

<p><b>Institution: London School of Economics and Political Science</b></p> <p><b>Unit of Assessment: 17: Geography, Environmental Studies and Archaeology</b></p> <p><b>a. Overview</b></p> <p>The UoA is structured around three distinct research clusters, namely <b>economic geography</b> (c. 41% of submitted staff: Ahlfeldt, Cheshire, Crescenzi, Filippetti, Gibbons, Gordon, Henderson, Iammarino, Kemeny, Lee, Overman, Perrons, Rodríguez-Pose, Silva and Storper), <b>environmental economics and policy</b> (c. 38% of submitted staff: Atkinson, Baka, Conway, Dechezlepretre, Dietz, Groom, Hepburn, Marchiori, Matus, Mourato, Neumayer, Palmer, Perkins, Ranger and Tavoni), and <b>urban and development geography</b> (c. 21% of submitted staff: Centner, Chant, Gordon, Holman, Jones, Mercer, Sanyal, Shin). The clusters run their own research seminar series and have their own PhD programmes with accompanying seminar series in which PhD students present their research. The clusters are also the primary locus for collaboration, discussion and feedback on research in progress, research grant applications and research dissemination although cross-cluster working is always encouraged. The <b>Spatial Economics Research Centre</b> (SERC – co-financed by the ESRC, Department for Business, Innovation and Science and the Welsh Government) and the <b>Local Economic Growth What Works Centre</b> (co-financed by the ESRC, Department for Business Innovation and Science and Department for Communities and Local Government) are part of the Department, while the <b>ESRC Centre for Climate Change Economics and Policy</b> is housed within the <b>Grantham Research Institute for Climate Change and the Environment</b>, which is closely affiliated with the Department and part of the UoA. The majority of staff from the economic geography and environmental economics and policy clusters are associated with the Spatial Economics Research Centre and the Grantham Research Institute, respectively, and there is close research cooperation between these two research clusters and the Centre and Institute. In addition, <b>LSE London</b> is a School-recognised Departmental Research Unit, providing an interdisciplinary research hub focused on London and comparable metro cities. Gordon and Holman have major involvement in LSE London. Holman, Jones and Shin are also associate members of <b>LSE Cities</b>, a Research Centre on urban issues housed in Sociology.</p> <p><b>b. Research strategy</b></p> <p>Consistent with its RAE2008 strategy, the UoA has been and continues to be focused on one prime objective: to become a distinctive and truly world-leading UoA in its chosen areas of specialism. The UoA regards Geography as an integrative discipline, in which diverse disciplinary and methodological approaches are drawn upon in order to answer key geographical and environmental questions.</p> <p>Across the areas of specialism research continues (as in 2008) to be consciously anchored in a shared culture and core research values, which place strong emphasis on theoretically-informed, policy-relevant and evidence-based research undertaken to the highest of standards of research excellence and, increasingly, with a view toward achieving impact beyond academia. A number of key principles inspire the work of researchers across the UoA. These include i) the stimulation and pursuit of scholarly research of the highest standards, making the most of a research environment which combines broad research support with high expectations; ii) a cluster-based structure aimed at both maximising the research potential within our areas of specialism, as well as providing a platform for internal communication and collaboration, research synergies and graduate supervision; and iii) nurturing research dealing with and relevant for ‘real life’ issues, ultimately aimed at influencing and improving policy and, through policy, the life of individuals.</p> <p>During the assessment period, the UoA has therefore further pursued its <i>distinctive</i> research strategy, already adopted in the mid- to late 1990s (if modified at the margins over time). This research strategy makes the UoA easily recognisable in the UK Geography and Environment setting. The UoA has long since abandoned any pretence of covering the entire breadth of geography, from physical geography to cultural and historical geography. The UoA is part of a School which predominantly covers social science disciplines and has therefore taken the conscious decision to develop a research strategy that exploits the unique comparative advantage</p>
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of the LSE with its specific strengths, particularly in economics, but also in environmental policy, development and the urban. Accordingly, the UoA is unusual compared with other UoAs on a number of counts: physical geography is entirely absent; a large share of its staff originally comes from disciplines other than geography; it places a very strong emphasis on cross-disciplinary research and research co-operation with cognate disciplines; and, finally, it has strongly specialised in the production of either research monographs or peer-reviewed articles in highly ranked academic journals, both within and outside geography.

