IPPR Commission on Economic Justice

Industrial Strategy

Steering structural change in the UK economy

Discussion Paper

Michael Jacobs, Izzy Hatfield, Loren King, Luke Raikes and **Alfie Stirling**

The IPPR Commission on Economic Justice

Dominic Barton
Global Managing Partner, McKinsey and Company

Sara Bryson
Community Organiser, Tyne & Wear Citizens, Citizens UK

Matthew Clifford MBE
Co-founder and CEO, Entrepreneur First

Charlie Cornish
Group Chief Executive, Manchester Airports Group plc

Claire Dove OBE, DL
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Grace Gould
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Sandra Kerr OBE
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Tom Kibasi
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Chief Executive Officer, Siemens UK

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Professor in the Economics of Innovation and Public Value, University College London

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Mustafa Suleyman
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Sally Tallant
Director, Liverpool Biennial Festival of Contemporary Art

Neera Tanden
President, Center for American Progress

The Most Revd and Rt Hon Justin Welby
Archbishop of Canterbury

Get in touch

For information or to contact the IPPR Commission on Economic Justice, please email:

Louise Rezler, Programme Manager
The IPPR Commission on Economic Justice

cej@ippr.org

www.ippr.org/cej

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The IPPR Commission on Economic Justice

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The Commission's Interim Report, *Time for Change: A New Vision for the British Economy*, was published in September 2017. Its Final Report will be published in autumn 2018.

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ABOUT THE AUTHORS

Michael Jacobs is director of the IPPR Commission on Economic Justice.

Izzy Hatfield was an economic analyst at IPPR when this research was undertaken.

Loren King was an economic analyst at IPPR when this research was undertaken.

Luke Raikes is a senior research fellow at IPPR North.

Alfie Stirling is a senior economic analyst at IPPR.

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Summary

Industrial strategy can be defined as the purpose-driven coordination by the state of its 'supply side' economic policies – those relating to the productive capacity of the economy, and the market conditions in which investment and production occur. Industrial strategy therefore encompasses policy areas such as infrastructure, skills, research and development spending, land use planning, competition, business taxation, regional economic development and export promotion. But industrial *strategy* implies more than just the sum of these policies. It must mean their overall coordination, aimed at a clear set of objectives or purposes.

Analysis of the UK economy and a review of other countries' experience of industrial strategy has led us to five propositions and associated proposals.

1. **The aim of industrial strategy should be to promote structural change in the UK economy.** The patterns of investment and production that have developed over the last 30 years have left the UK economy with deep and longstanding weaknesses. Its objectives should be:
    - **raising the level of productivity** in the economy as a whole, particularly in the many firms, sectors and regions which currently lag behind those in other developed economies, thereby enabling higher median earnings
    - **increasing the diversity and level of UK exports**, particularly in world-leading sectors, and increasing the level of import substitution, in order to improve the UK's balance of trade
    - **raising the rate of research and development (R&D)** throughout the UK economy, and diversifying the range of firms at the technological frontier
    - **stimulating economic growth and productivity improvement throughout the UK's nations and regions**, rebalancing the economy away from London and the South East
    - **reducing the UK economy's environmental impact**, particularly through its almost full decarbonisation by around 2050.

To achieve these objectives industrial strategy must go well beyond correcting 'market failures'. It must be a more fundamental attempt to change the structure of the economy, including the volume and direction of private and public sector investment.

2. **Industrial strategy should integrate the improvement of the economy's supply side with the stimulation of demand.** Supply side policies on their own cannot address the deficient overall demand that is currently a feature of the UK economy. The Government should adopt an 'investment-led growth strategy', with a higher level of public sector investment, funded by borrowing. This should be targeted at infrastructure and innovation, and aimed at 'crowding in' private sector investment.
    - **Annual public investment spending should be increased by at least £20 billion by 2021–22, or around 1 per cent of GDP.** Of this, at least £10 billion a year should go towards industrial strategy, including infrastructure, housing, research and development and business growth.
    - **Much of this funding should be channelled through a new National Investment Bank.** This should be modelled on successful public development banks in other countries, such as Germany's KfW and the European Investment Bank. It would have a specific mandate to invest

in infrastructure, housing, business growth and innovation, with a strong focus on geographic rebalancing of the economy and enhancing productivity and competitiveness in key sectors.

- **Industrial strategy should seek to expand domestic value chains which can supply the demand created by public procurement and policy.** UK public sector procurement is currently worth around £270 billion a year, while public policy in fields such as health, energy and transport is a major source of demand for goods and services and innovative solutions.
- **Key 'missions' should be identified to drive the direction of growth and innovation, providing public policy goals to address some of the key challenges faced by the UK and global economy over the next 20 years.** We propose three core missions:
  - **green growth** – to reduce the UK's environmental footprint to levels consistent with global sustainability by 2040
  - **responding to demographic change** – to make the UK's population the healthiest and best cared for in the world by 2040
  - **accelerating the digital economy** – to make the UK the most digitally advanced society in the world by 2040.
- **Legislation should be drafted for an Industrial Strategy Act to provide a new legal framework.** This would clarify the UK's rules on state aid after we leave the European Union, and provide a robust structure for policy design and evaluation.

3. **The scope of industrial strategy needs to be expanded to focus on raising productivity in the 'everyday economy' of ordinary firms where most people are employed.** The UK's low aggregate productivity and stagnant median earnings arise mainly from the many low-productivity firms in the 'everyday economy': sectors such as retail, social care, food and drink, light manufacturing, tourism and hospitality. To raise productivity in these sectors industrial strategy must be aimed at accelerating the *diffusion* of innovation, as well as its creation. Low-productivity firms in the UK currently face three key weaknesses: poor-quality management, low take-up of digital technologies, and weak utilisation of skills. To raise productivity we propose:
   - **a national goal to promote 'good jobs' in UK businesses and public sector organisations, particularly in low-productivity sectors.** In rethinking how jobs are designed, there is significant potential to improve productivity, earnings, career progression and job satisfaction.
   - **the establishment of a new partnership body, Productivity UK, with the goal of raising firm-level productivity, particularly in the everyday economy.** Its focus should include improving the quality of management, the wider adoption of digital and other technologies, the better utilisation of skills and promotion of good jobs. It would work with sectoral associations, the devolved governments and local economic partnerships to deliver diagnostic services, training, advice and funding to businesses.
   - **converting the current apprenticeship levy into a 'productivity and skills levy' to help incentivise firm take-up.** The funds raised would be redeemable by participating companies for a wide range of initiatives aimed at raising productivity through skills training and workplace organisation, including skills utilisation and 'good jobs' strategies.
   - **introducing a new 'good jobs standard' to establish a set of guidelines on the design of high-quality jobs.** Drawing on Scotland's Fair Work Convention, this could cover elements such as skills utilisation and training, pay and benefits, working hours, career progression, opportunities for voice and participation in decision-making and union representation. Government could incentivise firms by requiring the good

jobs standard in procurement policy and through a 1 per cent reduction in corporation tax for accredited small and medium sized firms.

4. **Innovation policy should aim to diversify the UK's base of world-leading 'frontier' firms.** Unlike more successful advanced economies, the UK has a particularly narrow base of exports and innovation specialisms, and many of our exports are import-intensive. Up to now industrial strategy has largely focused on deepening existing innovation sectors. To reduce the UK's trade deficit and boost R&D, the UK's export sectors need to be broadened and domestic value chains strengthened. The goal should be to make the UK economy 'nationally diversified and regionally distinctive'.
   - **A key objective should be to expand and develop university-based industrial and innovation clusters around the UK.** UK Research and Innovation should establish a coherent strategy for the development and funding of a geographically diverse network of research and innovation centres at the UK's leading universities.
   - **The R&D tax credit and patent box scheme, which together cost around £3.6 billion annually and dominate government spending on R&D, should be phased down and ultimately largely abolished.** A small number of large corporations reap 95 per cent of the patent box and 80 per cent of R&D tax credits. We estimate that between 57 and 80 per cent of R&D tax credits are deadweight, subsidising spending which would have happened anyway, at an annual cost of £1.8–1.9 billion. The savings from phasing down these schemes should be redirected for direct support to R&D through Innovate UK and the National Investment Bank.
   - **Some public R&D spending should use equity funding as well as grants and loans.** This would enable the taxpayer to share in the rewards as well as the risks of innovation.

5. **Geographic rebalancing requires the creation of stronger regional institutions in England.** As the UK economy has changed over the last 30 years, areas of the country with more sector-concentrated economies, lower-skilled workforces and poorer transport connectivity have suffered long-term decline. These processes have been reinforced by government investment appraisal methodologies which have skewed infrastructure spending towards London and the South East. While Scotland, Wales, Northern Ireland and London have devolved economic powers, there is no regional tier in England and local economic partnerships (LEPs) are weak and unaccountable. Experience in other countries suggests that balanced regional growth will require much stronger subnational institutions, with more fiscal autonomy and greater borrowing and investment powers.
   - **Over time there is potential for the Northern Powerhouse and Midlands Engine to develop into a fully fledged regional tier of government, and for similar initiatives to be established in the rest of England.** A regional tier would be responsible for overall economic planning and industrial strategy, strategic planning, regional infrastructure and transport policy, and potentially devolved migration policy and some aspects of energy policy.
   - **Combined local authorities should over time be given greater devolved powers, and more should be created around the country.** They should be responsible for skills and adult education policy, business support and local planning, housing and transport policy. LEPs should be reconfigured and strengthened as local productivity partnerships, and in due course brought under effective combined authorities.
   - **Combined authorities and regional governments should have greater fiscal autonomy, able to collect local portions of some national taxes, levy taxes**

at local level, and borrow larger sums for local investment. The UK collects just 5 per cent of taxes at subnational level, compared to upwards of 20 per cent in many OECD countries.

- **Regional investment banks – initially under the National Investment Bank – should be set up to support investment in infrastructure, business growth and innovation in the nations and regions of the UK.** Experience in other countries shows that, by restricting their mandate to investment in a specific geographic region, such banks can develop specialist local knowledge, enabling them to discover and nurture small and medium-sized enterprises with good growth prospects which might otherwise not have access to affordable debt or equity.

Introduction: Not business as usual

The change in name of the UK business department in July 2016 marked an important moment. By incorporating 'Industrial Strategy' into the core goals of the machinery of government, Theresa May's new Conservative administration signalled a desire to change the character of British economic policymaking.

As discussion of the Government's green paper has shown, the concept of industrial strategy is very broad (BEIS 2017a, BEIS Committee 2017). The term has been heavily contested over a long history, with a variety of intellectual underpinnings and different applications in different countries (Warwick 2013, Colebrook 2016). It can encompass a range of policy areas, such as infrastructure, skills, competition policy and inward investment, which are already familiar territory for governments. It has both ideological opponents, and recent converts keen to co-opt it into their existing policy views (see for example BEIS Committee 2017). It can therefore easily be turned into a new name for carrying on much as before.

This tendency should be resisted. For the IPPR Commission on Economic Justice – whose aim is to address the deep and longstanding weaknesses in the British economy that have led to our current troubled economic and political circumstances – industrial strategy offers a key instrument of policy reform. To do so, however, it must mark a break with previous economic policy. The focus of this discussion paper is therefore on the key elements of a new industrial strategy which can directly address the UK's core economic problems.

We have distilled our analysis, and divided the subsequent chapters, into the following five propositions.

1. **The aim of industrial strategy should be to promote structural change in the UK economy.** The patterns of investment and production which have developed over the last 30 years have failed to generate a geographically balanced economy able to deliver sufficient numbers of well-paying jobs, to enable the UK to pay its way in the world or respond to future challenges. Policy must therefore go well beyond correcting 'market failures'. Industrial strategy must be a more fundamental attempt to shift the volume and direction of private sector investment.
2. **Industrial strategy should integrate the improvement of the economy's supply side with the stimulation of demand.** Through a step change in public investment, and the identification of core 'missions' of public policy – notably to reduce the UK's environmental impact and to respond to demographic and technological change – industrial strategy should not only stimulate growth, but help steer its direction.
3. **The remit of industrial strategy needs to expand to focus on raising productivity in the 'everyday economy' of ordinary firms where most people are employed**. Raising aggregate productivity and median earnings requires greater support for workplace innovation, including the diffusion of new technologies, creation of better-skilled jobs and improvement in management practices.
4. **Innovation policy should aim to diversify the UK's base of exporting sectors and world-leading 'frontier' firms.** The emphasis of funding should shift from policies which primarily benefit existing sectors towards support for new technological specialisms, and seeking to build regional clusters around strong university–business relationships.
5. **Geographic rebalancing requires the creation of stronger regional institutions in England.** Effective industrial strategy requires the devolution of economic powers and fiscal resources in England to larger regional authorities.

1.
The aim of industrial strategy should be to promote structural change in the UK economy

What is 'industrial strategy', and why do we need one? It is interesting that much recent commentary on the subject, including the Government's own green paper, avoids any attempt to define the term. If it is to represent a new approach to economic policy, however, we need to do so.

Industrial strategy can be defined as the purpose-driven coordination by the state of its supply side economic policies. The 'supply side' refers to those elements of the economy that relate to productive capacity and the market conditions in which investment and production occur. Industrial strategy therefore encompasses a number of familiar policy areas, such as infrastructure,skills, research and development spending, land use planning, competition, business taxation, regional economic development and export promotion. All of these policy areas provide means by which the state seeks to raise business productivity and output by improving the conditions in which the private sector invests. But industrial *strategy* implies more than just the sum, or listing, of these policies. It must mean their overall *coordination*, aimed at a clear set of *objectives* or *purposes*.

This is a more difficult task than it might at first appear. Coordination can be hard enough: government tends to operate in silos, with different policies being undertaken by different departments – and even sections of departments – separately from one another. But it is the 'purpose-driven' part that is really difficult. This requires the adoption of a very clear set of long-term, cross-government goals that determine both the resources and powers which government applies to the problems it identifies, and how it prioritises their allocation. If industrial strategy is to be more than the sum of its individual policy parts, it has to have a very clear framework of objectives, and a mechanism for coordinating policy to achieve them.

