

# Which way now? Economic policy after a decade of upheaval

A CAGE Policy Report

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## FOREWORD

This is an invaluable and timely report. It looks at the underlying problems in the UK economy and describes current policy options. Our woeful productivity performance over the last decade points to an urgent need to rethink government policies in many areas. The financial crisis has left its mark, as have the longer term trends arising from globalisation, advances in technology and ageing. One clear lesson from this analysis is the need for the winners to compensate the losers, and a clear challenge is for public policy to create inclusive growth. In particular, when planning a sustainable fiscal path we need to take account of the costs of compensating the losers and turning them into winners. This process needs careful thought: simply giving subsidies to individuals or firms without working out what will be most helpful will not work. We saw this in the industrial policies of the 1970s, which had the state picking winners and prevented fundamentally uncompetitive firms from shutting down – a process that, in my experience, rarely worked.

The best advice is to protect the workers not the jobs. This means training people in the skills that are needed and rewarded. Of course, this involves more government spending, as does ensuring that we have sufficient welfare support to manage the transition between jobs. If the government is going to spend more, it must improve the productivity of spending. One obvious suggestion is to improve the design and generosity of maternity pay, which will allow more skilled women to remain attached to the workforce. Similarly, we could look more closely at switching expenditure from curing problems to preventing them happening in the first place. For example, we could review whether spending differently is more effective than spending more on education and health. International evidence suggests that our performance in these areas could be significantly improved. Similarly, on the tax side there is clearly more scope to tax externalities, which has the added advantage of addressing broader problems such as climate change.

One of the most damaging consequences of the Brexit saga has been the lack of attention to these issues over the last two years. And since the trade negotiations will drag on for years, this will continue to take up a lot of capacity within government. Several papers in the first theme of this report analyse the data to understand why people voted Leave. One clear conclusion is that most of the reasons relate to deficiencies in government policies that are not primarily caused by our membership of the EU. So whatever the outcome of Brexit, we need ministers and the civil service to work on the fundamental issue of raising the productivity of our private and public sectors. The forthcoming spending review offers the perfect opportunity. Unfortunately this has been partially pre-empted by the NHS settlement, but the 10 year NHS plan shows some positive signs for tackling this sector's productivity problems. This approach needs to be expanded to cover all departments and in particular those areas which cross departmental boundaries. The overall objective should be to improve the wellbeing of the nation and to reduce inequalities. Brexit has made matters more urgent as investments have been delayed, and some probably lost forever. This report offers a wealth of important ideas that should be debated and the best ones implemented, lest we risk extending our relative decline.

**LORD O'DONNELL**

Former Cabinet Secretary and Head of the Civil Service

## PREFACE

Even though Michael Gove's observations about experts during the EU referendum campaign in June 2016 were (somewhat unfairly) over-interpreted<sup>1</sup>, the sentiments commonly attributed to him still capture the spirit of the age: at the end of a decade of turmoil, Britain has often appeared to be a country that is tired of experts. Political debate and thus policymaking of late has often prioritised sentiment and perception over evidence and scholarship. At the time of writing, Parliament continues to debate Britain's exit from the European Union, a debate that has all too often demonstrated various degrees of disregard for evidence and expertise, not to mention basic facts of law and policy.

That disregard has many consequences. Most immediately, it is likely to result in suboptimal policy choices with consequences that are not just unforeseen but more importantly *unexplained* to voters, whose resultant disappointment and surprise are likely to have further consequences. More widely, failing to consider evidence and expertise closely enough makes it harder for policymakers to understand the causes of the events and trends they are attempting to address and manage. If policymakers do not properly understand the way political and economic events since the financial crisis interacted to contribute to the vote to leave the European Union, how can they begin to devise, implement and explain the policies that will best respond to those events?

This Report is an attempt to fill that gap in the policymaking process. It exists because of the partnership between CAGE and the Social Market Foundation, a partnership that works to ensure that the world-class scholarship that CAGE supports has substantive impact on policymaking. Such impact is an essential objective of the SMF, a cross-party, evidence-led think-tank. For 30 years, we have worked at the heart of Westminster to help inform policymakers about what works, what doesn't, and why. Our

<sup>1</sup> Gove's full, albeit interrupted, quote on Sky News in June 2016 referred narrowly to economic forecasters from bodies such as the International Monetary Fund and the Organisation for Economic Cooperation and Development: "I think the people in this country have had enough of experts... from organisations with acronyms saying that they know what is best and getting it consistently wrong."

work is available to politicians of all parties, to anyone involved in forming and implementing public policy, and to the public as a whole. For all those audiences, our goal is the same: a better understanding of the effects of policies, both those in place today and those that are not. This Report, like all our work with CAGE, is a central part of that mission. Here, policymakers can find evidence-based analysis and insight into the events that led Britain to its current situation, and ideas about how they should proceed from here.

Expertise and evidence have fallen out of fashion in recent years, but fashions change. This Report is for anyone who wants to help to turn the tide and ensure that the next decade addresses the problems of the last one rather than repeating them.

**JAMES KIRKUP**

Director, Social Market Foundation

## INTRODUCTION

### QUO VADIT? DIRECTIONS FOR UK ECONOMIC POLICYMAKING IN THE AFTERMATH OF THE GLOBAL ECONOMIC CRISIS AND BREXIT

Most, if not all advanced economies have suffered gravely from the 2008 global financial crisis. Growth, productivity, real income and consumption have plunged and inequality, and in some cases poverty, spiked. Some countries, like Germany and Australia, were better able to cope with the consequences but austerity has taken its toll even on the strongest economies. The UK is no exception and the more recent period of economic recovery might be halted or even reversed by the political, economic, and policy uncertainty created by the Brexit referendum. This uncertainty-related risk to growth could be even greater if the UK leaves the economic and legal framework provided by the EU.

This CAGE policy report offers proposals from different perspectives to answer the overarching question: What is the role of a government in a modern economy after the global financial crisis and the Brexit vote? We report on economic and social challenges in the UK and discuss potential policy responses for the government to consider.

The German newspaper, *Die Welt*, said of Brexit on 5 December 2018, “What no war or revolution ever could, Brexit achieves: it plunges the British Parliament into despair.”<sup>2</sup> UK politics before the 2008 crisis was marked by a post-Thatcher consensus between the Conservatives and New Labour on economic policies for growth – openness and integration that grew the economy but also increased inequality. The consensus can be illustrated by Lord Mandelson’s famous quote: “I am intensely relaxed about people getting filthy rich as long as they pay their taxes.” By 2012 he admitted he was no longer “intensely relaxed...” given rising inequality and stagnating middle-class incomes brought about by the damaging downsides of globalisation.

<sup>2</sup> <https://www.zeit.de/2018/51/brexit-grossbritannien-parlament-krise>

The financial crisis of the Noughties and Brexit have made the societal cleavages and potential policy failures more apparent. This has raised political awareness of the drawbacks of a laissez-faire approach to economic policy. In the post-economic crisis, post-Brexit era, the old consensus is shattered. The majority of UK citizens have made it very clear that they want things to change.

Brexit poses the question of how to embrace change – in political preferences, in the domestic economy and in the international economic environment – to generate a political and policy approach that supports economic growth in the UK. Tension has grown around the distribution of growth between urban hubs and less connected regions, challenging policymakers to find ways to allow the markets to work freely, at the same time as reducing inequality so that no part of the population feels left behind.

Rethinking our approach to growth-producing economic policies in the UK starts here. Our four themes consider this topic in the context of: the rise of populist and anti-immigration sentiments; the labour market; industrial, regional and fiscal policy; climate and tax policy; social policies for education and maternity leave, and social services such as housing and healthcare. We discuss ways to foster growth in the aftermath of economic and political crises and offer new perspectives on the parts of society that have been left behind by the internationalisation of production and financial markets.

The first set of contributions examine the demographic, social and economic conditions that prevail in the regions that voted to leave the EU. These areas where citizens feel left behind tell us something about the link between globalisation, the economic crisis and inequality. They also contain lessons about attitudes towards immigration and preferences for extreme and populist parties.

Looking at the redistribution of wealth within a country, it is often the better off and not the left behind who dislike the societal and cultural heterogeneity to which immigration contributes. Then the focus moves to the question of who benefits from redistribution, which can result in so-called welfare chauvinism. The contributions show that there is clearly an economic aspect to populist and anti-immigration sentiments: these are not purely

cultural phenomena. With that in mind, David Cameron's emphasis on the partial privatisation of the NHS to balance the government's budget might have fostered anti-immigrant sentiments rooted in concerns about the fiscal sustainability of the NHS. The implication is that the design of social benefits becomes crucial. Social benefits can be provided in-cash or in-kind. Because their consumption is geographically bounded and their supply is constrained in the short-run, in-kind transfers are especially prone to activating distributional conflict between immigrants and natives. Political leaders need to be aware of a given program's propensity to foster an anti-immigrant backlash.

This argument is supported by the finding that individuals' grievances about their personal financial situations can partly explain the propensity to vote Leave. In addition, regions that were more affected by austerity measures display greater support for extremist and anti-immigration parties. Thus, welfare reforms that imply taking something away from people who have little to begin with can push them to favour an anti-immigration political stance.

In summary, austerity, welfare competition, and redistribution preferences of the better off that are affected negatively by more societal heterogeneity generate a dilemma for any national government, and specifically for the UK government.

From the first theme we learn that personal financial situations and austerity play a major role in shaping preferences over redistribution, welfare spending and immigration. Together they can explain to a large extent the Leave vote in the referendum.

The Brexit campaigns and the outcome have shown definitively that large parts of the electorate no longer agree with the pre-crisis consensus. Political rhetoric about the 'squeezed middle', the 'left behind' and the 'just about managing' shows that politicians are acutely aware that their approach to government spending and redistribution must change, and must address real and perceived inequality. There is a trade-off between equity and efficiency, challenging us to find the balance between optimal economic growth and not increasing inequality between regions, communities and individuals.

The second set of issues targeted in this report is poverty, inequality and redistribution. Poverty acts as a cognitive tax and this has implications for education, political participation and welfare policies such as universal credit. This also implies that more welfare spending might not be the best response. Instead, policies to improve outcomes in social mobility, health, life expectancy and inequality that do not exacerbate the cognitive burden of poverty will be more effective. These considerations also affect how the tax and benefit system is designed to protect the poor, but also to provide efficient incentives for economic and growth producing activities.

The question of how to design policy and spend scarce resources on growth promoting but efficient fiscal, labour market, and welfare policies continues in the third theme addressed in this report. Globalisation and market integration have changed the labour market. Technological change and a move towards services impacts the relationship between capital and labour. Anti-immigration sentiments and the effects of Brexit on labour mobility will affect the distribution of skills and thus the demand and supply of labour. Regional and industrial policies will have to respond to these challenges.

To increase overall productivity and close the productivity gap between the UK and other highly developed economies, UK policymakers will need to act on the level of skills, solving the problems of skills mismatch and the urban-regional divide. Again, simply increasing overall spending on education or infrastructure doesn't provide the solution. One of the issues that seems relevant for the UK is the existence of a geographical skills mismatch, where better infrastructure and incentivising potential job-seekers to take more distant jobs could reduce the skills mismatch, increase productivity and reduce unemployment. However, concentrating on agglomeration benefits for productivity can be misleading. It is not necessarily the case that cities in the UK in general perform better than non-cities in terms of productivity. Skills mismatch in general can have large effects on productivity and unemployment but policies that solely focus on improving skills, such as education or vocational training might not be best suited to solving the problem. If wages do not reflect skill shortages, skilled workers will try to fetch the best price for their labour regardless of the quality of the match.

Thus the demand side, especially compensation of skills in high demand, has to be better adjusted to solve this problem.

Of course, education and teaching relevant skills remains one important aspect of enhancing productivity, but simply increasing spending on education might not foster upward social mobility. A redesign of the educational system that allows for better access to higher education for disadvantaged children and a system of lifelong learning remains desirable.

Another way to improve productivity is to remove impediments to the career opportunities, labour market participation and earning capacity of women, especially mothers. A combination of limited but generous maternity benefits coupled with better provision of early childcare might help to maintain the productivity of female talent, especially in highly skilled sectors. This would help to close the productivity gap.

Finally, we discuss how economic growth can be made more inclusive. Growth was more inclusive in the 1950s and 1960s but income growth started to drift apart from economic growth in the 1970s. The post-Thatcher consensus on economic policymaking and new technologies fostered growth at the top end and thus increased inequality. With the global economic crisis and Brexit, policymakers have to rethink what kind of trade-off they are willing and able to allow, given that the substitution between labour and capital seems to have changed, in part because of technological change. Can fiscal, monetary, regional and industrial policy counterbalance the negative consequences of Brexit in a post-crisis economy?

To foster more inclusive growth it seems unwise in the medium to long-term for governments to introduce interventionist policies. It would be preferable to maintain the current competition policy, support a horizontal industrial strategy with a focus on skills and improving matching, and invest in infrastructure, research and development. This might bring some stability to counterbalance the policy and economic uncertainty generated by Brexit. One aspect of providing greater certainty is the opportunity to introduce higher equity requirements than have been required by the EU. This would increase the stability of the banking system and be an improvement on the current EU regulation, which is based on the Basel III agreement.

In addition, careful design of fiscal policies in the UK has to take into account the challenges generated by Brexit. Simply increasing or decreasing spending is not enough. The choice is not just about larger or smaller government but about the type of spending that can support sustainable growth: generating deficits to finance capital formation or investment is different from deficit-financed current account spending.

The issues addressed in the four themes of this report are related in their perspective on the UK economy in a post-crisis, post-Brexit society. The pre-crisis political agreement on economic policy has to be rethought, as it is clearly failing many communities and regional economies. Brexit has shown that the majority of citizens want changes to immigration and trade relations, and thus to labour markets and growth policies. All our themes describe different aspects of the same development: the integration of product and labour markets (or the future partial disintegration of markets, particularly labour markets) is also linked to regional politics, e.g. with respect to particular industries such as the car industry, and the industrial strategy. Mismatch in the labour market is also a regional issue, which is why a new industrial policy has to consider the implications for regions, sectors and occupation categories.

The people and areas that have been described as ‘left behind’ need to be offered new policies for immigration, education and productivity but also new regional and industrial strategies. These policies will hopefully address the populist tendencies and anti-immigration sentiments that emerged during the Brexit campaign. Such policies will improve access to education, jobs and vocational training, provide support for healthcare and housing, and reduce inequality, without constraining trade relations and the potential for economic growth.

**VERA E. TROEGER**

Editor, University of Warwick and CAGE

## THEME 1:

### THE RISE OF POPULISM AND ANTI-IMMIGRATION SENTIMENT IN A POST-GLOBALISATION SOCIETY AND THE CAUSES OF BREXIT

## MIGRATION, AUSTERITY AND BREXIT

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The UK referendum on EU membership on 23 June 2016 was a key moment for European (dis)integration. Even though the outcome was expected to be tight, in the days running up to the referendum bookmakers and pollsters predicted that the Remain side would win. After the result, many observers were left puzzled and keen to understand who voted to Leave.

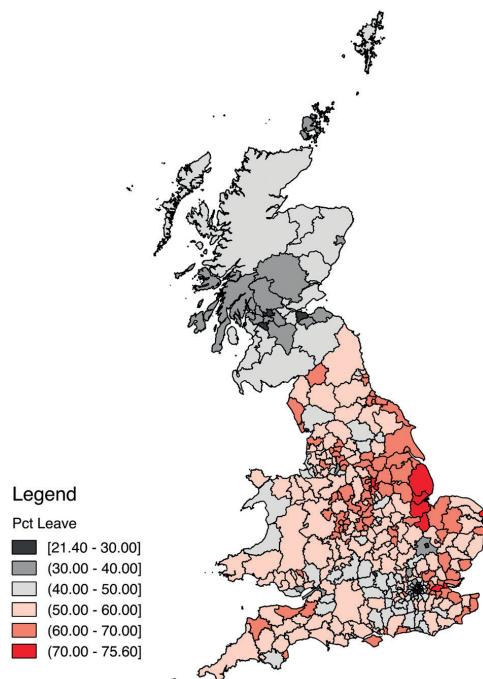
There are two complementary ways to approach the result. One is to try to understand broad patterns, for example, “Were some factors more important than others in explaining the overall pattern of the vote?” This perspective does not pose causal questions, for example by considering counterfactuals: “How would regions have voted if, instead of experiencing X, they had experienced Y?” To do this, a researcher would have to have set up a randomised control trial before the referendum and exposed some regions or voters to one type of experience, and others to an alternative experience, to analyse how random exposure to an experience would affect voting behaviour. We can get close to this by considering situations where, beyond their control, some regions/voters were exposed to different experiences – not by researchers but by changes in economic policies – and exhibited differential voting patterns.

In this Chapter, we present evidence on these two complementary perspectives. We start by summarising findings on the broad patterns of the Brexit vote. After that, we ask specifically whether austerity had a causal effect on the Brexit vote, that is, whether less austerity after 2010 would have resulted in a lower Leave share.

### Broad patterns of the Brexit vote

Following the results, various newspapers and blogs were quick to publish graphs plotting the relationship between the vote and key characteristics such as the age profile of the population (Burn-Murdoch, 2016). It was also pointed out that the Brexit vote related to class identification and social attitudes more generally (Kaufmann, 2016a). In recent research (Becker, Fetzer and Novy, 2017), we follow these early contributions and analyse the vote in more detail. We study the result in England, Wales and Scotland in a disaggregated way across 380 local authorities (and across 107 wards in four English cities). We relate the vote to fundamental socio-economic features of these areas. Figure 1 plots the Leave shares across the local authority areas (excluding Northern Ireland and Gibraltar).

Figure 1: Map of the Leave share (in percent) across local authority areas in the 2016 EU referendum

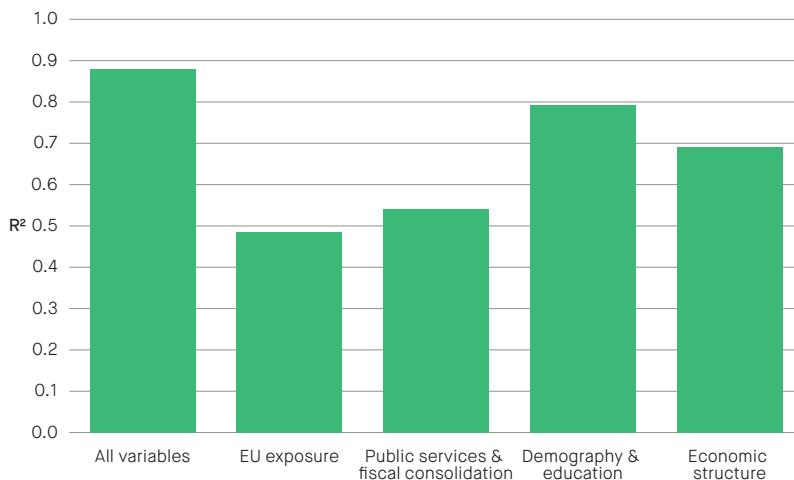


## Socio-economic characteristics

We capture different subsets of socio-economic variables that best predict the actual referendum result. We cannot give a comprehensive causal explanation because the outcome is obviously multi-causal and multi-faceted. In other words, our results reflect a broad range of correlations.

Figure 2 reports the goodness of fit in regressions that use different sets of explanatory variables. This sheds light on the relative explanatory power of different factors. For example, demography and education (i.e. the age and qualification profile of the population across voting areas) explain just under 80 percent of the Leave share. The economic structure explains just under 70 percent. Variables in this group include the employment share of manufacturing, unemployment and wages. Socio-economic variables capture variation in socio-economic deprivation (or not) across the UK and collectively explain a substantial share of the variation in the referendum result. We will return later to the question of whether deprivation may itself be the result of other factors, such as austerity.

**Figure 2: Goodness of fit (measured as R-squared) in separate regressions explaining the Leave share at the local authority area level using only regressors from the respective group of variables**



## EU exposure and immigration

Surprisingly and contrary to much of the political debate in the run-up to the election, we find that relatively little variation (under 50 percent) in the Leave share can be explained by measures of a local authority area's exposure to the EU. These measures include a local authority's trade exposure to the EU (albeit measured at a coarser spatial resolution), its receipts of EU structural funds, and importantly, the extent of immigration. We find evidence that the growth rate of immigrants from the 12 EU accession countries that joined the EU in 2004 and 2007 is linked to the Leave share. This link mirrors findings in Becker and Fetzer (2016) on the role of immigration from Eastern Europe in explaining the growth of UKIP. It stands in contrast to migrant growth from the EU 15 countries (members prior to 2004) or elsewhere in the world. It suggests that migration from predominantly Eastern European countries has had an effect – albeit quantitatively very small – on voters. However, we cannot identify the precise mechanism – whether the effect on voters is mainly economic, through competition in the labour and housing markets, or is felt as changing social conditions.

## Fiscal consolidation

In the wake of the global financial crisis, the UK coalition government brought in wide-ranging austerity measures to reduce government spending and the fiscal deficit. At the level of local authorities, spending per person fell by 23.4 percent in real terms, on average, from 2009/10 until 2014/15. But the extent of total fiscal cuts varied dramatically across local authorities, ranging from 46.3 percent to 6.2 percent (see Innes and Tetlow, 2015). It is important to note though, that fiscal cuts were mainly implemented as de facto proportionate reductions in grants across all local authorities. This setup implies that reliance on central government grants is a proxy variable for deprivation, with the poorest local authorities being more likely to be hit by the cuts. This makes it impossible in the cross-section to distinguish the effects of poor fundamentals from the effects of fiscal cuts. This is why we highlight new work by Fetzer (2018), which focuses on the role of austerity in explaining Brexit. For now, ignoring causality, our results suggest that voters in local authorities experiencing more fiscal cuts were more likely to vote Leave.

## Which factors explain more of the variation in the Leave share?

Demography, education and economic structure, i.e. fundamentally slow-moving factors, explain more of the variation in the Leave share across the UK compared to direct measures of EU exposure e.g. through migration or trade exposure. The observation that connects this and other purely correlational exercises is that Leave supporting areas stand out by being more deprived; having lower levels of income and life satisfaction; having fewer high status-jobs and an overall weaker economic structure, and having an ageing demographic and lower levels of educational attainment (see also Alabrese, Becker, Fetzer and Novy, 2019).

Variables describing the socio-economic situation of the resident population in an area do a very good job of capturing the variation in support for Leave across the UK. Yet, the central question that these exercises cannot answer is what causally explains why voters in these areas were so prone to support Leave?

## Going beyond correlations: the role of austerity

The first part of the analysis is purely descriptive and suggests socio-economic correlates that are good proxy variables for the characteristics of areas that supported Leave. The key concern with this analysis is that it fails to explain the causal factors through which the prevalence of a low educational profile of an area's population, and other features, became so tightly related with support for Leave. While Euroscepticism has been more prevalent and for longer in the UK, in comparison to other European countries, the factors that induced some voters to adopt Eurosceptic positions in recent years are important as it was probably these voters who tipped the scale in favour of Leave.

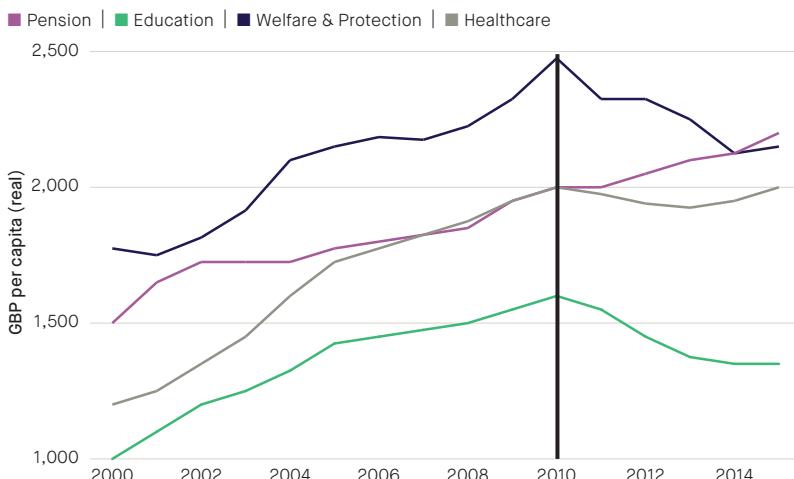
A recent paper (Fetzer, 2018) presents evidence that austerity measures since 2010 may have had substantive impacts on the referendum, pushing undecided voters towards UKIP and Leave. The welfare reforms since 2010 may provide the link that the early cross-sectional analysis of the referendum result uncovered: areas with weak socio-economic fundamentals were much more prone to support Leave. Many residents in these areas were affected by the austerity-induced welfare reforms.

## Austerity since 2010

The effects of austerity since 2010 were widely felt. Aggregate figures suggest that overall government spending for welfare and protection contracted by 16 percent in real per capita terms (see Figure 3 below), reaching levels last seen in the early 2000s. While the NHS was ring-fenced from direct cuts, the rapidly ageing population induced significant increases in demand for healthcare, worsening the quality and access for many and contributing to the now regular winter crises.

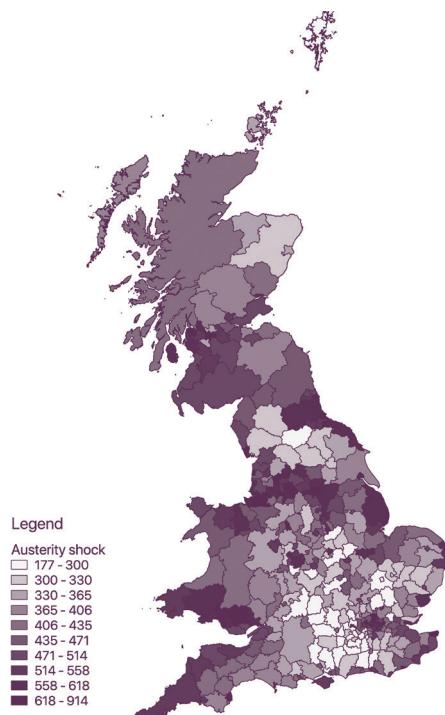
Furthermore, overall public spending on education also contracted, while spending on pensions steadily increased in real terms – a dramatic shift in the overall composition of government spending.