The UoA strongly believes that this research strategy has paid off. Our assessment of progress since RAE2001 and RAE2008 is that the UoA is now widely considered a leading centre for research in economic geography, environmental economics and policy, and urban and development geography. One indication of this is that the UoA was ranked number one in the world on academic reputation in the 2013 QS university rankings. In economic geography and environmental economics and policy the UoA houses the largest number of social science researchers in these areas of any UoA in the country.

Research in **economic geography** undertaken by the UoA has largely been concerned with the traditional economic geography issues of regional and urban development, spatial inequality, location of economic activity, innovation, agglomeration, and labour market outcomes. In all cases, we seek a permanent evidence-based dialogue between geography and economics. Geographically, while there is a strong focus on the UK and Europe, cluster members have worldwide interests (including, recently, for China, Brazil, India and the US). Methodologically, it has concentrated on applying and developing quantitative approaches to economic geography, as well as pushing the boundaries of the discipline in areas such as the New Economic Geography and the impact of institutions on economic development. A related focus, reflecting the Department's longstanding planning interests, is in property markets, their regulation and the relation to environmental externalities/public goods (e.g. education and crime) and underlying urban economic theory.

In the area of **environmental economics and policy**, research by members of the UoA aims to generate frontier knowledge and advance our empirical understanding of the factors which determine environmental change and govern environmental behaviour, performance and the effectiveness of policy solutions, across a range of geographical scales and settings. The research agenda has covered a broad array of issues, including climate policy and carbon trade, sustainable development and green accounting, conservation of biodiversity and ecosystem services, natural resource management, policy appraisal and environmental valuation, social discounting, environmental and energy politics and governance, institutions and property rights, wellbeing and the environment, natural disaster propensity and mortality prevention, corporate environmentalism, and innovation diffusion and convergence. Research in the cluster has an applied and policy orientation, in accordance with research being conducted elsewhere in the UoA, and is based on a distinct multidisciplinary approach to environmental issues.

Research in the **urban and development geography** cluster has been particularly concerned with the interaction of socio-economic, planning and policy processes in urban areas across the developing and developed worlds. Research has covered issues such as the growth of low-paid occupations and the financialisation of local authorities, 'urban bias' in development policy, the feminisation of poverty, and the role of diasporas and remittances for development. Research also informs debates on displacement and gentrification, 'speculative urbanism' and mega-events, rights to the city, youth and violence, and citizenship, class and identity in spaces such as the camp, gated estates and diaspora. The cluster shares the core values of the UoA in that it adopts an inherently interdisciplinary approach to research, with the particular application of more in-depth ethnographic and qualitative field research. The cluster has established Cities@Geography, a web portal for staff and research students in the UoA to showcase their research and promote events.

Given our long-standing commitment to ensuring that the UoA becomes a leading centre for undertaking research in our chosen areas of specialism, not surprisingly our future strategy is not going to be radically different. Our two strategic priorities for the future are, firstly, to maintain the

leading position in economic geography and environmental economics and policy, and, secondly, to strengthen further the urban and development geography cluster. The continuation of the Research Centres, past the point their current ESRC core funding expires, and of the Grantham Research Institute, will play a central role in achieving the first priority. As regards the second priority, the strengthening of the urban and development geography cluster is to be understood in terms of hiring additional staff in this area in order to enhance its critical mass, fostering the cluster's ability to conduct research at the highest standards of excellence across a globally representative set of contexts. Such 'mass' will also add to measures to further develop collaborative links with other urban and development scholars in other UoAs at the LSE, notably in Sociology, and research centres at LSE such as LSE Cities as well as the newly emerging LSE Centre on Inequality, and in terms of generating significant external research income, an aspect in which the other two research clusters have been significantly more successful during the REF period. Some progress toward critical mass has already been achieved since RAE2008 by merging the then existing "cities" and "development" clusters into an integrated group, thus encouraging closer research interaction, exploiting economies of scale in research training, and mounting an intellectually challenging seminar programme. More progress has been made through recruitment of staff with research specialisms in key regions of urbanisation (e.g., Centner, Mercer and Sanyal). Ultimately, the strategic goal is to establish this cluster as one of the leading global centres for comparative research on urbanisation, building on current engagements in international networks. Several staff of the urban/development geography cluster are currently pursuing initiatives to secure large external grants, though in this field it is not realistic to seek funding on the scale achieved by the other clusters from ESRC or philanthropic donations. One measure of success in attainment of this strategic priority – alongside those of quality research outputs and policy impacts – will be greater success in gaining relatively large-scale external research funding.

