

To All Fellowship Applicants

This background note is based on CEP's application to the ESRC for the Innovation Fellowships and concentrates on those lines of investigation CEP considers would be most useful to carry out in support of the government's Industrial Strategy Green Paper (Jan 2017) and most in line with the existing expertise and experience of the Centre. It is therefore only indicative of the work that Fellows may carry out if successful in their application and applicants are free to suggest variants to the projects below.

ESRC INNOVATION FELLOWSHIPS

BACKGROUND INFORMATION FOR APPLICANTS

Centre for Economic Performance, LSE

The Centre for Economic Performance at London School of Economics & Political Science wishes to appoint 2 Innovation Fellowships: the first on **the Digital Economy, Productivity and the Labour Market**; the second on **Skills, Organisational Practices and Productivity**. These are the preferred areas for the fellowships but suitable candidates will also have freedom to agree variants of these programmes with the CEP Director based around aspects of the government's Building Our Industrial Strategy Green Paper (Jan 2017).

FELLOWSHIP 1

'THE DIGITAL ECONOMY, PRODUCTIVITY AND THE LABOUR MARKET'

Over the course of the three-year fellowship we would expect the fellow to produce work on the following three areas:

- Digitisation and productivity.
- The digital economy and the labour market.
- Policy options to support digital growth.

The fellow will engage significantly with (a) international researchers and (b) the corporate sector, in addition to the usual academic and policy circles. The remainder of this note sets out more detail on the questions the fellow might address, the preliminary international and corporate partnerships we have scoped out, and how CEP's expertise would provide strong mentoring and assist the fellow to develop a clear impact plan for the research.

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Digitisation and productivity

One of the key promises of digitisation is that it should drive productivity. For example, if firms can track inputs and supply chains more accurately (in some cases in real time) they can use inputs more efficiently, and ensure that fixed capital--plant and machinery--is being put to its best use. This would help drive up labour productivity, and, in the longer term, real-terms pay.

The fellow, working with mentors (see below), would be encouraged to propose an initial project investigating how technology helps firms optimise supply chains. S/he would have some leeway to design all three of the projects, but we envisage using ONS micro-data where possible, to look at the individual characteristics of firms, their usage of IT, and its impact.

The digital economy and the labour market

In labour market terms the digital economy seems to offer both a hope and a threat. On the positive side there are clear opportunities associated with faster, cheaper and more widely disseminated information. Given that more people gather information about jobs from friends and relatives than from public sources, the emergence of larger and more diverse social networks raises the possibility of better job-market information. Since there are widespread academic findings that "job search" frictions can explain a significant share of unemployment, there could be key gains here. Yet there are downsides too, with concerns that digital companies are creating jobs that are fragile, short in tenure, and often low paid. Over the past two years there has been growing criticism of technology-driven companies: Uber has seen rising complaints from its drivers, both Amazon's TaskRabbit and Deliveroo's food-delivery service have been criticised for sub minimum-wage rates of pay. It is likely that both forces--the good and the unwanted--are at play, meaning the challenge for policy, and the new Industrial Strategy is to harness the good while avoiding the bad.

The fellow's second project, which should also be data-driven would be an analysis of the labour market implications of the digital economy, including the extent of employment via work platforms, the efficiency of job search, and the wage implications of more flexible models of employment. For the purposes of this project, there could be potential gains from working alongside a technology company.

Policies to support digital growth--international comparisons

While there are clear gains from digital growth, the right policy mix for delivering it is unclear. In addition, there is some evidence that Britain is falling behind other countries. We would like the fellow to conduct a comparative study of policies to support digital growth and their impact. This would be a more qualitative piece, using international case studies and interviews. There are two specific angles we believe the fellow should focus on: (a) the role of government procurement, and (b) the role of university collaborations.

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Mentoring and oversight

We have a strong team to oversee the fellow. Professor Tim Besley has a wealth of experience in related fields having been a member of the MPC and on the board of the National Infrastructure Commission. Professor Steve Machin, director of the CEP, is one of the UK's foremost labour economists, and has been conducting work in this area. Both would provide guidance, oversight and ensure quality control.

