or Audiences

Creating positive impact with our research by engaging with the wider community, including diverse communities and publics, local public administration and governments is an important strategic aim.

Key examples linked to the Research Themes 'Social Determinants of Health**' and '**Sustainable Living**'** include Fichera's work with the Ministry of Health in Mozambique and

Unit-level environment template (REF5b)

Zimbabwe as well as the Training and Research Support Centre in Zimbabwe in the context of the [PEMBA](#) grant, evaluating two performance-based financing programmes to improve the quality of health care. In his research on 'Climate change risks and adaptation', Hunt collaborates with a network of local stakeholders, national policy-makers in the UK Climate Change Committee and the EC-DG CLIMA. His project on 'Health impacts of pollution and the built environment' involves local and national policy-makers in DEFRA and OECD Working Groups on environmental health.

James worked with the Bath and North East Somerset (B&NES) Council, connecting data across public services in B&NES to analyse the nature of financial hardship in this region, while O'Shea is a member of the Department of Environment, Food and Rural Affairs Economics Advisory Panel.

In the Research Themes '**Innovation and Productivity**' and '**Governance of Institutions and Systems**', key examples include Asimakopoulos' work producing a toolbox for the Fiscal Policy division at the ECB to improve their forecast estimates. Gaule's research motivated the NBER to change the ordering of working papers in its weekly email announcement. The International Mathematical Olympiad (IMO) started organizing a career day, inspired by Gaule's research findings on IMO participants.

Krause works on financial network structures with the financial company Check-Risk LLP who also co-sponsor a PhD-studentship. Mishra collaborates with the Government of India Think Tank NITI Aayog and has an advisory role to the Indian 15th Finance Commission, while Morley has collaborated with a member of the Department of Transport and with the US Department of Housing and Urban Development.

As noted previously, Schneider, Papps, and Hunt advised the Swindon and Wiltshire Local Enterprise Partnership (SWLEP) on their Local Industrial Strategy and Schneider acquired a new project on Natural Capital, with SWLEP co-funding a PhD-studentship under his supervision.

Papps provided commissioned research for the UK government's Low Pay Commission, and also worked with the Treasury and the Ministry of Business, Innovation and Employment in New Zealand on the minimum wage.

Further, Stimmelmayer delivered consultancy work for the German Ministry of Economic Affairs and Energy to evaluate different concepts for wealth taxes. He co-produces and exchanges knowledge with practitioners in cooperation with Ernst & Young and the ifo-Institute Munich, Germany.

Media Exposure

The University offers media training for researchers that UoA staff are expected to participate in at least once. The UoA works closely with the University of Bath's Media and Public Relations Team and at least twelve UoA-members regularly engage with the media at local, national and international levels, including articles in The Economist, The Wall Street Journal, The New York Times, Evening Standard, Express, Guardian, Daily Star, The Times, Sunday Times, The Sun, The Telegraph, ITV News, The Independent, Daily Mail and many more, as well as featuring on BBC and other radio- and TV-stations.

Key examples of research with outstanding media exposure in the Themes '**Social Determinants of Health**' and '**Sustainable Living**' are Hunt's research on the health costs of pollution from cars, which appeared in 2018 in at least twelve national newspapers such as the Guardian, The Times,

Unit-level environment template (REF5b)

The Telegraph, in 168 local UK newspapers, as well as numerous Dutch outlets and it featured on many BBC and other radio-stations.

Further, James' research about the economic costs of binge drinking appeared in 2015 in major newspapers including the Telegraph, The Express, The Independent and numerous local UK newspapers as well as international newspapers in Australia and New Zealand. It featured on television programmes like ITV's Good Morning and Sky News and major radio-stations like BBC Radio 1, LBC, Heart FM and a host of local radio-stations.

In the Themes '**Innovation and Productivity**' and '**Governance of Institutions and Systems**', Martin is a regular contributor to the Financial Times survey of views by specialists in Macroeconomic Policy and as noted in Section 1, had a vast number of radio- and TV-appearances about his research on the economic impact of the COVID-19 pandemic.

In 2017, Rivas' research about cash incentives and unhealthy food consumption featured in The Independent and three other national newspapers in print, as well as in 145 local UK newspapers and in one broadcast radio interview.