IDENTIFYING THE PROBLEMS

The starting place for the definition of objectives is the identification of the problems they seek to address. To its great credit, the Government's green paper is candid about this. We need an industrial strategy, it acknowledges, because the British economy is seriously underperforming in key respects (BEIS 2017a). The IPPR Commission on Economic Justice has since laid out the evidence in some detail in its Interim Report, *Time for Change: A New Vision for the British Economy* (IPPR 2017).

Five aspects of the UK's economic underperformance are particularly relevant in the context of industrial strategy:

- productivity
- trade
- innovation
- geography
- environment.

Productivity

Output per hour worked in the UK is around 20 per cent less than in Germany, France or the US, and productivity growth has stalled since the financial crisis (BEIS 2017a). This is one of the principal reasons why average earnings in the UK are no higher now than in 2005, the longest period of earnings stagnation for 150 years. Since the financial crisis, earnings have 'decoupled' from per capita GDP growth for the first time in historically comparable records (IPPR 2017).

Trade

The UK's trade balance (exports minus imports) has been in deficit by 1.5 per cent of GDP or more since 2000, and has been averaging 2 per cent over the last four quarters (ONS 2017a). The dominance of the financial sector in our economy has kept the value of sterling at a level which has made it hard for manufacturing exporters to compete (Dolphin 2014). Manufacturing in the UK has declined faster and further than in other comparable advanced economies and the UK has a narrower range of exporting sectors than other major economies (ibid).

Innovation

The UK has one of the lowest rates of business spending on research and development (R&D) among all advanced economies, even after accounting for the UK's comparatively small share of manufacturing. The UK spends 1.7 per cent of GDP on R&D, compared with 2.8 per cent in the US, 2.9 per cent in Germany, and closer to 4 per cent in (for example) Japan and Finland (World Bank 2017a). We have strong technology-frontier companies, but in a relatively narrow range of sectors.

Geography

The UK has the most geographically unbalanced economy in Europe (IPPR 2017). Almost 40 per cent of all output in the UK now comes from London and the South East. Output per head in London is more than twice that of most of the rest of the country; in no other nation or region of the UK is productivity above the national average. Median incomes in the North West, West Midlands, South West and Wales are more than 30 per cent lower than in London and the South East; in Scotland, over 20 per cent.

Environment

The UK economy produces too much carbon and many of its other local and global environmental impacts, such as air quality and marine pollution, are unsustainable. Over the past quarter of a century the UK has 'uncoupled' greenhouse gas (GHG) emissions from economic growth, but we are not on track to meet the statutory 'carbon budgets' laid down by parliament under the Climate Change Act 2008, let alone the goal of more or less complete decarbonisation by mid-century adopted in the 2015 Paris Climate Agreement (CCC 2017).

STRUCTURAL CAUSES OF THE UK'S UNDERPERFORMANCE

To understand these dimensions of underperformance in the context of industrial strategy, it is important to recognise that none of them is a temporary or short-term phenomenon. All have been longstanding characteristics of the UK economy for at least the last 25 years, in some cases longer. They are in effect *structural* features of our economy: interconnected outcomes deeply embedded in the patterns of investment, output and economic policy which have developed over the last three decades or so (Jacobs et al 2016; IPPR 2017).

Our low productivity, for example, is a product of an investment rate which (as a proportion of GDP) has been consistently lower for a generation than those of our major comparator economies. There are a number of reasons for this. It is partly a result of the structure of our economy, in which manufacturing has declined more rapidly than in other economies. But it is also in part related to the priorities

of our banking and financial system and the particular structure of our equity trading sector and system of corporate governance. These tend to apply excessive pressures for short-term shareholder returns at the expense of investment in long-term innovation and growth. At the same time, the UK's uniquely deregulated and 'flexible' labour market has made it much easier for firms to take on cheap labour rather than invest in technological capital, human resources or R&D in ways that might improve productivity and earnings. The more rapid decline of manufacturing in the UK than elsewhere has left the UK's exports focused in a much narrower range of sectors than in other countries. It has also exacerbated an unbalanced distribution of investment between London and the South East and the rest of the country, not least in publicly funded infrastructure, a result almost certainly related to the highly centralised economic decision-making of the UK's governmental system. The UK's infrastructure – in power, heating and transport – has only recently begun to shift away from the high-carbon model of the Industrial Revolution.

The structural character of the UK's economic underperformance is critical, because it indicates that a much deeper reform of the UK economy and of policy is needed than has generally been understood in economic commentary – or been attempted over the last quarter of a century. Getting macroeconomic policy right is crucial: the failure to sustain economic demand over the last decade since the financial crisis has contributed to several of our underperformance problems, not least stagnant productivity (Wren-Lewis 2017). However, a serious improvement in the country's living standards and in our medium-term economic prospects can only be achieved if macroeconomic policy is accompanied by a more far-reaching policy programme that addresses these structural weaknesses.

OBJECTIVES OF INDUSTRIAL STRATEGY

This is what industrial strategy should be for. **The aim of industrial strategy should in effect be to change the structure of investment and production in the UK economy – its composition, direction and geography.** The ultimate goal should be to achieve a more innovative, sustainable and inclusive pattern of economic growth which generates decent jobs and rising incomes for average- and below-average-income households in all parts of the country.

Acknowledging that the goal of industrial strategy should be structural economic change has two important implications. First, it means that the strategy must be long term and done at scale. New businesses and sectors do not emerge overnight, nor are regions of the country quickly rejuvenated. The UK's economic weaknesses will take at least a decade to begin to repair, and in some aspects considerably more. Too often in the past, industrial strategy programmes (including in areas such as skills and infrastructure) have been started under one government and then abandoned by the next. Unless the current Government's industrial strategy is given serious resources and is evaluated in terms of long-term impact, it risks being set up for failure. We need a cross-party consensus on the importance of industrial strategy to overall economic performance and its role in economic policy; and it needs to have sustained resources over the long term.

Second, we need to get away from the rationale of 'market failure'. This is the justification given in orthodox economic theory for public intervention. It is widely accepted that free markets under-invest in public goods such as scientific research, skills and infrastructure where the benefits cannot be wholly captured by private actors, and where there are collective benefits from agglomeration and networks which individual firms may not generate on their own. Public policy measures in these areas can therefore be justified in orthodox economic theory.

However, market failure is too limiting a foundation for a modern industrial strategy (Mazzucato 2016). The problem with the British economy is not that it is

fundamentally sound apart from the provision of a few public goods. It is that it is not well structured to achieve the goals of sustainable economic growth and improvements in average living standards throughout the country. The cumulative impacts of the last 30 years of investment and economic development in the UK have generated sectoral, labour market and geographical outcomes which are not now able to meet our national needs. The aim of industrial strategy is therefore not to correct minor inefficiencies in resource allocation in otherwise well-functioning markets, as the theory of market failure would imply. It is to change the structure and balance of those markets: that is, to alter the form of the British economy. This requires changing its patterns of investment and output in fundamental ways.

Given the five structural weaknesses identified above, we can set out more specifically the objectives which should inform the UK's industrial strategy:

- **raising the level of productivity** in the economy as a whole, particularly in the many firms, sectors and regions that currently lag behind those in other developed economies, thereby enabling higher median earnings
- **increasing the diversity and level of UK exports**, particularly in world-leading sectors, and increasing the level of import substitution, in order to improve the UK's balance of trade
- **raising the rate of R&D throughout the UK economy**, and diversifying the range of firms at the technological frontier
- **stimulating economic growth and productivity improvement throughout the UK's nations and regions**, rebalancing the economy away from London and the South East
- **reducing the UK economy's environmental impact**, particularly through its almost full decarbonisation by around 2050.

Of course, there is no guarantee that government policies can change the structure of the British economy in these ways. 'Government failure' is as familiar as market failure (Rodrik 2008). But it is even more evident that leaving the economy in its current form will not achieve these goals. And there are some good reasons to believe that a well-designed industrial strategy may be able, over time, to succeed.

The first is that modern economic understanding of the relationships between public institutions and private businesses, based on the insights of evolutionary and institutional theory and systems approaches, is considerably more sophisticated than the old neoclassical market models. We have a much better understanding of the role of public policy in areas such as economic coordination, support for innovation (from R&D to diffusion), guiding missions and finance (Rodrik 2008, Mazzucato 2013).

The second, and related to this, is that structural industrial policy of this kind is now practised in a number of countries, and so there are lessons we can learn from elsewhere. Among developed countries, Japan, South Korea, Germany, France, the Netherlands, Denmark, Finland and Israel all offer interesting policy approaches (Warwick 2013), while China, too, has valuable experience on which we might draw (Andersen 2017).

Drawing on this theoretical and empirical evidence, the next four chapters of this discussion paper outline some of the ways in which the Government can develop the policies and institutions necessary to make progress on all five objectives.

2.
Industrial strategy should integrate the improvement of the economy's supply side with the stimulation of demand

We have defined industrial strategy as the purpose-driven coordination by the state of its supply side economic policies – those relating to the productive capacity of the economy and the market conditions in which investment and production occur. But improving the economy's supply side is not enough on its own.

USING INDUSTRIAL STRATEGY FOR INVESTMENT-LED GROWTH

Since the financial crisis the UK economy has suffered from deficient demand. Weak household consumption and private sector investment have been reinforced by a significant reduction in government spending, the consequence of fiscal austerity. For most of this period European and global growth has been sluggish – compounded, at least before the EU referendum in 2016, by an overvalued pound, further weakening effective demand for UK exports. Investment has been particularly low. Total investment in the UK economy (gross fixed capital formation) is now around 17 per cent of GDP, compared with 19 per cent in Germany and 23 per cent in France (World Bank 2017b).[1] Low investment has been both a result of demand deficiency – because firms are not confident that they will make sufficient returns from investment – and a contributor to it, since investment creates demand for a wide range of goods and services. This has been compounded by a sharp cut in public investment between 2010 and 2015, though this has been partially reversed since (OBR 2017).

If these macroeconomic conditions persist, the government's industrial strategy is likely to be seriously hindered. Businesses need confidence in future demand if they are to invest and grow: improving supply side conditions on their own cannot give them this. To be successful, the pursuit of industrial strategy therefore needs to be accompanied by a new macroeconomic outlook. As many commentators have argued, **there is a strong case now for the government to adopt an 'investment-led growth strategy', using a higher level of public sector investment to drive up private sector investment** (Griffith-Jones and Cozzi 2016, Zenghelis 2016). The government can currently borrow at under 1.5 per cent over 10 years, which in real terms constitutes a negative rate of interest. So funding a higher rate of government investment by increased borrowing is economically rational. Since well-chosen investment contributes to economic growth, it will pay for itself over time; and since it will raise future incomes, it is sensible for its cost to be borne by future taxpayers as well as current ones. More borrowing will of course increase public sector net debt, which is forecast to be under 90 per cent of GDP for 2017/18 (OBR 2017). However, central government debt in the UK is still below that of other developed economies such as the US, France and Japan (OECD 2017a). And it is easily financeable, as interest rates on UK gilts show. As investment raises the rate of growth, it will ultimately reduce the debt-to-GDP ratio, rather than increasing it. Debt has to be serviced, but at current interest rates the new debt

1 These measures of investment include the rising proportion which is made up of 'intangibles', such as R&D, software, design, training and organisational capital. There remain questions, however, as to whether these are being correctly valued. See Goodridge et al 2016 and Haskel and Westlake 2017.

taken on will be extremely inexpensive, making its value to growth even greater. Since real earnings are now declining, and the Bank of England has warned that household debt is now rising too fast, there are strong grounds to compensate through greater public investment.

These arguments have an important bearing on industrial strategy, not just because the latter needs a supportive macroeconomic environment in which to work, but because an effective industrial strategy can itself contribute to demand creation.

Of itself public spending is not the point of industrial strategy. The aim is to improve the UK's infrastructure, skills and innovation capacities, and to raise the rate of business investment and productivity. Most of the policy instruments used by industrial strategy are not forms of expenditure: they consist of various kinds of regulatory, planning, information and coordination services. The Government has already acknowledged, however, that public spending is also a crucial lever. Its 2016 autumn statement announced the creation of a new 'national productivity investment fund', with £23 billion of new spending on housing, infrastructure, R&D and regional development over the next five years. (It is unclear, however, why some spending in these areas is included in the fund and some is not. The Government's total planned spending in this area is given as £170 billion over the same period (HM Treasury 2016a)). Through the British Business Bank and Innovate UK, the Government has signalled a willingness to channel public investment not just into infrastructure, or into university-based research, but into growing and innovative businesses themselves (BEIS 2017b).

If such funding is scaled up to a significant level, industrial strategy becomes not just a supply side but a demand side policy too. It can make a significant contribution to the overall level of investment demand in the economy.

The size of demand injection the economy needs is open to debate; but we would propose that annual public investment spending should be increased by at least £20 billion by 2021/22. That would raise net public investment by just under half, equating to an additional 1 per cent of GDP (OBR 2017). This would take gross fixed capital formation in the public sector to approximately 3 per cent of GDP, which is the average level for OECD economies (IPPR analysis of OBR 2017, OECD 2017b). Of the additional £20 billion a year we would propose that at least £10 billion should be spent on industrial strategy, with the remainder on other public investment such as in health and education. This would increase total spending on infrastructure, housing, research and development and business co-investment by around a quarter (to an average of £42 billion a year for five years) over current plans (HM Treasury 2016a).

In the past public investment was often believed to 'crowd out' private investment. It was argued that it raised interest rates and took away profitable opportunities for the private sector. But today it is widely acknowledged that the reverse process – 'crowding in' – is much more likely to occur: when demand is deficient and borrowing costs low, public investment induces greater investment by the private sector (Griffith-Jones and Cozzi 2016).