### **c. People, including:**

#### **i. Staffing strategy and staff development**

The UoA hires openly and globally. It does not hire staff who cannot demonstrate proven evidence (established researchers) or proven potential (early career researchers) to produce research that is at least internationally excellent and, ideally, world-leading. While research excellence is thus the UoA's primary and over-riding priority in making appointments, no research-only permanent staff are appointed to the Department, as it is the philosophy of the UoA that fully rounded academics also need to bring their research acumen into cutting-edge teaching and administrative/managerial duties. The Research Centres and the Grantham Research Institute hire research-only staff, however.

In 2013, LSE introduced a New Academic Career structure. Moving from a four-tier (Lecturer, Senior Lecturer, Reader, Professor) to a three-tier system with globally more prevalent titles of Assistant, Associate and Full Professor and significantly higher minimum pay levels will strengthen our ability to recruit the very best staff in increasingly internationally competitive markets for scarce academic talent.

All UoA staff in the Department of Geography & Environment are permanent appointments, while some of the staff in its associated Research Centres and Institute are on fixed-term appointments, usually of two to three years duration depending on funding. Such appointments pose some challenges for recruitment, retention and the planning of research projects although strong funding positions allow contracts that provide sufficient security that many of the associated staff are able to play an important role in developing our research strengths. The Grantham Research Institute enjoys a long-term funding base, both CCCEP and SERC have been renewed for a second period and we are confident that other external funding sources can be leveraged to keep the Spatial Economics Research Centre going even when its core funding runs out. Indeed, funding for the new Local Economic Growth What Works Centre, secured in September 2013, is already providing an alternative source of funds to underpin our research in the area of economic geography.

Since RAE2008, the UoA has expanded significantly, in accordance with our strategic aim of creating world leading clusters of research excellence in our chosen areas of research specialism.

The UoA has grown by more than 50 percent from 23.35 FTE staff submitted to RAE2008 to 36.2 FTE staff submitted to REF2014. A mix of junior and senior staff have been newly recruited, namely eleven Assistant Professors/Lecturers (Ahlfeldt, Baka, Centner, Groom, Lee, Marchiori, Matus, Mercer, Palmer, Shin and Sanyal), two Associate Professors/Readers (Iammarino and Mourato) and one Professor (Henderson). On top of this comes major recruitment at both junior (Dechezlepretre, Ranger and Tavoni) and senior levels (Conway and Hepburn) in the associated Grantham Research Institute. To some extent, new recruits filled research gaps created by the departure of staff who left to take up positions elsewhere (e.g., Chari to Cape Town; Pratt to King's College; Robert-Nicoud to Geneva). For the most part, however, new recruits were net additions to strengthen research clusters and increase their critical mass. That recruitment was predominantly at the junior level is part of a strategy to foster the development of junior into senior staff. More than half of the non-Emeritus Professors in the Department were originally hired as Lecturers, including the current Head of Department (Neumayer).

The UoA enjoys a healthy demographic profile characterised by diversity. 30% of submitted staff are female, which is a considerable achievement given the large share of staff coming originally from economics where, regrettably, women are under-represented; more than half of submitted staff are non-British (three of which are of non-White ethnic background). There is also a good mix of staff at all stages of their career: c. 22% of submitted staff are Assistant Professors (Lecturers), 33% are Associate Professors (Senior Lecturers/Readers), 32% are Full Professors; the remainder are research fellows either in the Department itself or in the associated Research Institute.

In line with LSE policy, all staff now undergo regular career development meetings with the Head of Department, in which the research performance and research trajectory as well as teaching performance and 'citizenship' are appraised, and critical but constructive feedback is given. These meetings take place annually for all pre-Major Review staff and for staff up until five years after Major Review, bi-annually for staff beyond five years post-Major Review and every three years for full Professors. These meetings come on top of mentoring sessions: every member of staff has a mentor, with whom more informal discussions about research performance and trajectory are frequently held outside the formal career development meetings.

Staff are provided ample support to reach their full research potential. Pre-Major Review staff enjoy a lower teaching and administrative load. All staff are strongly encouraged to keep at least one day per week free from teaching and administrative duties during term time to focus on research. All staff benefit from research leave entitlement, currently one term accrued for every eight terms of service. Enhanced leave is given following major LSE administrative jobs, such as serving as Head of Department or serving on various School committees. Sabbatical leave has always been granted to all staff requesting leave during the REF period. A total of 18 FTE staff have been on research leave during the REF period for a total number of 29.5 terms. The UoA has also taken a very generous and accommodating view toward research buy-out. A total of 7 staff have benefited from a total of 17.55 FTE years of research buy-out.