Business engagement

All of these questions are relevant to the corporate sector. In light of this, there could be benefits for the Fellow in working closely with businesses operating in the digital economy, potentially through a short secondment, in order to understand its challenges, opportunities and related research questions, and explore potential new datasets for analysis. CEP scoping suggests possible interest from the economics / policy teams at a number of large companies in this sector, but the fellow would take the lead on identifying suitable partners.

Outputs and impact

Our aim for the fellowship would be three major bodies of work, each one aligned with one of the themes identified above. Each one would have a peer-reviewed journal paper at its core. But we would go beyond this, asking the fellow to work with our impact team to put together short-term multimedia outputs (blogs, videos) and articles for centrepiece. The CEP is already actively involved in acting as independent advisor to BEIS, HM Treasury and the Downing Street Policy Unit on Industrial Strategy and this fellowship would allow us to deliver significantly more. The Fellow would benefit by using and building on our existing policy network and help providing both high-level briefings for ministers and senior civil servants, together with more detailed "teach-ins" with more junior policy advisers and researchers.

FELLOWSHIP 2

SKILLS, ORGANISATIONAL PRACTICES AND PRODUCTIVITY

Skills and management practices are important determinants of firm productivity, but the UK has persistent problems in both areas, as highlighted in the Industrial Strategy Green Paper. Recent developments create new challenges. New immigration arrangements following Brexit are likely to make it harder for the UK to access international talent in order to fill skill gaps. In addition, there is a risk that multinationals will find the UK a less attractive destination for investment post Brexit – aside from the direct impact this would have on UK jobs and investment, this is of concern since it has been shown that there are positive spillover effects (both in terms of superior management practices and higher productivity in general) from multinationals to their surrounding firms. Technological change and new working arrangements (such as the rise in self-employment and the “gig economy”) are likely to reduce the incentives for firms to train, and policy makers must consider how to ensure that workers are appropriately trained and able to adapt to changes in the labour market.

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This fellowship would investigate in more detail the relationship between different types of skills and firm performance, including management practices, and how the skill needs of British businesses can be met in the future. In particular, it is expected that the fellow would produce work in the following three areas:

- Description and mapping of firm skills, productivity and management practices
- Business support policies to improve skills and management practices
- Skills to support new labour market structures and methods of delivery

Description and mapping of firm skills and performance

Workforce skills are not only economically important in their own right – as better skilled workers tend to be more productive - but also through knowledge spillovers that can contribute to the success of business clusters. While the UK's performance in tertiary education has improved in recent years, there are well known skills shortages in many areas (for example STEM subjects and languages), important gaps in technical or vocational skills and even basic numeracy and literacy. Policymakers need to have a more finely grained understanding of which types of skills are important for firm performance in different sectors. For example while postgraduate qualifications might be important for some sectors on the technological frontier, more basic skills are important for “low productivity”, non-tradable sectors. CEP research on management practices has revealed that firms with a better supply of skilled (measured as having an undergraduate degree) workers and managers tend to be better managed, and there is some causal evidence of this link using US data. To the extent that having a degree is a proxy for skills, it would be valuable to investigate in more detail what kind of skills drive this relationship.

A first step is to build a dataset to investigate the firm level relationships between skills, productivity and management practices. This work would involve linking and analysing the relevant ONS firm-level datasets in order to gain a better understanding of the relationships between different skill levels and firm outcomes; and how these might vary for different sectors or regions. Building and sharing datasets and infrastructure are a priority at the CEP, and this dataset could be used to explore specific areas in more detail, using exogenous sources of variation, say in the provision of education in different areas, where possible to enable causal identification.

Business support policies to improve management practices

There is a relatively small but growing evidence base on business support policies. However, little is known about the type of training or support policies that might help to improve management practices in a UK context. Evidence from Van Reenen et al.'s CEP work on the importance of general managerial and workforce skills for improving management practices suggests that it is not merely about providing consultancy on best practice, but also about having the skills to be able to effectively implement the best practice. Working together with an associate centre of CEP, the What Works Centre for Local Economic Growth and willing business partners or government representatives, the fellow could be encouraged to help design and evaluate a randomised control trial which would test differing levels of training or other business support interventions and how these are related to changes in management practices and productivity over time. In discussion with relevant stakeholders the CEP has noted rising interest in conducting these types of experiment in order to pursue evidence based policies.