Industrial strategy should be specifically used to do this. **Public spending on infrastructure, innovation and business growth should, wherever possible, be designed as 'co-investment' with the private sector, thereby further expanding the total level of investment in the economy.** This is now a familiar approach in infrastructure, where the European Investment Bank (EIB) and Green Investment Bank (GIB) have both pioneered co-investment, using specialist subject expertise and risk-sharing to leverage additional private capital where it would otherwise not have invested (EIB 2016, GIB 2016). Before its privatisation, the GIB achieved an average leverage ratio of almost 1:4 in public capital committed relative to private

finance unlocked (GIB 2016). In the field of innovation policy, Innovate UK's various funding models largely involve co-investment with the businesses whose research, development and demonstration it supports, and in some cases are explicitly attached to co-funding from venture capital and private equity funds (Innovate UK 2016; see also chapter 4 below). The British Business Bank similarly uses public funds to leverage private capital for small and medium-sized enterprises, focusing on start-up and scale-up businesses.

With the UK about to leave the European Investment Bank and the Green Investment Bank having been sold, there is indeed a strong case now for establishing a National Investment Bank, on the model of the highly successful KfW in Germany and comparable models in other countries (Griffith-Jones and Cozzi 2016, Mazzucato and Penna 2015).

Public investment banks have three key advantages. With restricted investment mandates they can develop the specialist expertise in their chosen fields which most private investors do not (Stirling and King 2017). They can therefore discover, help to develop and conduct due diligence on projects which the private sector would not, and in turn can crowd in private finance which would not otherwise flow. Second, the backing of government gives a public investment bank in normal circumstances a strong credit rating, allowing it to borrow more cheaply – and in turn lend on at lower cost – than other investors. Third, a public investment bank can cover some of the project risks which private investors are reluctant to cover, particularly policy risk. Where projects are dependent on stable government policy, notably in infrastructure, it is highly attractive to private investors to know that the government effectively has some financial 'skin in the game' which will make policy change less likely (OECD 2016a).

Operating in these ways, the KfW has played a major role in Germany's economic development since the second world war, and the European Investment Bank has played a comparable role across the EU as a whole since its foundation in 1958 (Mazzucato and Penna 2015). The UK's own Green Investment Bank was a notable success before its sale, lending £3.4 billion over four years into over 100 renewable energy and related projects, collectively worth £12 billion (GIB 2016). In the last three years, the GIB reported a forecast project level rate of return of around 10 per cent over the lifetime of its investments.

We would therefore argue for the experience of the GIB and the current institutional set-up of the British Business Bank to be used as the basis for a new National Investment Bank, with a mandate to invest in infrastructure, housing, innovation and business growth. In the medium term we recommend that much of the increased spending on industrial strategy we have proposed should be channelled through such a National Investment Bank – and in due course also through public regional banks (see chapter 5).

INTEGRATING DEMAND AND SUPPLY

Through public investment spending, industrial strategy can act on both the supply side and the demand side of the economy simultaneously. But it should do more than this. **Industrial strategy should have a specific focus on using demand to improve supply.** That is, it should explicitly aim to increase the output and employment impacts for the UK economy from government spending and policy.

Public spending in areas such as health, defence and public transport creates sizeable markets for goods and services, ranging from drugs and medical equipment to communication systems and trains. UK public procurement totalled £268 billion in 2015, around 14 per cent of GDP (BEIS 2017a). Public policy has the same effect. In fields such as energy, transport and housing, the direction of policy – for example, towards renewable energy sources, smart grids, non-polluting

vehicles and affordable homes – is itself a form of demand creation. New and innovative goods and services are required to implement such policies. The aim for industrial strategy should be to ensure that UK-based firms are as well placed as possible to supply them, so that as much as possible of the increased demand is spent within the UK economy.

For many years the orthodoxy in British public procurement policy was that it did not matter where goods and services were produced. They should be purchased simply at lowest cost, since that maximised the value obtained from resources. With the notable exception of defence procurement, EU state aid rules aimed at prohibiting domestic subsidies have been used to justify a 'free market' approach. In fact EU rules do permit certain forms of state aids, particularly in economically disadvantaged areas, and many other European states support domestic firms to compete for public business (LFIG/SSL 2015). The same has been true where policy has created new markets, particularly in infrastructure. A more explicit industrial strategy – and the need after Brexit to specify the UK's own state aid rules – offers the opportunity to change the way this is done here.

This is not a 'buy British' strategy. At the point of purchase, public procurement should always seek the best value in the market. The role of industrial strategy, rather, is to help UK-based businesses put themselves in the best possible position to supply the goods and services required to meet the demand created by public spending and policy. It is then possible – and this is true even within EU rules, as most other EU countries have demonstrated – to use the concepts of 'best' or 'social value' to ensure that wider criteria, such as domestic employment impacts, are included in the specification of contracts (ibid).

An example of integrating demand and supply in this way serves to illustrate. In 2009–10, following the passage of the Climate Change Act 2008, the last Labour Government shifted energy policy significantly towards renewables, including a commitment to a major increase in offshore wind power over the following decade. It was clear that this would lead to a huge demand for wind turbines and associated goods and services; but at the time there were no offshore wind turbine manufacturers located in the UK. So as part of its embryonic 'low carbon industrial strategy' the then Government began an active process of attracting overseas manufacturers to the UK, making available land and port capacity on the North Sea coast, investing in research and development capacity, improving workforce skills and helping other UK companies invest to enter the value (supply) chain. The strategy was maintained by the Coalition Government, and the UK now has nine wind turbine manufacturing and assembly plants, supplying not only the UK but the expanding European offshore wind market, with a wider supply industry estimated to employ around 13,000 people (Renewable UK 2016).

Such use of industrial strategy to help British-based businesses meet the demand created by public spending and policy has wide application. It requires the conscious integration of public policymaking in key departments which create significant business demand – notably in health, social care, housing, energy, transport, environment and defence – with the industrial strategy support policies of the business department. A systematic examination of the areas in which public policymaking and procurement will create future demand should be matched by an assessment of how far UK-based industries are in a position to meet such demand. From this, support policies (in innovation, skills, inward investment, finance and business development) should be identified that can help develop leading-edge competitors and integrated value chains. Innovation is the key to this: it is through the development of better and cheaper means of meeting demand that suppliers win new business.

The Coalition Government made a start in this area with the creation of the Small Business Research Initiative (SBRI) scheme to link innovative small and medium-sized firms with government departments and public bodies seeking new products and solutions for public policy problems.[2] The scheme has so far remained small, disbursing around £50 million in 2016, and is currently under review, but the potential here is significant. The US Small Business Innovation Research (SBIR) programme, on which the SBRI was originally modelled, has played a leading role in the commercialisation of research and development across a range of technologies, and now disburses around $2.5 billion in annual contracts.[3] There is scope for a far more systematic coordination of industrial strategy with policy and procurement by government departments and public bodies in the UK.

MISSIONS

Industrial strategy should be systematically coordinated with policy and procurement across all relevant fields of government. However, there should be a specific drive to integrate demand and supply in industrial strategy through the use of 'missions'. Mariana Mazzucato has argued that some of the most successful government innovation strategies around the world have been 'mission-oriented', focused on solving major societal and technological challenges (Mazzucato 2013, 2017). The Kennedy-era mission of landing a man on the moon provides a useful archetype. Quoting Andy Stirling, she points out that growth does not just have a rate, but a *direction*. It is possible for government not just to increase investment and stimulate growth of GDP in general, but to do so in fields which will generate specific forms of public value (ibid).

Three such fields offer particular potential today. In its interim report *Time for Change*, the IPPR Commission on Economic Justice identifies the major challenges of the 2020s that the UK economy must confront. These include environmental degradation, demographic change (the UK's growing and ageing population) and the technological advances of the digital economy. These are in practice 'directions' down which the economy is already heading: the question the country faces is whether they can be turned from challenges into economic opportunities. To make this happen, **we propose that each of these economic opportunities should be made a guiding mission of industrial strategy**. In each case there would be sub-missions beneath the overarching area heading along the following lines.

Green growth (the mission: to reduce the UK's environmental footprint to levels consistent with global sustainability by 2040)

- decarbonisation
- the circular economy
- sustainable natural capital.

Responding to demographic change (the mission: to make the UK's population the healthiest and best cared for in the world by 2040)

- chronic health conditions (new medicines, therapies and pathways)
- social care (new kinds of social care and self-care technologies).

Accelerating the digital economy (the mission: to make the UK the most digitally advanced society in the world by 2040)

- automation (creating good jobs alongside intelligent machines)
- advanced and additive manufacturing (bespoke production)
- digital SMEs (widespread adoption of existing digital technologies).

2 See https://sbri.innovateuk.org/
3 See https://www.sbir.gov/

Each mission or sub-mission would be implemented through three steps: on the demand side, the establishment of a long-run goal and a broad plan for meeting it; on the supply side, a set of support policies and associated spending. We can use the decarbonisation sub-mission to illustrate how this might work, since the framework is already largely in place in this field.

First, government needs to signal its long-term ambition of meeting the social and technological challenge. This can most easily be done by setting a long-term objective. The Climate Change Act 2008 sets a statutory long-term goal of reducing UK greenhouse gas emissions by at least 80 per cent (on 1990 levels) by 2050. There are good arguments for this target to be strengthened in the light of the 2015 Paris Climate Agreement, which commits the world to the long-term goal of zero net emissions in the second half of the century. ('Net' emissions allows for some emissions to be sequestered, in either biological or geological stores.) Even as things stand, however, this goal sets a clear direction of travel over the next three decades. The Act then requires it to be implemented through the adoption every five years of intermediate targets ('carbon budgets' setting a limit on total emissions in five-year periods) set 15 years ahead. These intermediate targets ensure that the long-term goal is not just a vague aspiration but has a clear pathway of emissions reductions to achieve it.

These targets are demand-creating. To meet them, a wide variety of new technologies, production methods and consumption patterns will need to be introduced and adopted across the economy, ranging from renewable power sources to energy efficient buildings, car sharing businesses to new industrial materials. Merely by setting the long-term and intermediate targets, government is identifying where markets are likely to be created; but it can be more specific than this. The second component of the mission needs to be a broad plan for how the targets are likely to be achieved. The Climate Change Act establishes this too, requiring government to produce a plan for how it will meet the carbon budgets it is required to set. The government's plans – the most recent version, covering the period to 2032, was published in October 2017 – set out the expected emissions reductions in each of the major sectors and fields where emissions occur: power, heat, buildings, transport, industry, agriculture (BEIS 2017c). Moreover, it identifies the policy framework which will incentivise, encourage and in some cases require those reductions to be made.

The economic impact of the Government's Clean Growth Strategy is very significant. It effectively tells businesses and investors where there are going to be present and future markets, and their likely size. As such it strongly incentivises companies to invest in productive techniques and goods and services that can meet this demand, and in innovation to meet them more cheaply or in new ways altogether. Furthermore, it considerably reduces the risk in doing so, since there is much greater certainty of future demand than would otherwise exist. As Keynes noted, this ability to reduce risk by demand creation, thereby inducing greater private sector investment, is a key function of government (Jacobs and Mazzucato 2016).

Third, the government needs to establish a supply side strategy to support UK-based businesses to meet that demand – across all of the areas identified in the plan – with a particular focus on those where the UK has some kind of initial advantage or areas of expertise, whether industrial or academic or both. This should cover the full range of supply side policies, with a particular emphasis on supporting innovation – across a range of technological solutions – and the strengthening of domestic value chains. The 'mission' should become a strong organising focus both for BEIS and for its agencies, notably UK Research and Innovation, and the National Investment Bank. (In the case of Innovate UK, it already has a focus on some parts of the three fields we argue should form

government missions, but arguably not all.) **We propose that a significant part of increased industrial strategy spending should be directed towards these missions.**

The Climate Change Act provides a valuable demand side framework for decarbonisation, providing a long-term goal and requiring government to set out, and to renew every five years, a plan for meeting it. There is a good case for establishing a comparable framework for the rest of the green growth mission, and for the other two missions we propose. By setting clear long-term goals for the problems the mission seeks to solve, and then broad plans on how they will be met, government can create demand and reduce risk. With the addition of appropriate support policies, it can thereby stimulate and crowd in private sector investment and innovation. In the field of health and life sciences, some of this already exists; but it is not comprehensive, and in social care and the digital economy, government demand side plans do not exist at all. **We propose the creation of specialist units within BEIS or the Cabinet Office for each mission, coordinating demand and supply side policies with the relevant departments of government and public agencies.**

A NEW LEGAL FRAMEWORK

The use of industrial strategy to integrate demand and supply will require a new set of UK state aid rules to replace those of the EU following Brexit. Industrial strategy necessarily involves support by government for UK-based businesses in order to support innovation and strengthen domestic value chains. However, this must not end up simply as a set of subsidies for the sectors and firms able to lobby hardest. There must be clear rules and criteria under which such support is provided, and systematic evaluation of outcomes, including value for money. Most if not all co-investment should be provided through arms-length agencies, including Innovate UK and a National Investment Bank, to ensure independence from individual ministers, and firms should have to compete for support. At the same time there is a strong case for an independent oversight body to evaluate the impact of industrial strategy against a series of agreed metrics, and to report on this to parliament. The Office for Budget Responsibility and the Climate Change Committee provide examples of such bodies; by being independent of government with a statutory function of assessment and reporting they give confidence that government is not acting as its own 'judge and jury'. The Climate Change Committee has a membership of experts in a range of relevant fields from across society and has established a reputation for high-quality analysis and robust independence; it provides a particularly valuable model.

This suggests a strong case for creating a new legal framework for industrial strategy (LSE Growth Commission 2017). **We recommend that government brings forward legislative proposals for an Industrial Strategy Act setting out clear goals and criteria for government action and funding, including for the establishment of focusing missions and a new National Investment Bank, the new organisation Productivity UK we propose in chapter 3, and an independent Committee on Industrial Strategy.** It is vital that government is transparent and accountable in the decisions and spending it makes.

3.
The scope of industrial strategy needs to be expanded to focus on raising productivity in the 'everyday economy' of ordinary firms where most people are employed

It is now commonly accepted that a key goal of industrial strategy is to raise productivity. Only a return to the economy's historic trend of annually rising aggregate productivity will sustain higher real earnings. However, it has been less widely understood that this can only be achieved if the scope of industrial strategy is expanded from its traditional fields.