All staff benefit from an annual individual combined research and conference fund entitlement, currently £2,000. All staff can apply to a seed fund, which pump-starts initial work for the preparation of larger research grants. Four staff of the UoA have successfully gained research funding from this source (Hilber, Holman, Jones and Mercer). A further two staff have benefited from a small grants fund by the School's Suntory and Toyota International Centres for Economics and Related Disciplines (STICERD). Further significant resources in the order of £800k – for example, for employing research assistants, conference attendance or buying data – were made available via the Spatial Economics Research Centre, the Centre for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment, benefiting at least half of the staff returned to REF2014. One member of staff of the UoA (Rodríguez-Pose) has held during the REF period both a Leverhulme Trust Major Research Fellowship and a European Research Council (ERC) Advanced Grant, which – by enabling a 50 per cent research buy-out over the current REF cycle – has allowed him to publish or have accepted for publication an astounding 57 papers and two books during the REF period.

The UoA pursues a strict policy of equal opportunities for progressing the research careers of its staff. An annual calculation of workloads ensures that the teaching and administrative load across staff members is roughly equally distributed (albeit accounting for research leave and buy-outs funded via external research income). A lower load is given to early career staff. Research clusters meet regularly to discuss research, and co-ordinate teaching and administration, which allows the correction of imbalances in workload. Clear and explicit promotion criteria and guidelines are made annually available to all staff. Staff who are not yet full Professors submit CVs once a year to a meeting of the Professoriate which looks at all staff for potential Departmental sponsoring of promotion requests, whether the individuals themselves have specifically requested being considered for promotion or not. Staff can self-sponsor promotion requests to the School if they fail to gain Departmental sponsoring, although this has not happened during the REF period, indicating that the decisions of the Professoriate about Departmental sponsorship are seen as fair, transparent and equitable. During the assessment period, 10 colleagues passed Major Review, 9 were promoted to Senior Lecturer, 4 to Reader and 3 to Professor. 2 further colleagues were promoted to Associate Professor as part of the migration to the New Academic Career structure.

Equality and Diversity Training is built into the School's Academic Induction Programme, which is attended by all new academic and research starters who also benefit from a central orientation programme. A range of Equality and Diversity events are held during the academic year for research and academic staff, in addition to research staff networks which provide staff with the opportunity to discuss issues that have arisen across the School. The School's Teaching and Learning Centre offers year-round series of interdisciplinary workshops designed to support early career researchers (doctoral students and research staff) in relation to communicating and managing their research, strengthening the impact of their research for academic and other audiences, and managing their career.

The School offers accessible flexible working policies which are offered to all staff, including academic and research faculty, who are returning to work from maternity leave or reducing their hours of work due to other reasons, such as carers' responsibilities, ill-health, disability, and so on. In addition, career and mentoring schemes are offered to research staff who have had an interruption from academia. Such requests are infrequent and the vast majority of staff in the UoA work full-time, but all received requests have been accommodated.

The School has been monitoring the development of the revised Concordat to Support the Career Development of Researchers 2008 and has taken a proactive approach to ensure that its policies and practices in relation to research staff are closely aligned with the key principles of the Concordat. A two-year Concordat Action Plan has been developed which identifies key areas that require further action from the School, in order to ensure that research staff are supported during their employment at LSE. As a result, the School is undertaking a range of actions, including: improving the accessibility of information for research staff on the LSE website; ensuring that recruitment procedures are fully aligned with the Concordat; ensuring that an effective research staff promotions process is in place; providing workshops for new Principal Investigators; and providing guidance on supporting and managing research staff. LSE has also established a bridging fund to retain researchers who are in between contracts.

The School attaches great importance to the maintenance of high ethical standards in research undertaken by staff and students. Research is subject to ethical scrutiny under the auspices of the LSE Research Ethics Committee. Researchers are required to consider fully the ethical implications of their research and their means of resolving any ethical issues, bearing in mind that this is only one part of the process of conducting all research in an ethically sound manner.