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Skills to support new labour market structures

In recent years, self-employment has grown in importance. While some self-employed workers are likely to prefer a more flexible work arrangement (usually more skilled individuals), it is evident that in certain sectors workers feel they have diminished rights and a lack of prospects for career progression – this applies in particular to workers in the “gig economy”. In the longer term, such work structures may reduce employers’ incentives to invest in their workers’ skills and this may have an impact on the make-up of the skill set of the UK workforce. It is too early to test this, but given the pre-existing skills gaps in the UK, such trends should be anticipated by policymakers. This piece of work will therefore be more forward looking, considering how workers can achieve career progression and grow their productivity given new working arrangements. The fellow may want to consider which types of skills will be important for building human capital and labour market adaptability in these contexts. This could involve working with partners in the education technology (“EdTech”) sector, potentially developing online experiments (see below for more detail on business engagement).

Mentoring and oversight

We propose two mentors to support this fellowship. Professor Henry Overman is an associate of the CEP, director of the WWC and former director of SERC. He is an expert on UK regional disparities and policy. Professor Sandra McNally, Director of the CEP’s Education and Skills programme, and the BEIS Centre for Vocational Education Research at LSE is an expert on UK education and skills, and related policy evaluations. Both would provide guidance, oversight and ensure quality control. In addition, the fellow would have access to the expertise and advice of Professor Steve Machin, Director of the CEP.

Business engagement

The natural corporate partners for an analysis of management practices are the large consultancy firms, many of whom specialise in management practices, and the business networks, who are in contact with managers across industry. We would also suggest that the fellow explore working with “disruptors” from the emerging UK EdTech industry. These companies, often driven by technology offer education that can be more convenient and cheaper than full time study. Since re-skilling and up-skilling the UK workforce is so important, we want to examine how this new kind of industry can help inform skills strategies for the modern economy. Finally, we would also explore partnerships in the growing charitable educational sector.

Outputs and impact

Please see the plan set out for Fellowship 1. As with our first fellow, we would ensure that the second fellow has impact not just in academia, but in disseminating research to policymakers, businesses and the educational sector more widely. Here the Centre for Vocational Education Research and the support of its Director Professor Sandra McNally in reaching contact networks of educational policymakers, further education and training providers, and employers’ associations will be particularly helpful.

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OTHER RELEVANT INFORMATION

Context

The Centre for Economic Performance established in 1990 by the ESRC has become one of the leading economics research institutions in Europe. It studies the determinants of economic performance at the level of the company, the nation and the global economy by focussing on the links between globalisation, technology and institutions (in particular those in the education and the labour market) and their impact on productivity, inequality and wellbeing. Its programmes for 2015-20 cover three themes: 1) how to foster growth; 2) how to share growth and 3) how to sustain growth.

The CEP's intellectual and engagement environment

The Centre's work programmes on Growth, Education and Skills, Labour Markets, Trade and Spatial Economics offer not only a natural intellectual environment to support innovation fellowships but one which is primed to promote engagement with key policy issues, particularly on Industrial Strategy, an area with which the Centre is fully engaged following the latest LSE Growth Commission Report.

Together with Besley and Stern, the Centre set up the LSE Growth Commission and produced two reports in 2013 and 2017. The 2013 report sets out how policymakers can tackle some of the long-standing challenges which have resulted in the UK's productivity lagging behind its major comparators – broadly grouped into investment in skills, infrastructure and innovation. The 2017 report provides an update, and is focused on four big policy areas: Inclusive labour markets; Industrial strategy; Openness; and Finance and the City. The industrial strategy component has pinpointed important policy areas where more research is needed, especially on spatial productivity patterns and on skills. The CEP is therefore very well geared up in terms of intellectual research developments and on data infrastructure to push forward and disseminate this research agenda in the future.

Both Reports have had large impact and brought the Centre into constant contact with the Treasury, BEIS, Number 10 policy unit, Department of Education as well as with key business and sector leaders who contributed to our select-committee-style evidence sessions. Following the take up by the Treasury of one of the first Growth Commission's recommendations (the establishment of the Infrastructure Commission under Lord Adonis) the Centre has been working through a series of meetings, workshops, and advice sessions to promote other projects and analysis on sustainable growth including new work on the geographic spread of industry and responding to the BEIS Industrial Strategy consultation. With this receptivity and avenues open to the work of the Centre, any Fellow working here will have excellent opportunity of their work having real impact. Since the result of the EU referendum, demand on the Centre for advice, evidence and analysis has greatly increased and the possibility of obtaining fellowships to support the work in this area could not be more opportune.