THE UK'S PRODUCTIVITY PROBLEM

The UK does not have a productivity problem among its leading firms and sectors. Among the top 5 per cent of firms (measured by GVA per worker), productivity has not been stagnant, but has been rising since 2011 (Haldane 2017). Indeed the top 1 per cent of UK firms have seen average productivity growth of around 6 per cent a year since 2002, which is as high as in any leading industrial country. Unsurprisingly, the leading productivity firms tend to be those that export, and those that innovate in new products and processes – precisely those on which industrial strategy has generally focused (ibid). **The UK's productivity problem does not lie with the best, but with the rest.** It is among the 95 per cent of firms in the rest of the economy that productivity has stalled.

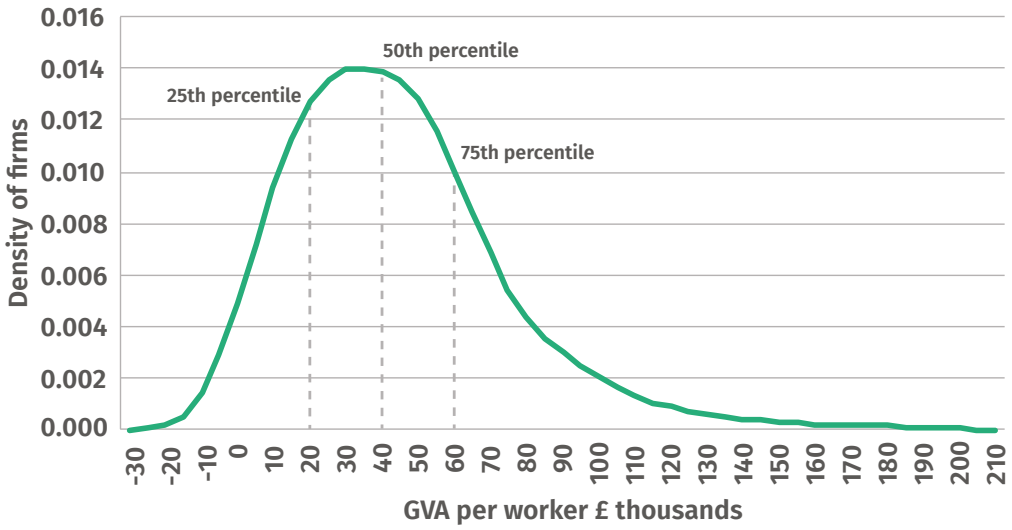
Raising aggregate productivity growth, and closing the UK's productivity gap with competitors, will therefore require a focus, not just on 'frontier' sectors engaged in innovation and exports (though it must also do this), but in what Haldane describes as the 'long tail' of low-productivity firms in low-productivity sectors, including service sectors, which predominate in the rest of the economy (ibid).

This is particularly important if the aim is to raise average earnings. Of all jobs in the economy, just under 60 per cent take place at firms where levels of output per employee are below the UK average (see figure 3.1). In fact around one-third of all hours worked in the economy take place in just five low-productivity sectors – retail and wholesale trade; administrative and support services; tourism, hospitality and food services; entertainment and recreation; and agriculture, forestry and fishing (Thompson et al 2016). So to raise wages across the economy as a whole, productivity has to rise in these sectors. To give a simple comparison: while around 90,000 people are employed in aerospace manufacturing industries, around 4.9 million people work in wholesale and retail services (ONS 2017b).

FIGURE 3.1

In the UK 59 per cent of all employment happens in the low-productivity sectors

The distribution of firm-level productivity for the non-financial business economy, 2014



Source: Office for National Statistics, 'Regional firm-level productivity analysis' (ONS 2017b)

These sectors, and others like them – including social care, food and drink and light manufacturing – may be described as the 'everyday economy': they produce the unexceptional goods and services that households and businesses use all the time, and which make up a large proportion of the mundane transactions of economic life. They consist in most cases of thousands of 'ordinary', non-frontier businesses and public sector institutions, located in every nation and region of the country, and employing around 40 per cent of the workforce. The Centre for Research on Socio-Cultural Change (CRESC) at Manchester University describes these sectors as the 'foundational economy' (Bentham et al 2013). The everyday or foundational economy operates in markets where international competition and offshoring is limited, due either to the localised delivery of goods and services or to semi-monopoly conditions, including those, such as in health, social care and education, that are paid for through public spending. The everyday economy is where the vast majority of low-productivity and low-wage firms are found.

Productivity is measured as the value of output per hour of labour worked. It will therefore never be as high in the everyday economy, particularly in labour-intensive service sectors, as in capital-intensive manufacturing. This is a critical reason why increasing the share of manufacturing in the economy remains an important objective. But this does not mean that it cannot be raised in such sectors. Indeed one of the most significant findings of recent analysis of productivity in the UK is the wide dispersion of productivity rates between different firms in the same sectors (Haldane 2017). Around a third of the UK's average productivity gap with our nearest European competitors (France, Germany, Belgium and the Netherlands), for example, is accounted for not by the different industrial structures of these economies, but by the lower productivity of UK firms *within* the same lower-paid sectors (Thompson et al 2016).

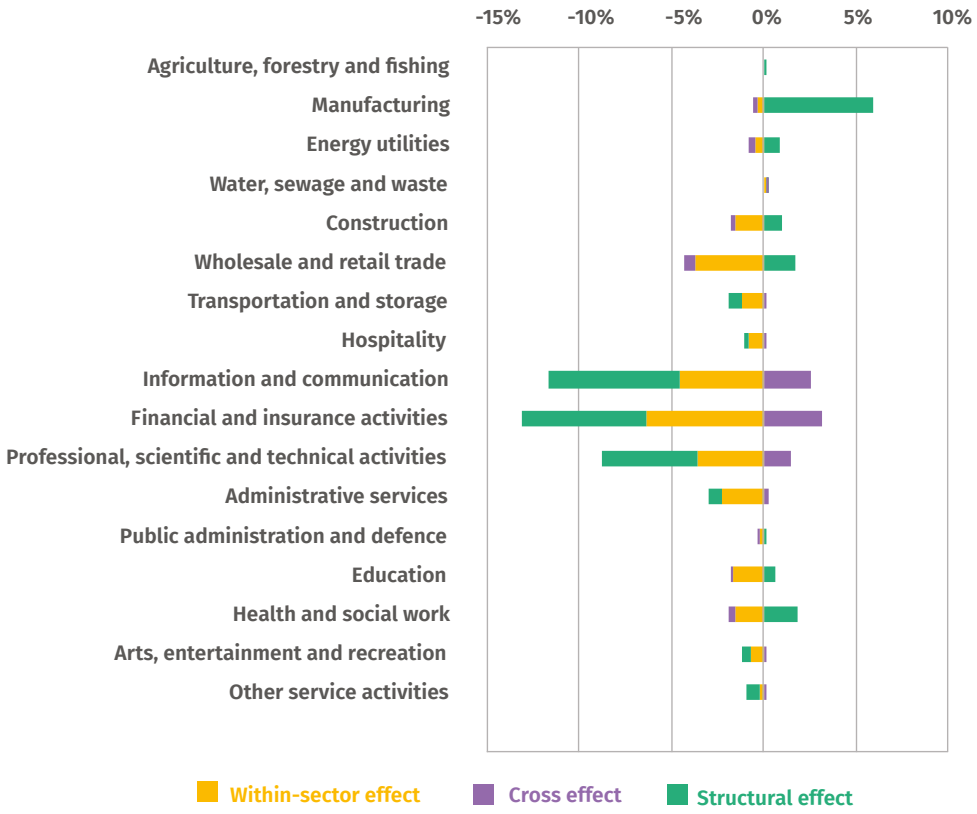
New analysis for this discussion paper shows that this 'within-sector effect' is also the main reason why the UK has such large geographic variations in productivity. Productivity in London and the South East is on average 32 per cent higher than in the rest of the country (ONS 2017c). Although there are significant 'structural

effects' between different regions, many of these go in opposite directions. For example, higher concentrations of financial services raise productivity levels in London and the South East, but these are partially offset by lower levels of manufacturing. As a result, only around a third of the regional productivity gap is explained by the structural composition of different regional economies, with the remainder accounted for by lower productivity within otherwise similar sectors (see figure 3.2).

FIGURE 3.2

The overall difference in productivity between the South East and the rest of the country is overwhelmingly due to the gap within sectors

Contribution of each sector, by effect, to the productivity gap between London and the South East and all other UK regions



Source: IPPR calculations using ONS, 'Regional Gross Value Added (Income Approach)' (ONS 2016) and ONS, 'Annual Survey of Hours and Earnings' (ONS 2015)
Notes: The 'within-sector' effect measures the difference in productivity between firms in the same sectors. The 'structural effect' measures the difference arising from the different composition of sectors in the economy. The 'cross effect' measures the interaction between these, or spillovers of the others.
Data excludes the following sectors: mining and quarrying and activities of households due to missing data, and real estate, where land values dominate productivity levels, making it a significant outlier.

PRODUCTIVITY AND INNOVATION

Industrial strategy has not previously focused on raising productivity in low-productivity sectors, as the Government's green paper confirms, if only by omission (BEIS 2017a). It has been targeted almost exclusively on sectors at the frontier of technological innovation and global markets. In practice, therefore, whatever the rhetoric, it has not really been focused on raising aggregate productivity at all. This does not mean that a focus on frontier sectors is wrong – as we argued in chapter 1, industrial strategy should also aim to raise the levels of

R&D and of exports in the UK economy. However, it does highlight that this limited scope is inadequate to address the UK's productivity problem.

The dispersion of productivity performance within sectors suggests a clear opportunity to get the weakest firms closer to those of the current average or better. Why has industrial strategy not focused on the sectors where productivity is lowest? Part of the answer, clearly, is that it is much easier to identify and to work with frontier sectors and firms: there are far fewer of them, they are more easily identified, they are (by definition) more entrepreneurial and dynamic, and they are more likely to lobby for, and be able to use, policy support.

Part of the answer, however, also lies in a misunderstanding of the relationship between innovation and productivity. Frontier firms are 'innovation makers', developing new technologies, techniques and products. Their innovations not only improve their own productivity; much more importantly, they improve the productivity of the businesses to which they sell their new products. However, the vast majority of firms are 'innovation takers'. They do not, largely, develop innovations themselves, but improve their productivity by adopting the innovations developed by others – the capital equipment, software and production techniques created by frontier firms. It is through this adoption of others' innovations by ordinary businesses that productivity rises in most of the economy. The innovations developed by frontier companies are critical, of course – though they do not have to be developed by UK-based ones. But it is the rate of 'innovation diffusion' throughout the rest of the economy that largely determines the overall productivity rate.

And in turn, it is the stalling of diffusion, rather than the stifling of innovation, that accounts for the UK's productivity problem (Haldane 2017). Interestingly, while the UK has a particularly poor productivity record, this general phenomenon is observed across the developed world. There is no observable slowdown in innovation in global frontier companies, but everywhere there is an increasing productivity gap between such companies and the majority of ordinary firms (Andrews et al 2015).

It is important to recognise that innovation diffusion does not just mean the adoption of new technologies. The OECD defines four distinct forms of innovation (OECD/Eurostat 2005). As well as through technological innovations in production processes and in products, businesses can innovate in their organisation (the way they configure their production processes, job design, staff relations and supply chains); and in their marketing (packaging, pricing, promotion). These non-technological forms of innovation can in many cases generate productivity improvements just as great as, or larger than, technological kinds. They are particularly important in service sectors where physical capital is less critical. Pot and Vaas (2008) estimate that in some sectors only 25 per cent of innovation success is derived from technological innovations, while 75 per cent is explained by organisational innovations.

The reasons why different countries, sectors and firms have different rates of diffusion of innovation has been inadequately studied, particularly by governments. Neoclassical economic theory assumes that diffusion will happen 'naturally', as market competition rewards those firms that adopt new techniques and thereby improve their productivity, and punishes those that do not. This is not what appears to happen in real markets, however, where low-productivity firms are able to survive much longer than such theory would predict. This is particularly true in domestically-oriented industries, including many service sectors, where there is little competition from imports and most other firms are of similar kinds. In the decade since the financial crisis, a combination of very low interest rates and highly flexible labour markets (which allow workers to be deployed and stood

down with almost no overhead cost) have enabled many such firms to continue in business where in previous eras they might have been forced out of the market. This is the phenomenon some have described as the prevalence of 'zombie companies' (McGowan et al 2017).

One option in this context is clearly to regulate the labour market more tightly. Over the last few years there has been a gradual increase in the real minimum wage, and the evidence suggests that this has forced firms to raise productivity in response: only by doing so can they afford the higher wages they are required to pay (NIESR 2015). By gradually raising the minimum wage further over time, government can keep putting pressure on firms to improve productivity. It is widely recognised that reforms to employment practices in the 'gig economy' are also needed (Taylor 2017).

Government may also be able to boost competition as a means of raising low rates of innovation diffusion in low-productivity sectors. In some cases this is clearly already happening – for example, the entry into the UK market of German discounters Aldi and Lidl has forced the incumbent supermarket businesses to look again at their business models and technologies in an attempt to improve their own productivity (Pike et al 2017). The growth of online retailers has had a similar effect in other fields. There are clearly deficiencies in competition in some other sectors, such as retail energy, which governments can seek to fix through regulatory policy; but in many low-productivity sectors a more direct approach looks likely to yield better results. Government can provide direct support to businesses to raise their productivity and enable them in so doing to out-compete those that do not.

Our argument then is **that the scope of industrial strategy should be expanded beyond its current focus, to include the raising of productivity in the everyday economy where the problem of low productivity and low wages primarily lies**. To do this, however, we need to understand why productivity in these sectors and firms is so low.