Figure 3: Overall public sector spending in GBP per capita (real). Data are from HMRC and ONS



At the level of local authority districts, spending per person fell by about 23 percent in real terms between 2010 and 2015 and the poorest areas were hit the hardest, with spending falling by as much as 46 percent in some areas (Innes and Tetlow, 2015). In 2013, it was estimated that many of the measures included in the Welfare Reform Act of 2012 would cost every working-age Briton, on average, about £440 per year. The impact was far from uniform across the UK, as shown in Figure 4. Financial losses varied from around £914 per working-age adult in Blackpool to just above £177 in the City of London. The most deprived areas were most severely affected by the cuts, as they had the highest numbers of people receiving benefits to begin with.

Figure 4: Distribution of austerity shock simulated by Beatty and Fothergill (2013) and used in Fetzer (2018). The measure is expressed in financial losses per working-age adult per year



### Linking austerity with support for UKIP and Leave

The empirical analyses in Fetzer (2018) are among the most comprehensive that studied UKIP and support for Leave. Exploiting data from all electoral contests across the UK since 2000, together with detailed individual-level panel data, the research documents a robust and close link between austerity and support for UKIP. These effects only become present after the austerity measures took effect in 2010 and the timing of the effects is consistent with individual welfare reforms being implemented.

The austerity-induced increase in support for UKIP is sizeable and suggests that the referendum could have gone the other way if not for austerity. Estimates suggest that in districts that received the average austerity shock, UKIP vote shares were on average 3.58 percentage points higher in the 2014 European elections and 11.62 percentage points higher in the most recent local elections prior to the referendum, compared to districts with little exposure to austerity.

The close link between UKIP vote shares and an area's support for Leave implies that Leave support in 2016 could have been up to 9.51 percentage points lower had the austerity shock not happened, which could have swung the referendum in favour of Remain.

These effects are detectable in aggregate voting data and when looking at how individuals' political preferences shifted after a benefit cut. For example, one welfare reform was the bedroom tax. It involved reductions in housing benefits for those living in social housing judged too large for their needs (with an 'excess' bedroom). The results suggest that households exposed to the bedroom tax increasingly shifted to support UKIP and experienced economic grievances as they fell behind with their rent payments due to the cuts. Some ended up having to move to less spacious housing.

Further, dissatisfaction with the political status quo grew distinctly among the population affected by welfare cuts. These respondents were increasingly likely to express that public officials do not care, that they have no say in what the government does and that their vote does not matter. Each of these factors is strongly related to support for Leave.

Thus, the paper argues that austerity – by curtailing the welfare state – has likely activated a broad range of long standing economic grievances.

### The economic origins of austerity-activated grievances

Economic distress been linked to increasing support for right-wing political platforms world-wide (see Dehdari, 2018). Identifying and quantifying the relative contributions of different factors that cause the underlying economic grievances, especially among the low-skilled, is an active field of research.

For example, Colantone and Stanig (2018) suggest that trade integration with low income countries has hurt areas in the UK that produce manufactured goods by intensifying competition, which is why voters in these areas have been more likely to support Leave. Similar evidence linking economic hardship that is due to trade integration to populist or extreme voting is being documented in the context of the US and Germany (see Dippel et al., 2015, Autor et al., 2018).

Similarly, evidence is mounting that some forms of immigration have small but detectable effects on labour markets by curtailing wage growth at the bottom end of the wage distribution (for evidence from the UK see Becker and Fetzer, 2018 or Dustmann et al., 2013).

Automation may also suppress wage growth among the low-skilled by reducing demand for low-skilled workers (Graetz and Michaels, 2018). In the historical context, this type of (manual) labour-saving technological progress has been linked to political unrest (Caprettini and Voth, 2015). The rise of the gig economy, zero-hours contracts and other forms of underemployment may also push people to depend on the welfare state to top up salaries (Bell and Blanchflower, 2018). Each of these factors is likely to exacerbate the economic gap between the well-educated and those with low human capital – a phenomenon referred to as the growing skill bias (see Card and DiNardo, 2002) in labour markets.

The natural implication is well known to economists: trade integration and globalisation are complementary to the welfare state. There are people who suffer from globalisation, so to maintain support for open trade there must be a policy response to assist those who are made worse off. There is currently a lot of demand for relief in the areas of the UK that have been hardest hit by a combination of globalisation and austerity. In these areas social services and social infrastructure would benefit from increased funding, with support for job seekers, education, housing and community health all possible targets for increased government support.

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## INEQUALITY AND POPULISM

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Populist anti-immigrant parties and candidates are attracting attention and gaining prominence across the Western world. In France the National Front received a record-breaking 11 million votes in the 2017 presidential election, while the Austrian Freedom Party lost the second round of the 2016 presidential election by a mere 31,000 votes. In the UK, anti-immigrant sentiment and opposition to the free movement of people within the EU contributed to the Leave vote, setting the country on the uncertain path to Brexit (Ballard-Rosa et al., 2018).

The mechanisms driving this electoral shift remains a topic of intense debate. One line of research emphasises the role of distributional conflict over economic goods such as jobs and social benefits: faced with the ostensible prospect of a shrinking pie and more seats at the table, self-interested voters may be drawn to parties that advocate restricting immigration and preventing immigrants from accessing jobs and social benefits. The Leave campaign emphasised large waves of immigrants straining the resources of this ‘small island’. The welfare state was a particularly salient issue in the pre-referendum draft agreement between the UK and the EU. Designed to undermine support for the Leave vote, the agreement proposed to limit immigrants’ access to benefits: “[Newly arrived immigrants] will not get full access to our welfare system for four years,” David Cameron proposed. “No more something for nothing. People can come to our country but they will not get out of our welfare system until they have paid in.”

But a focus on resource competition and distributional conflict misses the forest for the trees. Scholars have argued that such welfare-centric rhetoric is better understood as the expression of parochialism and xenophobia: voters seek to exclude immigrants not out of self-interested economic concerns but out of concerns for growing cultural and ethnic (dis)similarity (Inglehart and Norris 2018, Edsall, 2014; Seymour, 2014, Ford and Goodwin 2010; Cutts, Ford and Goodwin 2011). Here, the

intersection between the welfare state and immigration is a direct consequence of strategic out-group bias that has been encouraged by political elites for electoral gains (Alesina and Glaeser, 2004).

We believe this conclusion is premature, especially when it comes to the recent success of anti-immigrant parties in Europe. In our project, we examined the role of economic concerns, more specifically, the role of concerns about immigration's negative effect on the fiscal sustainability of major social programmes (the welfare channel). Given the general scepticism towards any economic interpretation of anti-immigrant sentiment, our goal in this project was to design a test that would provide clear evidence in favour of, or against, the welfare channel.

### Austria's public housing programme

To do so, we focused on Austria's public housing programme. This provides high-quality housing to one in four households in Austria, targeting middle and lower-middle class households. It is very different from public housing in places like the United States or, since the late 1980s, the UK, where public housing is designed to meet the housing needs of the worst off. In these countries, low-income households are over-represented among beneficiaries of public housing and an increase in income can result in having to move out of publicly-owned dwellings. This is not true in Austria: the income threshold for accessing public housing is very high (80 percent of the population qualifies); individuals without a stable income cannot access public housing, and those who experience an increase in income are not required to move out. In Vienna, where nearly half of the housing stock is run by a public housing programme, renting a publicly owned dwelling is as attractive as home ownership. Indeed, being a beneficiary of such a programme implies secure high-quality housing at below market rates.

In 2006, a legal decision at the EU level forced Austrian municipalities to open public housing to foreign residents. By expanding the pool of potential beneficiaries, the ruling sharply increased demand for public housing and placed the programme under fiscal stress. It also generated a clear distributional conflict (over the fixed resources) between newly eligible immigrants and a politically relevant share of native voters. We examine whether support for populist anti-immigrant parties has increased among municipalities most affected by the EU directive. The results suggest a clear relationship between the intensity and prevalence of distributional conflict over public housing and support for anti-immigrant parties in the 2006 legislative elections. In municipalities most affected by the reform, our results suggest that the increase in the Far Right's vote share was 59 percent higher than expected given historical trends. Moreover, this pattern persisted into the 2008 legislative elections, pointing to a sustained term effect of distributional conflict over in-kind social benefits. An analysis of neighbourhoods in Vienna offers additional evidence regarding the effect of distributional conflict in a highly-politicised case. Our results indicate that support for anti-immigrant parties was elevated by an additional 5 percentage points in the most affected neighbourhoods.

### **Social transfers and distributional conflict**

There are accounts that dispute the contemporary relevance of distributional conflict. Our results, however, demonstrate how pressure, induced by immigrants' receipt of benefits, can foster an anti-immigrant backlash. And although there hasn't been a similar change in immigrants' conditions for accessing social benefits in the UK, meaning we cannot do a similar analysis, we can draw several conclusions from this Austrian case study. Public housing, as an in-kind social transfer, does not benefit the middle class in any unique way. Another candidate is public healthcare such as the National Health Service. Becker et al. (2017) show that recent waves of Polish migration settled in rural and peri-urban areas where public services have been chronically under-provided. Consistent with the argument outlined in this paper, they demonstrate that lower-quality NHS service provision is associated with support for Brexit.

## Findings

According to our findings, anti-immigrant sentiment is relatively more developed among poorly educated voters and this can be explained as much by this group's authoritarian and ethnocentric orientations, as it can be by its higher reliance on in-kind social transfers. Absent the former, a narrative that presents immigrants as responsible for resource scarcity would most likely not have as much leverage. Absent the latter, the political consequences of immigration-induced fiscal stress are likely to be subdued. If anti-immigrant sentiment is exclusively interpreted as evidence of prejudice in a context where fiscal adjustment has become a credible threat, this potentially disregards underlying grievances about access to social transfers. With that in mind, Cameron's emphasis on the partial privatisation of the NHS to balance the government's budget might have fostered anti-immigrant sentiments that were rooted in concerns about the fiscal sustainability of the NHS.

Our findings can also help explain how a migration shock induced by EU enlargement might have fostered support for leaving the EU. Polish immigrants are overwhelmingly white and Christian, and often highly skilled and very quick to learn English. This is the type of immigration shock that, according to theories that emphasise concerns about diversity, should be the least likely to foster a backlash. In contrast, our findings highlight the potential role of fiscal stress and the NHS in fostering opposition to immigration and support for Leave, independent of the Polish minority's potential to culturally integrate into UK society.

Finally, our findings also provide a new take on the relationship between support for anti-immigrant populist parties and the welfare state. According to Swank and Betz (2003), a comprehensive and generous system of social protection lessens economic insecurities induced by free trade and globalisation and consequently weakens support for far-right parties (see also Garrett (1998) and Rodrik (1997)). In contrast, we show that distributional conflicts between immigrants and natives over a generous in-kind programme, such as public housing in Austria, can increase anti-immigrant sentiment and by extension support for far-right parties.

We see at least three policy implications from our findings. First, politicians need to be aware of the mechanism documented in this paper when arguing for austerity. In a context of a large inflow of immigrants, they could end up accidentally fostering a large anti-immigrant backlash. A second implication has to do with social policy design. Social benefits can be provided in-cash or in-kind (e.g. school or housing vouchers versus publicly provided education or housing). Because the consumption of in-kind transfers is geographically bounded and their supply is constrained in the short-run, they are especially prone to promoting distributional conflict between immigrants and natives (Dancygier 2010). Political leaders therefore need to be aware of a given programme's propensity to foster an anti-immigrant backlash. Finally, while local politicians have long been keenly aware of conflicts over in-kind benefits (Dancygier 2010), national leaders have often overlooked this issue.

This is very apparent not only in the UK, but most importantly within the EU. On the one hand, the Commission and countries like Germany or France adamantly defend the free movement clause. On the other hand, there has only been a limited attempt to debate social policy (and the fiscal implications of immigration) at the EU-level: debates over conditional access to the welfare state are currently taboo among European leaders. Cameron's attempt at limiting immigrants' access to the welfare state might have been a last ditch and half-hearted attempt at placating people's growing hostility toward the EU, but dismissing it as mere pandering to xenophobic tendencies would be premature.

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## REDISTRIBUTION AND IMMIGRATION IN WESTERN EUROPE

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On 28 April 2010, after the last of the prime ministerial debates in the UK, there was hope in the Labour Party. A resurgent Conservative Party and more importantly the increased popularity of the Liberal Democrats, were certainly significant concerns. But Labour had won the previous three general elections and Gordon Brown (Chancellor of the Exchequer under Tony Blair and Prime Minister after his resignation), in spite of being in the middle of the Great Recession, had shown a mastery of economic issues not matched by his opponents. This all changed, however, in an unscripted interaction with a pensioner in Rochdale.

According to *The Telegraph*, Gillian Duffy, a 65-year old pensioner and former council worker, “had been talking to reporters at the back of a crowd observing Mr Brown’s visit to a community pay back scheme, where offenders were picking up litter, when Sue Nye, his long-term aide and gatekeeper summoned her over to discuss her concerns with the Prime Minister.” Mrs Duffy expressed strong views about immigrants receiving welfare and Mr Brown responded with some general statements about the benefits of immigration.

That could have been the end of this episode. Again according to *The Telegraph*, after the conversation with the Prime Minister, “Mrs Duffy had said that she had been happy with Mr Brown’s responses and would be voting for him. She said their conversation had been ‘very good,’ adding: ‘seems a nice man.’” Gordon Brown, however, had got into his car and, unaware that he still had his microphone on, could be heard telling an aide: “That was a disaster... Should never have put me with that woman. Whose idea was that?” The aide asked what Mrs Duffy had said, and Mr Brown replied: “Everything. She was just a sort of bigoted woman. She said she used to be Labour. I mean it’s just ridiculous.”<sup>1</sup>

<sup>1</sup> The transcript of the conversation between Brown and Duffy and the subsequent conversation between Brown and the aide in the car can be found here: <http://tinyurl.com/ybfwdxrd>

The importance of Brown's Rochdale moment is difficult to quantify, but even five years later, as the UK prepared for another general election, Gillian Duffy was referred to as "the pensioner who helped torpedo Gordon Brown's re-election chances" (*The Observer*, Sunday 22 February, 2015). In 2015 a new leader of Labour was elected after another electoral defeat, prompting the following editorial assessment in *The Observer*: "Nothing better crystallises Labour's problem with this [i.e., immigration] than Gordon Brown's comments about Gillian Duffy in 2010. Labour has never shaken off its image as a party of the London liberal elite that simply doesn't get the stresses and strains – economic, but also cultural – that have come with globalisation, the changing structure of our labour market and immigration" (19 July, 2015).

Brown's electoral defeat in 2010, and his inevitable resignation as the leader of the Labour Party, did in fact promote a new perspective on immigration and the welfare state. Inspired by the work of Maurice Glasman, Ed Miliband's leadership turned the party towards 'Blue Labour.' Lord Glasman was part of what was described then as Ed Miliband's 'long-term strategy group'<sup>2</sup> and advocated de-emphasising the focus on the traditional welfare state while adopting more restrictive positions towards immigration. While the particularities of Brown's Rochdale moment and 'Blue Labour' are perhaps specific to the UK, they represent a general set of concerns affecting politics (and particularly the strategies of Left parties) everywhere. More importantly, the episode summarised above illustrates the political relevance of one of this policy report's central themes: the importance of redistribution to politics, and the relationship between immigration (and ethnic diversity) and the demand for redistribution.

### **Redistribution, income and immigration**

Many politicians, the popular media, and most casual observers of politics would agree that an individual's relative income (i.e., whether he/she is rich or poor) affects his/her political behaviour. This policy report addresses one of the assumptions underlying most arguments about the importance of economic circumstances to political outcomes. If income matters to individual political behaviour, it seems reasonable to assume that it does so through its influence on redistribution and social policy preferences. These

<sup>2</sup> See, for example, the New Statesman of July 20 2011.

redistribution preferences may (or may not) then be reflected in party positions and, eventually, government policy. Thus, the determinants of redistribution preferences are a topic in need of closer study.

The importance of income as a determinant of redistribution preferences varies. The rich support redistribution less than the poor almost everywhere in industrialised democracies, but the strength of this relationship is hardly consistent (very significant in the US, for example, quite weak in Portugal).<sup>3</sup> We develop three related points in this paper. First, we argue that material self-interest and other-regarding concerns should be integrated. In terms of the influence of relative income, we adopt a slightly modified version of the model proposed by Romer (1975) and Meltzer and Richard (1981). Second, we argue for the importance of something that we will call parochial altruism. We consider other-regarding preferences an important motivation for individuals: people derive moral benefits from supporting redistribution but, we argue, these moral benefits depend inextricably on the identity of the poor. People are more altruistic when the people receiving the benefits are similar to those financing them. Third, we argue that the material benefits of redistribution dominate the preferences of the poor, while the rich can afford to be altruistic. Combining the second and third points above, we will show that group homogeneity magnifies (or limits) the importance of altruism for the rich.

We propose that a significant determinant of redistribution preferences is the difference between an individual's income and the mean (average) in his/her country. The lower below the mean the income is, the more an individual gains from redistribution and the stronger we expect his/her support for it to be. The higher above the mean, the more an individual loses from redistribution and the weaker we expect his/her support to be.

The possibility that other-regarding concerns influence redistribution preferences has received increasing amounts of attention in the literature. In our research, this pertains to the willingness of individuals to make sacrifices in order to realise welfare gains for those who are worse off. We build on a significant recent literature exploring the role of identity in the formation of preferences for redistribution. We emphasise the connection

<sup>3</sup> See Dion (2010), Dion and Birchfield (2010) and Beramendi and Rehm (2016).

between altruism and group homogeneity: other-regarding considerations are bounded by racial, ethnic or religious splits. While positive inequity aversion implies that an individual's utility will increase as the poor benefit from more redistribution, identity arguments emphasise that this may depend on who the poor are. Perceiving the poor as different, these arguments suggest, detracts from altruism.

While arguments about self-interest imply that support for redistribution will decrease with income, conceptions of altruism and identity imply there are moral benefits attached to the promotion of equality within in-group members. To integrate the arguments about these two distinct dimensions, however, we will argue that a hierarchy of preferences exists. We propose that poor people value redistribution for its material consequences. Rich people, on the other hand, are less significantly affected by their immediate material self-interest. For the rich, altruism can become more relevant.

### Immigration and demand for redistribution in Western Europe

We analyse regional data from the European Social Survey. Our sample covers 129 European regions in 14 countries between 2002 and early 2009.<sup>4</sup> Our analysis uses measures of: redistribution preferences eliciting a respondent's support for the statement 'the government should take measures to reduce differences in income levels' (on a five point agree-disagree scale with labelled answer categories from 'Strongly agree' to 'Strongly disagree'), net household income (an individual's income distance to the national mean), and the share of foreign-born population in each region.

<sup>4</sup> In this section, we summarise the analysis in Rueda and Stegmüller (Forthcoming).

**Figure 1: Predicted probabilities of redistribution support as function of income distance and regional-level heterogeneity in Western Europe**

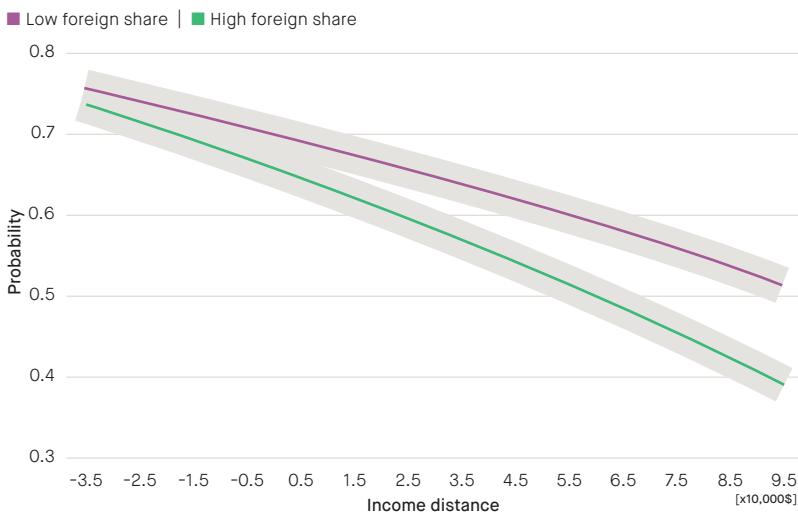


Figure 1 shows average predicted probabilities for supporting redistribution for individuals living in regions with low and high shares of foreign-born population.<sup>5</sup> A high share of foreign-born refers to the 90th percentile of the regional distribution, while a low share refers to the 10th. We calculate predicted redistribution support over the range of income in our sample and plot predicted values together with 90 percent confidence intervals. Figure 1 reveals a pattern close to our theoretical expectation.

## Conclusion

In making a distinction about the influence of altruism and group homogeneity on the poor and the rich, the arguments in this policy paper challenge some influential approaches to the politics of inequality. The first relates to the role of altruism in political economic literature, while the second addresses population heterogeneity in Europe (and the US). The future of the welfare state has come under increasing pressure from immigration and ethnic heterogeneity. A comprehensive welfare state, the argument goes, was possible in Western European countries because of

<sup>5</sup> See details of the estimation in Rueda and Stegmüller (Forthcoming).

homogeneous societies. More ethnically heterogeneous societies are expected to display lower levels of support for redistribution (see, for example, Alesina and Glaeser 2004; Freeman 2009). Migration has produced an ‘Americanisation’<sup>1</sup> of European welfare politics by making the poor less likely to support redistribution (even though they benefit economically from it) because of non-economic concerns (cultural, values, etc) related to population heterogeneity. The analysis presented above challenges these arguments. The significant differences in support for redistribution in Western Europe have little to do with the poor (who consistently support redistribution regardless of population heterogeneity) and a lot to do with the differential altruism of the rich.

For the UK, this information is integral to the conversation the country is having about immigration, welfare and redistribution. Arguably one of the major drivers for many Brexit voters was a perception that public resources were being stretched by immigration and a desire, therefore, for the UK to have the power to control it. An important dimension of Brexit in the UK, but also of the general increase in populism experienced by most industrialised democracies recently, has to do with the link between immigration and both redistribution and the provision of public services. The findings in this policy report contain an optimistic message: the poor’s support for redistribution is not as affected by immigration as some may fear, and a pessimistic one: the support of the affluent is, and this makes a cross-class coalition to mitigate the costs of globalisation difficult.

<sup>1</sup> This term has been used by Freeman (2009: 61) who argued that migration “has reduced the political clout of those social strata that have traditionally been the chief source of support for welfare state development, and it has contributed to the erosion of the political consensus on which the welfare state rests. It has led to the Americanisation of European welfare politics.”

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## BREXIT WAS A CRY OF FINANCIAL PAIN AND NOT THE INFLUENCE OF THE OLD

FEDERICA LIBERINI, ETH ZURICH AND CAGE

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What determined the decision by UK voters to leave the EU is a topic of wide debate. In particular, the idea that the vote reflected discontentment and disillusionment has been widely discussed in the UK and European media. A large part of the media, both print and broadcast, suggested that the decision to leave the EU was forced on the country by special groups, in particular older voters swamping the views of the young and discontented citizens overwhelming the views of others.

The search for answers is reflected in the academic literature. Some have emphasised the concept of a divided nation (Dorling 2016, for example). Hobolt and de Vries (2016) explore the scepticism towards EU values, and Ginsburgh, Moreno-Ternero and Weber (2017) the probable cultural and economic repercussions of Brexit. The majority of the early empirical studies pointed to economic forces and immigration-related factors (for example, Clarke, Goodwin and Whiteley, 2017; Goodwin and Milazzo, 2017) although interestingly Becker et al. (2017) argue that exposure to immigration was not particularly important, but that economic forces and deprivation were more powerful. Other contributions emphasise the effect of education. Hobolt (2016) showed that Brexit was favoured by less-educated, poorer and older voters, and those who expressed concerns about immigration and multi-culturalism. Along similar lines, Goodwin and Heath (2016) attributed Brexit more specifically to those left behind due to poverty and a general lack of education and opportunities.

Some quantitative social science literature (including Di Tella and MacCulloch 2005 and Liberini et al. 2017) uses happiness data to try to understand political decisions. Liberini et al. (2017, LOPR henceforth) analyse what determined the answer ‘Leave the European Union’ to the question: ‘Should the United Kingdom remain a member of the European Union or leave the European Union?’ Approximately 8,000 citizens responded to this question in the last wave of the Understanding Society survey between January and June 2016. The analysis in LOPR produces two results that merit attention.

### The effects of unhappy feelings

First, there is evidence in LOPR that feelings of unhappiness contributed to Brexit. However, the key channel of influence was not through general dissatisfaction with life, but through a person’s feelings about his or her own financial situation.

By focusing on the following two questions (asked of respondents in the Understanding Society survey), we show how discontentment can be incorporated into a statistical study.

#### **Question 1: An overall life-satisfaction question:**

*On a scale of 1 to 7 where 1 = ‘Completely Dissatisfied’ and 7 = ‘Completely Satisfied,’ please tell me the number which you feel best describes how dissatisfied or satisfied you are with the following aspects of your current situation.*

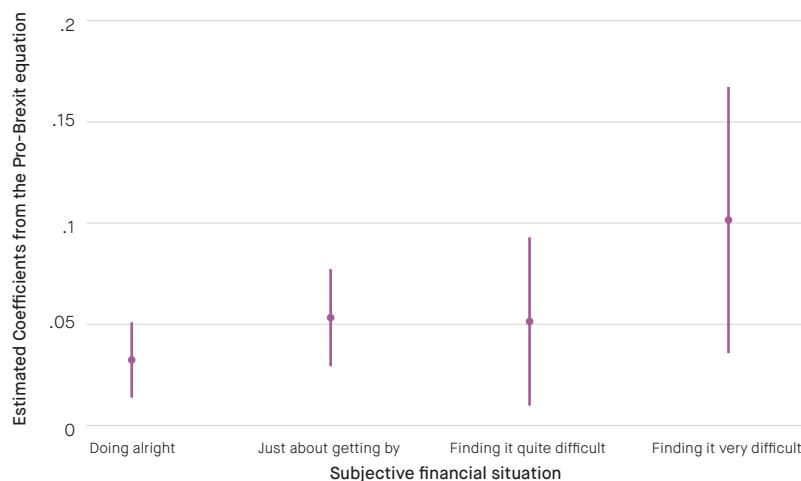
#### **Question 2: People’s feelings about their financial situation:**

*How well would you say you yourself are managing financially these days? Coded from 1 (Living comfortably) to 5 (Finding it very difficult); (see figure 1).*

General dissatisfaction (Question 1) is predictive of a pro-Brexit position to a limited extent. LOPR finds that it was only a small number of completely-dissatisfied citizens (this extreme answer was given by only 2 percent of the UK population) who wished disproportionately, in a statistically significant way, to leave the EU.