## **ii. Research students**

During the assessment period, the School has moved to a new admission policy, in which all applicants are interviewed and all PhD students need to have full funding, either from the School, which currently offers 59 full scholarships per year, or from external sources such as the ESRC or national foundations. The purpose of this policy is twofold: firstly, to make LSE more competitive in

the global search for top-quality PhD students and, secondly, to avoid the economic hardship that in a limited number of cases befell previous students and diverted their attention away from pursuing their doctoral research.

Doctoral students within the UoA are an integral part of its research culture. Our aim is to recruit the brightest students, to provide them with excellent training, to interact with them, and to encourage them to put their research under peer scrutiny at conferences, workshops and weekly internal seminars. Frequently this results in co-authoring of publications or the hiring of doctoral students as research assistants. There is an infrastructure of training and provision for research students at School level, which is complemented by support at the UoA level. The majority of economic geography and environmental economics and policy research students are integrated into the research activities of and benefit from the infrastructure provided as part of the Spatial Economics Research Centre, the Centre for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment. There is additional dedicated workspace with computing facilities for Doctoral students in the Department.

In line with its research specialisms, the UoA offers a total of five doctoral training programmes, namely a **PhD in Economic Geography**, a **PhD in Environmental Economics**, a **PhD in Environmental Policy and Development**, a **PhD in Human Geography and Urban Studies** and a **PhD in Regional and Urban Planning**. The Graduate Director ensures consistency and dissemination of best practice across programmes. LSE is part of ESRC's Doctoral Training Centre network and all programmes provide core compulsory and assessed training in social research methods (quantitative and qualitative) and in subject-specific courses, at basic and advanced level. In addition, students can take optional courses available within the Department, the Department of Methodology and throughout the School. The majority of core training is provided in the first year of PhD study, before which all students must have completed a relevant MSc degree to Merit level with a Distinction in their dissertation.

All PhD programmes contain compulsory training in transferable skills development. The School infrastructure for transferable skills training is provided by the Academic and Professional Development Division (APDD) and for research methods and skills training by the Methodology Department. Within APDD the Teaching and Learning Centre (TLC) provides the core transferable skills for all research students including: time management, research skills, ethics, academic publishing, writing a research grant proposal, research project management, writing for the media, managing supervisors and viva preparation. TLC has also developed its own Higher Education Academy accredited Postgraduate Teaching Certificate, which all Doctoral students in the UoA must acquire. The Centre for Learning Technology provides further skills training for PhD students in new technologies for research purposes, including a six-week core skills course in bibliographic and information handling skills. An advanced information literacy course is also provided incorporating practical training sessions on new technologies for research purposes, including blogging and collaborative writing.

Expectations for progress, review and upgrade from MPhil to PhD are given in the Regulations for Research Degrees and in the MPhil/PhD Handbook distributed to all MPhil/PhD students in the Department. Students' progress is monitored by the UoA annually and reported to the School. There is a formal first year review of progress, based on a written submission by the students. In the REF period we have also introduced a substantial review of progress in the third year, to ensure that a plan for a timely submission is in place. Course assessment and meetings with supervisors serve to provide early warnings of any problems, but the annual student progress reviews and the upgrade process provide formal exit points for any student deemed unable to complete a PhD despite ample support provided by the supervisors.

Each of the three research clusters organises a series of PhD student presentation seminars, in which research students present their work in progress once a year and receive feedback from staff members as well as fellow research students. In addition, each research cluster organises its own research seminars series, with internal and top national and international external speakers, which PhD students are also required to attend. These initiatives facilitate the engagement of

students with other students, with staff and with visiting academics working in similar areas, providing feedback, fostering collaborations, and generally enhancing the research culture and identity of each research cluster. The UoA and the School financially support students wanting to present their work at prestigious national and international conferences and seminars, helping them to establish a broader contact and support network.

A large number of our students are in receipt of prestigious UK and international scholarships, including 19 ESRC PhD scholarships during the assessment period. In addition, 5 students have been awarded the competitive LSE Studentship since its inception in 2010. 60 PhDs were awarded to students from the UoA between January 2008 and July 2013 and 57 research students were registered at the UoA as of 31 July 2013.