THE DRIVERS OF FIRM-LEVEL PRODUCTIVITY

Much of the policy debate around productivity focuses on 'exogenous' drivers: the quality of transport and broadband infrastructure, the education and skills of the labour force, planning and competition regimes. Although important, these drivers are insufficient to explain the wide variation in firm-level productivity across sectors and regions, since both high- and low-productivity firms face the same exogenous conditions. In fact, drawing on the pioneering work of Bloom and Van Reenen (2007), there is a growing body of evidence that diversity in the way businesses are managed is the main factor explaining large and persistent differences in firm-level productivity performance. Our analysis suggests three key 'endogenous' weaknesses in many British firms: poor management, slow adoption of digital technologies, and inadequate demand for skills.

The quality of management

Over recent years academic attempts to understand and to assess the quality of business management have made considerable advances. The World Management Survey covers 11,000 manufacturing firms in 35 countries, along with smaller surveys in the service sectors of retail, schools and hospitals (WMS 2017a, 2017b). It measures three management qualities, identifying firm performance on a scale from 1 (worst practice) to 5 (best practice).

- Monitoring: how well do organisations monitor what goes on inside the firm, and use this information for continuous improvement?
- Target setting: do organisations set the right targets, track the right outcomes, and take appropriate action if the two are inconsistent?

- Incentives and people management: are organisations promoting and rewarding employees based on performance, prioritising careful hiring, and trying to keep their best employees?

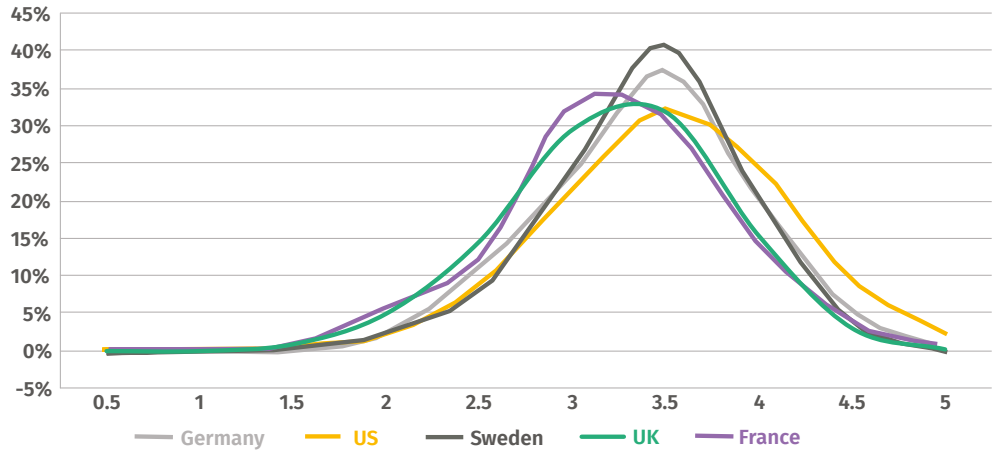
The WMS studies reveal that better management practices are strongly associated with higher firm-level productivity, profitability and survival. They also show that the distribution of good management varies considerably across countries and between sectors.

In comparison to other countries, the UK performs particularly poorly on management quality. In the manufacturing sector, UK firms have an average management rating of 3.0, putting the UK behind the USA (3.3), Germany (3.2), Sweden (3.2), Japan (3.2) and Canada (3.1). Figure 3.3 shows the distribution of management scores in UK manufacturing firms compared to other similar economies. The UK has a greater proportion of businesses with weaker management, and fewer well-managed firms. There is less data available for service sectors, but in the retail sector, for example, the evidence suggests a similar pattern: the mean of the distribution is further left in the UK than in the US (see figure 3.4).

FIGURE 3.3

The UK has a greater proportion of manufacturing businesses with weaker management, and fewer well-managed firms than other countries

Comparison of management scores in the manufacturing sector between Britain and the US, Germany, Sweden and France, 2004–2014

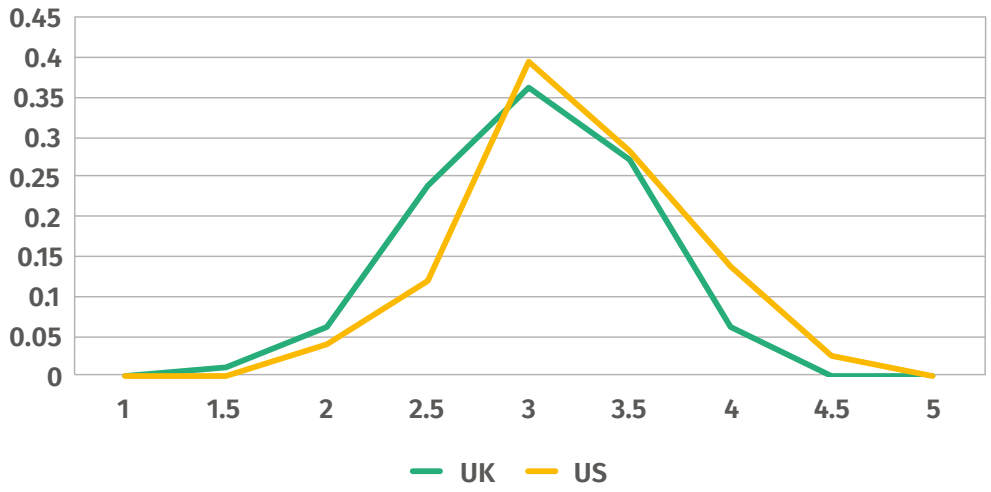


Source: World Management Survey, 'Manufacturing: 2004-2014 combined survey data (JEEA 2014)' (WMS 2017a)

FIGURE 3.4

The UK has a greater proportion of retail businesses with weaker management, and fewer well-managed firms than the US

Comparison of management scores in the retail sector between Britain and the US, 2004–2010



Source: World Management Survey, 'Manufacturing: 2004-2014 combined survey data (AMP)' (WMS 2017b)

Three principal factors appear to determine the quality of management (Bloom et al 2014). First, competition matters. Firms facing strong competition tend to have higher management scores than those relatively sheltered from it: unsurprisingly, since such competition will tend to cause poorly managed firms to exit the market, while survivors are incentivised to improve. Second, different ownership and governance structures are associated with different management performance: family-run firms (which tend to choose the eldest child to inherit, rather than more objective mechanisms, and are more prevalent in the UK than in, say, the US or Sweden) tend to have weaker management than other types of firm. Third, higher management quality is associated with the level of information which managers have about their own businesses and about the techniques and methods used by others. The more and better analysable the information, the better the management.

The quality of business management is a complex issue, with national and firm characteristics determined by multiple factors. However, it is notable that, while the UK has a number of top-tier business schools, business education and management training are not offered at anything like the scale of many comparable countries. The problem is particularly acute in middle management tiers where there are few qualifications that command the respect of employers. Poor management in turn is a cause of the other two key weaknesses in many low-productivity firms.

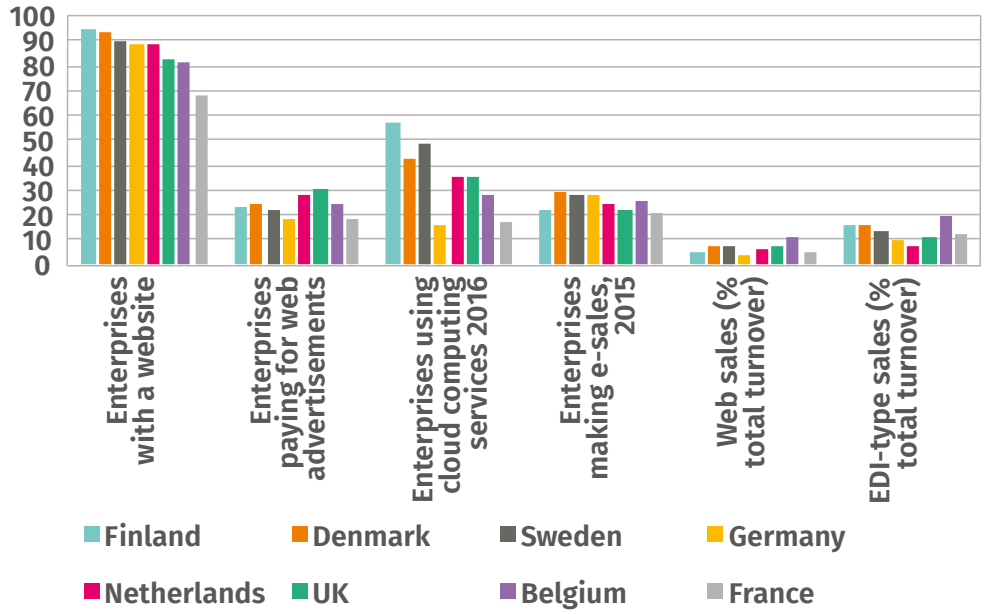
Digital technology adoption

In most sectors, digitalisation in one form or another has the potential to raise firm-level productivity. In some cases this is simply about doing business online as well as in person: the evidence suggests that small and medium-sized enterprises (SMEs) with a strong web presence grow more than twice as quickly as those with minimal or no presence, and create more than twice the number of jobs (Young 2013). As the Government's review of digital industrial strategy has clearly shown, in most sectors digital technologies have huge potential to improve firm efficiency right across the production and distribution process, from the management of supply chains to marketing intelligence (BEIS 2017d).

It is hard to measure the pace at which firms are adopting technological innovations, but it is clear that there is a large degree of firm-level variation. The international evidence shows that on key measures of digital adoption the UK lags behind most other advanced European countries. Fewer UK enterprises have a website than in the Nordic countries, Germany and the Netherlands, and UK firms lag behind their EU competitors in using cloud computing and making e-sales (see figure 3.5). Both supply and demand side factors are involved. On the supply side, the UK has widely variable access to super-fast broadband, with businesses in London, for example, more than twice as likely as businesses in Yorkshire to have access (Cox and Longlands 2016). On the demand side, management awareness and low workforce skills appear to be the main reasons for the slow adoption of digital technologies.

FIGURE 3.5

UK firms lag behind EU competitors in adopting digital technologies
Technology adoption in selected EU countries, 2016 or latest year available



Source: Eurostat, 'Digital economy and society statistics – enterprises' (Eurostat 2017)

Skills utilisation

It is now widely understood that the UK has a skills problem (BEIS 2017a). However, it is generally assumed that this is about the *supply* of skills. It is indeed true that the combination of school and further education and employer-based training is in many sectors not generating the skills the economy needs. Skills policy has therefore focused on improving supply, seeking to match the skills of young people and existing workers to the level of employer demand (ibid).

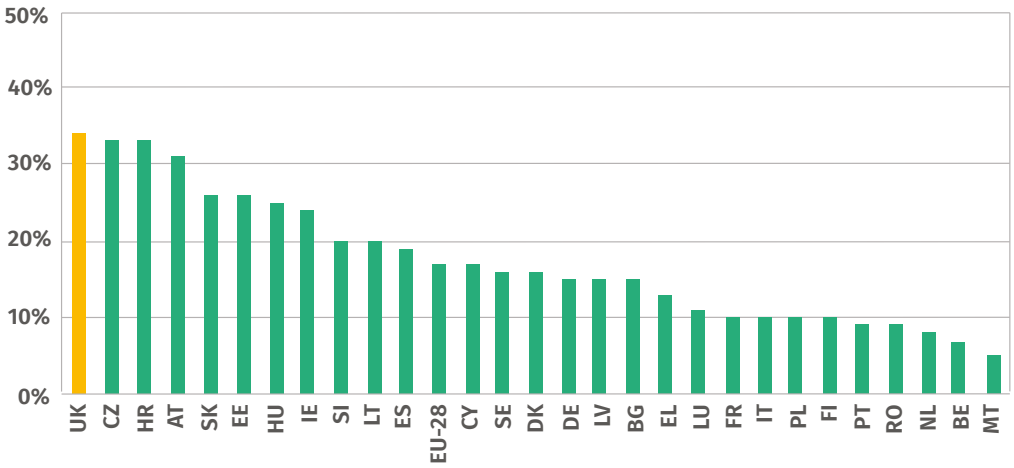
However, as IPPR research has shown, the UK also has a skills *demand* problem (Dromey and McNeil 2017). Many businesses are not seeking the skills they need if they are to improve their productivity, and not using the ones they already have. Fully 39 per cent of businesses surveyed in the UK Employer Skills Survey, for example, reported having employees with more advanced qualifications than needed for their current role (UKCES 2016). In a cross-European comparison, the European Centre for the Development of Vocational Training (CEDEFOP) found that

one-third of adult employees in the UK are over-qualified for their job, the highest proportion in the EU-28 (see figure 3.6).

FIGURE 3.6

The UK has the highest proportion of over-qualified employees in the EU-28

The incidence of adult employees who are over-qualified for their current job, EU-28, 2014



Source: Reproduced from CEDEFOP, *Skills, Qualifications and Jobs in the EU* (CEDEFOP 2015)

In the UKCES study, one-third of employers in the UK said they had offered no training at all in the last 12 months (UKCES 2016). By far the biggest reason given to explain this was that staff are 'already proficient in their roles'. Other reasons, including the cost of training, were cited by fewer than 7 per cent of employers. This suggests that the problem in many cases lies more in a failure of demand than a lack of supply (Dromey and McNeil 2017).

Internationally, the issue of skills utilisation has become more widely recognised in recent years. In particular, there has been an increasing focus on the concept of job *quality* as well as quantity (Findlay et al 2017).[4] The configuration of tasks and routines which make up an individual 'job' is not preordained or self-evident: many jobs are effectively designed through custom and practice rather than conscious decision. In rethinking how tasks are put together to create individual jobs there is significant potential to improve productivity. Raising the quality of jobs through better design is a crucial but underused method of organisational innovation. It has the potential not just to raise productivity but job satisfaction, particularly by giving workers greater autonomy and variety in their work, and by offering opportunities for skills development and career progression. Unsurprisingly, higher levels of job satisfaction are frequently associated with higher productivity (Ton 2014).