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The Centre's work with industry also has a long heritage, in particular, the development of the World Management Survey, now in its 15th year. To date, over 20,000 company interviews have been conducted in 35 countries, management has been shown to be a key driver of productivity, and determinants of differing management practices across firms have been explored. As a result of the findings from the Survey, the ONS, the US Census Bureau and the EBRD have all incorporated survey questions on management practices in their own surveys of companies and the CEP has been instrumental in assisting with this. In addition, CEP academics have produced a body of academic work using firm level data to understand the drivers of innovation and investment and the impact of new technologies on productivity.

Training & Capacity Building

Much of the training will be provided through contact with other academics working on related topics or datasets at the CEP. This is made possible by the way that the Centre has been set up, with research staff and project leaders in daily contact with each other (in a purpose built research building). The CEP hosts several weekly series of field seminars attended also by LSE faculty and postgraduates, and the fellow will have the opportunity to present work in progress to peers and senior staff. The fellow will also have access to other departmental seminars that are relevant. Researchers at the CEP have on hand assistance with storing and retrieval of data, and an outstanding array of expertise working with the main UK economic and social surveys and firm level data. The CEP also has an expert in "Big Data" running workshops on Machine Learning for Text Analysis, Python Programming and related skills; an expert and a growing body of staff skilled in Geographic Information Systems (e.g. using mapping and analytics programmes such as ArcGIS) and spatial data modelling. Since the CEP has close working relations with the What Works Centre for Local Economic Growth and the Centre for Vocational Education Research, the Fellow will have access to staff with lengthy experience of running RCT's. We would be looking for someone already trained in econometrics and statistical packages such as STATA through a PhD in economics or equivalent but where further training in particular methods was required, we would assist attendance at CEMMAP courses (such as Advances in Econometrics, running in May 2018). Finally the Fellow would be encouraged, as all staff in CEP, to write for non-academic audiences in the press, LSE blogs, CEP policy bulletins, in its tri-annual research magazine *CentrePiece*, and assistance here would be provided by the leading economic journalist Romesh Vaitilingam who works with CEP as a press consultant. Courses are run twice annually in the Centre on presenting to the media followed by a session with leading journalists. As mentioned above, the Fellow would have access to, and be able to build upon the Centre's network of policymakers and stakeholders in the industrial policy context. This will not only allow their work to have impact, but also ensure it is policy relevant.

Mentoring

As well as receiving guidance and support from the designated mentors below, the Fellow would be encouraged to discuss work with a range of economists at the Centre whose research areas strongly complement Industrial Strategy, including Professors Philippe Aghion, Steve Gibbons, Guy Michaels, Alan Manning and Gianmarco Ottaviano.

Profs. Tim Besley, Steve Machin, Sandra McNally and Henry Overman have agreed to be mentors to the Fellows and are ideally placed to provide guidance and assist access to policy environments. Besley is Professor of Economics and Political Science and W. Arthur Lewis Professor of Development Economics at the London School of Economics and Political Science (LSE). He is an LSE Growth Commissioner, a member of the Infrastructure Commission and served on the Monetary Policy Committee 2006-2009. He is one of the leading economists involved in restoring the study of political economy to prominence in mainstream economics. Machin directs the Centre for Economic Performance and its Labour Markets Programme, is an LSE Growth Commissioner and ran for ten years the Department for Education's Centre for the Economics of Education. McNally since 2015 has been the Director of the BEIS Centre for Vocational Education Research and runs the CEP's Education and Skills Programme – she is a leading expert in the economics of education, has written widely on the effectiveness of school-based policies for improving educational achievement, returns to education, the impact of careers advice on educational decisions and has evaluated several major education policy interventions. Henry Overman is Professor of Economic Geography at LSE, has run the Spatial Economics Research Centre 2008-2013 and since 2013

directed the What Works Centre for Local Economic Growth. He studies the causes and consequences of spatial disparities and the impact of urban and regional policy, and works intensively with decision makers in central and local government to give them a deeper understanding of ‘what works’, and to improve their ability to design, implement and evaluate effective programmes.