On the other hand, Figure 1 shows that there was a strong pattern between a respondent's feelings about their finances (Question 2) and their likelihood of voting Leave. Unlike the pattern for the life-satisfaction scores, here a steady increase in the coefficients is noticeable. From left to right, people felt steadily less happy with their financial situation and were progressively more likely to favour leaving the EU. The implied sizes were fairly substantial. For example, UK citizens who felt things were very difficult financially were approximately 13 percentage points more likely (than those who feel their finances are comfortable) to be in favour of leaving the EU. Overall, LOPR's statistical analysis suggests that financial feelings were amongst the strongest correlates with citizens' views on the desirability of Brexit.

**Figure 1: The Financial-Feelings Profile of Those Wishing to Leave the EU**  
 (as calculated from a Brexit equation: Column 2 of Table 3 in Liberini et al., 2017) (95 percent CI shown)

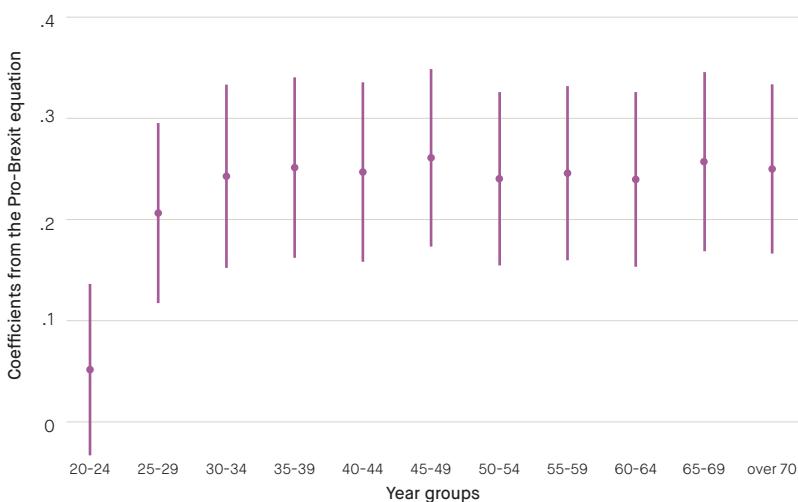


Note: The vertical axis is a measure of the probability of wanting to leave the EU. On the horizontal axis, living comfortably is the baseline.

### The effect of age

Despite what some commentators suggested, LOPR estimates the Brexit decision was not caused by the old. Looking at figure 2 – featuring in the vertical axis a measure of support for Brexit – we note that the Understanding Society data suggests that only the very youngest UK citizens – those under the age of 25 – were substantially pro-Remain. Between their late 20s and their 70s, people who live in the UK had almost indistinguishable views on the desirability of EU membership. Therefore, the data suggest that Brexit was not, in a general sense, caused by old people.

Figure 2: The Age Profile of Those Wishing to Leave the EU (as calculated from a Brexit equation in Liberini et al., 2017, Column 1 of Table 3)  
(95 percent CI shown)



### The effect of other individual characteristics

Some other patterns emerged. Consistently, along with the rest of the literature, LOPR found a strong association between advanced qualifications and favouring Remain: having a university degree or equivalent made people more likely to vote Remain by 16 percentage points. People with children were less likely to want to leave the EU, by 4 percentage points. There is also evidence of an ethnic influence: those who classified themselves in the survey as white British were somewhat more likely to vote for Brexit, by 6 percentage points. Interestingly enough, being unemployed only had a small positive or no effect on the decision to leave. Being married had no significant effect. Finally, and perhaps against some commentators' intuitions, living in a rural area had no discernible consequences. The study also highlights some regional differences in the preferences towards Brexit, where Scotland emerges as being the most pro-EU. There is evidence of a general upward trend in pro-Brexit attitudes through the year of 2016.

### Conclusion

There are two new findings in the LOPR study. First, unhappy feelings contributed to Brexit. However, the key channel of influence was not through general dissatisfaction with life. It was through a person's narrow feelings about his or her own financial situation. Second, Brexit was not caused by old people. Only the very young were substantially pro-Remain.

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## THEME 2:

### THE POLITICAL CHALLENGES OF ADDRESSING POVERTY AND INEQUALITY IN A POST-GLOBALISATION WELFARE STATE

## THE COGNITIVE TAX OF POVERTY: IMPLICATIONS FOR POLICY DESIGN

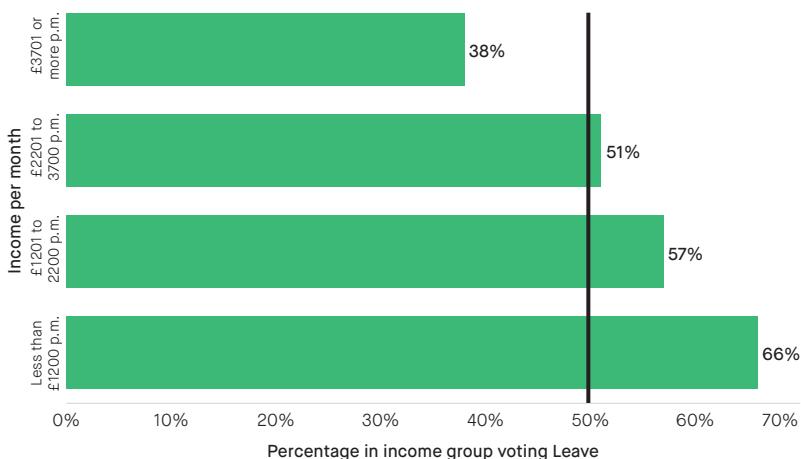
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JAMES KIRKUP, SOCIAL MARKET FOUNDATION

The UK vote to leave the EU raised questions about the UK's politics, economy and society, and about Brexit itself. Many of those questions were asked after the referendum. Google searches for 'What is Brexit?' peaked on 24 June 2016 – the day after the vote. That fact, and subsequent events, suggest that many people did not pay enough attention to the implications of leaving the EU before they voted.

Among the reasons identified for the vote, deprivation in terms of income, education and employment has been found to be key (Becker et al., 2017). By one account, 66 percent of people with a monthly income below £1200 voted for Brexit.

Figure 1: Leave vote by income



Source: NatCen Social Research (2016) Understanding the Leave vote

Base: all adults who voted in the EU Referendum, aged 18+

Whatever the merits or demerits of the Brexit vote expressed by the poor, poverty has been found to be correlated with many ‘bad choices.’ For instance, the poor pay less attention to their children, from the number of conversations they have with them to monitoring how much television they watch. Relative to the non-poor, they are less conscientious about preventive health measures, such as vaccinations for their children or washing hands, and tardier at keeping appointments (Mani et al., 2013).

Given that many of these choices are not directly linked to a lack of money, many people wonder whether people remain stuck in poverty because of these kinds of bad choices. This opinion is expressed so often that the idea that some people are deservedly poor seems to have taken firm root in parts of politics and the media.

But could the causality run in the other direction? Rather than bad choices leading to poverty, could there be something about the state of poverty that pushes people towards some of these choices? Mani et al. explored this question by investigating the link between poverty and mental attention. The authors designed several experiments to test whether the financial anxiety that comes with being poor makes a person less intelligent by depleting his or her mental bandwidth. Participants in these experiments were exposed to IQ tests and cognitive tasks that measured their mental bandwidth.

Shoppers in a US mall were primed to think about their financial concerns before taking these tests. Sugarcane farmers in India were tested before and after harvest, when their financial situation went from bust to boom. The authors also tracked the responses of drought-ridden farmers in Brazil over the course of a full rain season as weather uncertainty unfolded, and examined test outcomes and financial decisions of farmers in Kenya around the timing of their cash grants.

Having low incomes or uncertain incomes reduces a person’s IQ considerably. In the case of the shoppers and sugarcane farmers, financial anxiety reduced IQ by between 10 and 13 points, which is equivalent to the effect of losing a full night’s sleep or going from age 45 to 60. In other words, the results suggest that those blaming the poor for their bad choices appear to have got it the wrong way around. Why might this be?

Being poor means juggling expenses against low and uncertain incomes all the time, trading one difficult option against another, such as whether to pay the electricity bill or for childcare so that you can work. Routinely having to make such tough choices and deal with emergencies takes up a lot of mental bandwidth. And there are more emergencies, for example, missed GP appointments because of lack of access to transport turn into emergency room visits. In this sense, poverty is a double whammy. It is not just about lower material resources: it leaves a person with fewer mental resources (attention) to deal with things that are important in the long term but not urgent – like parenting, health or political engagement.

It has been well known for some time that poor people engage less with politics than those who are not poor. A recent study from the US that builds on the research described above supports the idea that financial anxiety contributes to lower political engagement among the poor, because of how it reduces their mental bandwidth (Denny, 2016). It shows that the experience of financial pressure correlates strongly with a ‘good intentions gap,’ where a person planned to vote but did not end up doing so. It finds that the main reason for this gap is forgetfulness – and not a lack of interest or civic-mindedness among the poor, or other structural factors that are known to hinder their access to voting facilities. The study also finds that being primed about financial anxiety has an adverse effect on political engagement among the poor, unless it is something that is salient and immediately urgent.

How are these findings relevant for UK public policy? Especially, how could they be applied to the benefit of the poorer people who were most likely to reject the political status quo by voting for Brexit? The broad takeaway here is to acknowledge that complexity in rules and regulations created for public administration can themselves be a form of cognitive taxation. In fact, at least in some areas the mental burden of such complexity is highly regressive, falling much more heavily on the poor than the rich. Simplifying some of these eligibility rules and procedures for welfare payments alone may help the poor make better decisions. We discuss more specific domains for policy intervention below.

## Designing policies that help the poor

One specific area for policy reform based on these findings is the time interval for welfare payments under the Universal Credit system. Unlike earlier schemes, in England Universal Credit is paid on a monthly basis. The rationale of the policy designers was that welfare recipients should develop the same budgeting and planning skills and habits as salaried workers who are also paid monthly. Yet Universal Credit recipients are much more likely to be experiencing poverty-related cognitive impairment than the typical monthly salary employee, given their lower incomes.<sup>2</sup> An approach to Universal Credit that acknowledges the effect poverty can have on cognition might move policymakers to revert to fortnightly payments, as remains the case in Scotland.

A second policy innovation based on these research findings would be the use of prepaid payment cards, or other novel payment techniques, that allow users to pre-commit funds before they become available for spending. Such pre-commitment could reduce the likelihood of worse financial choices made under conditions of depleted mental resources. It is true that such schemes sometimes face accusations of paternalism or dictating to the poor. To address such concerns, participation could operate on the basis of default participation. Opt-in defaults have been used with some success to nudge millions of UK workers, many on low incomes, to save into occupational pension schemes – presumably because some of those workers lacked the cognitive bandwidth to make an active choice favouring their long-term interest. Automatically enrolling benefits claimants into prepaid card schemes (and giving them the right to then exercise the option to receive payments in the traditional manner) could be one way to reflect insights about cognition and poverty in policy.

<sup>2</sup> In fact, US evidence suggests that monthly welfare payments are associated with other adverse effects such as higher crime rates (Foley, 2011) and reduction in calories consumed under food stamp programmes (Shapiro, 2005), relative to more staggered payment cycles.

Third, greater appreciation of the cognitive effects of poverty might also be the basis for policy innovation in the regulation of consumer markets. UK regulators currently place particular focus on vulnerability. For example, Ofgem defines this condition as:

“When a consumer’s personal circumstances and characteristics combine with aspects of the market to create situations where he or she is **significantly less able than a typical consumer to protect or represent his or her interests** in the energy market and/or significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial.” (Our emphasis)

A deeper understanding of the link between poverty and cognition explains why companies may be particularly able to take advantage of consumer inattention among low-income consumers. Appreciating this double whammy of poverty on material and mental resources offers a rationale for more effective regulation of providers in markets that serve many poor consumers.

A fourth area of policy relevance is education. Education has been shown to be a useful predictor of voting behaviour, especially in the Brexit referendum. According to polling by Ipsos Mori, 68 percent of university graduates voted to remain in the EU, while 70 percent of those with no formal qualifications voted to leave. Higher education remains skewed away from the poor. Only 16 percent of children eligible for free school meals (a reasonable marker of low-income status) went on to higher education in 2016, compared to 33 percent for non-FSM state-school pupils. Children from poor homes are more likely to pursue further and technical education than those from wealthier homes. They are also more likely to have time-poor bandwidth-impaired parents who, in any case, lack higher educational qualifications and thus the ability to help their children navigate the education system.

Poor and wealthy children are likely to experience educational systems of differing complexity. Young people moving from school to higher education face relatively simple choices and a relatively simple application and admission regime. A-levels are a widely understood qualification. The centralised UCAS application system is clear and well-established. By contrast, the options for continuing to study and train after the age of 16 are almost bewilderingly complex for those taking the technical and vocational route.

The education system offers simplicity to wealthier families who are best-equipped to deal with complexity, and complexity to poorer families who are most likely to experience the cognitive pressures that make them least able to respond to it. This suggests that significant simplification of the non-academic pathways available to school-leavers is overdue, perhaps starting with the single UCAS-style portal recommended by the Commons Education Select Committee in 2018, but also possibly including targeted careers support and guidance for low-income children. Help with the college application process may be helpful to poor families too.<sup>1</sup>

A final observation arising from that US study concerns the political system itself. If poverty and financial anxiety impose a cognitive burden that impedes a person's ability to take part in the political process by registering to vote and voting, that may strengthen arguments for compulsory voting, for reforms to remind, encourage and nudge low-income people to register and vote, or for new forms of voter registration and voting technology.

While none of these policy measures will individually be enough to eradicate poverty, they could go some distance in mitigating its adverse impacts on the choices poor people make. It may even nudge the better off among us to refrain from blaming the poor for their choices.

<sup>1</sup> In the US, help with filling in college financial aid forms increased college attendance among poor families by 8 percentage points from 28 percent to 36 percent (Bettinger et al., 2012).

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## THE RELUCTANT WELFARE STATE: POST-CRISIS SOCIAL SECURITY IN THE UK

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### Social welfare as means and ends

By Continental European standards, the United Kingdom is a reluctant welfare state. Though more than 50 percent of UK tax revenue goes to social protection, health, and housing, measured by the share of social expenditures to gross domestic product, the welfare state remains smaller than its Continental European counterparts. At the same time, the UK appears to be a fragile welfare state. Private debt exceeds 150 percent of household income, with the vast majority of this debt coming from mortgages. However, consumption-related debt is also rising fast. This debt level seems to be just manageable in the current favourable economic conditions, but interest rates have begun to climb. A severe economic downturn would take many families to the brink of bankruptcy and ultimately poverty.

One potential solution to many of the economic problems the UK faces, preferred by the Labour Party among others, seems to be the widening and deepening – the Europeanisation – of the reluctant welfare state. Many politicians, not just on the left of the political spectrum, suggest that the next UK government should increase welfare expenditure and income redistribution. These voices are guided by the idea that a bigger welfare state is a better welfare state. But is bigger better or is it just more costly?

We undertake a comparative review of the UK's welfare system and its performance. By focusing not on the size of the welfare state but on its impact – on poverty, health, and social mobility – we raise doubt that more spending guarantees better outcomes. We get mixed answers, but one message is clear: higher social expenditures are not sufficient for a better, healthier and fairer life. Bigger is not better: only better is better.

## Comparing the UK's welfare state

Social democratic parties have seen better days. In France, the Netherlands and Greece the vote share of social democratic parties has fallen below 10 percent, while in former social-democratic strongholds such as Germany, Sweden and Norway, the social democratic vote has roughly halved. The current crisis of social democracy has been foreshadowed by a severe weakening of trade unions. In most Western nations, union membership has reached historical lows (OECD: Labour statistics). Social democracy and the union movement are in a severe twin crisis.

Perhaps surprisingly, this twin crisis has few if any visible repercussions for the welfare state. In the 1990s many social scientists predicted the end of the social welfare state, because globalisation and tax competition would have constrained the ability of governments to redistribute income (Scharpf 1991, 1997; Rodrik 1997a,b, 1998). Since the early days of globalisation, the share of social expenditures to gross domestic product has increased in almost all Western European countries: in the UK from 15.6 to 21.5 percent, in France from 20.2 to 31.5 percent, and in Greece from 9.9 to 27 percent. A single country, the Netherlands, reduced social expenditures between 1980 and 2016, from 23.3 to 22 percent.<sup>2</sup> In other words, the welfare state does just fine.

Even in the UK the welfare state does not just linger. Between 1980 and 2015, the share of total social expenditures to GDP in the UK grew from 15.6 to 21.5 percent – despite Thatcher, New Labour and the financial crisis. Of course, rising demand caused by an ageing population partly explains the growth of welfare expenditure. Though the UK ages more slowly than most continental European welfare states, the number of people aged 65 or older grew by 1.7 million between 2000 and 2015 and the group of those aged 85 or older more than doubled in the last 25 years. This population ageing affects welfare state spending through increasing pensions and a growing demand for health care.

<sup>2</sup> OECD Social Protection and Wellbeing Database.

Table 1: UK Welfare Budgets (percentage share of GDP)<sup>3</sup>

	1980	2000	2013
Pensions	4.0	5.2	6.5
Health	4.4	5.3	7.1
Unemployment	1.2	0.3	0.3
Family	2.2	2.6	3.8
Housing	0.1	1.4	1.4
<b>Total</b>	<b>11.9</b>	<b>14.8</b>	<b>19.1</b>

Despite its recent growth, the UK welfare state remains small compared to its Continental European counterparts. Does that have to change? If Labour wins the next UK election, this could happen. In its 2017 manifesto, the Labour Party promised rising pensions, a lower pension entry age, a significant increase in active labour market policies and more generous unemployment allowances. The party also promised voters one million new units of social housing and a £30 billion increase in the NHS budget. According to Labour, all of these promises would be financed through higher income taxes on incomes above £70,000. Labour's social policy agenda would take the UK closer to continental welfare states, but even if these policies would cost the promised £50 billion, the social welfare budget of the UK would only increase from 21.5 percent to 24.3 percent – or from £384 billion to £434 billion. To match Germany's level of per capita welfare spending, the next UK government would have to increase welfare spending by £115 billion, to approximately £500 billion. Thus, even with Labour's agenda factored in, the UK welfare state would remain small. But would outcomes improve?

<sup>3</sup> OECD Social Expenditure Database.

## Effectiveness and efficiency of the UK's welfare state

Welfare policies are means rather than ends. Everything else being equal, lower welfare spending and lower tax burdens are better, even though some parties and politicians find this difficult to believe – they would argue that better outcomes can only be achieved by more spending.

We assume here that welfare policies should target, among other goals, a reduction in poverty, a healthcare system that supports a healthy and long life for the majority of the population, and upward social mobility. Social scientists often measure poverty as the share of the population that lives from an income that is 50 percent lower than the mean (or median) income. Welfare states effectively reduce relative poverty through social transfers to the poor and a progressive tax system: progressive taxes and tax-free income thresholds reduce the median income more than lower incomes, and thus relative poverty declines. Accordingly, relative poverty de facto measures inequality, rather than poverty. In fact, any progressive tax system could eliminate relative poverty without reducing absolute poverty.

Figure 1 displays the association between relative poverty after taxes and transfers and social transfers.

**Figure 1: Poverty Gap and Social Transfers**

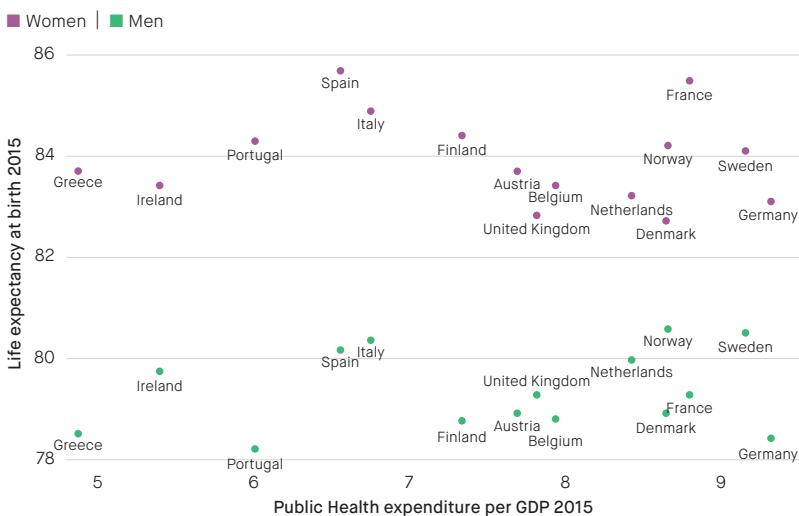


Though the UK ranks second only to Ireland in the share of social transfers to GDP, the country has a low pre-tax relative poverty level and thus achieves a relative poverty level after taxes and transfers that is close to the average across Western European countries. Moreover, the correlation between welfare state generosity and relative poverty after tax and transfers remains weak. There are at least two possible explanations for this result: first, it may well be that governments reduce relative poverty not by transfers – by making the poor better off – but by taxes, which make the median income earner worse off. Second, it may also be that welfare state contributions increase labour costs and thus reduce demand for labour, and therefore contribute to the problem they are intended to solve.

The outcomes of health policies also do not immediately follow from government expenditure on health. Though public health expenditures vary between five and 10 percent of gross domestic product, life expectancy appears to be independent of health expenditures. In Europe, few countries spend more on health than Germany, but only Portugal has a lower life expectancy. Of course, the variation in spending partly depends on demographics, especially age. In Italy, Portugal, Germany and Finland more than 20 percent of the population is aged 65 and over. In the UK, the share of elderly is only 18.5 percent of the population. An ageing population drives health spending upwards, since 15 to 25 percent of health spending occurs during the last three years of life. As the share of the elderly increases, so too does the share of health spending in the national budget. From a comparative perspective, the recent performance of the NHS raises concerns. Most importantly, the life expectancy of women falls short of that in all other European countries but Denmark. In contrast, life expectancy for men is close to the average.

Figure 2 shows that the correlation between life expectancy and health spending in Europe remains weak. While the UK's public health expenditure is lower than in most other European countries (at least as percentage of GDP), other countries such as Denmark, Germany, and the Netherlands spend much more on health, but do not have a higher life expectancy. In at least one aspect of figure 2 remains puzzling: life expectancy for men appears to be weakly correlated with public health spending, while life expectancy for women does not seem to be associated with health spending.

**Figure 2: Life Expectancy at Birth for Men and Women**



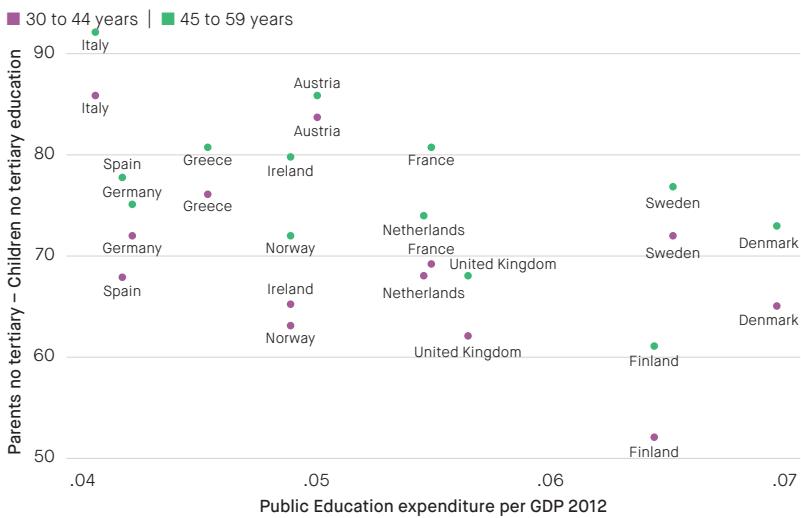
Our final comparison addresses the effect of public spending on education and the resulting social mobility. Admittedly, public investment in education does not always aim to increase upward social mobility. However, public education spending that does not address social mobility redistributes income to the top earners of the population.

**Table 2: Educational attainment of children if both parents do not have tertiary education**

Age	30-44	45-59	30-44	45-59	30-44	45-59
Country	Less than tertiary		Tertiary-type B		Tertiary-type A	
Austria	84	86	6	8	10	6
Denmark	65	73	19	18	15	9
Finland	52	61	15	23	32	16
France	69	81	15	8	16	10
Germany	75	72	11	14	14	13
Greece	76	81	10	7	14	12
Ireland	65	80	16	9	19	11
Italy	86	93	0	0	14	7
Netherlands	68	74	4	5	28	21
Norway	63	72	4	6	33	23
Spain	68	78	12	7	20	15
Sweden	72	77	7	9	22	14
UK: England	62	68	13	13	25	18
Northern Ireland	69	76	10	10	20	14

Table 2 reveals a relatively low level of social mobility for all countries except Finland. Social immobility remains strong in Italy, Austria, Germany and Greece. In contrast Finland, the UK and Norway reach significantly higher levels of social mobility. However, across all countries, social mobility appears to follow the money. Italy, with the lowest public contribution to education, also has the lowest social mobility. Finland, Denmark and Sweden spend more than Continental European countries on education and they reach a higher level of social mobility.

Figure 3: Social mobility and public spending on education



The correlation between public investment in education and the absence of social discrimination in education, however, remains weak. Sweden spends a lot on education and has made little progress on social mobility; Spain spends very little and has made significant progress in recent years.