In her pioneering work on better job design, Zeynep Ton cites several examples from the retail sector. Traditionally, retail jobs have tended to require very low skill levels because job roles cover only discrete tasks. Redesigning jobs so that they use a range of skills and allow workers to develop new ones means that employees can work in any part of the store on the most pressing tasks, allowing them to solve problems by themselves. In turn, this supports greater staff retention, better

4 In 2015 the governments of the 20 most advanced economies, including the UK, (the G20) signed the Ankara Declaration, which explicitly recognises 'the importance of job quality, committing its governments to strengthen job quality as a route to achieving strong, sustainable and balanced economic growth that might also deliver inclusiveness and improved living standards' (Findlay et al 2017).

customer experiences, increased business turnover, and the potential for higher pay. Ton shows that 'human-centred' job design and associated organisational innovations can be successful even in low-margin sectors like supermarkets (ibid).

'Good jobs'

Ton's and similar studies have stimulated increasing interest in the idea of 'good jobs' or 'good work' as a means of increasing firm-level productivity and earnings (Taylor 2017). Table 3.1 sets out a series of criteria to define a 'good job'. Not every job can have all these qualities, but there is increasing evidence that businesses designing jobs in these broad ways are likely to achieve much stronger utilisation of their workers' skills and to achieve higher productivity, not least through greater job satisfaction. In their studies of this field Erhel and Guergoat-Larivière (2016) show the strong correlation between innovation and job quality across a variety of countries and industries: those with high innovation have high job quality, while those with low innovation have lower job quality. They describe the relationship between good jobs and workplace innovation as a virtuous cycle, with the design of better jobs improving staff motivation and development opportunities, leading to stronger staff retention and engagement and greater employee-led innovation, which in turn leads to better job quality in the form of higher pay and greater job satisfaction. Conversely, 'bad jobs' – those which lack the features listed in table 3.1 – are associated with higher staff turnover rates, additional recruitment and retraining costs and lower productivity for employers, as well as suppressed earnings, poor job satisfaction, poor health and insecurity for employees.

A number of countries are now explicitly promoting job quality as a means of raising productivity, including Finland, Sweden, Australia, New Zealand and Scotland. In Scotland a Fair Work Convention (FWC) – a voluntary partnership between government, businesses and trade unions – was established in 2015 to promote better job design. The FWC is now working with a number of businesses and public sector organisations to improve job quality, with the aim of raising both productivity and earnings (Fair Work Convention 2017).

TABLE 3.1

Four dimensions of job quality

Task factors	• Pace • Skills • Autonomy • Challenge • Discretion • Ability to make a difference • Physical working conditions • Health and safety • Training and opportunities for development
Employment factors	• Pay and opportunities for pay progression • Job and employment security • Benefits (such as sick pay and pension arrangements) • Hours of work • Work–life balance
Relational factors	• Perceptions of fair treatment • Perceptions of trust • Confidence in ability of colleagues and managers • Confidence in integrity of colleagues and managers • Perceptions of mutual respect
Governance factors	• Opportunities for voice, involvement and participation • Due process • Procedural justice

Source: Findlay P, 'Submission from Professor Patricia Findlay: Job quality' (Findlay 2016)'

INDUSTRIAL STRATEGY FOR THE EVERYDAY ECONOMY

Raising aggregate productivity in the UK economy will not be easy. Increasing general demand through greater public investment will help: firms are more likely to invest in new technologies and new forms of organisation if they are more confident in future demand for their products. Reaching the many thousands of small and medium-sized enterprises that make up the 'everyday economy' in low-productivity and low-wage sectors will, however, require a far more concerted effort on the part of government than has hitherto been attempted. It will need to focus on each of the firm-level drivers of poor performance we have identified: weak management, slow take-up of digital technologies and poor skills utilisation. As part of this, a focus on the promotion of 'good jobs' can act as a powerful organising principle.

Productivity UK

We propose that a new national body, Productivity UK, should be established to take forward this agenda. (The name would match that of the other principal national agency in the industrial strategy field, Innovate UK). This would be a partnership body governed by a council including representatives of government, businesses, trade unions, public sector enterprises, the further education sector and academic business schools. Its remit would be to drive higher firm-level productivity across the economy, by providing advisory and support services and where appropriate direct grants and loans to businesses to enable them to invest in technological, organisational and marketing innovation (particularly, but not only, in digital technologies), improved job design and both management and workforce training.

Such services would need to be delivered both geographically and sectorally. So we would see Productivity UK in Scotland, Wales and Northern Ireland working through the devolved governments; and in England through local economic partnerships (LEPs) and combined authorities (see chapter 5). In key sectors – notably where productivity is currently low (such as retail, social care, tourism and hospitality, food and drink and light manufacturing) – Productivity UK would work with accredited sectoral bodies. These should be partnership organisations with representation of both businesses and trade unions. Some of the training and advisory services made available to businesses could be channelled through university business schools and further education institutions. Given the centrality of skills to this agenda, it would incorporate current programmes aimed at coordinating skills development and vocational training, including the Institute for Apprenticeships. We envisage initially Productivity UK having an additional annual budget of around £100 million.

Some of the work the new body would undertake has been pioneered by the Productivity Leadership Group (PLG), an initiative of business leaders chaired by Sir Charlie Mayfield, chairman of the John Lewis Partnership. The PLG's initial analysis of why so many businesses underperform showed that their owners and managers are not properly aware of how their performance compares with those of other similar companies, and how they might improve (PLG 2016). With government funding, the PLG has therefore developed a website and app, Be the Business, which enables companies seeking to improve their productivity to benchmark their performance against those of comparable firms.[5] Be the Business aims to be 'the catalyst for transforming British business culture', providing tools, guidance and training to enable business managers to improve their productivity and performance. Over the three years from 2017, it hopes to encourage several thousand businesses in the UK – of all sizes from sole

5 See https://www.bethebusiness.com/

entrepreneurs to multinationals – to develop bespoke performance improvement plans using their resources.

Be the Business is an important initiative which will not only help businesses which use its resources to improve their productivity, but will do much to discover and develop the kinds of tools, guidance and training that are most effective for various kinds of businesses in different sectors. It has started on a small scale, but if successful it clearly has the capacity to grow, offering tailored services to firms in specific sectors and in different parts of the country. There is therefore clear potential for the wider statutory body we envisage to franchise some of its services to Be the Business and indeed to other initiatives and organisations with the requisite expertise. This field needs to be expanded at scale; but wheels do not to be reinvented or functions duplicated.

A productivity and skills levy

One of the challenges for any programme seeking to get businesses, particularly SMEs, to take up new advisory and training services is – as the Productivity Leadership Group found – that too few currently see the need to do so. We propose that businesses should be incentivised to improve their workplace organisation – including through the new services offered by Productivity UK – by a reform to the current apprenticeship levy.

The apprenticeship levy, introduced in April 2017, is aimed at increasing business investment in apprenticeship training (Dromey and McNeil 2017). The levy applies to employers in England with an annual pay bill above £3 million, and is currently set at 0.5 per cent of the annual pay bill. The money is collected by HM Revenue and Customs and can be accessed by employers through a digital account. Levy funds can only be spent on apprenticeship training.

While more spending on apprenticeship training is welcome, it has already become clear that the exclusive focus on the *supply* of skills risks incentivising firms to create a large number of low-quality apprenticeships (ibid). A high-performing workforce requires much more than apprenticeships. **We therefore propose that the apprenticeship levy be turned into a 'productivity and skills levy' to widen its scope.** It should enable companies which pay the levy to help fund and coordinate a much broader menu of business investments in their workforces to raise productivity.

Following IPPR's recent proposals on this (Dromey et al 2017), we propose that the new productivity levy would be applicable to all firms with 50 or more employees. It would be levied at a rate of 0.5 per cent of payroll (as currently) for firms with fewer than 250 employees, but a higher rate of 1.0 per cent for firms above this threshold. We estimate that this would raise and effectively ringfence £5.1 billion in 2017/18. These funds would then be redeemable by participating companies for a wide range of initiatives aimed at raising productivity through the improvement of both skills and workplace organisation, including skills utilisation. This would include skills training at all levels, apprenticeships and high-quality vocational education, management training, organisational innovation and job redesign to raise job quality. It would in particular provide support for companies to adopt 'good jobs' strategies. It would dovetail, with, but not replace, grants or loans for technological innovation provided by Productivity UK and Innovate UK. The aim would be to ensure that when firms invest in new technology and physical capital they also invest in complementary human capital.

Following IPPR's recommendations, **we propose that a proportion of the levy funds contributed by large firms (around £1 billion in total) should be put into a regional skills fund that would be devolved to combined local authorities**, along with the adult education budget, to invest in high-quality vocational education and training (ibid). IPPR has made a series of other innovative proposals to improve skills

across the economy, including the establishment of a 'personal training credit' of up to £700 a year for adults with low qualifications who are either in low-paid work or who are unemployed; and personal retraining allowances for workers made redundant or with below level 3 qualifications in communities identified as facing economic decline or transition. These would help ensure that individuals can invest in their own skills training as well as employers (ibid).

A 'good jobs standard'

The concept of 'good jobs' provides a helpful organising principle for the new focus that industrial strategy needs on organisational innovation, skills utilisation and job redesign. High-quality jobs can improve productivity, earnings and job satisfaction. **We propose therefore that the promotion of 'good jobs' become a key goal for government and society, alongside the three missions we identified in chapter 2**. As with them, the aim is to focus a national effort on a key challenge facing the economy and society over the coming years: in this case, raising productivity and wages right across the economy, particularly in low-productivity and low-paid sectors.

This goal, we would argue, should become a central focus not only for BEIS and Productivity UK, but (so long as the current responsibilities of ministries remains unchanged) for the Department for Work and Pensions. The new Independent Committee on Industrial Strategy we proposed in chapter 2 should be required to report to parliament each year on progress towards it.

To support the promotion of good jobs, we propose that the Government establishes a 'good jobs standard', to be subsequently promoted and monitored by Productivity UK. This standard would be a set of guidelines to employers – and to employees and trade unions – on the design of high-quality jobs. Such a standard would draw on the growing evidence and activity in this field, not least in Scotland through its Fair Work Convention. It would establish a set of criteria by which jobs can be evaluated for their quality: the standard of good jobs would be those having most or all of the features listed in table 3.1. As experience in Scotland has shown, the drawing up of such a standard between employers, unions and government is itself part of the process of its implementation, leading to greater understanding on all sides of the opportunities and constraints of raising job quality.

It is notable that in Scotland no single quality standard has been instituted under which employers can apply for accreditation as a 'Fair Work employer'. This contrasts, for example, with the Living Wage standard run by the Living Wage Foundation, which requires very specific criteria to be met to achieve accreditation, and for comparable initiatives such as on fair trade. Two arguments against a defined standard are made. The first is that jobs are very different, so it would be hard and time-consuming to get independent verification of the kind required for accreditation. The second is that fixed thresholds which qualify an employer for accreditation provide an incentive to improve job quality up to that threshold but no further. Employers and unions, it is pointed out, should be constantly striving to improve job quality, and not rest on the laurels of an arbitrary definition.

This is a strong argument, but it may also limit the extent to which a good jobs standard would in practice be taken up. One of the risks is that – despite the benefits to productivity – not enough businesses would seek to implement a more general, non-threshold standard. Government has two key levers to encourage take-up: one is through procurement policy; the other, taxation.

First, **governments (and other public sector bodies) could declare that after a particular date they will only purchase goods and services from firms which are**

accredited 'good jobs employers'. For businesses in procurement sectors, this would provide a powerful incentive to take part. There are some precedents elsewhere in Europe of local authorities and public bodies actively favouring good employers in procurement rules (Green et al 2017). Second, **government could provide a tax incentive, such as (say) a 1 per cent reduction in corporation tax, for accredited small and medium-sized employers**. This too would act as a powerful incentive for take up. In both cases, an objective standard, independently verified and accredited, would be required. One option might even be for the standard to require a confirming vote by the workers of an enterprise that it had indeed met the criteria. Given the importance of employee voice in the criteria of a good job, this would provide an important means of confirmation.

There is clearly further work to do on how a 'good jobs mission' should be promoted and implemented. But setting and promoting such a mission has the potential to be a key route to raising productivity and wages in the everyday economy.

4.
Innovation policy should aim to diversify the UK's base of exporting sectors and world-leading 'frontier' firms

As we argued in chapter 1, raising aggregate productivity is the first key goal of industrial strategy. Reducing the UK's trade deficit and boosting the economy's spending on research and development are the second and third. These are closely related: though not all exporters are innovators, most of the firms at the frontier of R&D and technological innovation are export-oriented, and many rely on import-intensive supply or value chains. The government has identified both objectives as important in its industrial strategy (BEIS 2017a). But the focus of policy support needs to change. Improving the trade deficit and boosting innovation requires diversification of the UK's export sectors and a new focus on strengthening domestic value chains, rather than merely deepening the present base of 'frontier firms'.

THE PROBLEM OF A PERSISTENT TRADE DEFICIT

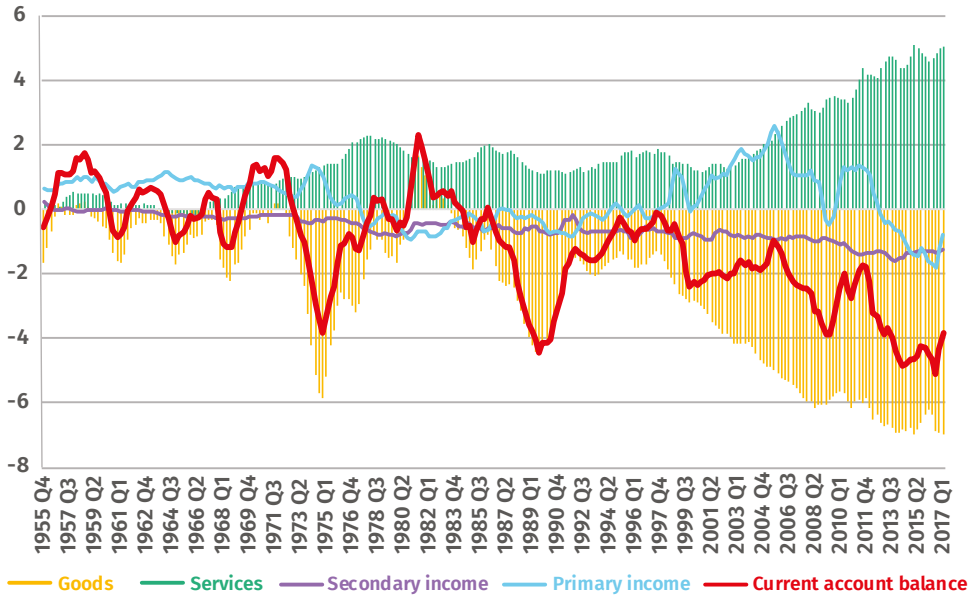
A persistent trade deficit makes any growth in living standards fragile. It can only be financed by taking out debt, or selling off assets, to the rest of the world. The UK's current account balance has been negative since the 1980s, and has grown alarmingly since the mid-1990s (see figure 4.1). This decline has mainly been driven by a ballooning trade deficit in goods that has more than offset what would otherwise have been impressive growth in service exports.[6] So long as confidence in the UK economy – and for UK assets – remains strong, a deficit can be sustained over the medium term. However, as soon as structural confidence falls, inflows of foreign currency are likely to dry up, leading to a permanently lower valuation of the pound. As import prices rise, real earnings decline and living standards fall. The result is likely to be years of suppressed economic growth, if not recession.