All research students can access careers support through LSE Careers who employ a careers consultant specifically to work with this group. A range of specialised careers support is provided including confidential, 30 minute one-to-one appointments, careers seminars and web/library resources. Both academic and non-academic career paths are covered and the service is available to students up to 2 years after graduation. In addition to the specialist PhD careers service, candidates can take advantage of the many careers fairs and events run by LSE Careers as well as the detailed career information available on the LSE Careers website. Our PhD students have excellent employability prospects, going on to take up positions in a great variety of institutions, including those of higher education, national government, international organisations, non-governmental organisations and private business. For example, recent graduates have taken up tenure-track academic positions at Royal Holloway, Leeds, Indiana, Sussex University and UCL as well as Universidad de Chile and Universidad di Tella or post-doctoral positions at institutions such as Cambridge, Glasgow, Newcastle and Harvard University as well as Berkeley, UCL and University of Cape Town. Outside academia they have taken on research or consulting positions at institutions such as the Home Office, the International Labour Organisation, OECD, RAND Corporation, the World Bank, the World Economic Forum, the Asian Development Bank, the WTO and companies such as Boston Consulting, Happold Consulting and WorleyParsons.

#### **d. Income, infrastructure and facilities**

The UoA's lowest score in RAE2008 ranking was related to its research income, which was low compared with other top-ranked UoAs. The UoA is arguably disadvantaged compared to other UoAs by the absence of physical geography, which might be expected to attract higher levels of research funding in absolute terms than human geography. However, the UoA has deliberately sought to compensate for this imbalance by actively seeking external funding during the REF period. This has been achieved by a combination of individual incentives (e.g. in the form of a generous buy-out policy and a Departmental policy of allocating residual PI income) and concerted collective effort aimed at ESRC Research Centres and individual philanthropists (Grantham). Staff from the UoA have held 15 significant individual research grants or fellowships (defined as income above £10,000) from external donors such as the ESRC, NERC, Leverhulme, the European Commission, the European Research Council and private foundations during the REF period, amounting to a total value of almost £2m. An even larger sum was collectively generated via the Local Economic Growth What Works Centre, the Spatial Economics Research Centre (SERC), the Centre for Climate Change Economics and Policy (CCCEP) and the Grantham Research Institute on Climate Change and the Environment (Grantham). A total amount of circa £11.2m in external research funding was generated during the REF period. This represents a very significant increase in external research funding compared to RAE2008, when research income was circa £3.3m. (The attention of the panel is drawn to the fact that the data in REF4b are distributed between funder categories incorrectly, but immaterially. The total income figures for each year are unaffected.)

In the case of the research centres this external financial support has been matched with significant financial support from the School, often considerably in excess of the 20% that would be expected under research council full economic costing (FEC) models. In addition to this direct support, the research centres have benefited indirectly from the more general expansion of research facilities discussed further below.

For example, the **Spatial Economics Research Centre** and the **Local Economic Growth What Works Centre** are both housed in the prestigious new 32 Lincolns Inn Fields Building allowing both departmental staff and research centre affiliated post-docs and PhD students to access the excellent facilities that this building offers. These two centres have also benefited from a large administrative pool funded jointly with the Centre for Economic Performance. In addition to day-to-day administrative assistance this provides access to specialised communications, meeting and IT support that underpin the high quality research output and impact activities of these centres.

Similarly, the **Grantham Research Institute on Climate Change and the Environment**, incorporating the **ESRC Centre for Climate Change Economics and Policy**, is located in the LSE's Research Centres Hub, a large, lateral office space across three buildings that houses most of the university's research centres, including several of those with links to the Grantham Research Institute, for example the Centre for the Analysis of Time Series, and LSE Cities. In addition to its contribution to the FEC of the Institute via for instance facilities, LSE has contributed more than £400,000 between 2008-2013 directly to the Institute, which has supported a full-time Institute manager, senior faculty research time, a postdoctoral research post and a PhD studentship.

External research funding has resulted in a large volume of high quality research output, both in terms of publications and in terms of impact. All but one of the UoA's impact case studies come out of externally funded research via either SERC or CCCEP, the Grantham Research Institute or other external body finance. A total share of c. 59% of submitted research outputs to REF2014 comes out of externally funded research.

In addition, the School has recently introduced a new policy on incentives for generating external research income, which changes the rules by which such income directly benefits grant holders and their Departments. A much larger share now remains at the disposal of grant holders and a significantly larger share will be devoted to administrative support for grant holders, with less overhead costs absorbed centrally by the School. Another important positive development during the assessment period was the creation of a Research Development Group within LSE's Research Division with dedicated funding experts to work with academic units to develop innovative strategies in seeking and securing targeted funding for research, and to improve the academic community's capacity and capability in all aspects of research activity.