## Conclusion

Welfare state spending is weakly correlated with socially desirable outcomes. A bigger welfare state always means higher taxes, more debt or larger social welfare contributions (unless, of course, the welfare state falls like manna from heaven),<sup>4</sup> but the redistribution from the taxpayer to the government does not always mean that the social outcomes improve, relative to comparable countries which spend less on social benefits. While a larger welfare state, by definition, costs more, welfare state spending is often inefficient. Generous unemployment benefits may increase unemployment, generous health insurance schemes may contribute to demand for unnecessary health care, and excessive active labour market policies increase inflation and reduce private investment. The US has by far the most expensive health system in the world, but it generates mediocre outcomes for the majority of its citizens. The country with the second highest life expectancy in the world, Spain, spends 3 percent less of GDP per capita on health care than Germany, the European country with the worst return on health spending in Europe. This suggests that policy design is at least as important as policy funding.

<sup>4</sup> This expression alludes to the food (manna) that miraculously appears to feed the Israelites on their journey from Egypt to the Promised Land (Exodus 16:15).

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## HOW CAN FISCAL POLICIES BE DESIGNED TO PROTECT THE POOR? THE EQUITY-EFFICIENCY TRADE-OFF IN ENVIRONMENTAL TAXATION

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In the decade since the financial crisis, the majority of households have seen no growth in their earnings. Over the past 10 years, average (median) earnings have grown (in nominal terms) at 1.6 percent a year, lower than the increase in average prices (2.2 percent a year). Energy costs in particular have been rising, at 2.9 percent a year. This is especially problematic for poorer households: those with the bottom 10 percent of incomes spend £1 in every £10 on fuel, compared with those in the top 10 percent that spend less than £1 in £30.

In 2013, the then leader of the Labour Party, Ed Miliband, decried the “cost of living crisis facing families across our country.” He pledged a freeze on household energy bills for 18 months, should his party win power. In response the Prime Minister, David Cameron, reportedly ordered his aides to “get rid of all the green crap” from energy bills. This “green crap” was a mix of policies designed to reduce carbon emissions. A period of stagnating incomes and rising inequality was apparently not the time to take action on climate change.

While the desire to lighten the burden on the poorest households is understandable, cancelling environmental policies is misguided. Not only are the costs of climate change action rising all the time, but there is also no need for such policies to be bad for poor households.

The obvious way to reduce emissions is to increase their cost. Policies that raise the cost of emitting carbon make it more expensive to use fossil fuels. These rising prices are what politicians fear, but most of these policies raise costs by charging taxes (or by selling permits), so can we use the money raised to compensate the poor?

The simple answer to this is: yes, in principle. Higher taxes would raise the cost for everyone, so poor and rich alike pay more. So, in essence, all a government needs to do is to hand back the cash, lump sum, to poor households. They will get back the money they paid in, and some of the money paid by richer households. The lump sum part is that while households paid a tax based on their energy usage, and purchase of goods and services that use energy, the rebate they get would depend only on their income or overall expenditure, not what they actually paid in tax.

For a government, this “in principle” argument is cold comfort; any government needs to know how to apply this in practice. If the tax impact depended only on incomes, compensation would be relatively straightforward. For example, among households with the same level of income, spend on food is relatively similar. So the amount of money needed to offset a tax on food is relatively similar for all households with the same income.

The main difficulty with compensation for taxes on energy comes from differences in need. When households buy energy, what they actually want is a warm home or decent lighting. But the amount of energy needed to heat a property depends on differing factors such as the age of the boiler, the level of insulation, how well windows have been maintained and where in the country you are. Differences in the quality of housing, efficiency of heating and location mean that even among households with similar incomes, there can be a lot of variation in this cost.

### Compensating poorer households

One option to tackle this would be to upgrade the heating and insulation technology for households, to reduce this variation. A government could then provide transfers based on incomes and geography that compensate for the increased costs due to taxes. Different approaches can be taken to such upgrading. A government could offer a rollout of free upgrading, paid for out of taxes. Or, as the UK has done, require energy companies to provide insulation and heating packages. The Energy Company Obligation (and many similar earlier schemes) provided insulation to households regardless of income, and free or subsidised boilers to households receiving some

kinds of benefit or tax credit. The cost of the policy is then recouped somehow by energy companies adjusting energy bills: the distributional effects of this are unclear.

An alternative would be offering loans, potentially subsidised, to do upgrades. These loans would allow households, even with low incomes, to borrow for the purpose of installing cost-saving measures. The Green Deal was such a programme. Loans were supposedly designed so that repayments could be made from the savings in fuel costs that better energy efficiency delivered. This approach might be fairer than free upgrades, because people who have already paid for upgrades are not subsidising those who have not. However, because of the uncertainty about calculating potential savings, take up was much lower than anticipated. The loan was also attached to the property, rather than the individuals living there, so that people don't continue to bear the cost of upgrades even after they leave the house. This, however, may affect the sale of the property since the new owners would acquire the debt. These complications, plus the high interest rates that applied, meant that few households – around one in 2,000 – used the scheme. Of the £1.1bn allocated to the programme, only £50m of loans was made.

Absent the political will to upgrade household heating and insulation, compensation for poorer households relies on targeting both income and housing characteristics. While governments collect good information on incomes, they know little about the housing quality of individual households. Targeting compensation therefore requires the use of other data to see which characteristics predict high energy costs. For example, if older households tend to have higher costs then compensation can vary with age. Alternatively, since existing benefits already have targeting criteria and information is collected for them, the rates of these could be adjusted. Following the previous example, pensions could be adjusted to compensate older households. The ability to target is limited by only using existing criteria, but their use does create less administrative burden.

Advani et al. (2013) and Advani and Stoye (2017) test whether compensating the poorest is possible in practice in the UK. They begin by modelling

reforms to the existing set of carbon policies, to bring taxes on household energy use in line with prices faced by businesses. Current policy in the UK leads to different carbon costs for different users and for emissions from different sources. This is inefficient however: it would be more effective for some users to pay others to cut their emissions rather than reduce their own pollution. Not allowing this makes both sides worse off, with no gain for the environment. Additionally, households still indirectly face the costs of the policy since the tax affects the price of the goods and services they buy. The only reason for the current approach is not to introduce visible costs from climate policy on poorer households.

In the absence of compensation, introducing these costs does indeed make households worse off. On average, households need to increase their total spending by 1.5 percent to cover the cost of the additional taxes. For the poorest 10th of households, spending would need to increase by 3.7 percent. However, the tax also raises revenue. If households continued to purchase the same amount of energy, increasing the price of carbon for households would raise £8.2bn. However, by design, the policy will reduce energy use. Allowing for this the taxes raise only £7.5bn. The higher prices also reduce household carbon emissions by 7 percent.

One approach to compensation, sometimes described as “fee-and-dividend”, is to split the money equally between all individuals. This would provide a compensation of £112 per person per year. Advani and Stoye (2017) show that this compensation, which is easy to explain and to administer, would on average make the poorest 20 percent of households better off, despite the higher energy prices. The next 10 percent of households would on average see little change. However, because of variation in energy spending *within* the poorest households, around a third of people in the poorest 30 percent would actually be worse off by more than £1 per week.

Implementing more targeted reforms that adjust existing benefit rates, Advani and Stoye (2017) show how the same money could be spent in a way that better protects the poorest. Under this kind of reform, less than one in five households among the poorest 20 percent are worse off. But among

the next 10 percent of households, targeting has little effect. This group includes many households where adults are working but on relatively low wages, who are relatively difficult to target with existing policies. This reform also creates more losers overall: looking across all households, 55 percent lose by more than £1 per week, compared to 44 percent under the fee-and-dividend approach. Which approach should be preferred therefore depends on who policymakers want to protect, as well as the effects of benefit changes on other behaviours.

### Lessons

The main lesson from this exercise is that policies do not exist in a vacuum. Individuals and households are affected by the whole mix of taxes, benefits and other government actions. Rather than treating each of these separately, their effects should be considered together. The government has a legally-binding target to reduce carbon emissions. Achieving this will require households to use less gas and cleaner electricity. This can be encouraged by taxing carbon more heavily. Rather than avoiding this for fear of the negative effects on poorer households, government can use the money raised to compensate these households.

Given the information available, delivering compensation through the existing benefits framework will not reach all the households that lose out. A new transfer that takes into account geography and household demographics might do better, but it will still be imperfect. Providing subsidised efficiency measures will reduce the variation in need, but take-up will continue to be partial, so this will too not solve the problem. It is therefore important for government to think carefully about the trade-offs here. There are many options: using additional money for compensation, simply accepting compensation will be imperfect, introducing a smaller tax, or something else altogether. But ignoring the issue is a bad solution. The current approach is neither equitable nor efficient. Poor households are still harmed because they pay more for the other things they buy, and collectively the country is less productive. This cannot be the answer.

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## THE CHALLENGES OF FUNDING THE STATE WITH FAIR TAXES

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Following 10 years of austerity and against the backdrop of an aging population, there is growing pressure on UK public services (Johnson et al., 2017). UK voters face an important choice: raise more tax revenue to cover the growing demand for and cost of public services, or accept that services will not keep up with demographic and cost pressures.

We need to have informed debates about how much tax we raise, who we raise it from and how we spend it. The mechanisms for collecting revenue (e.g. income tax, national insurance contributions, VAT) are important, but the key question in debates about the size of the state is who i.e. which citizens should be contributing to tax revenue. Answers will undoubtedly vary and hinge on views of fairness. The 2017 Labour Party manifesto argued that fairness required businesses and high income earners to bear the cost of a larger state. There is also debate about whether older generations who, on average, benefited from strong labour markets and large gains in property values, should contribute more to tax revenues to ensure intergenerational fairness.

### What makes a tax system fair?

People have different perspectives on tax fairness and these aren't characterised simply as the political right making efficiency arguments that favour lower, flatter taxes, while those on the left make equity arguments in support of higher, more progressive taxes. Judgements of fairness can be much more subtle and move far beyond comparisons of how much tax two similar people pay (horizontal equity), or how much tax the rich pay relative to the poor (vertical equity). For example, after the world wars there was a substantial increase in taxes on the rich. Much discussion of fairness revolved around the idea that those with riches were those who tended to be older and who hadn't fought in the wars, and that they should therefore contribute through higher taxes instead (Scheve and Stasavage, 2016). More recently, polls consistently reveal that most people, from across the

political spectrum, deem inheritance tax to be unfair. This is despite the fact that it is one of the UK's most progressive taxes: only 4 percent of estates attract an inheritance tax bill on death, and the revenue is raised from those at the high end of the wealth distribution. Perhaps more surprising is that a 2015 YouGov survey showed that 70 percent of those polled thought that cigarette duties – which are highly regressive – are fair (Shakespeare, 2015). These examples illustrate that views of fairness are not driven entirely by calculations of how much is paid by the rich vs the poor. Perceptions are shaped by multiple factors, including whether the activity being taxed is deemed desirable or undesirable and whether taxes are transparent and expected, rather than obscure or retrospective.

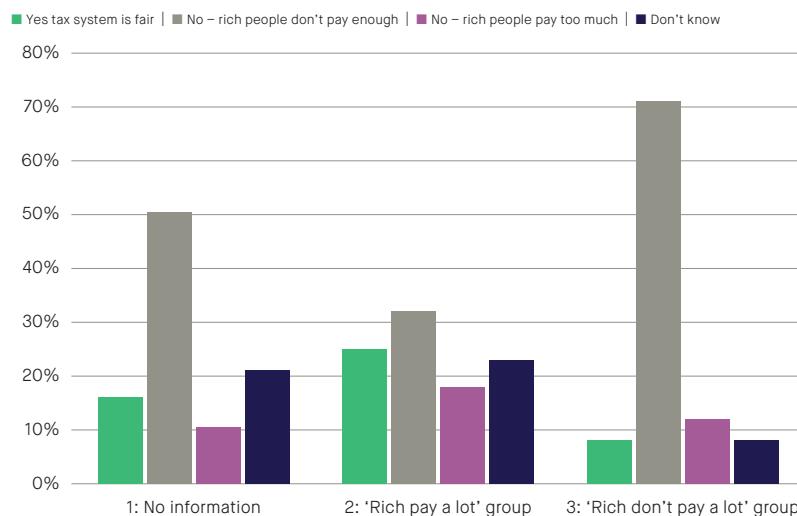
### **Information is powerful but often lacks context and can mislead**

People have access to different information about who currently pays tax and this shapes their judgement. The IFS ran a straw poll in 2017 asking: 'Broadly, do you think the UK tax system is fair?' Participants were unknowingly randomly assigned to three different groups, the first of which received only the question. The second group were told, before answering, that "four in 10 UK adults pay no income tax while the top 10 percent of income taxpayers pay 60 percent of all income tax." The third group saw two different statistics highlighting that "the richest 10 percent of income taxpayers earn more income than the entire bottom 50 percent and that someone earning £45,000 faces the same marginal income tax rates as someone earning £145,000." All statistics are true (Miller and Roantree, 2017).

The poll revealed the power of even small changes in the information people have access to (Miller, 2017). The proportion of people judging the UK tax system to be unfair because the rich don't pay enough (50 percent in the control group) changed by around 20 percentage points in the two groups that received information (Figure 1). Other research supports the conclusion that information matters. A survey of 7,700 Vox readers also found that information – provided through a quiz – changed stated perceptions of tax fairness (Williamson, 2017). An experiment using US residents found that information had a large effect on people's stated concern about inequality and could be used to double the proportion of people supporting an estate

tax (Kuziemko et al., 2015). How information is framed – in particular whether statistics are given as percentages or in terms of absolute amounts of money – also affects stated preferences about how progressive taxes should be (Reimers, 2009).

**Figure 1: Stated views on fairness change quickly with changes in information**



Source: Institute for Fiscal Studies

These effects matter. People will often be exposed to small, cherry-picked chunks of information about a particular feature of the tax system and while information can be empowering, it can also mislead.

## Who is paying for the UK state?

While it is interesting to consider the distributional effects of an individual tax, and this may inform incremental policy change, a broader perspective allows us to assess whether the UK tax system is fair. A well designed system will contain a mix of taxes with different distributional properties (Mirrlees et al., 2011). The UK tax system is progressive<sup>1</sup> (albeit not as income tax alone). The top 10 percent of UK households based on income contribute at least 30 percent of all tax receipts. This figure is an underestimate, in part because business taxes cannot straightforwardly be allocated to households but are likely to be progressive.<sup>1</sup> A business remits corporation tax revenues but ultimately it is a combination of shareholders, workers and customers that have less money as a result. Business cannot bear the incidence of any tax.

Considering how progressive the system is also requires consideration of benefits, which are a major tool for redistribution. Taking taxes and benefits together, the UK system decreases income for the richest 10 percent of people by 33 percent while increasing income for the poorest 10 percent of people by 27 percent.

Even considering all taxes, benefits and spending together gives an insufficient view of how the state redistributes resources between different types of people. That is because around 60 percent of redistribution is within people across periods of life, rather than across people (Levell et al., 2017). More broadly, it is important to consider the impact of a policy over longer periods. For example, VAT is regressive when compared with current income but mildly progressive when compared to expenditure. This is because people borrow and save to smooth out their living standards. Many people have a temporarily low income but maintain higher levels of spending, and therefore VAT payments). Lower VAT rates are a very poorly targeted way to help the poor.

<sup>1</sup> Calculations of the tax contributions of the top 10 percent rely on household surveys that under-report the income of the highest earners. Taxes which cannot be assigned include inheritance tax and capital gains tax, which tend to be more concentrated on the better off (Miller and Roantree, 2017).

It is important to consider how policies affect people in periods when they have low income, both for reasons of equity and because it speaks to how the government insures people against certain bad outcomes (like losing a job). But to accurately assess how a society redistributes from those who, over the course of their lives, have the highest ability to pay to those in most need, one needs to take a longer view.

### Lessons for the policy debate

It is unrealistic to think that every policy debate will cover all aspects of the tax and benefit system, including how incidence can be shifted (from businesses to people or across different people) and how policies stack up when considered over a lifetime. But there is ample room for improvement.

As a start, debates should be built upon specific details about who pays tax. For example, if discussing whether the rich should pay more, it's important to be specific about who counts as rich. Someone earning £50,000 a year is in the top 10 percent of income taxpayers, making them rich by the standards of many but not all (Johnson et al., 2017). Debates stall if everyone agrees that the rich should pay more tax while defining the rich as someone else.

Progress can also be made by remembering that the government has many tax levers available and some are better suited for a particular task. All taxes come with trade-offs. Higher taxes can reduce work incentives, increase incentives to reorganise activities to reduce taxes, and affect choices like how much to save, what to invest in and what to buy. We need a debate that improves the understanding of the pros and cons of specific reforms and puts them in the broader context, to ensure that we implement policies that meet public expectations about tax fairness and secure funding for government services, while limiting efficiency costs.

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## THEME 3:

### PRODUCTIVITY AND THE LABOUR MARKET: CHALLENGES AND REMEDIES

## MISMATCH UNEMPLOYMENT AND THE GEOGRAPHY OF JOB SEARCH

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In the aftermath of the Great Recession, the unemployment rate in the UK reached eight percent and remained high between 2009 and 2013. The picture was similar in the rest of Europe and in the United States. Even when the number of jobs available started to increase, the unemployment rate remained persistently high, prompting economists to talk about a 'jobless recovery.' Economists offered multiple explanations for the persistence of high unemployment after a crisis. One is the mismatch between the skill set of unemployed job seekers and the skills required in the new jobs. Another is that recessions exacerbate the geographic mismatch between job vacancies and workers. According to this geographic mismatch hypothesis, some areas lack jobs while others lack workers.

In our study we discuss this hypothesis, using data from one of the largest US employment websites, CareerBuilder.com. Commonly-used mismatch measures at the state level assume that workers can move costlessly within a state and that mobility across states is impossible. Our approach allows job seekers to search anywhere in the country, and we also take into account the fact that job seekers dislike distant jobs. Our data shows that job seekers are less likely to apply to job vacancies further away from their zip code of residence: a job seeker is 35 percent less likely to apply to a vacancy that is 10 miles away than to a vacancy next door. When incorporating this preference for jobs close to home, our new measure of geographic mismatch shows that if job seekers were relocated to areas with job vacancies, aggregate unemployment would be reduced by 5.3 percent at most. Given these results, we conclude that geographic mismatch is not a major contributor to US unemployment.

The theory of mismatch has become part of the debate over how to reduce unemployment. Some policymakers suggest that the government should encourage companies to set up factories and stores in areas with high

unemployment, while others suggest that helping workers move to areas where there are job openings might have a more significant impact. Our evidence suggests these policies might have only a minor effect on aggregate unemployment in the US. Even though the evidence shows geographic mismatch may not have a significant impact on unemployment, other types of mismatch in the labour market – such as mismatch in skills – are issues that both workers and employers struggle with and should be investigated further.

### Distaste for distance

In this study we use data from CareerBuilder.com, one of the leading job boards in the US. CareerBuilder is a broad job board, featuring vacancies in all industries, occupations, and states. CareerBuilder collects anonymous identifiers for their users, along with basic characteristics about them (like their previous occupation, or their location of residence). They keep a record of the vacancies posted on the website, the occupations of these vacancies and where they are located. CareerBuilder also keeps track of the application behaviour of users. Each time a user clicks on the ‘Apply now’ button on a vacancy webpage, this creates an entry in the dataset, with the identifier of the user, the vacancy and a time stamp. It is rare for this type of data to be shared with researchers. Application data are essential because they directly show which vacancies unemployed job seekers are interested in. Such data are more revealing than administrative data on actual hires, which mix workers’ and employers’ preferences.

The data we use are a snapshot of CareerBuilder data, with half a million unemployed job seekers and half a million vacancies, observed between April and June 2012. To measure job seekers’ distaste for distant jobs, we fit a regression model on the number of applications sent by job seekers in a given location to vacancies in another location (Poisson model). We work at the zip code level, which is a very fine geographic unit. There are about 20,000 zip codes in the US. In the model, we account for the fact that some zip codes may be more attractive than others, for reasons other than the jobs themselves (better amenities, etc).

We find that when job seekers compare a job next door to a job 10 miles away from their residence, they are 35 percent less likely to apply to the latter. The probability drops quickly. When they consider a job 25 miles away, the probability of application drops to 25 percent that of the job next door. 50 miles away, the relative probability of application falls below 4 percent. These figures reveal that job seekers care deeply about distance. Distance affects job seekers in two ways. It might create commuting costs, if job seekers keep their residence unchanged. They might also create moving costs, if job seekers decide to change residence.

### Mismatch

That job seekers care about distance to jobs suggests that the hypothesis of geographic mismatch should be considered seriously. Geographic mismatch in our setting would occur whenever the location of jobs is sufficiently far from the location of job seekers, so that their willingness to move does not compensate for the differences in location. Measuring mismatch is not easy. Traditional indices rely on choosing a geographic unit (say, states) and considering these units as separate labour markets. This invokes two assumptions. First, job seekers do not cross state borders, neither when they commute nor when they apply for jobs. Second, job seekers do not care about distance between jobs within a state, that is, a job in upstate New York is considered as valuable as a job in Manhattan.

Our data suggest that these assumptions are not correct. First, 11 percent of job seekers' applications are to jobs outside their states of residence. Second, jobs in the same state but 50 miles away are not considered that interesting to job seekers. In our paper, we design a theoretical framework based on a search-and-matching model. From this framework, we derive a mismatch index that depends on three inputs: the geographic distribution of job seekers, the geographic distribution of vacancies, and job seekers' distaste for distant jobs. We show, that even if policymakers were able to move job seekers to exactly where jobs are (and to do it for free), the number of hirings a given month would increase by just 5 percent. This would reduce the unemployment rate by around 5 percent (for instance, from 8 percent unemployment to 7.6 percent unemployment). We conclude from this

analysis that geographic mismatch is only a marginal contributor to overall unemployment.

A potential caveat is that we treat jobs and job seekers as being the same, apart from their location. In reality, jobs and workers differ in their skills and occupations. Imagine that geographic mismatch is combined with some skill mismatch: for instance all nurses are in city A and IT experts in city B, but all IT jobs are in city A and all hospitals are in city B. Our analysis above would incorrectly treat this situation as having no mismatch. In an extension of our analysis, we split labour markets by interacting broad occupations and commuting zones. Applying the same method leads to an estimate of mismatch around 7 percent, which is hardly higher than the baseline geographic mismatch index of 5 percent.

### What about the UK?

As far as we know, no such data is available for the UK, even though private (e.g. monster.co.uk) and public (findajob.dwp.gov.uk) job boards are likely to collect the same information. If such data were made available to researchers, we could replicate this analysis for the UK and inform UK policymakers about the relevance of the geographic mismatch hypothesis.

The only estimate of how UK job seekers value proximity to jobs is in a paper by Manning and Petrongolo (2017). Because they do not have access to data on applications, they use a structural model to back out distaste for distance from administrative data on monthly flows between unemployment and employment. They find that UK job seekers are eight times less willing to apply to distant vacancies than American job seekers. To assess the impact of this difference, we plugged UK distaste for distance into the American model. In this case, we obtain a contribution of geographic mismatch to overall unemployment of around 11 percent. Based on this extrapolation, the unemployment rate could be reduced from 8 percent to 7.1 percent if geographic mismatch could be eliminated.

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## RETHINKING THE SKILLS GAP

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Skills mismatch has large effects on productivity and unemployment. Almost all proposed policy interventions suggest education and training reforms to address perceived skills shortages, with little attention to wage setting. Such reforms, which are often expensive, will be ineffective if wages do not reflect relative skill shortages. If mismatch reflects an unresponsiveness of wages, then workers will 'sell' their skills where they fetch the best price, rather than where they are most needed.

The idea that the labour market suffers from severe imbalances in terms of skills offered by workers and those required by employers is pervasive. Skills mismatch is viewed as a structural issue that is independent of business cycles. However, it becomes more salient during recessions. During the Great Recession, for example, increased mismatch was discussed as the reason that unemployment remained high long after the initial, precipitating events. It is not uncommon for some sectors to complain about the trouble they experience finding workers, while unemployment rates remain stubbornly high.

Three reasons could explain the persistent skills gap: (i) workers do not adjust to changes in skills demand by acquiring the skills needed to find a job; (ii) firms do not adjust to changes in skills supply by creating jobs that utilise the skills available in the labour market; or, (iii) wages do not reflect skills shortages by creating incentives for workers to acquire scarce skills, or to abandon other occupations.

An important component of the EU's strategic framework for education policy, for example, aims "to better identify and manage the availability of required skills, competences, and qualifications, and to help prevent skills gaps and mismatches." European countries and other advanced economies worry about the "growing gulf between the skills workers possess today and the skills businesses say they need," as stressed in the 2014 report of

the Economist Intelligence Unit. Concerns often focus on skills shortages in science, technology, engineering, and mathematics (STEM) subjects, but, increasingly, concerns also extend to soft skills, such as communication, teamwork, and problem solving.

At the same time, many academic economists remain unconvinced of the existence of a skills gap. Accustomed to the idea of the invisible hand equating supply and demand, they are naturally sceptical about the idea that large segments of the labour market would persistently be in disequilibrium.

Researchers have begun to examine skills mismatch in greater detail and in new ways. Large sets of data about workers and firms have made it possible to gauge the effect of skills mismatch on workers' productivity and aggregate unemployment. Researchers have also started to explore the causes of mismatch and suggest policy responses.

### Workers and jobs: Skills mismatch and productivity

The immediate problem with mismatch is its effect on productivity. The literature looks at existing matches of workers and jobs and tries to determine whether workers have the appropriate skills. Over- or under-qualification (also called vertical mismatch) occurs when workers have the right type of skills, but are too skilled or not skilled enough. For example, in the over-skilled category, a linguist teaching a Spanish class, or, in the under-skilled category, a mechanic working as an engineer. Field-of-study mismatch (also called horizontal mismatch) occurs when workers do not have the skills required, but they have other skills at a similar level – such as a biology teacher teaching physics.

Beginning in 2011, the OECD's Programme for the International Assessment of Adult Competencies (PIAAC) began its Survey of Adult Skills, an assessment designed to provide representative data on workers' skills. Thus far, the data include skill measurements of 250,000 individuals in 33 countries. The official OECD measure was introduced in 2013 (Fischen and Pellizzari, 2017). The approach combines declarative measures of job qualification with objective measures of skill proficiency. The authors found

that 86 percent of workers are well-matched, four percent are under-skilled, and 10 percent are over-skilled.