6 More recently, the UK's deficit in trade has also been added to by a deficit in primary income (the difference between wages and profits for UK residents from overseas and wages and profits paid out to foreign residents). A deficit in secondary income (things like overseas aid) also contributes to the current account balance but is less an indication of structural economic weakness than trade and primary income.

FIGURE 4.1

Three out of four components of the current account are in deficit

The components of the current account, and total current account balance, rolling for quarter average as a percentage of GDP, Q4 1955–Q1 2017



Source: Office for National Statistics, 'Balance of Payments time series' (ONS 2017d)

It remains to be seen whether the fall in sterling following the vote to leave the EU reflects a structural or merely temporary loss of confidence in the UK economy. At the very least it should ring urgent alarm bells for policymakers concerned with delivering sustainable growth in living standards over the long term.

The alternative to rebalancing the current account deficit through reduced growth or recession is to expand the level of exports and seek to contract that of imports. Depreciation in sterling offers a good opportunity to do this, since it makes the domestic cost base of exporting and import-substituting firms (labour and capital purchased in pounds) cheaper than it would otherwise be relative to competitors abroad. Developing a concerted effort to increase the UK's export base and to strengthen domestic value chains therefore has at least three advantages for the aim of achieving a sustained growth in living standards.

First, it makes a dramatic fall in confidence in the UK economy less likely, by making demand for UK goods and services less reliant on domestic consumption. The more broadly spread international demand becomes, the more resilient the economy is likely to be. Second, even if a loss in confidence and devaluation does arise as a result of a political shock such as Brexit, a large and dynamic export base makes it more likely that a fall in sterling can be exploited for export advantage. This would provide a crucial counterweight to rising import prices by raising productivity and output in exporting industries. Third, a permanently large and successful export base makes it more likely – in good times as well as bad – that a larger proportion of the UK population works in sectors where productivity and pay are likely to be high, driven up through competition in global markets (Wagner 2007).

Raising exports: diversity beats specialisation

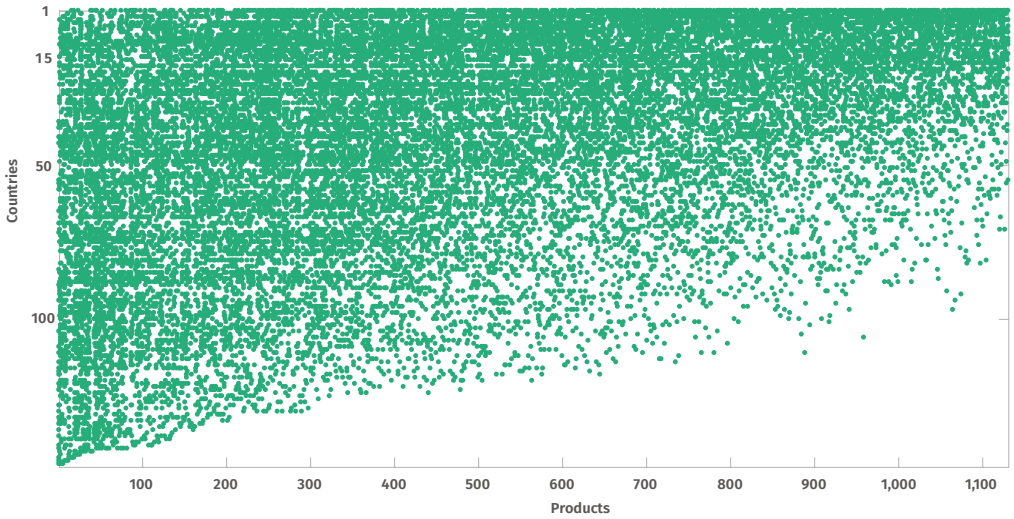
Past government strategies for improving UK exports have broadly followed orthodox Ricardian theory: that all countries will achieve export success by narrowing their focus to areas of comparative advantage. For rich countries, it is assumed that comparative advantage – and therefore specialisation – should be located in the most complicated manufacturing and service activities. However, research by Riccardo Di Clemente in collaboration with colleagues at the Institute of Complex Systems in Rome has demonstrated that Ricardian theory is not consistent with the empirical evidence (see figure 4.2).

Figure 4.2 plots the products in which a variety of countries have a 'revealed comparative advantage'.[7] The products are ordered from the least complicated to the most complicated on the horizontal axis, while countries are ordered from the least advanced to the most advanced on the vertical axis. If Ricardian theory held, all countries would be specialising in a select number of industries, with less-advanced countries concentrating on less-complicated products and more-advanced economies producing more-complicated products. Were this to be the case, the matrix in figure 4.2 would show most products concentrated in a narrow, diagonal band from the bottom left of the chart to the top right. In fact, the evidence looks nothing like this. Less-advanced economies do indeed tend to have a revealed advantage only in less-complicated products, but more-advanced countries retain an advantage right across the spectrum of products.

FIGURE 4.2

Contrary to orthodox theory, the more advanced an economy is, the more diverse – as opposed to specialised – its export base is also likely to be

Matrix of country products that have a revealed comparative advantage



Source: Research by Riccardo Di Clemente, MIT, in collaboration with members of Professor Luciano Pietronero's team, University of Rome Sapienza

In other words, the most advanced countries in the world are also the most diversified in their export base. The argument that diversity leads to export strength has been corroborated by a number of studies in recent years (see for example Hausmann et al 2011 and Cristelli et al 2013). Yet despite this global trend, the UK remains an outlier among advanced economies in becoming increasingly *less*

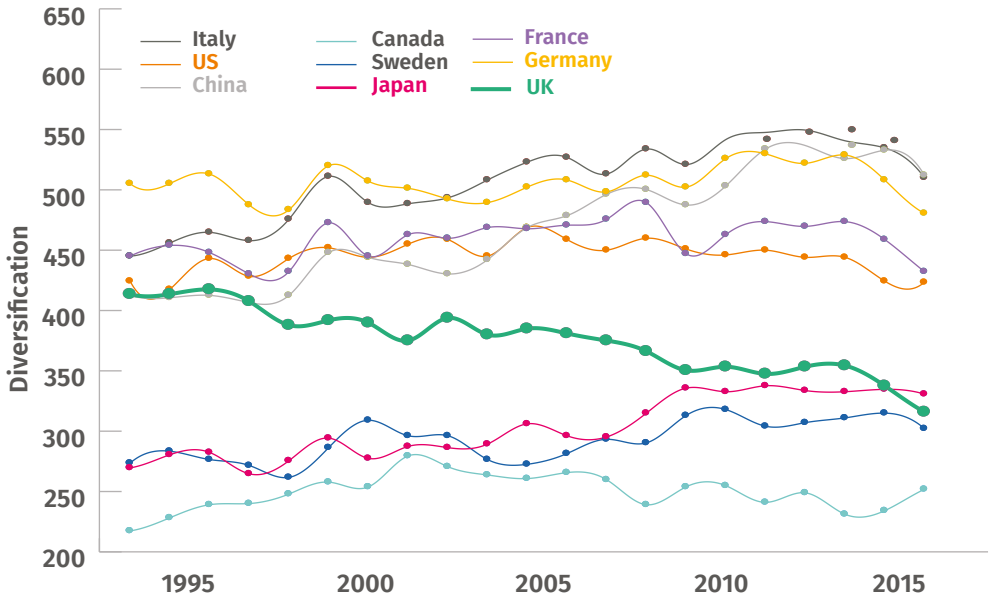
7 Revealed comparative advantage is the ratio of an individual industry's share of a given country's exports and the same industry's share of global exports.

diverse in its exporting sectors over recent decades. New analysis shows that, although many countries have seen a decline in the diversity of their export base since the financial crash, the UK is an outlier whose diversity has fallen continuously for a far longer period: at least two decades up to 2015 (see figure 4.3).

FIGURE 4.3

Unlike other advanced economies, the number of products in which the UK has a revealed comparative advantage has fallen for two decades

Trends in export diversification (number of products with revealed comparative advantage), selected countries, 1995 to 2015



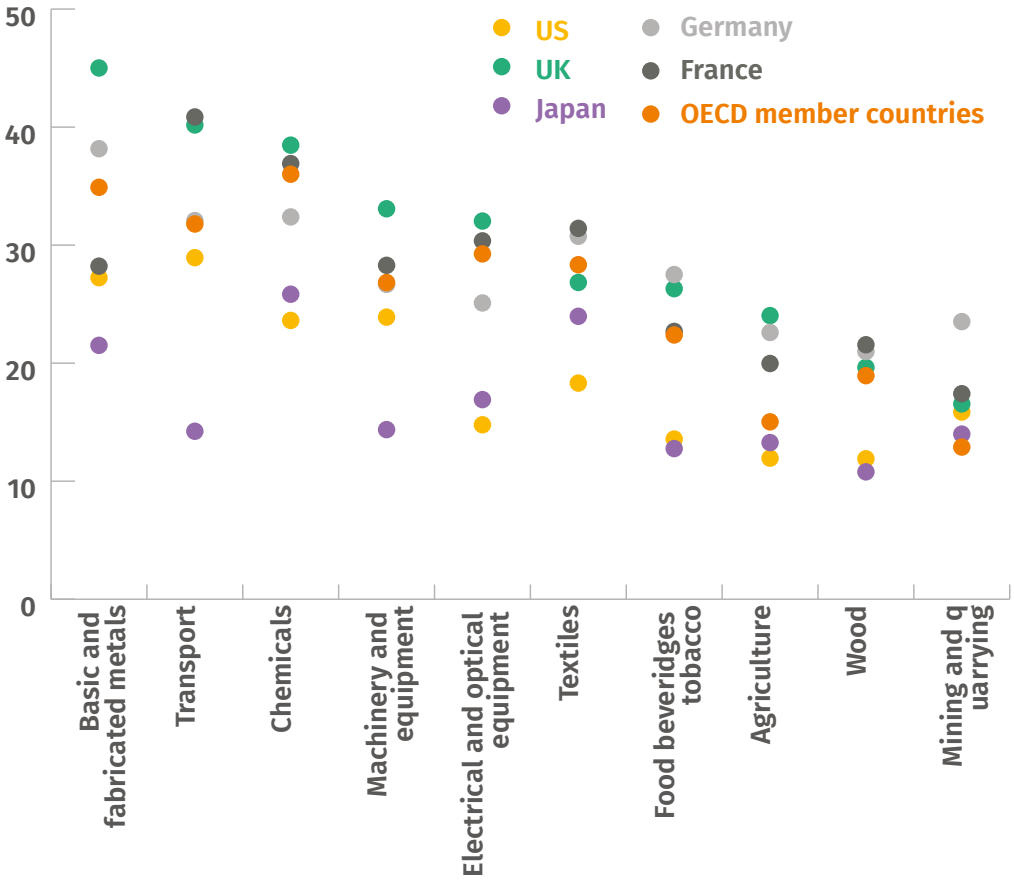
Source: Research by Riccardo Di Clemente, MIT, in collaboration with members of Professor Luciano Pietronero's team, University of Rome Sapienza

One of the reasons why the UK has a low level of diversity in its exports is the offshoring of UK value chains. Analysis of the 'import density' of UK exports – the proportion of imports in products sold abroad – shows that the UK's exporting sectors have comparatively high volumes of inputs from overseas compared with other advanced economies (see figure 4.4). Important UK export sectors such as transport and chemicals – which include key frontier firms in aerospace, automobiles and pharmaceuticals – on average contain around 40 per cent imported components in their exports.

FIGURE 4.4

The UK's exports have a higher 'import density' than other OECD countries

Foreign value added share of gross exports of goods by export sector (%, 2011)



Source: OECD, 'OECD-WTO: Statistics on Trade in Value Added' (OECD 2017c)

This has two important implications for the condition of the UK economy. First, in a simple arithmetic sense, a high import density diminishes any competitive advantage that exporting industries may otherwise get from a devaluation of sterling. Lower export prices and domestic labour and capital costs will be to some degree cancelled out by higher import costs. For example, a devaluation of 10 per cent only reduces average costs for transport and chemical exporters by around 2 per cent.[8] Meanwhile UK households consuming imported goods would see most of the 10 per cent price increase passed on to them, with severe implications for inflation and real earnings, and therefore overall demand. Second, and more fundamentally, it also suggests that UK industry is failing to take advantage of sectoral clusters and agglomerations on the scale of other advanced economies (Dolphin 2014).

INDUSTRIAL CLUSTERS

It has been known for some time now that the clustering of industry in specific places is associated with higher levels of competitiveness and growth. Clusters foster innovation because technological knowledge and know-how is able to spread far more quickly across networks in close proximity, enabling companies to combine their own existing capabilities with new ones in firms nearby (Audretsch

8 In practice, the impact of currency devaluation will vary between imports and exports, and by product, depending on the foreign currency that goods are being bought or sold in.

and Feldman 1996, Hausmann et al 2011). These transfers of knowledge can lead to greater productivity gains for all firms within a given cluster, irrespective of the industry they are in. Indeed, the statistical evidence shows that the presence of clusters is correlated with increased prosperity for regions as a whole (European Commission 2012).