As part of the on-going effort to upgrade LSE facilities, the School has sanctioned a capital development spend in excess of £250 million over the next ten years. A large proportion of this expenditure is planned for the expansion of research facilities. The School's Library – the British Library of Political and Economic Science – provides first-class infrastructure and facilities to support research. There is also a specialised Research Support Services team which co-ordinates and develops tailored services for researchers. The latter is responsible for LSE Research Online (LSERO), LSE's institutional repository which collects references and full-texts of all research produced by LSE staff and makes it available free of charge to the public via the internet, increasing its visibility and use. Like all academic units within LSE, the UoA is supported by a dedicated, professionally qualified Academic Support Librarian who provides advice and support on information sources, scholarly communication issues, including intellectual property rights and compliance with open access mandate requirements, reference management tools, and the measurement of research impact through citation analysis and application of bibliometric techniques. The Library also employs a full-time Data Librarian to provide specialist information and support in the use and management of research data.

Underpinning the support that the Library provides to LSE researchers is its world leading collection. This consists of over four million items as well as extensive electronic research collections, including provision of access to 50,000 e-journal titles and over 200 datasets. The collection is comprehensively international in coverage and has particular strengths in government and official publications, data and statistical materials. It is funded by HEFCE as one of only five National Research Libraries in the UK and carries Designated Status from the Arts Council as being of outstanding national and international importance. The Library has made significant

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investment in digital infrastructure to create the LSE Digital Library which enables the primary research material of the future to be acquired through the collection of born-digital materials such as archives of emails, personal papers and web-based political and official publications.

The LSE Library also provides specific facilities and support for PhD students, such as a separate quiet study room with 56 seats. Training is provided through a six week information and research skills course specifically for PhD students. This covers literature searching, using the internet, finding specialist research materials, data, reference management, sharing research and building networks. This is supplemented by online training materials delivered through Moodle in the form of the Library Companion for Research Students. In addition, Academic Support Librarians offer one-to-one consultations to all research students in the departments they support.

**e. Collaboration and contribution to the discipline or research base**

As stated in our research strategy, we regard Geography as an integrative discipline. Most of the interdisciplinary research inside the UoA is between economic geographers and spatial economists, between economic geographers and urban geographers as well as between environmental geographers and environmental economists. In addition, going beyond the UoA and extending to both other units within the School as well as other UK institutions and universities abroad, collaborative interdisciplinary research on an individual level has been undertaken with anthropologists, architects and planners, natural scientists, philosophers, political scientists, sociologists, statisticians; business, finance and marketing scholars; and specialists in development, gender, and social policy. Indicative of our strong collaborative links, c. 63% of submitted outputs are co-authored with authors from outside the UoA, 84% of which are co-authored with authors from other disciplines. Another indication of collaboration is that one of our staff (Chant) serves on the REF panel D27 Area Studies.

LSE has established reciprocal PhD mobility bursary schemes to enable visits to any one of its five institutional partners (Columbia University, Sciences Po, Peking University, National University of Singapore and University of Cape Town) for 2-3 months on a reciprocal fee arrangement. Students from the UoA have won 5 out of 40 such awards over the REF period.

The Local Economic Growth What Works Centre, the Spatial Economics Research Centre, the Centre for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment have a number of affiliates in other universities, fostering both national and international collaboration. With respect to more formal collaboration, the Centre for Climate Change Economics and Policy is a joint venture between the UoA and the Sustainability Research Institute at Leeds University. The Grantham Research Institute on Climate Change and the Environment has a partner institution at Imperial College, which is more strongly focused on science and engineering aspects of climate change. The Spatial Economics Research Centre held, during a period of the REF2014 cycle, research spokes at the Universities of Oxford, Newcastle, Swansea and Glasgow. The What Works Centre involves an unusual collaboration between a think tank (Centre for Cities), a private sector consultancy (Arup) and a local government organisation (New Economy, Manchester)