Another study using PIAAC data shows that there is a negative correlation between this measure of mismatch and labour productivity at the industry level: industries where there are more under-qualified or over-skilled workers exhibit lower levels of labour productivity (Adalet McGowan and Andrews, 2015).

Two studies offer evidence beyond developed countries. A review of worldwide mismatch research (Leuven and Oosterbeek, 2011) finds that over-education affects 30 percent of workers, and under-education affects 26 percent of workers, with some variation across continents. Another study applies the OECD method to measure mismatch in developing countries using the World Bank's STEP Household Skills Survey. The authors find that over-education is the most prevalent form of mismatch.

A framework developed in 2015 analyses worker–occupation matches (Guvenen et al., 2015). If a worker does not have the ability to learn the skills for an occupation, that worker is ‘mismatched.’ Estimating a structural model on US data, the study finds that being mismatched early in one’s career harms a worker’s wages in a large and persistent manner.

Quantifying the effect of the *overall level* of labour market mismatch is much more difficult than measuring the effect on the productivity of *individual workers*. For example, given the skills workers have and the skills jobs require at some point in time, how much would production increase if it were possible to reallocate mismatched workers to different jobs where their skills are better matched to the requirements? It is difficult to answer this question convincingly because it requires assumptions about the functions that link production inputs to outputs. Considering both labour and physical capital, very large effects are shown from misallocation across firms (Hsieh and Klenow, 2009). The analysis claims that mismatch is responsible for a productivity gap of 40–60 percent between India and the US, and 30–50 percent between China and the US. These results show that the mismatch of production inputs (labour and capital) is a substantial

source of inefficiencies and a large contributor to the differences between developing and developed countries.

### Job seekers and vacancies: Skills mismatch and unemployment

If the skills that firms require and the skills that workers possess are sufficiently far apart, then at least some workers will not be hired. Therefore, skills mismatch also generates unemployment, which has huge economic and personal costs.

Labour market mismatch generates unemployment if unemployed workers cannot match with firms because the workers and vacancies are not right for each other. This idea can be formalised by modelling the labour market as segmented, with workers (and vacancies) unable to move from one labour market segment to another. If there are deviations between the distributions of workers and jobs among the various segments of the labour market, then some workers will remain unemployed whilst some firms will not be able to fill vacancies.

Although there are severe issues with measurement of this type of mismatch, there is remarkable consensus in the literature on three facts about unemployment due to labour market mismatch. First, that geographic mismatch is negligibly small; second, that skills mismatch, as measured by mismatch across occupations or industries, is an important contributor to unemployment; and third, that skills mismatch is larger during recessions. Geographic mismatch was discussed in the previous Chapter. The findings about skills mismatch are discussed below.

Using Standard Occupational Classification (SOC) codes to categorise the nature of certain kinds of work, a 2014 study finds that increased mismatch across three-digit occupations accounted for around 1.5 percentage points (or about one-third) of the increase in unemployment in the US during the Great Recession (Şahin et al., 2014). Related research shows similar results for the US and the UK.

## The causes of skills mismatch and how to address them

Unexpected events or phenomena may affect occupations in different ways. For instance, a 2003 study illustrates that the emergence of computers and information technologies (IT) reduced the demand for routine jobs, which were to some degree made obsolete by computers, and increased the demand for non-routine jobs, which proved to be relatively complementary to the computer (Autor et al., 2003). Like technological changes, recessions change the relative demand for different goods. Sectoral shocks may translate into asymmetric occupational shocks; for example, bakers may be less sensitive to recessions due to the relative inelasticity of baked goods, while restaurant jobs may be more sensitive because people eat out less during hard times. Because of these shocks, the fact that mismatch exists is not in itself surprising. The relevant question is: why does it seem to be so persistent?

Workers who work (or look for a job) in an occupation where the number of workers exceeds the number of positions have ways to adjust. They can apply to other higher-demand occupations that require similar skills, or they can acquire new skills. Alternatively, employers could adjust to workforce shortages by changing the skill content of occupations, or by training workers from similar occupations to fit new skill requirements. Some recent empirical literature documents that employers adjust the task and skill content of jobs (for the same occupation) with the business cycle, upskilling when workers are more abundant in a recession (Hershbein and Kahn, 2016).

Adjustment, whether by workers or employers, may be difficult and costly in the short term, especially when confronting large skill differences. Most policy interventions are based on the implicit assumption that this is the reason for the skills gap. The European Commission, for instance, believes that “Europe needs a radical rethink on how education and training systems can deliver the skills needed by the labour market.” As a result, it set up the Rethinking Education initiative “to reform education systems across the EU so as to meet growing demand for higher skills levels and reduce unemployment.”

A recent analysis uses data on wages and profits across industries and data on job-finding rates to show that it is possible to quantify how much of mismatched unemployment stems from a lack of adjustment by workers or

firms. On the workers' side, the following scenario is identified: There are industries where workers have a hard time finding jobs, but where they earn high wages if they do, and there are other industries where jobs are plentiful, but wages are low. This is what one would expect to see if workers operate along a no-arbitrage condition. That is, if they can move between industries, but will only do so if they are given the right incentives. If, on the other hand, there are many industries where both job-finding rates and wages are high, and others where both are low, the logical conclusion would be that mismatch persists because workers lack the skills required to move into better jobs. Using data for the US over the 1979–2010 period, the study finds that mismatch cannot be fully explained by barriers faced by workers and firms in adjusting to changing skills demand and supply.

If workers adjust to changes in skills demand, and employers adjust to changes in supply, how can mismatch persist? The answer is wages. If wages reflect the relative abundance or the relative shortage of skilled workers, then workers' and employers' capacities to adjust would lead to the elimination of mismatch. However, jobs in industries that generate high profits (such as retail, educational services, mining, and forestry) tend to pay low wages, and are therefore unattractive to workers, while jobs in industries that pay higher wages (like finance, computer and electronics manufacturing, and paper and printing) are not profitable to firms.

Other researchers, based on very different approaches, have also emphasised the role of wage setting. Among the forces suggested are automated screening systems that rule out candidates who might have surfaced in subjective, human resources screening processes, and a preference for hiring experienced candidates over investing in training for inexperienced-but-promising candidates. If workers do not move into low-unemployment occupations, the problem may not be that they cannot train or adjust, but that wages are too low to attract them. In the UK, for instance, less than half of STEM graduates work in scientific occupations, and there is no wage premium in other occupations for having a STEM degree. Firms, on the other hand, are more interested in hiring workers with STEM skills because these workers are not only very productive but also relatively cheap – despite a widespread public perception that STEM graduates earn high salaries. Thus, companies open lots of vacancies for STEM positions, but find it very difficult to fill them.

## Summary and policy advice

Skills mismatch is an important cause of productivity loss and unemployment. Policy to diminish the presence and persistence of skills mismatch can benefit economies, firms, and people who are unemployed or underemployed.

However, in the context of the European Commission's proposed "radical rethink on how education and training systems can deliver the skills needed by the labour market," a reform of education and training systems may be neither needed nor desired. The most striking conclusion from current research is that worker mobility frictions may not be the main contributor to labour market mismatch. Yet almost all proposed solutions treat the phenomenon as a problem of the education system. Interventions in education and training are likely to be expensive, and, at the same time, may not be as effective as expected.

Why would increasing the emphasis on scarce skills in schools and universities fail to guarantee that skills mismatch will be reduced? The reason is simply that students choose first what skills to acquire in school and university, and then whether and how to use these skills in the labour market. If wages do not reward certain skills, students will either choose not to pursue such skills, or will pursue the skills but seek employment in other, higher-paying occupations. The STEM gap offers the most obvious example of this problem. While firms complain about a shortage of qualified physicists and engineers in the labour market, a very large number of graduates in these fields work in the financial sector, where they use only a subset of their STEM skills but earn more money. Encouraging universities to educate more physicists and engineers will not solve the mismatch problem if these graduates choose better-paying jobs with investment banks.

These questions underline the need for additional research to understand the forces that foster and perpetuate mismatch. While the message from the current research should not be interpreted as a call to do nothing, greater knowledge is needed to guide policymakers in devising effective solutions.

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## THE UK'S PRODUCTIVITY CRISIS: WHY A WEAKER LINK BETWEEN EDUCATION AND BACKGROUND COULD HELP SOLVE IT

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Recent years have seen a lot of discussion about a productivity crisis in the UK. Productivity “measures how efficiently production inputs, such as labour and capital, are being used in an economy to produce a given level of output” (OECD, 2015). Workers in the UK produce less per hour than workers in many other developed countries – 16 percent less than the G7 average according to the Office for National Statistics (ONS, 2016). Why is labour productivity in the UK so much lower than in comparable economies with similar access to capital and technology?

The skills of our workforce might be part of the problem. Workers’ skills interact with other drivers of productivity – innovation, technology and management – to drive economic growth. Improving output per worker, per hour, is both simple and complicated. It might mean giving workers better technology to use, or it might mean training them to utilise the technology better. Management and technological innovation can make a big difference but so can workers who are motivated to develop, and capable of developing, new skills throughout their careers.

Skill acquisition is a lifelong process. It is difficult to predict which skills will be in demand in the long, or even the medium, term. Already, people in the workforce expect to change jobs and re-train during their working life, so workers need a foundation of literacy, numeracy and technical skills that enhance their ability to develop new skills. Each level of primary, secondary and tertiary education offers the opportunity to develop skills that translate directly into future employment and higher labour productivity. Evidence suggests that the UK may be missing these opportunities at all levels.

For example, the OECD’s survey of adult skills in England in 2012<sup>1</sup> found that the basic literacy and numeracy skills of the generation now entering the

<sup>1</sup> Only England and Northern Ireland participated in this study; we focus on the results for England, in which about 85 percent of the UK population lives.

labour market are no better than those of the generation about to retire (OECD, 2016). This is bad news for future productivity, as it suggests that the level of average basic skills amongst the working age population – the base from which new skills can be developed – is likely to fall further, and England is already one of the worst performers on this measure in the OECD.

### **Social standing and skills**

Another dimension on which England stands out is the strength of the relationship between an individual's own skills and their parents' education: young people (aged 16–20) whose parents do not have A-level (or equivalent) qualifications score almost 60 points (more than one standard deviation) lower in basic skills tests than individuals with at least one parent qualified to this level. That is a bigger difference than in all other OECD countries except the Czech and Slovak Republics.

Not only do individuals in England have lower basic skills than their counterparts in other countries, they are also far more likely to have low basic skills if their parents are poorly educated. This points to a cycle of educational disadvantage which is prevalent across many dimensions of the English education system, not just at the lower end of the skills spectrum. For example, children from families that are above the 80th percentile in terms of socio-economic status are about eight times more likely to attend a grammar school or a high status university, than those from below the 20th percentile (Burgess et al., 2017; Crawford et al., 2016).

### **Fulfilling potential**

Ensuring that individuals from all backgrounds have access to the educational opportunities to fulfil their potential may be one way to raise productivity. For both equity and efficiency reasons, we should be looking for and nurturing talent wherever it arises – to maximise the productive capacity of the economy and take advantage of the benefits that diversity can bring. That is why social mobility and labour productivity are inextricably linked: it is not just those with the richest or best educated parents who have the potential to reignite the economy, so we must ensure that all children are given opportunities to thrive.

Unfortunately, we don't know as much as we should about how to reduce socio-economic differences in educational outcomes – and what we do know is not always put into practice. For example, there is a reasonable amount of academic inquiry into whether grammar schools are good for social mobility. The short answer is that they're not. Burgess et al. (2017) show that if you live in a selective area – one that has retained the old grammar school/secondary modern distinction – then you will, on average, have higher educational attainment if you go to a grammar school than if you just miss out. But the same research also shows that if we compare children in selective areas going to grammar schools with similar children with similar prior attainment going to state schools, with similar intakes in non-selective areas, then this is no longer the case. More importantly, the outcomes of children in selective areas who just miss out on grammar schools are lower, on average, than those of similarly qualified children in non-selective areas. And because grammar schools are so socially segregated, those from poorer backgrounds are much more likely to be among the group that miss out. So even if going to a grammar school is good for a particular child relative to the alternative in their area, when we look across all children in all areas, selective education looks less like the engine for social mobility that it is sometimes portrayed as.

### Is educational attainment linked to socio-economic status?

Individuals who go to university still earn more on average than those who don't, which we can assume, at least partially, reflects higher labour productivity amongst graduates. But these returns can vary substantially according to the subject that individuals study and the institution they attend – with high status institutions often commanding the largest wage premiums. Unfortunately, we also know far less than we should about how to enable students from under-represented backgrounds to enter and thrive in these types of universities.

Since 2012, when the tuition fee cap was raised to £9000 per year in England, institutions charging above £6000 per year – virtually all of them – have had to produce 'access and participation' plans. Essentially, they've had to spell out how they are broadening access to their institution, as well

as how they are minimising the gaps in outcomes between those from different backgrounds once they arrive.

There has been some progress in this regard: just over a quarter of those from the 20 percent of areas with the lowest historic higher education (HE) participation rates now go to university at age 18 or 19, compared to about 17 percent 10 years ago. The percentage of 18 year olds from these neighbourhoods going to high tariff institutions has also risen, but remains pitifully low at just over 3.5 percent. The increase over the last decade is lower than for those from the 20 percent of areas with the highest historic participation rates, meaning that the gap has widened in absolute terms (UCAS, 2016). Drop-out rates have also risen over this period, more so for those from low-participation neighbourhoods, and there are still large differences in degree attainment – even amongst students attending the same courses at the same universities who arrive with very similar GCSE and A-level grades (Crawford, 2014).

We know that differences in attainment in these earlier exams are a key part of the reason why there are such large differences in HE access and outcomes between those from richer and poorer socio-economic backgrounds (Crawford et al., 2016). There is a growing body of evidence – much of it provided by the Education Endowment Foundation – that points to ways to increase attainment for those from poorer families. But attainment is not the whole story, and despite the substantial investment in this area in recent years, we are not much further forward in understanding how to reduce gaps in HE access and outcomes than we were a decade ago. We must provide better accountability and evidence of value-for-money in this area, and it is encouraging that the Office for Students (OfS) is funding a new centre to help the sector do exactly that.

But even if we were to completely eliminate the gaps in access to grammar schools or highly selective universities, we're talking about policies that affect a small minority of the population. Of course we should aim to do this, but we also need strategies to improve the skills and education of those who do not follow these paths, which often receive far less media and policy attention.

### Alternative routes

The route to university is straightforward and relatively easy to navigate: you need strong GCSE and A-level grades in the right subjects, plus some knowledge about which universities and courses are likely to be right for you. As Mani and Kirkup described earlier in this CAGE Report, the alternatives are less clear. Which of the plethora of vocational qualifications should you pursue if you do not plan to go to university? They do not all offer positive average wage returns (Patrignani et al., 2017) and with many now run in partnership with specific employers, it is important to ensure that they contain sufficient training in general, transferable skills to equip individuals for the multiple job changes that they can now expect over the course of their careers.

This would be less of an issue if we had a comprehensive system of lifelong learning through which individuals could later retrain, but this is not an area in which the UK excels. The number of mature students going to university has fallen sharply over the last decade – at least partly as a result of the changes to HE finance for these students introduced in 2012 (UUK, 2017). Opportunities at lower qualification levels have also been cut, along with the further education budget, which has experienced larger per student reductions over the last few years than primary and secondary schools or higher education (Belfield et al., 2018).

### Conclusion

For our workforce to be equipped with the skills to deliver higher productivity in the future, we must ensure that our education system meets the needs of all students: nobody should leave school without basic literacy and numeracy skills. Routes other than the one straight from school to university should also be more clearly signposted, and everyone should have the opportunity to access and benefit from the education that is right for them, regardless of parental background.

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## INDUSTRIAL POLICIES, AGGLOMERATION BENEFITS AND INVESTMENT IN CITIES

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The UK's current industrial strategy recognises the importance of places but has been criticised for its lack of emphasis on geography (Carter, 2017). Moreover, the industries singled out in the industrial strategy are only a small part of the overall economy and are unevenly spread across the UK, favouring the South. Thus "the government's narrow sectoral focus threatens to widen regional divides" (Fothergill et al., 2017). The strategy also requires local industrial strategies that reflect the diverse needs of different areas and complement the central government's industrial strategy (see BEIS, 2018).<sup>1</sup> But before we build a strategy around the idea that cities improve productivity, we need to check whether that effect really exists.

The current position – relying on this new and greater role of a (local) industrial strategy to define priorities for how cities, towns and rural areas will maximise their contribution to UK productivity – is set against a history of regional and urban policies. Regional policies have largely disappeared and urban policies have in the past concentrated on housing, regeneration and infrastructure, especially transport, and less on productivity issues and firm performance. Activities that produce economic rents have received less of the attention. In addition, some have adopted the premise that cities are the major hubs of economic growth, and this is where policy should concentrate (e.g. Centre for Cities, 2018a).<sup>2</sup> The premise that cities do better in terms of the long-run drivers of economic growth implies that they have higher productivity than non-cities, and that solving the UK's productivity problem should result in a (return to a) cities growth agenda. This line of reasoning has been at the heart of (local) industrial strategies.

<sup>1</sup> Note, this notion of local industrial strategies is set alongside the decentralising of urban policy through *City Deals* (for English cities and for some cities in the devolved administrations), as incorporated into the 2016 Cities and Local Government Devolution Act.

<sup>2</sup> Based on their scale, it is axiomatic that 'cities are home to the majority of the economy', as shown in Centre for Cities (2018b, Chapter 2); and it is not surprising that towns close to better performing cities do better (while the converse is true – Centre for Cities, *ibid*, Chapter 3). But neither is sufficient to imply that cities must therefore have higher productivity than other areas.

## Cities, productivity and agglomeration benefits

At the level of the firm or plant, total factor productivity (TFP) measures how efficiently firms produce outputs of goods and services using all factors of production (e.g. labour, capital and intermediate inputs, such as energy and semi-finished products). TFP is generally recognised to be a better measure than labour productivity, and it reflects the role of efficiency and technical progress. Efficiency measures whether the firm produces output with minimal use of inputs given current technological knowledge, and technical progress<sup>3</sup> reflects the best-practice way of using inputs to produce output over time.

Spatial spillovers or agglomeration externalities are benefits that accrue to plants from being located in the vicinity of large concentrations of other plants. Where firms in related industries are co-located, this is often referred to as a cluster; in urban locations one might find groups of diverse industries. Duranton and Puga (2004) describe the mechanisms that give rise to agglomeration externalities (see also Overman et al., 2009, who explain how these can arise from sharing, matching and learning). Here the emphasis is on urbanisation externalities that are due to the size and heterogeneity of an (urban) agglomeration and that result when different industries benefit from economies of scope.

For example, a greater range of activities such as research and development (R&D), business services, cultural and lifestyle amenities, and the overall quality of the public infrastructure leads to inter-industry spillovers (Florida, 2002; Glaeser et al., 2001). Larger firms, especially multinationals, tend to locate their head office and R&D functions in urban agglomerations. It is argued that these agglomerations generate more product innovations and increase the likelihood of spin-offs and start-ups, which creates a denser entrepreneurial culture.

<sup>3</sup> Labour productivity will de facto be higher in firms that are capital or intermediate input intensive (as less labour is needed in the production process, cf. chemicals and steel, but also certain knowledge intensive services). Increasing labour productivity can thus be achieved by substituting (tangible and intangible) capital (or intermediate inputs) for labour when producing outputs (see section 4 in Harris and Moffat, 2017). Such substitutions are not directly driven by the underlying factors that determine efficiency and technical progress (e.g., firms doing R&D, innovating and/or exporting), but rather reflect the changing costs of different factor inputs.

Recent studies by Graham (2009) and Overman et al. (2009) find evidence that in the UK, locating a firm in an urban area has positive impacts. Harris and Moffat (2012) found that in general, firms in cities have higher productivity than firms in their rural hinterland.<sup>4</sup> However, with the exception of London, firms in regions and cities outside the South East have lower total factor productivity than firms inside the South East region.

The main evidence from Harris and Moffat (*op. cit.*) is presented in Table 1. Only Bristol had significantly higher total factor productivity than the South East, and this was mostly due to higher productivity (on average nearly 10 percent) in services. In five other cities (including London), there was no statistically significant difference compared to the South East region, while in the remaining six cities total factor productivity was lower (in Edinburgh and Cardiff the gap was around 10 percent). The largest negative differences are caused by large gaps in the service sector (these also explain the poorer performance in Birmingham and Glasgow). For cities like Liverpool and Leicester poorer performance is associated relatively more with manufacturing than services, although services also have lower average total factor productivity in these cities. Lastly, in Coventry average total factor productivity in manufacturing was nearly 9 percent higher than in the South East but the city did less well in services, so that across all plants there was no significant difference in performance.

<sup>4</sup> The results by Overman et al. (2009) have a similar order of ranking to those obtained by Harris and Moffat (*op. cit.*) but their methodology was significantly different – see footnote 2 in Harris and Moffat (*op. cit.*).

**Table 1: Relative mean total factor productivity in core cities, 1997-2006,  
Great Britain (differences are expressed as percentage)**

	All		Manufacturing		Services	
	City – South East	City – rest of region	City – South East	City – rest of region	City – South East	City – rest of region
London	1.6		2.4		1.7	
Tyneside	-1.2	7.6***	4.0	5.9	-1.9	8.4***
Manchester	1.7	9.7***	1.0	3.6	1.8	11.2***
Liverpool	-6.3**	1.8	-8.6**	-5.9	-6.0**	3.4
Birmingham	-3.8**	2.0*	1.0	1.0	-4.6***	2.9
Coventry	0.9	6.8***	8.6**	8.6**	-0.7	6.8***
Leicester	-5.4**	2.3	-14.3***	-12.0***	-3.6*	6.0**
Nottingham	-1.6	6.1**	2.1	4.4	-2.0	7.5***
Bristol	8.9***	10.9***	1.5	2.1	9.7***	12.1***
Glasgow	-5.5**	8.6**	1.0	2.3	-6.4**	11.2***
Edinburgh	-10.2***	3.9	-2.6	-1.3	-10.8***	6.8**
Cardiff	-10.0***	-0.7	-0.8	0.9	-11.1***	0.9

\*\*\*/\*\*/\* Significant at 1/5/10 percent level based on a t-test.

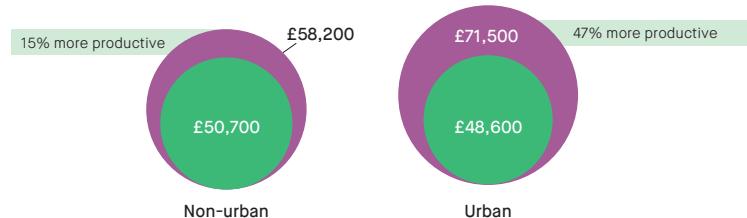
Source: Harris and Moffat (2012, Table 3)

Table 1 shows that overall, cities had on average higher total factor productivity than their (non-city) hinterlands. However, in Liverpool and Cardiff there were no statistically significant differences across either sector, while in Edinburgh and especially Leicester higher total factor productivity in services (of 6.8 percent and 6 percent, respectively) was not sufficient to overcome the poorer manufacturing performance.

Harris and Moffat (*op. cit.*) concluded that there was no overwhelming evidence from their study to support the idea that British cities are the ideal locations for encouraging (long-run) growth, particularly in high-technology industries. For the latter, urbanisation economies were largely negative.

**Figure 1: Productivity of cities and non-cities, 2016**

■ Greater South East | ■ All other areas



Source: Centre for Cities (2018c, Figure 9) based on ONS Regional Gross Value Added (Balanced Approach) by Local Authority in the UK; Business Register of Employment Survey

There is other evidence that suggests that cities are not always the most productive. Figure 1 shows “...cities outside the Greater South East are the least productive... The gap in performance between cities in different areas in particular is stark. While the difference in productivity between non-urban parts of Britain is 15 percent, cities in the Greater South East are almost 50 percent more productive than cities elsewhere” (Centre for Cities, 2018c, p.9).

Further evidence that northern cities perform less well is presented in Figure 2: “... what is striking is that all bar four northern cities (Aberdeen, Edinburgh, Chester and Telford) are in the bottom left-hand quadrant of the figure, having productivity levels less than the national average both at the beginning of the period and at the end (Martin et al., 2018).”

**Figure 2: Labour productivity across 85 British cities, 1971 and 2014 gross value added per employed worker, 2011 prices**



Source: Martin et al. (2018, Figure 2)

## Conclusions

Improving productivity is at the centre of the government's industrial strategy. Most economic activity is clearly located in cities, but there is growing evidence that Great Britain's (non-Greater South East) cities do not perform particularly well on this metric.

British cities, particularly Northern cities, do not necessarily have better productivity levels (cf. Harris and Moffat, 2012; Centre for Cities, 2018c; Martin et al., 2018), so concentrating narrowly on a city growth agenda is not optimal. Cities outside the South of England do generally worse than the non-city (and outside London) South East of England. Simple notions of agglomeration/clustering do not tell us a lot about what drives productivity. Place effects have to be set against important non-spatial factors: firm characteristics including ownership and size, and productivity enhancing activities such as exporting, R&D and innovation also play a role. To use the resilience of different industries and areas to withstand any post-Brexit shock predicted for 2019 onwards, we need to understand more about the wider set of spatial factors particular to London and the South East that give that area a significant productivity advantage.

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## PRODUCTIVITY TAKES LEAVE? THE MATERNITY BENEFITS AND CAREER OPPORTUNITIES FOR WOMEN IN ACADEMIA

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'May children,' holiday babies and post-tenure pregnancies are just some of the labels attached to female academics and their pregnancy choices. Academic women often share a common burden in scheduling their maternity plans: to survive and advance in academia, women tend either to give birth during vacation time or to postpone motherhood until the end of their probation period. The result is, generally, an underrepresentation of women in higher academic positions (sometimes known as the leaking pipe problem since fewer women flow from junior to senior posts), lower salaries, lower research outcomes and promotion, lower fertility, and higher rates of family dissolution – while family and children seem to have either no impact or even a positive effect on men's performance in the academic ranks. Thus, even for women in academia, an environment that is usually praised for its flexibility in terms of working hours and family friendliness, motherhood and professional advancement appear to be conflicting goals. Of course, this pattern of women falling behind in their career path after birth is similar or even more pronounced in other sectors, such as the civil service and certain industries.

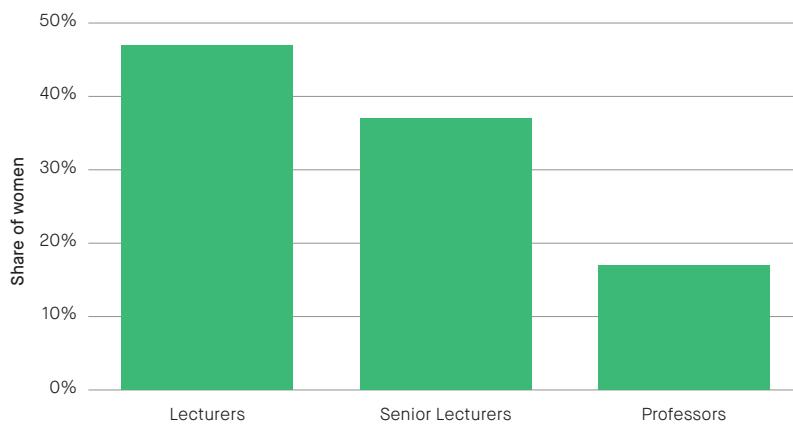
### Why is maternity leave important?

The recent public discussion in the UK of the gender pay gap across different industries, and the requirement for companies to disclose differences in salaries paid to men and women, has sparked interest in the reasons for this continued discrimination in the workplace. The unconditional gender pay gap in the UK amounts to roughly 18 percent (Office for National Statistics) and with this the UK ranks in the bottom third of all EU member states. Higher education and other highly skilled sectors usually fare even worse than the national average. The UK Higher Education Statistics Agency

(HESA) provides useful data that underlines both the leaking pipe and the gender pay gap in British academia.

**Figure 1: The leaking pipe problem and gender gap in pay at UK Higher Education Institutions (HEIs)**

The leaking pipe problem: Share of female academics at each contract level across all UK HEIs in 2013



Earnings of female academics: Share of female academics in each salary category across all UK HEIs in 2013



Source: HESA 2013

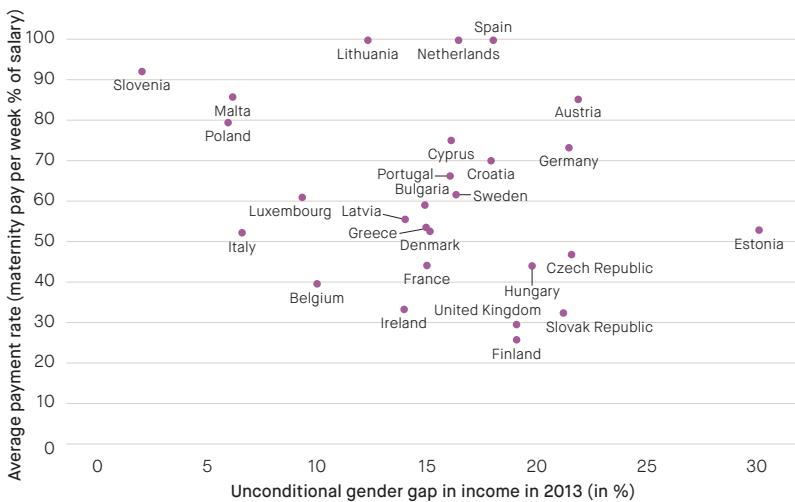
Across all academic disciplines, fewer than 1 in 5 professors is a woman and less than a third of academics in the highest salary bracket are female. The argument that both promotion and salary should follow performance can, and should, be made. But even if we believe that these decisions are purely based on academic merit, we have to ask ourselves: Why is it that women in academia and other sectors are not advancing? And what can, and should, be done about it?

The vast majority of studies on gender and academic achievements identify the lower social mobility of women (mostly due to family responsibilities), child rearing burdens and women's preferences for academic disciplines that have low publication records as possible explanations for gender differences in higher education. Other studies link the gender gap in academia to gender-related attitudes such as women's propensity to choose teaching rather than research institutions.

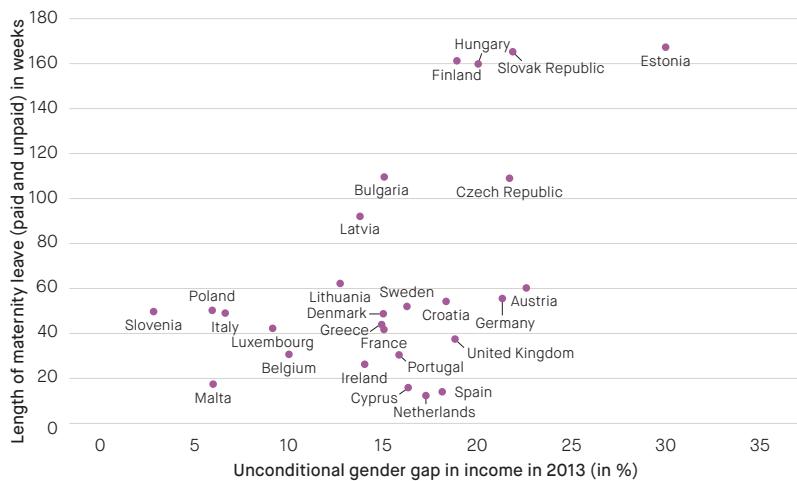
Previous research also argued that children and maternity breaks and the lack of family friendly policies negatively affect the career path of women in academia. Compared to their male colleagues, who are more likely to benefit from family formation and fatherhood, women in academia pay a huge price for having children, in the form of lower promotion rates, higher exit patterns and personal vicissitudes such as family breakdowns and divorce. More generally, the probability of an exit from academia is higher for women at the early stage of their career, which usually coincides with their fertility age, while the lack of family oriented policies disproportionately disadvantages women's professional and personal conditions. Yet, to date, we do not know whether the status of female academics has improved over recent years, nor do we have up to date information on maternity and parental provisions for faculty members in the UK system.

There is much research – mostly across countries – that shows how maternity benefits affect female labour market participation and career outcomes. In general there seems to be a trade-off between the benefits of generous salary replacement rates in the short-term and the costs of extended maternity leaves in the long-term. High replacement incomes are beneficial to mothers' employment rates and their attachment to the labour market in the short-term. However, long periods of leave depreciate the human capital of female workers and jeopardise their employment prospects in the long-term. Figures 2.1 and 2.2 illustrate this pattern.

**Figure 2.1: Generosity of Maternity Leave: Average Payment Rate per week in percent of salary**



**Figure 2.2: Length of Maternity Leave: Legal entitlement of paid and unpaid leave in Weeks**

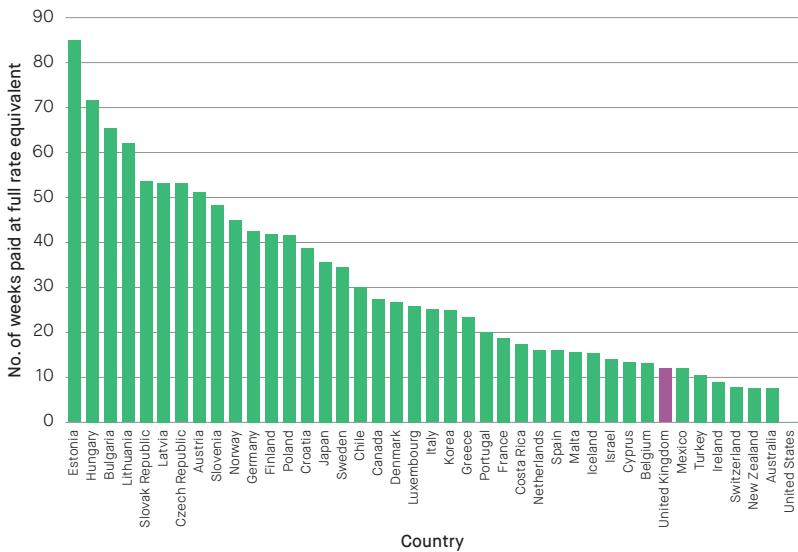


Source: length and generosity of maternity leave from OECD social expenditure database 2013, unconditional gender gap in pay data from the Statistische Bundesamt

In terms of overall length (52 weeks), maternity leave in the UK is close to the OECD average and research shows that longer leave periods depreciate the career and earning capacities of mothers. However, the generosity of maternity pay and public expenditure on parental leave in the UK are rather low when compared with other developed economies.

**Figure 3: Generosity of UK maternity pay in comparison**

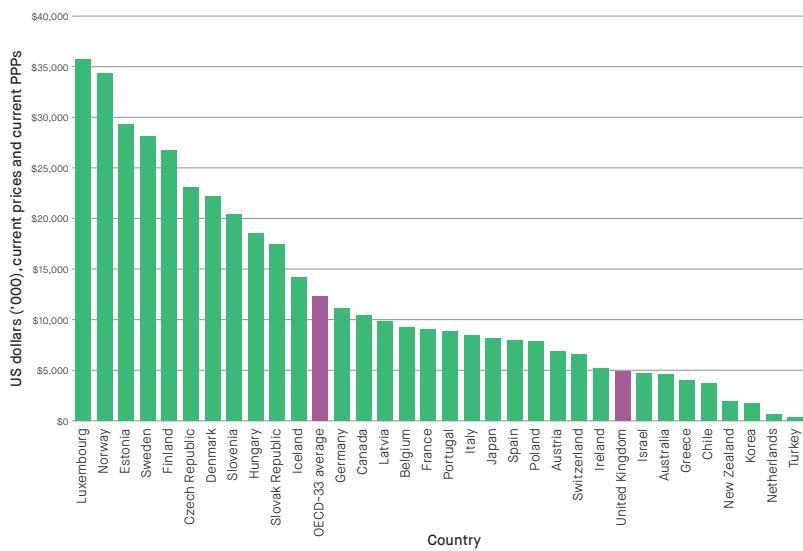
Generosity: Full-rate equivalent, in weeks (2013)



Source: OECD Social Expenditure Database

From figure 3 we can see that statutory maternity pay in the UK is one of the lowest across OECD countries and is only undercut by Ireland in the EU.

**Figure 4: Public Expenditure on Parental Leave Benefits (per child born) in the UK in comparison (2013)**



Source: OECD Social Expenditure Database, Health Statistics

Note: Public expenditure on maternity and parental leaves, OECD 2013: Public expenditure on maternity and parental leaves per child born, at current prices and current PPPs, in US dollars. Data for Canada and Japan refer to 2011 and for Greece and Poland to 2012.

Public expenditure per child born remains extremely low in the UK. Within the EU only Greece and the Netherlands spend less.

## Maternity provisions across UK universities – determinants and outcomes

Given that maternity provisions strongly affect mothers' labour market participation and the gender pay gap, we need to understand the underlying mechanisms better. We analyse higher education institutions in the UK and their maternity leave provisions and examine the effects on women's career achievements (e.g. promotion to full professor) and salaries. In general, we find that the generosity of maternity pay and the availability of childcare positively affect female academics' career opportunities and incomes.

The UK higher education sector provides fertile ground to examine the effects of generosity of maternity provisions on individual and aggregate outcomes. First, statutory maternity benefits in the UK lag behind in generosity, so many universities (and companies) top up the benefits – but not uniformly. Second, higher education is arguably the only sector where individual productivity can be directly measured (as quantity and quality of individual publications) and thus linked to other outcomes such as salary and career progression.

Most UK universities provide extra Occupational Maternity Pay (OMP) that tops up the SMP (Statutory Maternity Pay) in the first 39 weeks of maternity leave. Eligibility for OMP usually depends on the length of service, and both the payments and the eligibility criteria vary among institutions. Arguably the best indicator for the generosity of maternity benefits is the number of weeks full salary replacement is paid.<sup>1</sup> We collect data on maternity benefits and childcare provisions for 165 institutions and match these to data on composition of academic staff and university characteristics from the Higher Education Statistics Agency (HESA).

Indeed, examining the generosity of maternity pay across 165 HEIs reveals a large variance which cannot be explained by different financial constraints faced by the university alone.<sup>2</sup> Tables 1 and 2 depict this large variation across UK universities:

<sup>1</sup> We also analyse other generosity measures such as the number of weeks for which the OMP tops up the SMP and the so called full weeks equivalent, which measures for how many weeks on average full salary replacement is paid.

<sup>2</sup> In a companion paper we explain this variance and find that larger, more research-intensive universities, with a (previous) larger share of female full professors and a low student-to-staff ratio implement more generous maternity packages.

Table 1: Number of weeks of full salary replacement across British HEIs

Weeks full salary replacement	Number of packages	Percent
0	15	7.0
4	51	23.8
6	27	12.6
8	38	17.8
9	5	2.3
10	1	0.5
12	3	1.4
13	9	4.2
14	2	0.9
16	14	6.5
17	1	0.5
18	37	17.3
19	1	0.5
20	3	1.4
26	7	3.3
<b>Total</b>	<b>214</b>	<b>100.0</b>

For example, the number of weeks for which full salary replacement is granted varies from 0 (e.g. Leeds Metropolitan University) to 26 weeks in HEIs such as Oxford, Manchester, Birkbeck College and the Royal College of Arts.

**Table 2: HEIs and Generosity of Maternity Leave**

Weeks	Institutions
0	Leeds Metropolitan University, Anglia Ruskin
4	Bath Spa, Liverpool Hope, Plymouth, Portsmouth, Huddersfield, Chester
8	Essex, Exeter, Bath, Birmingham City, Bangor, Heriot-Watt, Goldsmith College, Nottingham, Leicester, Aberystwyth
16	Bristol, Edinburgh, Glasgow, Kent, Leeds, Strathclyde, Warwick, Durham
18	Keele University, Heythrop College, Cambridge, UCL, LBS, LSE, Queen Mary, Royal Holloway, Reading
26	Oxford, Manchester, Birkbeck College and the Royal College of Arts

Given this large variation in the generosity of maternity pay across UK HEIs we ask two questions:

1. Why do HEIs implement vastly different maternity packages?
2. Does the generosity of maternity packages make a difference to the productivity, career progression and job satisfaction of female academics with children?

We argue that maternity leave provisions result from implicit or explicit negotiations between the board of the organisation and the bargaining units representing the workforce. In UK universities, the two sides are the university management and female employees. Within this framework, we obtain clear predictions. First, factors that raise the bargaining power of women employees, especially academic women, increase maternity benefits. Second, factors that increase the cost of providing maternity benefits reduce the generosity of maternity provisions.<sup>3</sup> Finally, factors that

<sup>3</sup> Both sets of predictions are consistent with an asymmetric Nash-bargaining protocol among others.

increase the institution's incentives to retain mothers in the workforce also increase the generosity of maternity pay.

In terms of outcomes, we expect that if women can take more time off from work – without loss of income – they are advantaged in terms of adapting to motherhood without the pressure of concerns about income or managing administration, teaching and research tasks. This increases the probability that women will return to their research position without having to take a career break and possibly with fewer effects on research and publication outputs.

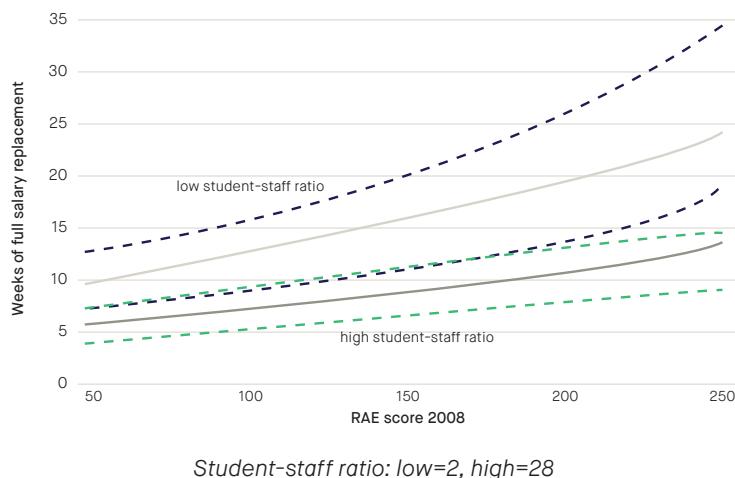
Whether more generous maternity provisions impact the career paths of female academics is an incredibly important question with serious policy implications. We address the leaking pipe and gender gap in salary questions by analysing whether better maternity provisions affect the share of female full professors, and the share of women in the highest salary bracket.

### Determinants of generous maternity benefits

Our empirical findings largely support the theoretical discussion. We find that generosity depends on the size of an institution in terms of staff but not income. This points to the potential economies of scale provided by larger institutions. Moreover, we find support for our bargaining argument: universities with a historically larger share of female professors and female academics of childbearing age provide more generous maternity benefits. This is especially true at research intensive universities which have a higher incentive to keep the highly productive female talent that they have invested a lot of resources to recruit and train. However, we do not find that the share of senior female administrators or female administrators of childbearing age affects generosity, because the skill specificity of academic jobs is much higher: support staff can be replaced and redeployed much easier. Finally, a larger student-to-staff ratio affects generosity of maternity pay negatively, pointing to higher replacement costs of longer and more generous maternity leaves. Figures 5.1 and 5.2 depict the major results.

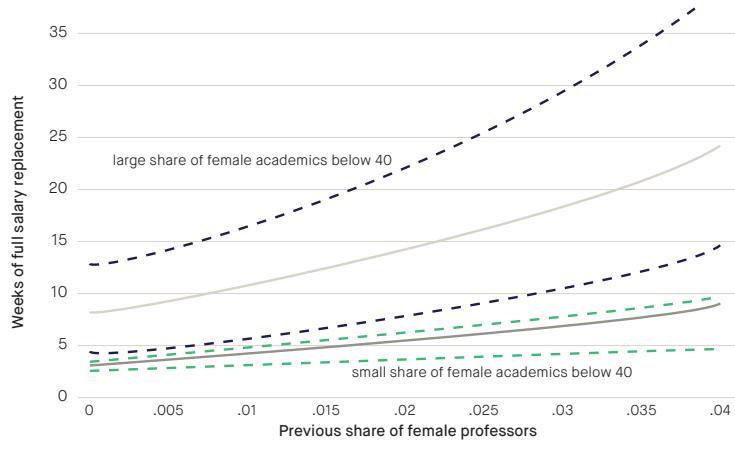
Figure 5: The determinants of generous maternity benefits

Figure 5.1 Predicted Weeks of Full Salary Replacement dependent on Student-Staff Ratio and Research Intensity



Student-staff ratio: low=2, high=28

Figure 5.2 Predicted Weeks of Full Salary Replacement dependent on Previous Share of Female Professors and Female Academics at Childbearing Age



Share below 40: small=0, large=0.25

Figure 5.1 shows the impact of student costs on generosity, which varies greatly by research intensity (measured as RAE score in 2008). In figure 5.2 we see that the bargaining power of female academics strongly affects maternity pay.

### Does generosity have an effect on career paths?

Strikingly we find an unambiguously strong relationship between the generosity of maternity pay and an increase in the share of female professors across all disciplines.<sup>4</sup> Universities with very generous occupational maternity pay have on average twice the number of female professors, compared to HEIs with minimal maternity benefits. This effect, however, is much stronger for research-intensive institutions than for primarily teaching institutions, as shown in figures 6.1 and 6.2.<sup>5</sup>

<sup>4</sup> When we break down the analysis across different disciplines we find stronger relationships between the generosity of maternity pay and career advancement for the natural and social sciences than for the humanities.

<sup>5</sup> Research-intensive universities have a much stronger screening process at the hiring stage and therefore have stronger incentives to retain highly productive female academics by providing more generous maternity pay.

Figure 6: Generosity of Maternity Pay and Career Progression

Figure 6.1: Predicted number of female professors depending on generosity of OMP and research intensity of HEI

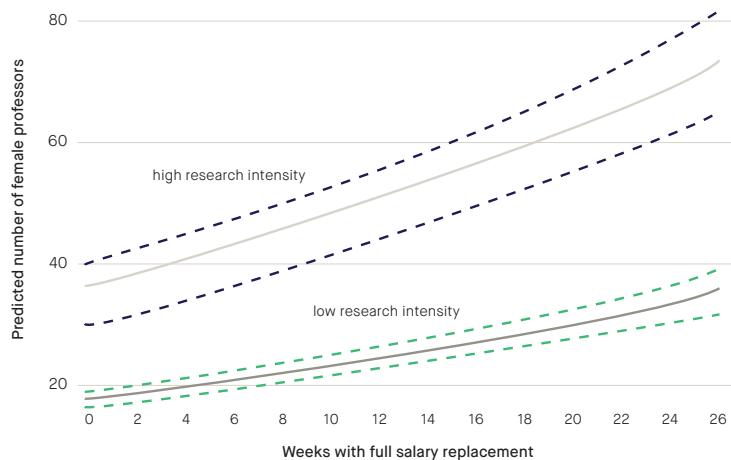


Figure 6.2: Predicted number of female professors depending on generosity of OMP and availability of childcare at HEI



In addition, in-house childcare provision increases the share of female professors by up to a third. Our results suggest similar, albeit weaker, patterns for female salaries in academia: more generous maternity leave provisions lead to a higher share of female academics with an income in the highest salary bracket. We find no relationship between maternity/paternity leave provisions and career opportunities of male academics or female administrators.

### Conclusions

These aggregated results have to be taken with some caution and more work has to be done to identify the effects of maternity leave provisions at the individual level.<sup>6</sup> However, these findings point to the possibility that the generosity of maternity pay can positively impact the career path of female academics and help close the salary gap. Of course, generous maternity schemes affect universities' budgets. However, if the academic community, and society more broadly, want to achieve an academic workforce that mirrors the actual gender balance and is not just window dressing, we need to accept that women have children in the early stages of their academic careers. To keep female human capital in the production process, we have to ask ourselves how we can generate an environment that allows women to maintain productivity and keep up with their male colleagues, despite child rearing and family responsibilities.

Our research does not necessarily support the idea of infinitely generous and long maternity leaves, yet it is in line with previous results on the trade-off between length and generosity. Our findings suggest that a combination of limited but generous maternity benefits, coupled with institutionally provided childcare, might help to slow the leakage in the pipe.

We can possibly draw inferences from the UK's higher education sector more broadly, especially to other highly skilled sectors where the creation and implementation of innovative ideas is key. Flexible working allows people to combine routine tasks (administrative or teaching) with child rearing and therefore most mothers only take fully compensated maternity leave. This combination crowds out research or the creation of innovative

<sup>6</sup> We have collected individual data for 10,000 female academics in the UK on child rearing histories, individual career paths and productivity: the results show similar patterns.

ideas in the short-term especially when generosity is low. In the medium to long-term, this generates lower productivity and therefore a lower career trajectory and earning capacity.<sup>7</sup> Our research shows that more generous maternity pay can help to retain female talent in the labour market and thereby increase productivity. The UK suffers from a productivity gap compared to other highly developed economies and it ranks very unfavourably both in terms of generosity of statutory maternity pay and public spending on parental leave provisions, compared to other EU and OECD countries. It seems that UK family policies externalise the costs of parental leave to employers – which can be very onerous especially for small companies and start-ups – and the costs of childcare to parents.

There is room for improvement: more generous parental leave policies could help to close the productivity gap, and thus pay for themselves in the long-term.

<sup>7</sup> We show exactly this mechanism with our analysis at the individual level.

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## THEME 4:

### THE CHALLENGES OF GROWTH-RELATED POLICYMAKING IN A MODERN ECONOMY

## INDUSTRIAL POLICY AND PRODUCTIVITY

NICHOLAS CRAFTS, UNIVERSITY OF WARWICK AND CAGE

Poor productivity performance since the financial crisis is a major concern in the UK. Supply-side policies must improve but this is not a reason to abandon completely the stance which served the UK well in the strong growth period pre-2007. A return to the interventionism of the 1970s however, would be a serious error.

### Implications of recent productivity performance

Recent productivity performance has been extremely disappointing and is in strong contrast to the more favourable record in the years up to 2007 (Table 1). Subsequent developments have come as a rude shock. In the first quarter of 2018 (Q1), real GDP per hour worked was only 1.7 percent above the pre-crisis peak level seen in Q4 of 2007. It would have been 21.2 percent higher if pre-crisis trend growth had been sustained (ONS, 2018). The pre-crisis peak of labour productivity was only surpassed in Q2 of 2016. This prolonged stagnation in labour productivity growth suggests that it might be time to review supply-side policy.

**Table 1: Rates of Growth of Real GDP/Person and Real GDP/Hour Worked  
(percent per year)**

	Real GDP/Person	Real GDP/Hour Worked
<b>1995-2007</b>		
France	1.70	1.77
<b>2007-2017</b>		
Germany	1.54	1.70
UK	2.41	2.09
USA	2.18	2.30
<b>2007-2017</b>		
France	0.20	0.50
Germany	0.94	0.73
UK	0.34	0.18
USA	0.75	1.22

Source: The Conference Board (2018)

The post-Thatcher consensus on supply-side policy, which was shared by New Labour and the Conservatives, prevailed up until 2007. Equally, the subsequent productivity slowdown has developed under very similar policies. The financial crisis does not imply that pre-crisis growth was illusory or somehow unsustainable, which might imply a general policy failure, but rather reflects inadequate financial regulation. Regardless of the cause of the crisis, it has had a significant impact on productivity performance over the lost decade since 2008.

Banking crises reflect market failures in the banking sector combined with a failure of regulation to address them effectively. The problems arise from moral hazard and coordination failures in a context of asymmetric information. The typical pre-crisis symptom is rapid expansion of credit coupled with excessive risk taking. The likelihood of bank failures increases as leverage goes up and the ratio of equity capital to assets falls. The financial crisis of 2007-8 in the UK matches this familiar pattern. Regulation was deficient and leverage soared, with the median ratio of total assets to shareholder claims increasing from around 20 in the 1970s to almost 50 at the pre-crisis peak. However, it should not be inferred that pre-crisis growth was predicated on unsound finance, even though the cost of capital would have been higher with resilient bank balance sheets. Miles et al. (2013) estimate that appropriate capital-adequacy regulation would have reduced GDP by only about 0.2 percent.