Staff of the UoA have been – and in most cases remain – editors or associate editors during the REF period of *Economic Geography* (Rodríguez-Pose), *European Urban and Regional Studies* (Perrons), *Environment and Planning C* (Perkins and Rodríguez-Pose), *Global Environmental Change* (Conway), *Journal of Economic Geography* (Overman), *Journal of Environmental Economics and Policy* (Atkinson), *Journal of Latin American Studies* (Jones), *Oxford Review of Economic Policy* (Hepburn), *Regional Studies* (Iammarino), *Review of African Political Economy* (Mercer) and *Spatial Economic Analysis* (Cheshire). In addition, staff of the UoA have been guest editors of *Cambridge Journal of Regions*, *Economy and Society* (Rodríguez-Pose), *Environmental and Resource Economics* (Dietz) and *Journal of Regional Science* (Storper) and are also members of editorial boards of a large number of academic journals. Some examples include such top-ranked journals as *Economy and Society*, *Ecological Economics*, *Economica*, *Environment and Planning A*, *Growth and Change*, *Habitat International*, *International Organization* and the *Journal*

of *Environmental Economics and Management*, *Journal of Regional Science*, *Journal of the Royal Statistical Society Series A*, *Papers in Regional Science*, and *Regional Science and Urban Economics*. Another indication of the broad global reach of the UoA is membership of its staff in editorial boards or international scientific boards of national journals outside the UK/North America, namely in Brazil, Chile, Germany, Italy, Mexico, Poland, and Spain.

Staff of the UoA have organised or else made a major contribution to the organisation of many conferences during the REF period, for example, conferences of the Urban Economics Association, of the European, North American, and Pacific Regional Science Association, a conference of the European Political Science Association, a conference of the Latin American Studies Association, the Urban Salon (a London-based urban research seminar series), two workshops on gentrification in the Global South context (supported by an Urban Studies Seminar Series award from the Urban Studies Foundation and Urban Studies journal), a public event launching the *International Handbook of Gender and Poverty* (edited by a member of the UoA – Chant) at the LSE, a conference on the “Economics of Entrepreneurship” at the University of Stirling, and a workshop on “Technology, Skills and Geography” at the University of Sussex. The UoA also hosts and provides major input into LSE London, an interdisciplinary research group focused on London and comparable metro cities which collaborates with the Greater London Authority, the City of London corporation, London boroughs as well as other members of London’s urban policy community. LSE London also has an established seminar series running throughout the year. Staff of the UoA have also made major contributions to LSE’s public lecture programme, having organised a total of 27 events during the REF period, often in collaboration with other UoAs such as Sociology, Anthropology or Development Studies.

Staff of the UoA have served in advisory functions for a large number of national organisations and reports (such as the Barker Review and the Eddington Review, Department for Business, Innovation & Skills, Department for Communities and Local Government, Department for Energy and Climate Change, Department for Environment, Food and Rural Affairs, Department for International Development, Manchester Local Economic Partnership, Mayor of London, UK Committee on Climate Change, Natural Capital Committee) and international organisations (such as the European Commission, European Investment Bank, Food and Agriculture Organisation, Inter-American Development Bank, International Labour Organisation, Organisation of Economic Co-operation and Development, UN Capital Development Fund, UN-HABITAT, United Nations Development Programme, the World Bank, and the World Economic Forum). They have also served on steering committees and similar bodies of a large number of academic institutions. The Spatial Economics Research Centre has a HEIF5 project entitled ‘making the most of localism’, which helps facilitate knowledge exchange with five local authority partners. The same Centre also pursues research built on collaboration with the retail sector (including Sainsbury’s and Tesco) and the real estate industry, which has provided access to unique datasets for UoA researchers, allowing them to undertake research that otherwise would be infeasible. The Grantham Research Institute has had during the REF period a joint research programme with and financed by Munich Re, the largest re-insurance company in the world, which has again provided UoA researchers access to a unique dataset on disaster damage estimates, which they have used to produce research outputs that would otherwise have depended on much lower quality publicly available datasets. UoA researchers have also benefited from high-quality feedback and guidance from Munich Re’s research unit.

A total of 6 staff are elected Academicians of the Academy of Social Sciences (Cheshire, Gordon, Overman, Perrons, Rodríguez-Pose and Storper), two are Fellows of the Royal Society of Arts (Chant and Overman) and another one a Corresponding Fellow of the British Academy (Storper). We are particularly proud that one of our staff, Judith Rees who was made a Dame for service to higher education in the 2013 honour’s list, is currently President of the Royal Geographical Society. Staff have also served the discipline as President (Cheshire) and Vice-President of the European Regional Science Association (Rodríguez-Pose). Rodríguez-Pose is also President-elect of the Regional Science Association International, the umbrella organisation overseeing the three major super-regional organisations in North America, Europe, and the Pacific.