Financial crises often have permanent adverse effects on potential output. The period in which the levels effect materialises and growth rates are depressed may be quite long. Oulton and Sebastia-Barrel (2017) found a long-term impact on the level of labour productivity of 1.1 percent per year that the crisis lasts. The crisis may also have had significant temporary effects on productivity performance that have not yet completely evaporated. Redeployment of labour appears to have been a key issue, as workers have moved to firms with inferior productivity characteristics (Schneider, 2018). The Office for Budget Responsibility still thinks that eventually the economy will revert to its previous trend rate of labour productivity growth: it is by no means impossible that this might happen.

To summarise, current policy does not need to be completely reconfigured, but supply-side policies could be improved nonetheless. In earlier work (Crafts, 2015), I argued that there are strengths in regulatory and competition policies and weaknesses in education and skills, infrastructure, taxation and innovation policies. A high priority for improved supply-side policy would be to address the latter group.

In Table 2 I report the results of an – admittedly crude – diagnostic check with a benchmarking exercise which on the whole confirms this view.<sup>1</sup> Absorptive capacity, as it relates to technology transfer, is central to the assimilation and diffusion of new technology. Absorptive capacity is underpinned by education, skills and economic competences including organisational effectiveness, appropriate business models and training. Table 2 suggests a mixed but generally rather underwhelming position with regard to absorptive capacity – relatively low R & D spending, mediocre management quality, poor adult skills but strength in intangible investment. Proposals in the Conservative Government's recent white paper on industrial strategy go some way towards addressing these issues.<sup>2</sup>

<sup>1</sup> The scores in Table 2 are based on a distance measure similar to that used by the World Bank in its Doing Business evaluations. Scores indicate what percentage of the difference between the best and worst performers in the peer group has been achieved. A score of zero means that the UK is the worst in class.

<sup>2</sup> For detailed comments, see Crafts (2018).

Table 2: Indicators of Competitiveness

DTF Score	DTF Score	Performance Level
Logistics Infrastructure (2016)	82.96	4.21 (1-5 scale)
Competition Law and Policy (2013)	82.85	0.123 (0-6 scale)
Product Market Regulation (2013)	80.49	1.08 (0-6 scale)
Intangible Investment (average 2000-13)	79.10	9.0 %GDP
Ease of Doing Business (2017)	76.63	7th/190 countries
Employment Protection (2013)	71.23	1.10 (0-6 scale)
Corporate Tax Rate (2017)	69.49	18.5% effective average tax rate
PISA Maths and Science Score (2015)	57.14	500.5 (500 OECD average)
Management Quality (average 2004-14)	53.23	3.033 (1-5 scale)
Adult Literacy and Numeracy Skills (2013)	42.40	267.2 (267 OECD average)
R & D (2016)	30.97	1.69 %GDP
Tangible Investment (average 1997-2017)	0.00	16.7 %GDP
Annual Hours in Congestion (2015)	0.00	41.5 hours/vehicle

Sources: Crafts (2018)

Notes:

*Distance to frontier (DTF) is calculated on a similar basis to World Bank (2018), namely, (Worst – x)/(Worst – Best) but on the basis of performance only in 'old OECD' countries.*

*Competition Law and Policy is an unweighted average of three components: scope of action, policy on anti-competitive behaviour, and probity of investigation.*

Industrial policy was defined by Caves (1987) to encompass public sector intervention aimed at changing the distribution of resources across economic sectors and activities. Thus, it includes both horizontal policies which focus on activities such as innovation, provision of infrastructure etc., and selective policies which aim to increase the size of particular sectors.<sup>3</sup> It seems clear that priority should be given to developing better horizontal industrial policies with a strong focus on facilitating the diffusion of productivity improvements.

Since the onset of the financial crisis, however, there has been a renewed interest in selective industrial policy among UK policymakers. This has gathered pace from Labour's *New Industry, New Jobs* (2009) through the Coalition's *The Plan for Growth* (2011) to the Conservatives' *Building Our Industrial Strategy* (2017). Now there is a distinct possibility of a radical change in supply-side policy: a Corbyn-led Labour government would surely think that selective interventionism is an appropriate antidote to poor productivity performance.

### Lessons from the 1970s

The case for selective industrial policies has always been controversial. The modern literature highlights pro-growth arguments in their favour, notably including infant-industry related capital market failures and agglomeration externalities. However, in practice support is disproportionately given to declining industries. A strong tendency towards vote seeking rather than economic efficiency is inherent to the political economy of selective industrial policies. In the 1970s selective industrial policy was in vogue and competition policy was framed in terms of interventions based on a public interest criterion. This period offers valuable lessons.

<sup>3</sup> An excellent survey of the literature on industrial policy can be found in Warwick (2013).

Selective industrial subsidies were skewed towards relatively few industries, notably aircraft, shipbuilding and, latterly, motor vehicles. The high expenditure on shipbuilding is striking since the UK had clearly lost its comparative advantage in this industry. The strong bias towards shoring up ailing industries is well reflected in the portfolio of holdings of the National Enterprise Board (Wren, 1996), in the pattern of tariff protection across sectors (Greenaway and Milner, 1994), and also in the nationalisations of the 1970s. Moreover, policies to subsidise UK high-technology industries with a view to increasing world market share were notably unsuccessful in this period in a number of cases including civil aircraft, which by 1974 had cost £1.5 billion at 1974 prices for a return of £0.14 billion (Gardner, 1976), computers (Hendry, 1989) and nuclear power (Cowan, 1990).<sup>4</sup> Attempts to promote national champions resulted in expensive failures.

Control of mergers was the aspect of competition policy which was notably undermined by the public interest test. This was not well specified but encouraged consideration of whatever was deemed relevant. The Monopolies and Mergers Commission (MMC) could only recommend that a merger be blocked on the basis that it would operate against the public interest, i.e., the burden of proof was on the MMC, and could only investigate a merger if a reference was made by the relevant minister. Yet, there was a widespread belief in government circles that mergers were beneficial because they improved the productivity and international competitiveness of UK business such that competition policy was subordinated to industrial policy (Wilks, 1999). Fairburn (1989) reviewed the overall record and noted that only 25 of 326 mergers which created a market share greater than 25 percent were referred while at least half of those creating a market share of over 80 percent were not referred. Only about 1.6 percent of qualifying cases were either blocked or abandoned by the promoters. Yet, the ex-post evidence was that, on average, mergers did not generate significant improvements in productivity performance (Cowling et al., 1980; Kumar, 1984; Meeks, 1977). A “lessening of competition” test would surely have been preferable.

<sup>4</sup> Concorde and the Advanced Gas-Cooled Reactor were egregious policy errors (Henderson, 1977).

## Industrial policy and Brexit

Inside the EU the UK still has control over horizontal industrial policies. It is arguable that there is room for considerable improvement in the details of those policies. EU membership does not preclude reforms to these policies. The obstacles are in Westminster, not Brussels, and are related to UK politics rather than constraints imposed by the EU – so Brexit makes little or no difference.

The situation with regard to competition policy is similar. UK and EU law are perfectly aligned and if the UK remains in the European Economic Area under a soft Brexit nothing much would change. Anti-competitive agreements and abuse of a dominant position will still be prohibited and merger control will continue to be based on a substantial lessening of competition test. In the longer term, however, the UK would be able to reform competition policy and diverge from the EU if it trades on the basis of World Trade Organisation rules.<sup>5</sup> This would allow a return to a public interest approach to competition policy in which implications for competition are not the sole criteria. Issues such as impacts on the prospects of realising scale economies or international competitiveness of UK firms, or impacts on regional balance would become relevant, as in the 1960s and 1970s.

There is an interesting trade-off for a government wanting to make interventionist competition and/or industrial policy. This would require a hard Brexit, which implies higher trade costs, lower trade volumes and a higher cost, equating to 3 or 4 percent of GDP every year, in terms of lower productivity in the long run (Ebell and Warren, 2016). A different supply-side policy would have to counter this cost to make it worthwhile. The key message from the experience of the 1970s is that using the policy freedom from Brexit to return to heavy reliance on selective industrial policy and to abandon a lessening of competition test as the basis of merger control would be serious errors. This means that a soft Brexit has the added advantage of providing a commitment technology that removes the discretion to choose this path.

<sup>5</sup> But probably not if there is a trade agreement.

## Conclusions

The post-Thatcher consensus on industrial policy has ended but the future direction of travel is not yet decided. Weak productivity performance gives some urgency to re-consideration of supply-side policy for growth, while Brexit potentially opens the door to a return to the interventionist policy stance of the 1970s.

There are good reasons to improve horizontal industrial policies, especially education and skills, innovation and infrastructure. The proposals in the White Paper on industrial strategy represent some progress with a new approach to technical education, increased funding for R&D, and additional infrastructure investment. A greater emphasis on addressing issues of absorptive capacity would be welcome as the policies evolve.

In the past, selective industrial policies have generally not been successful in terms of promoting better productivity performance, and the use of public interest criteria in competition policy had unfortunate consequences. There are good reasons to keep the current competition policy regime.

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## DID THE BREXIT VOTE LEAD TO HIGHER UK INFLATION?

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As soon as the result of the UK referendum on EU membership became clear, sterling depreciated sharply. After the vote, UK inflation increased noticeably. How much of the rise in inflation was due to the referendum? In research with colleagues, we find that the referendum result pushed up UK inflation by 1.7 percentage points. This amounts to a permanent annual cost of £404 for the average UK household.

We find that this increase in living costs arose due to the increase in the prices of imported goods. There is little variation across income distribution, with all income groups hit fairly evenly. However, there is regional variation. Northern Ireland suffered the biggest rise in living costs, due to its exposure to trade with the Republic of Ireland, while London suffered the least, due to the high fraction of non-tradable services in the typical London consumer basket.

Brexit is forecast to have substantive economic costs for the UK. Most forecasts analyse long-term effects based on the assumption that economic barriers with the continent will increase once Brexit occurs (Aichele and Felbermayr, 2015; HM Treasury, 2016; Dhingra et al., 2017). But it will be many years before the long-term economic consequences of Brexit become clear.

However, this does not mean it is too soon for the Brexit vote to be affecting the UK economy. Economic behaviour depends upon both the current state of the world and expectations about the future. The referendum increased uncertainty and led to a decline in the likely future openness of the UK to trade, investment and immigration with the EU. Consequently, financial markets downgraded their expectations about the UK's economic future, leading to the decline in sterling. Through this channel, concerns about the long-term effects of Brexit have already impacted the UK economy.

### Actual costs rather than forecast costs

In recent research (Breinlich, Leromain, Novy and Sampson 2017a), we do not forecast the potential effects of Brexit. Instead, we analyse the effects that *have already materialised*. We exploit the notion that the result of the referendum vote in June 2016 took most people (including financial markets) by surprise. As soon as the outcome became clear, the pound depreciated sharply. This decline persisted in subsequent months, with sterling still around 10 percent below its pre-referendum value by November 2017, as shown in Figure 1.

Figure 1: Value of sterling, 2015-17



Source: Author's calculations

Notes: Import weighted effective exchange rate calculated using 2013 UK import shares and monthly average exchange rates. Normalised to 100 in January 2015.

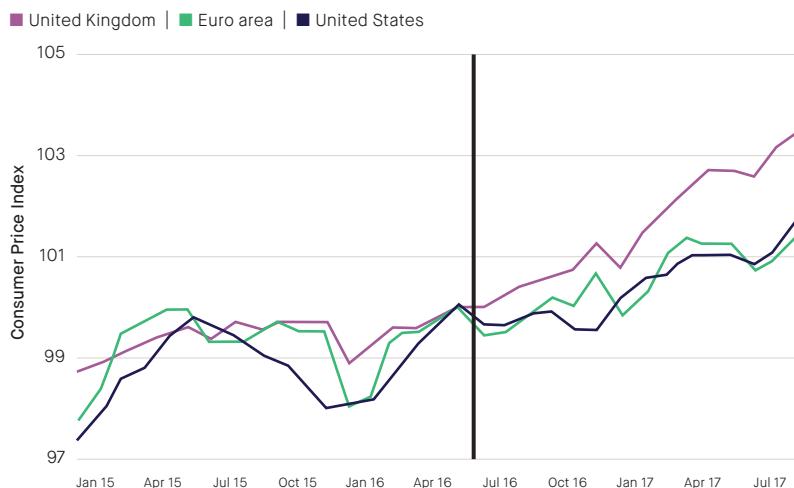
From a researcher's point of view, the referendum and the resulting depreciation of sterling can be regarded as an exogenous macroeconomic shock (a large scale shock unexplained by economic factors) that was sudden, strong and persistent. Our research is the first attempt to trace out the economic consequences of the referendum shock using detailed econometric analysis.

### From an exchange rate depreciation to inflation

Economic theory predicts that a strong and sustained depreciation of a country's exchange rate should lead to an increase in inflation. In fact, CPI inflation in the UK rose from 0.4 percent in June 2016 to 2.6 percent in June 2017 and 3.0 percent in October 2017.

But it could be that inflation rose over this period for reasons that are entirely unrelated to the referendum shock, for instance a rise in the global price of oil and other commodities. In fact, inflation also increased in the US and the euro area after June 2016, as shown in Figure 2. It would therefore be wrong to attribute the entirety of the rise in inflation to the referendum shock.

**Figure 2: Consumer Price Indices for the UK, Euro area and the US, 2015-17**



Source: Eurostat Harmonised Indices of Consumer Prices

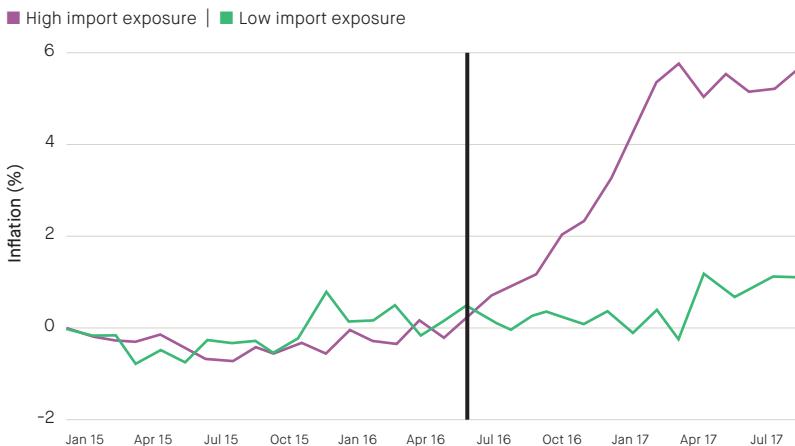
Notes: All indices normalised to 100 in June 2016.

We deal with this challenge in two ways. First, we compare the UK inflation experience to that in the euro area. Second, we use the fact that different types of goods depend to different degrees on foreign imports. For example, imports account for a large share of final consumer expenditure on clothing, footwear and furniture. By contrast, the cost of housing (rents), education, restaurants and hotels is not much influenced by the price of imports. So if the depreciation of the pound was responsible for the increase in UK inflation, we should observe larger increases for goods that are more dependent on imports. To measure import dependence, we calculate the share of imports in consumer expenditure for different products, taking account of both final good imports and imported inputs used by UK producers.

### Import exposure and inflation

Figure 3 illustrates our main result. The inflation rate for goods that have a high import exposure shot up after the Brexit referendum (see the solid line). In contrast, inflation for low-exposure goods remained muted (see the dashed line).

**Figure 3: Import exposure and inflation, 2015-17**



Source: Author's calculations

*Notes: High import exposure set includes product groups with import shares above the sample median. Low import exposure set includes product groups with import shares below the sample median. The graph shows the unweighted average inflation rate for each set expressed as the difference from the set average for January 2015.*

Econometric analysis confirms the pattern shown in Figure 3. Accounting for differences in product-specific inflation rates that are unrelated to Brexit (such as oil price movements and global inflationary pressures that also led to changes in inflation elsewhere), we find that product groups with higher import shares experienced significantly higher inflation following the referendum. Our estimates imply the Brexit vote increased UK CPI inflation by 1.7 percentage points in the year following the referendum. It would be wise to view the precise magnitude of this effect with some caution, but it is clear that the effect is substantial.

### Consequences for households' living standards

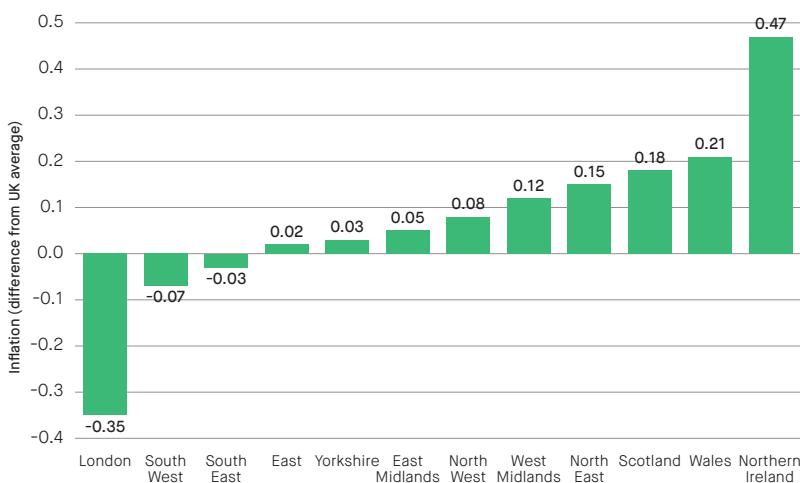
We next look at the impact of higher prices on household expenditure and living standards. We find that the average household has to spend £7.74 more per week, or £404 more per year, to afford the same purchases. By increasing prices without affecting nominal wage growth, the referendum has also reduced real wages, costing the average worker almost one week's wages (4.4 working days' wages, to be precise).

It is clear that the average UK household is already paying the price for voting to leave the EU. But not all households are equally affected. Households that buy a lot of imported goods have faced bigger price rises than households that mostly purchase products produced in the UK. This allows us to study the distributional consequences of the Brexit vote.

We find that the inflation increase is shared evenly throughout the income distribution but not across regions. As Figure 4 illustrates, London is the least affected region with a rise in inflation 0.35 percentage points below the UK average. The increase is smaller for London primarily because Londoners spend relatively more on rent than the average household, which has a very low import share.

In general the north of England has been harder hit than the south. Scotland, Wales, and Northern Ireland were the worst affected areas. Our estimates imply inflation in Northern Ireland increased by 0.47 percentage points more than the UK average because of the Brexit vote. This is because households in Northern Ireland spend relatively more on food and drink, clothing and fuel, which are high import share products, and relatively less on rent and sewerage, which have low import shares.

**Figure 4: Inflation differences across regions due to Brexit vote**



Source: Author's calculations

*Notes: For each region we show the estimated inflation increase due to the Brexit vote minus the average increase for the UK (the average increase is 1.7 percentage points). For example, the inflation increase in London is 1.35 percentage points and thus 0.35 percentage points below the UK average. See Breinlich et al. (2017b) for technical details.*

## Conclusion and lessons for post-Brexit policymaking

The economic effects of Brexit will depend crucially on the outcome of the ongoing negotiations between the UK and the EU. But our results show that even before Brexit has actually taken place, the referendum shock of June 2016 has already had substantial economic costs. By triggering a sharp depreciation of the sterling exchange rate, the Leave vote has pushed up the costs of imported goods and hence inflation. Our results indicate that higher prices are costing the average household £404 per year. We find that these costs are shared evenly throughout the income distribution but not across regions. London is the least affected region while Scotland, Wales and Northern Ireland experienced the largest increases in consumer prices.

The lesson for policymakers is that Brexit can have unintended consequences for UK inflation. Exchange rates go up and down on a daily basis, and they are typically impossible to predict over short-term horizons. Firms mostly ignore these daily fluctuations. However, major surprises move exchange rates in persistent and quantitatively important ways. The referendum vote to leave the EU is one such example. An unexpected announcement of a hard Brexit without a deal with our European partners would be another one. Thus, the key lesson for policymakers is to avoid sharp exchange rate depreciations as those are most likely to make firms increase prices for consumers.

Of course, exchange rates are not the only way that Brexit can affect UK consumer price inflation. Increases in trade barriers would be another way. This could operate through tariffs imposed on EU imports after Brexit. It could also operate through non-tariff barriers including customs checks and red tape. These would increase costs for UK companies, ultimately feeding into higher prices for UK consumers. Price rises would then be expected both for imported intermediate inputs in the context of pan-European supply chains as well as for final consumer goods.

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## THE BALANCING ACT FOR FISCAL POLICY

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In the three recent general elections, political parties have tried to emphasise their fiscal credibility. They apply the logic of household book-keeping to suggest that balancing the fiscal budget makes them good economic managers. One might imagine that a political consensus around the need to reduce or eliminate public deficits must have a strong basis in economic theory. But that's wrong.

I emphasise three key policy points arising from my research (McMahon, 2017). First, comparing governments running deficits to households living off credit is misleading. Fiscal policy can be sustainable and debt as a percentage of GDP can even fall despite the government running deficits: it could also be the case that the government needs to run a surplus just to maintain current debt levels. Second, the focus on the deficit takes attention away from the fiscal issues that should be the focus of public debate. Third, the current political debates about the need for fiscal soundness are short-sighted. There are fiscal challenges with huge consequences that barely get a mention. If these challenges are not addressed now, the large adjustment burden shifts to the future, which is a clandestine approach to running large deficits today.

### Debt sustainability

The recent fiscal focus in the UK is not new. The fiscal strategy of the UK in 1880-1895 was dominated by the idea of 'sound finance' (Offer 2002, Campbell 2004) and a similar idea underpinned much of the opposition to fiscal deficits in the US context (Lerner, 1943). The factors that determine the evolution of fiscal debt have been known for a long time. The bottom line is that deficits can be sustained if there is sufficient economic growth.

This is because the measure of government debt analysed matters. The amount of debt normalised by the capacity of the whole economy to repay it is more important than the Sterling amount of debt (nominal debt). We typically normalise by Gross Domestic Product, giving us the debt-to-GDP

ratio, and use this even though the ratio can be misleading when GDP is fluctuating cyclically.

To explore the drivers of the evolution of the debt-to-GDP ratio, we can use the Domar framework. This framework, explored more fully in McMahon (2017), is a simple accounting framework that emphasises the key roles played by:

- fiscal choices about spending and taxation (the primary fiscal balance);
- the growth of the economy, which depends on far more than the fiscal decisions;
- interest rates on government debt and the financing needs of the government.

Higher deficits, lower economic growth and higher interest rates all contribute to a growing, and less sustainable, debt. As the economic situation changes, so does the predicted path of debt to GDP and hence the fiscal options. It may not be necessary to eliminate a fiscal deficit to reduce a country's debt burden as a percentage of national income if growth offsets the effect of higher deficits.

Using the basic accounting relationship does not allow for feedback between fiscal policies and the macroeconomy: fiscal policy affects the macroeconomy, which itself affects fiscal outcomes. These feedback effects were used to justify austerity and also to criticise it. The concern was that as the UK fiscal position deteriorated the interest rate on UK debt (both public and private) would increase and the debt could grow unsustainably, so austerity was the solution to ensure sustainability. The counterargument was that cutting fiscal expenditure and raising taxes would weaken economic growth, which would make a given path of fiscal deficits less sustainable. In McMahon (2017), I argue that while both are possible outcomes, in the case of the UK in 2010 the counterargument, against austerity, is more convincing.

### A simple message that obfuscates the choices voters face

Of course, fiscal policy also reflects political preferences. As Stiglitz said of the then-chancellor, “politicians like George Osborne are driven by ideology; the national deficit is an excuse to shrink the state because that is what he wanted anyway” (Valley, 2013). But Osborne had already made clear that low taxes were a preference of his (and of his party). Speaking before David Cameron’s Age of Austerity address at the 2009 Conservative Spring Forum, Osborne (2009) said: “We Conservatives don’t need convincing that higher tax rates discourage enterprise and damage economic activity. Like you, I believe in the virtues of lower taxation.”

The public were sold the austerity policy as necessary for reasons of sound finances. Using the analogy of deficit-running governments like imprudent households has one big advantage – it is simple and the public can relate to it easily. It certainly helped the Coalition Government to convince the public of the need for austerity, and shift other parties to seek to establish their own fiscal credibility by promising to balance the books too.

Unfortunately, the emphasis on sound finances is one of the more disruptive narratives in UK policy today because it distracts from the real political and fiscal choices. Debt and the cost of servicing debt are important but even if both parties were to aim for the same fiscal outcomes, they differ in terms of the paths and composition of the revenue and expenditure. These differences have very real consequences for the electorate. But the differences are lost in the simple narrative that debt needs to be reduced. The focus on debt reduction as the goal of fiscal policy diverts the discussion away from the important debates on tax and spending that should be clear in every political party’s platform.

Today’s deficit will have to be paid for by future generations but deficit financing is not, in and of itself, reckless. Discussions of fiscal policy should focus on the proposals on spending and taxation, not just the deficit, so that the electorate can make an informed choice.

### A focus on government investment?

The assets side of the government balance sheet merits as much attention as the liabilities side. The government finances deficits by borrowing. The interest rate it will have to pay on the money it borrows depends on the market's judgement about its ability to repay the loan, which in turn depends on whether the market thinks the government is spending on things that will enhance its ability to repay the debt, or lead it down a path of needing to borrow more and more money to cover its liabilities. Debt that comes from acquiring assets is different to debt from financing current spending. Borrowing to fund infrastructure investments with a high economic return is unlikely to cause alarm to financial markets. Such assets should generate a revenue stream (taxes, fees or profits) to cover debt repayments, and/or boost growth. This would make debt dynamics more favourable.

For example, UK government spending on transport infrastructure could make transport faster, reduce the cost of distribution and expand the reach of businesses in terms of factor inputs and markets. If this improves companies' profitability, then tax revenues increase and offset the higher government spending.

The UK lags behind other advanced economies in terms of energy, education, health and transport infrastructure (Offer, 2002). Rising house prices and a shortage of social housing suggest that there is a role for government to spend in ways that would increase the housing supply, either directly or by inducing more private investment.

To the extent that the political parties are aiming for a balanced budget, it is encouraging that both main parties chose to focus on current deficits which exclude government investment. This implies an acceptance that government investment, such as much-needed infrastructure investment, could be financed with debt. But the parties differ in the views about the amount of government investment that is appropriate, so this apparent agreement masks potentially large differences in views of the total deficit, and the desirable ratio of debt-to-GDP.

The deficit-balance narrative which has taken hold in UK politics ignores much of this important issue.

### Other longer-term challenges

This narrative also misses other important longer-term challenges that need to be built in to current fiscal policy. For example, adaptation to climate change means adjusting incentives in the tax system as well as preparing for the risks to infrastructure from rising sea levels and increases in the frequency and severity of extreme weather.

Another example is the ageing population, which is driven by longer life expectancy and lower fertility rates. In terms of fiscal policy, spending on health, social care and pensions will increase (see, for example, Amior, Crawford, and Tetlow (2013) and Office for Budget Responsibility (2017)). The Institute of Fiscal Studies (2018) estimates that the UK Government will need to increase real health-related public spending by 2-3 percentage points of GDP by 2033-34. At the same time, with a smaller proportion of the population working, income tax revenue will decline. Together, these demographic pressures will widen budget deficits.

Postponing action on these longer-term challenges is not ideal even if the typical short-horizon of parliamentary cycles encourages it. Postponing action defers the burden of paying for part of the adjustment from today's generation to future generations. In the end this has the same impact as a deficit, even if debt statistics will not record it as such.

## Conclusions

Fiscal policy is an important tool that helps to shape the UK economy. Beyond the provision of certain vital public goods, economics does not provide a clear support for either a big government (large amount of public spending) or a small government. People have different preferences about the desirable level and composition of spending and tax today, and how much to defer the burden of today's spending to future generations via deficits.

Voting is supposed to reveal the electorate's preferences but the political narrative in the UK is hampered by a simplistic focus on eradicating the deficit, leaving little for voters to choose between. There are numerous challenges on the horizon for fiscal policy that are not being included in the public discussion. Voters need an informed discussion that gives them a clear choice about the path each party proposes to take on the path to fiscal sustainability.

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## ARE WE DOING ENOUGH TO PREVENT FUTURE FINANCIAL CRISES?

DAVID MILES, IMPERIAL COLLEGE

The decade since the financial crisis of 2008 has been one of unusually poor economic performance in the UK. The loss is immense; 10 years on, the level of UK GDP is somewhere between 15 and 20 percent below the pre-crisis trend and it shows no sign of returning to it. If the income is gone forever, then at a 3 percent real discount rate (very high relative to real gilt yields, but near the official discount rate set by the UK government), the present net loss is between 450 percent and 600 percent of annual GDP.

The cost of the financial crisis has been enormous, so we should be prepared to spend a lot to reduce the chances of that happening again.

The financial crisis was not a general crisis of capitalism. Some believe that it revealed a systematic tendency for free markets to create instability that builds up and causes crashes that greatly reduce living standards – in other words, that capitalism itself is inherently flawed. A better explanation is that the financial crash revealed huge problems that were largely specific to banks, which then caused widespread harm outside the financial sector. Companies outside the financial sector were hit by problems that originated in banks. They were not the source of those problems. The problems were largely to do with massive leverage – a mountain of debt on a sliver of equity capital – in banks that held some unusually risky assets.

### The main cause? Lack of capital in banks

When a bank has financed nearly all of its assets with debt – deposits, bonds and loans from other banks – it only takes a small drop in the value of those assets, for those who have financed it to start losing money. Just before the crisis, the average level of gearing (assets to equity) of banks in the UK was not far off 40: some banks had leverage well above 50. When a bank has leverage of 40 it has financed 97.5 percent of its assets with debt and has an equity cushion against losses of only 2.5 percent.

Nearly all of the debt banks held was short term, meaning that depositors could effectively withdraw it within a few weeks. It is rational to withdraw debt funding if you think that a bank may not have enough assets to repay you. This is why, once people began to doubt the true value of assets in banks after the fall of Lehman Brothers in September 2008, bank funding began to dry up. The banking crisis then hit with frightening speed. In its wake, loan availability dried up, confidence took a huge hit, and a recession occurred that in its initial intensity matched the onset of the Great Depression.

If banks had had much more equity funding, fewer people would have withdrawn money and the crisis would have been much less serious. With enough capital there would have been no crisis.

### What has been done since?

There have been moves towards requiring banks to have higher capital – and some say the capital requirements are now much higher. But focusing on how much higher bank capital requirements are relative to a system which allowed capital to be wafer thin seems rather misguided. It is the level of bank equity capital that matters. Under the international Basel III system of capital requirements – agreed in the period since the crisis and gradually being implemented by central banks – large banks need to have equity funding that is no less than around 10 percent of their risk weighted assets. But risk weights on many assets are low so equity can be as little as just a few percentage points of total bank balance sheets. A leverage rule is also being implemented that will allow equity of just 3 percent of assets, that is, gearing of just over 33.

By the standards of the vast majority of corporations this is massive leverage. It will still be the case that under the new international agreements a loss of 2 percent or so of the value of assets leaves a bank teetering on the edge of insolvency.

In the UK the Bank of England, as well as implementing the internationally agreed system of bank capital requirements, also undertakes its own stress tests of banks. These tests may replace the Basel III rules as the effective

constraint on banks, which is good since they are a bit tougher. But it would surely be better to get the day-to-day rules right, rather than rely on complicated and data intensive annual tests of whether banks can withstand a particular risk scenario that varies from year to year.

### What should be done?

There is a great deal of analysis which finds that Basel III rules generate levels of equity funding of banks far below what would be ideal (see, amongst others, Admati and Hellwig (2013); Admati et al. (2010); Miles et al. (2013); Sarin and Summers (2016); Vickers (2017); and Wolf (2017)). Miles et al. (2013) suggest equity should be at least 20 percent of risk weighted assets (RWA); Admati and Hellwig say more than that is needed. Bank of England analysis suggests that 20 percent of RWA would be right, until allowance is made for the orderly wind down of banks in case of near-insolvency, which brings the figure down to close to the Basel III levels (see Brooke et al. (2015)). But the orderly wind-down of banks, and other rules requiring some debt funding to be bailed-in under stressed conditions, are untried. It seems premature to allow for their effective operation to reduce the amount of equity required of banks. No one doubts that equity is an effective buffer against bank losses and stabilises the banking sector, and thus the whole financial system: bail-in debt that converts to equity or shares in losses ahead of other depositors is untried.

Surely it is better to err on the side of caution as regards equity funding of banks, given the huge costs of financial crises. After all, what is the real resource cost of banks using more equity? Banks say it is huge, but every serious study says that the economic cost of having banks use more equity than the Basel rules specify is small. It is crucial to distinguish between private and social costs of resources: it may be rational for banks to have high leverage, particularly if that debt is partially insured by governments, but not for the rest of us.

### Alternatives and speculative futures

Requiring banks to use more equity funding seems a better way forward than other radical and untried alternatives, such as reducing the uses banks

make of their funding to the safest government bonds and reserves at the central banks. Under a narrow banking option, who would replace banks in their role as lenders to companies and households?

There is an alternative route that the advocates of narrow banking want us to use, and that might be followed if central banks offer accounts to households. This could mean that the great majority of payments by companies and households would be settled directly between accounts held at the central bank. It is possible that a majority of people would want a central bank deposit account linked to payments, made feasible by massive advances in IT – one aspect of which is blockchain technology. But what would commercial banks then look like?

Will they offer risky savings vehicles but only for the risk lovers who want something beyond the safe central bank facility? Could we then get rid of deposit insurance? Would banks become more like mutual funds? Maybe this would be an efficient way to finance mortgage and corporate lending. Yet asymmetry of information between banks and providers of funding might make more conventional bank debt – with some form of deposit insurance – the only feasible option.

### Back to steps to take now...

All that is a bit speculative. What is more concrete is the advantage of moving towards much higher equity use by banks *now*. Some progress has been made on this but we are still painfully short of where we should be, 10 years after the crisis.

One of the stranger possible impacts of the UK leaving the EU is that a transition towards much higher bank capital becomes easier. This is because when Basel III passed into EU law it became, bizarrely, a maximum harmonisation directive. That meant that a rule that was too soft became one that countries in the EU had to stick to *and could not go beyond*. If the UK leaves the EU – which obviously poses economic risks – at least we might no longer need to use those work-arounds.

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## THE MACROECONOMICS OF UNCERTAINTY

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Economic decisions to invest time, money or other resources are usually made on the basis of expected outcomes. Firms build manufacturing plants on the basis of expected demand for goods; individuals relocate on the basis of expected well-being; investors direct funds to R&D on the basis of expected gains in innovation and productivity and ultimately profit. However, if there are conditions that might confound the expected outcomes, then these parties will invest with less confidence, commit fewer resources, or not invest at all. Uncertainty about future demand for good, services, labour and the overall level of economic activity is normal in a complex world subject to random variation but also can have negative macroeconomic effects.<sup>1</sup>

In particular, *policy* uncertainty can be detrimental to the economy. Some uncertainty is outside of the control of policymakers and likely irreducible, which is why economic forecasting is hard. Other uncertainty is a direct result of government policymakers changing views, or a change in who is making the policy.<sup>2</sup> Policy uncertainty occurs when a policy is clearly needed, for example, where investors know they will be subject to regulations, but the government doesn't make the regulations in time. Investment will likely be delayed until there is clarity about the regulatory policy.

The impact of uncertainty can be seen in capital and labour investment decisions, household decisions, and financial prices. Studies have used a range of different measures of uncertainty such as stock market volatility measured by the VIX index (Bloom, 2009), perceived uncertainty measured using reports in the media (Baker, Bloom and Davis, 2016), and forecaster uncertainty and disagreement (Scott, 2013, and Jurado, Ludvigson and Ng, 2013). The challenge in empirical analysis of uncertainty is that it tends to

<sup>1</sup> One important caveat concerns the academic use of the term uncertainty to apply to Knightian uncertainty. In this discussion, I shall use the lay definition of uncertainty which is sometimes what some academics call risk (something that is not certain to happen but for which it is possible to assign probabilities to the possible outcomes, or known unknowns), and sometimes it is what is called Knightian uncertainty (the unknown unknowns).

<sup>2</sup> This is true in the case of other macroeconomic policies such as monetary policy as discussed in Husted, Rogers and Sun (2017).

rise during recessions, so researchers have to account for possible reverse causation (endogeneity) problems. The aforementioned studies do this in different ways.

### Investment channels

The main channel of uncertainty is identified as investment in seminal work by Dixit and Pindyck (1994). They highlighted the “option value” of uncertainty: in uncertain times, it is beneficial to wait until more information about a project is available before making a partially-irreversible decision. Or, where a firm can choose between different locations in which to invest, the decision may be made in favour of the area which offers greater certainty.<sup>3</sup>

Conversely, some argue that in the presence of substantial time to build and with opportunity to abandon projects, uncertainty may induce a race to invest (Bar-Ilan and Strange, 1996). The return to an investment depends on the future price of the output. Greater uncertainty, over a longer horizon, increases the likelihood that future prices will rise very high. Because there is a long lead time between investment and products reaching the market (the assumed time to build), those producers already in the market when prices are high will extract large returns. This means that in the face of uncertainty, and so long as the investment can be easily abandoned, it makes sense to initiate the project and then abandon it as more certainty about the future output price develops. While this may be the effect in a few industries, the empirical evidence is that the negative effects of uncertainty dominate.

<sup>3</sup> *The Guardian* (2018) reports the case of a Bristol-based sports clothing company which has decided to invest abroad in the face of Brexit uncertainty. “In anticipation of no deal, he has opened an office in Bucharest with seven staff and he is poised to sign the final paperwork on a new warehouse in Nuremberg to allow him to continue importing and exporting to the continent tariff-free.”

The race-to-invest result hinges crucially on the balance of upside and downside risks, as well as on how easily the project can be abandoned. Bernanke (1983) focused on the effect of downside uncertainty. His idea was of a bad news principle such that investors, contemplating an irreversible investment decision, will focus on the potential unfavourable outcomes. This suggests that there is a difference between a negative skew and a mean-preserving increase in uncertainty, which is relevant for the UK today because the negotiations on Brexit have carried much more economic downside risk than upside risk.

Also relevant is the decision between short- and long-horizon investments, and the potential to switch between them. Investment in new products and new processes that take longer to realise a return may be more likely to be delayed. But to the extent that such investments deliver productivity enhancement, uncertainty can be particularly damaging. Barrero, Bloom and Wright (2016) find that policy uncertainty reduces R&D investment. This damages current growth a little and future growth a lot.

As discussed in Harford (2011) and Alvarez (2018), there is also potential for unintended positive spillovers from trying to innovate. The idea is that sometimes in trying to do something different, you discover a new market or process that traditional searches for investment opportunities would have missed. The \$2000-a-night Ice Hotel in Sweden is an example of such a discovery, as are many innovations in military strategy.

### Employment channel

The same effects influence labour decisions. Reducing investment in staff can lead to higher costs in the future, if innovation or expansion is hampered by staff shortages, or skill deficiencies.

### Misallocation effects

Allocation of resources, shown to be an important determinant of aggregate productivity (Fernald and Neiman, 2011; Baqaee and Farhi, 2018), may also be adversely affected. In uncertain times there is less reallocation of resources from low to high productivity firms. The challenge in the UK, as highlighted by the work of Bloom, van Reenen and others is that the productivity differences between the UK and the US or Germany are not at the top end, but at the bottom end of the productivity distribution. This has a knock-on effect on employees who may otherwise benefit from working with better technology and the training that goes with it.

### Financial channel

Uncertainty about an investment means that the range of possible gains or losses is bigger. Investors will only commit if the expected payoff justifies the risk, and lenders may ration credit (Stiglitz and Weiss, 1981). Firms that are already under financial constraints may be particularly affected, meaning that these firms might not be able to augment investment projects if they face unexpected costs, or to undertake new opportunities that arise (Arellano, Bai, and Kehoe 2012, and Christiano, Motto, and Rostagno 2014).

And this is especially problematic for smaller firms that typically have no alternatives to bank financing. The Bank of England Inflation Report from August 2018 stated: “Weak demand for investment appears to have been reflected in slowing growth of bank lending to companies since mid-2016.” Larger firms can access the bond market for funding.

## Household channel

Uncertainty is not just a business phenomenon; it also affects household behaviour, especially saving. Households tend to save more as uncertainty increases, which has knock-on (multiplier) effects on the macroeconomy, through reduced consumption and residential investment demand (Bansal and Yaron 2004). Giavazzi and McMahon (2012) showed that delaying pension reform led to higher saving and even some labour supply response in the affected population in Germany.

While some might argue that such effects actually boost the economy in the longer run (through higher capital investment), this ignores how the preceding channels affect the financial intermediation of funds into investment and the reduced investment demand. Moreover, some of the increased saving is invested in foreign countries (Fernández-Villaverde, Guerrón-Quintana, Rubio-Ramirez, and Uribe, 2011).

## Policy uncertainty

While some uncertainty is a defining feature of the macroeconomic landscape, policy choices can exacerbate or dampen this uncertainty. For example, monetary policy reacts to economic conditions. But financial markets may be uncertain about how policymakers will react to economic conditions, which becomes a source of economic uncertainty. An expensive and highly uncertain planning process in some areas of the UK may discourage residential investment despite a clear undersupply of housing.

Uncertainty about Brexit has likely affected investment in the UK. Because the UK economy is so interconnected with other EU nations, the uncertainty has affected every aspect of firms' business environment: many firms are discovering for the first time how exposed their business is to membership of the EU.<sup>4</sup> Impacts include uncertainty about continued participation in global supply chains, the supply of labour across the range of skill levels, and access to services and critical inputs of goods – especially those that are highly perishable or strictly regulated, such as food and medical supplies. However, the UK government has not only failed to reduce the

<sup>4</sup> For example, the City of London is reliant on the hospitality sector for hotels and restaurants used as a by-product of the type of business deals conducted.

uncertainty about the outcome of Brexit negotiations, but has occasionally exacerbated uncertainty by proposing policy that is clearly impossible under any current or future legal framework. For example, the UK cannot have frictionless trade with the EU and an independent trade policy in goods with countries outside the EU.<sup>5</sup> Firms that trade with the EU and the rest of the world have been left wondering what will happen, while the Government has pursued a policy that most in industry or policy know can't happen. This is additional policy-generated uncertainty.

However, economists and policymakers are not, typically, the best at communicating the uncertainty attached to their views or the effects of their policy, and politicians rarely want the uncertainty revealed. Lyndon Johnson is said to have told an economist conveying uncertainty around a forecast that "Ranges are for cattle. Give me a number."<sup>6</sup>

It is impossible to remove all economic uncertainty. The key message of this article is that we should all remember that reducing the elements of policy uncertainty that are more subject to control by policymakers can actually benefit the UK economy. This is especially important for politicians and policymakers to remember as we enter a prolonged period of negotiation with the EU on the post-Brexit economic relationship, as well as a period of negotiating trading relationships with other countries. Steps should be taken to try to eliminate as much of the self-imposed damage from policy uncertainty as is possible.

<sup>5</sup> <https://www.ft.com/content/6dca820a-6979-11e8-b6eb-4acfcb08c11>

<sup>6</sup> [https://harvardpress.typepad.com/hup\\_publicity/2013/01/public-policy-in-an-uncertain-world-manski.html](https://harvardpress.typepad.com/hup_publicity/2013/01/public-policy-in-an-uncertain-world-manski.html)

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## THE BIG PICTURE

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The UK economy is still suffering a hangover from the financial crisis. Austerity is not yet over, productivity is way below pre-crisis projections, interest rates remain at historically-low levels while the growth of median living standards has stalled. Brexit is a damaging part of this hangover. Economic history tells us that major crises can be expected to have long-lasting consequences for the design of economic policy, as is borne out by both the 1930s and the 1970s, but the implications of the recent crisis are not yet clear. It is important to recognise that crises can provoke political reactions, which promote seriously damaging shifts in economic policy that are hard to reverse – the protectionism of the 1930s is an obvious case in point, as is Brexit today.

In this context, the chapters in this Report draw lessons from recent experience which can help to guide evidence-based policy reform. These include explicit suggestions for changes in policy, basic principles for the making of economic policy, mistakes not to repeat in future and gaps in the evidence base that should be addressed. A key priority is to improve productivity performance while at the same time ameliorating the position of left-behind voters. Ideally, economic growth should return to being inclusive. That said, workers should be protected, not jobs; strong productivity performance requires a return to efficient resource reallocation after the impairment resulting from the crisis.

The financial crisis caused not only an immediate severe recession but also a permanent reduction in the level of potential GDP, which according to conventional analysis may have been around 4 to 5 percent (Oulton and Sebastia-Barriel, 2017). On the fiscal side, there was a large rise in the public debt to GDP ratio and a big government deficit. Fiscal consolidation ensued. The evidence presented here notes that the burden fell quite unequally across districts and ignited the anger of voters in disadvantaged areas. The upshot was the rise of UKIP and voting for Brexit (Becker et al., 2017). Cushioning these voters was perfectly feasible but not considered important. The result was a further damaging blow through the adverse productivity implications of leaving the EU, which may well double the medium-term hit to potential GDP. In the short term, uncertainty has been created by the referendum result and the lack of clarity on what kind of Brexit will eventually be put in place. The report stresses that modern research shows that policy uncertainty has high costs, for example, through the postponement or cancellation of investment.

Two policy points arise from this. First, the design of fiscal consolidations needs to consider the political reactions it might provoke. More generally, as Rodrik (1998) emphasised, maintaining support for globalisation requires an adequate social safety net. The evidence presented in this report points to the need for this provision to be seen to be fair and not to give rise to conflict between immigrants and natives. Second, prevention of financial crises has a very large benefit. As we are reminded in this report, the key is to ensure that banks have sufficient loss-absorbing equity capital and that capital adequacy requirements are made stricter. This would imply an increase in the cost of capital but the output loss from this would be relatively small (Miles et al., 2013). The social benefit-cost ratio of tighter regulation of banks is very substantial.

Generally, financing social spending and redistribution entails some efficiency loss and some reduction in economic growth through the disincentive effects of taxation. It follows that value for money is a key aspect of the welfare state especially at the present juncture. The report highlights through international comparisons that welfare state spending levels are only weakly correlated with desirable outcomes in terms of poverty gaps, health, and education. It is already well known that student achievement as measured by OECD PISA scores depends far more on the organisational design of the schooling system than levels of public expenditure on education (Woessmann, 2016).

Two further policy points developed in the report follow from this. First, it is important to make sure that those in poverty access income support. Support must be provided in a way that recognises that poverty impairs cognitive skills and that people on low incomes should not have to wait unduly for payments, and that provision should be simple to access. Second, the level of qualifications in technical and vocational skills not only needs to be markedly improved but routes to achieve valuable training need to clearly signposted. Investment in raising the quality of the labour force is a good way to raise productivity while making growth more inclusive, and there is ample scope given the existing shortfall.

This raises a more general issue that surfaces in several ways in the report, namely, that the UK is failing to make the most of its stock of potential human capital. Only partly is this related to failings in education and training. One important aspect which is underlined in the report is the implication of childbearing for the lifetime productivity and earnings of women. Evidence suggests that improving the design and generosity of maternity pay can address the risk of dilution and waste of human capital. A further problem that the report highlights is that of mismatch in the labour market. Partly this relates to geographic mismatch between vacancies and unemployment but it also reflects disparities between a worker's qualifications and their employment which imply that the social returns to education are not always realised. Here there is a clear need for more evidence especially with regard to wage setting, to develop appropriate policy responses.

Human capital and skills are important but by no means the only area of supply-side policy which should be improved with a view to improving UK productivity performance. Other areas of concern include policies relating to infrastructure, innovation, regulation and taxation where there is plenty of evidence pointing to sensible reforms but implementation has not happened. Nevertheless, what is required is modification rather than abandonment of the pre-crisis approach. In particular, the report warns against a return to the 1970s in terms of industrial and competition policies.

The search for better policies is certainly not a good reason to lose sight of basic economic principles. Two important examples of this point can be found in this volume. First, a vital role for government is in the correction of market failures which arise in many ways including externalities, market power, public goods etc. Climate change is a hugely important example. An appropriate policy response is to tax the use of energy which raises carbon emissions; this will, of course, raise energy prices and hurt poor households. Since the tax raises revenue for the government it also provides the means to compensate poor households. The energy tax should not be discarded because of its distributional consequences but attention should be given to how a new compensation scheme is designed. Second, fiscal sustainability over the long run is an important policy objective and is a central priority of the Office for Budget Responsibility. However, basic macroeconomics tells us that this should not be interpreted as requiring that government never runs budget deficits or that the budget should immediately be re-balanced when an adverse shock like the financial crisis comes along. For example, in general, tax smoothing is a more appropriate policy in response to shocks (Barro, 1979) and when real interest rates are very low, as at present, budget deficits may well be consistent with a falling public debt to GDP ratio over time.

It is deeply worrying that labour productivity measured by real GDP per hour worked in 2018 is about 21 percent below what would be expected if the pre-crisis trend rate of growth of 2 percent per year had been sustained (ONS, 2018). The reasons for this shortfall are only partly understood and it is right to see this outcome as a productivity puzzle. There are, however, quite plausible reasons to suppose that productivity growth will accelerate in future as the impact of new technologies associated with artificial intelligence and robotics comes through. Indeed, recent estimates suggest that the median job in the OECD countries has a 48 percent probability of being automated in the next 20 years or so (Nedelkoska and Quintini, 2018). The downside is that at least the direct effect of this technological progress will be to eliminate tasks done by low-skilled and low-paid workers. Here is a prime example of a major issue in making economic growth inclusive. Standard economics tells us that keeping a flexible labour market, including keeping low levels of employment protection regulation, will be an advantage in containing unemployment (Mortensen and Pissarides, 1999) but this may well not appeal to the left behind.

Designing balanced welfare state policies is a difficult challenge but will be crucial in mitigating the impact of the new technology and softening opposition to its rapid diffusion. More generally, aligning the reality of the UK economy and society with the vision of a brighter future will depend on constructing policy frameworks that can facilitate growth without unacceptable increases in inequality. This may well become more rather than less difficult and is not a challenge that can be met by populism rather than expertise.

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## ABOUT US

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Established in January 2010, the Centre for Competitive Advantage in the Global Economy (CAGE) is a research centre in the Department of Economics at the University of Warwick. Funded by the Economic and Social Research Council (ESRC), CAGE is carrying out a 10 year programme of innovative research.

Research at CAGE examines how and why different countries achieve economic success. CAGE defines success in terms of personal wellbeing as well as productivity and competitiveness. We consider the reasons for economic outcomes in developed economies like the UK and also in the emerging economies of Africa and Asia. We aim to develop a better understanding of how to promote institutions and policies which are conducive to successful economic performance and we endeavour to draw lessons for policymakers from economic history as well as the contemporary world.

CAGE research uses economic analysis to address real-world policy issues. Our economic analysis considers the experience of countries at many different stages of economic development; it draws on insights from many disciplines, especially history, as well as economic theory. CAGE's research is organised under four themes:

- What explains comparative long-run growth performance?
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- How we improve the measurement of well-being and what are the implications for policy?
- What are the implications of globalisation and global crises for policymaking and for economic and political outcomes in western democracies?

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## CAGE POLICY REPORTS

This is the fourth CAGE Policy Report. The first CAGE Policy Report was published in 2012 as *Reversals of Fortune? A Long-term Perspective on Global Economic Prospects* by Sacha O. Becker, Stephen Broadberry, Nicholas Crafts, Sharun W. Mukand and Vera E. Troeger. The second CAGE Policy Report was published in 2014 as *Unlocking Development* by Stephen Broadberry, Leigh Gardner, Rocco Macchiavello, Anandi Mani, and Christopher Woodruff. The third CAGE Policy Report was published in 2017 as *Understanding Happiness* by Daniel Sgroi, Thomas Hills, Gus O'Donnell, Andrew Oswald and Eugenio Proto. All the reports are available at <http://warwick.ac.uk/cage/publications>.

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