IPPR research has shown how new understanding of how clusters form and grow makes the promotion of innovation clusters a viable approach for industrial strategy (Dolphin 2014). The starting point is the observation that crucial linkages and networks across firms do not necessarily map well on to traditional sector classifications. A study of input–output data for 123 industries in the UK found that most firms require inputs from firms in other industries, and most sell their products to firms in other industries (Caiado and Ormerod 2012). Building on this insight, Ricardo Hausmann and Cesar Hidalgo have developed new ways of mapping the links between firms. They use their analysis to understand the strengths of economies, why they make what they do, and why they have the particular set of capabilities that allows them to do so (Hausmann et al 2011). Being able to understand systematically what capabilities a country or region has assembled to produce a particular set of products is a necessary step to being able to define what other capabilities it could develop, and therefore what other products it could be making to expand existing clusters (CBI 2016).

There is also growing evidence globally on the value of active clustering policies. The Economist Intelligence Unit observes that no cluster has succeeded without some public assistance, if only in the supply of a trained and educated workforce (EIU 2011). Worldwide, the Global Cluster Initiative Survey identifies over 1,400 government initiatives designed to promote and strengthen industrial clusters (European Commission 2012). Others have pointed out that Silicon Valley, one of the most successful industrial clusters in the world, was given significant initial support by the US government through various R&D grants and loans (Mazzucato 2013). OECD analysis of Japan's Industrial Cluster programme found that two-fifths of companies involved started new collaborative projects and over half of companies launched new businesses, with the programme also helping to broaden the customer base of Japanese firms (OECD 2007). In the UK a study of the West Midlands automotive cluster estimated that public cluster policies had doubled the rate of collaboration between firms, universities and other educational institutions, and nearly trebled the collaboration between firms and commercial laboratories or R&D enterprises (Uyarra and Ramlogan 2012).

Government policy can therefore strengthen clusters, but there is general consensus that governments should not try to create new ones altogether (Duranton 2011). An analysis of 733 clusters across 49 countries found that, while many had grown through government support, only one had formed as a direct result of government intervention (Van der Linde 2003). One of the key tasks of industrial strategy is therefore to identify places where new clusters have begun to form and to support their growth. In turn this will be best done using a 'value chain approach', where less importance is given to sectors as such, and more to the linkages between firms *across* sectors, from product conception to commercialisation and scalability. Value chain analysis suggests that growth is most likely along branches of the value chain that are relevant to an existing cluster, which may involve developing entirely new capabilities or bringing capabilities from overseas back to the UK. Recent work by Alan Hughes and Martin Spring (2017) has begun to set out the criteria by which industrial strategy might use value chain analysis to expand existing clusters.

The role of universities

Industrial cluster policy in many advanced economies has shown that universities are often pivotal to successful innovation (Adner 2006, Uyarra and Ramlogan 2012,

Dolphin 2014). The UK has exceptional research departments across its university sector and in some cases they already form the basis for industrial clusters of varying levels of development and maturity. The UK's most successful innovation hub in Cambridge has continued to grow over more than 40 years, both in terms of the number of firms (including university spin-outs and inward investors) and jobs. In 2016 the cluster earned over £11 billion in revenues and employed more than 58,000 people spread over 4,300 firms (University of Cambridge 2016). The UK has some other prominent examples of university-based clusters. Oxford University has a growing high-tech sector (SQW 2016), the University of Sheffield shares multimillion-pound investments with both Boeing and Mercedes, and the University of Warwick has played a key role in the reinvention of the West Midlands high-tech automotive cluster (Amison and Bailey 2014). Nonetheless, the contribution of UK university research departments in industrial activity across the UK as a whole is underutilised. In the most recent Community Innovation Survey in 2015, fewer than 10 per cent of innovative businesses said that they had collaborated with higher education institutions. Even fewer (3 per cent) mentioned such institutions as a source of information for their innovative activities.[9]

The UK also has a poor track record of moving nascent technological innovation up the value chain and into commercially viable production. While the UK has among the highest proportion of high-growth firms in the OECD, comparatively few start-ups survive to maturity. On average, only 3 per cent of UK micro-firms (with 10 or fewer employees) succeed in scaling up, placing the UK near the bottom of OCED tables (British Business Bank 2016). Part of the problem is that the latter stages of the technological development process tend to be much costlier, making a lack of patient and risk capital a key limiting factor. While estimates vary widely from one technology to the next, the cost of commercialisation is often at least one order of magnitude higher than that necessary to develop a prototype (Weyant 2011). As such, many new technologies and start-ups fail because they cannot bridge the commercialisation funding gap often known as the 'valley of death' (Science and Technology Select Committee 2013).

For the UK to catch up with other advanced economies in the volume and diversity of its exports, and the strength of its domestic value chains, government should therefore adopt a concerted approach to growing and widening the country's existing industrial clusters, with the aim of increasing our comparative advantage in new sectors and products. This requires carefully targeted industrial policies, identifying emergent clusters and assembling packages of support for the university research centres and companies within them, and their associated networks. Over the last few years Innovate UK has effectively been seeking to do this, particularly (though not only) through its network of Catapult Centres and through its support for other research and innovation centres. Although it has had some success, across the overall map of the 200 or so such centres that exist across the country, all with overlapping specialisms and variable funding levels, it remains difficult to see an overarching and coherent strategy. Producing one should be a key task of the new coordinating body UK Research and Innovation which the Government has established. There is a major opportunity here to utilise the high quality of UK university research to both strengthen and diversify the economy's commercial R&D and innovation performance – and to do so right across the country. The goal of industrial strategy should be to create a UK economy which is both nationally diversified and regionally distinctive.

FINANCING INNOVATION POLICY

Government support for innovation is dominated by generalised or horizontal policies, rather than direct or vertical intervention. As a consequence, current

9 See https://www.gov.uk/government/collections/community-innovation-survey

policy tends to favour larger, already established companies, thereby deepening, rather than widening, the UK's existing specialisms.

Direct and indirect support

In financial terms, present innovation policy is dominated by fiscal incentives through the tax system. Direct financial support through government grants or loans comes largely through the budget for Innovate UK, for example in the form of specialist technology-focused Catapult Centres and – most recently – the Industrial Strategy Challenge Fund. In total, Innovate UK's annual budget comes to around £0.6 billion per year (Innovate UK 2016). Yet this compares to an annual outlay of more than £3.5 billion in 2016/17 in relief on corporation tax, through the patent box system and R&D tax credits (HMRC 2017a).

The evidence suggests that neither of these indirect support mechanisms through the tax system are effective at expanding and diversifying the UK's base of innovating businesses. Both policies predominantly channel funds to large, established companies: deepening their existing advantage in the UK, rather than expanding advantage to new firms. In 2014/15, more than 800 firms made use of the patent box system, but 95 per cent of all relief claimed went to the 305 largest companies (HMRC 2017b). At the same time a review by Her Majesty's Revenue and Customs (HMRC) of R&D tax credits found that, in 2012/13, 80 per cent of all spending eligible for relief came from large firms, rather than SMEs, with a particular concentration in the pharmaceuticals sector (HMRC 2015). The Large Company Scheme (recently reformed to become the R&D Expenditure Credit), despite being significantly less generous than the SME scheme, accounted for more than half of the foregone tax revenue (HMRC 2017c). However, the literature in this field suggests that it is precisely the most established firms that are least likely to develop new areas of innovation. Instead, it is young, rapidly growing firms that play a disproportionately important role in expanding the economy's productive frontier (Haltiwanger et al 2013).

The R&D tax credit system has a particular problem of deadweight – subsidising investments that would have occurred anyway. The government has not published its own assessment of deadweight loss, but a 2015 HMRC review did assess the growth in additional R&D spending alongside the cost to government in tax credit subsidies. The HMRC study found that for every £1 of foregone tax revenue, there had been additional R&D spending worth £2.35 in the large company scheme, £1.88 for firms using the deduction-based version of the small and medium-sized enterprise (SME) scheme, and £1.53 for firms using the payable credits under the SME scheme. HMRC concluded from these findings that R&D tax reliefs constituted good value for money.

However, unlike comparable studies, the HMRC findings made no attempt to estimate deadweight loss. Using the same econometric methods applied by a recent review by the Irish Department of Finance (2016) of their own R&D relief scheme, new IPPR analysis conducted for this discussion paper used HMRC's findings on additionality to estimate deadweight loss in the UK R&D tax credit system.[10] Our findings suggest that on average, 80 per cent of additional R&D spending among firms using the large company scheme in 2015/16 would have gone ahead without any government subsidy, while deadweight loss in the deductible and payable credit versions of the SME scheme was between 57 and 67 per cent. In fact, these figures are likely to be an underestimate. HMRC's original research assumed that the response elasticity of companies to cheaper R&D spending was constant across all firm sizes. The variation in levels of deadweight loss across schemes has therefore been given as a function of the growth in eligible R&D spending and the generosity of respective schemes. However, a

10 We have assumed that firm response elasticities to tax credits are constant over time.

number of studies have shown that additionality is likely to be greater for SMEs than for larger firms (Haegeland and Moen 2007, Lokshin and Mohnen 2012, Corchuelo and Martinez-Ros 2009). The deadweight loss associated with the 80 per cent of eligible spending by large companies is therefore likely to be higher than our estimate implies.

These deadweight estimates represent a significant cost to the UK public finances. Estimating the precise value of any spending through the tax system is difficult, since these figures are necessarily less certain than actual government expenditure. HMRC notes that estimates for R&D tax credits in particular are 'tentative and subject to a wide margin of error' (HMRC 2017a). Nevertheless, the official HMRC estimate of the tax cost for the R&D tax credit in 2015/16 is £2.5 billion, which implies a deadweight cost of between £1.8 and £1.9 billion (ibid).

The patent box is a tax relief enabling companies to apply a lower rate of corporation tax to profits earned from patented inventions. Widely adopted across Europe, patent box schemes are generally regarded as a poorly targeted way to stimulate innovation. While there is evidence that such schemes are associated with an increase in patent fillings (Bradley et al 2015), this is likely to reflect efforts to maximise the income generated from their innovation, rather than new research (Griffith et al 2014). Patent royalties are a form of passive income which can easily be moved from one country to another. So in practice patent box schemes have been introduced largely as a form of tax competition – or as a defence against it where they have been introduced in neighbouring countries. There are currently 14 EU countries with patent box schemes, effectively eliminating their value to any country yet making it very difficult for them to be abolished unilaterally.

Despite having much smaller financial resources at its disposal, the UK government's targeted direct expenditure through Innovate UK appears to represent far better value for money in supporting the new innovations and firms needed to expand the UK's base of frontier industry. Innovate UK splits its budget between the new Challenge Fund, Catapult Centres and a variety of competitive grant funding programmes (Innovate UK 2016). Both the Challenge Fund and Catapult Centres are focused on specific technological areas. These currently include healthcare and medicine, cell and gene therapies, robotics and artificial intelligence, energy storage batteries, offshore renewable, self-driving vehicles, manufacturing and materials, satellites and space technology and various types of high-value manufacturing. As argued for in chapter 2, some of its initiatives support innovation in key areas of government policy – such as the recent Innovate UK competition, in partnership with the Department for Transport, for technology projects that could help deliver the rail industry's delivery plan (DfT 2017).

Though many of Innovate UK's initiatives are new, the early evidence suggests that it has been successful at catalysing new business research and development and its commercialisation. Catapult Centres have succeeded in attracting additional foreign investment while also providing a physical clustering facility for knowledge sharing, while different grant programmes have acted as a positive signal for private investors seeking to invest in new firms (Hausser 2014, SQW 2015, Frontier Economics 2017). Innovate UK estimates that private sector investment 'crowded in' by its activities has exceeded the cumulative £1.8 billion of public funding spent since 2007, resulting in additional economic activity worth between £11.5 and £13.1 billion (Innovate UK 2016).

Redirecting innovation funding

By increasing funding specifically targeted at helping to coordinate and expand existing clusters, government policy should help new innovations move up the value chain into commercially viable activity, both supporting existing frontier industries and creating new specialisms. **We propose that as a first step government should**

shift existing financial support from indirect to targeted intervention. To minimise deadweight loss and maximise effectiveness in supporting new specialisms, there is a strong case for phasing down and eventually abolishing all R&D tax relief other than for SME firms younger than, say, five years old. Such a phasing down should be gradual, with the pace of change responsive to trends in the economy, in order to give firms time to adjust in a way that does not jeopardise jobs and output. The patent box system should similarly be wound down and discontinued – ideally in collaboration with other European countries which have adopted similar schemes. Removing the patent box and restricting R&D tax relief to SMEs younger than five years would represent a fiscal saving of around £3.5 billion in 2020/21, equivalent to around 0.2 per cent of GDP per year.

We propose that the funds released by these policies should instead be allocated to direct support for growing UK clusters and innovative firms. A large portion of these funds could go directly into expanding the budget of Innovate UK, helping the agency to increase the number and value of its grants and loans, to increase the number and ambition of Catapult Centres and to work with the British Business Bank (and eventually a National Investment Bank) to link new investment opportunities coming out of universities with venture capital and other investors. Funds might also be directed towards initiatives that help foster links between public and private sector activity, such as Innovate UK's Knowledge Transfer Partnerships and Networks (which enable graduate students to be placed in the private sector) and the Higher Education Innovation Funding programme, which also aims to facilitate knowledge exchange (Innovate UK 2016).

One new form of funding should also be considered. Over the last 30 years, a number of public investment banks across the world have turned towards a 'venture capital' model, in which they finance firms through equity as well as debt. This allows them to share in the success of the companies they support. At present government funding for innovation supports risk but gains no rewards other than those that come back indirectly in the form of higher job numbers and tax receipts. Had the US Government, for example, financed its many technology funding streams which led to the development of the iPhone by taking an equity stake in Apple, its financial position today would be considerably stronger than now, enabling it to fund new waves of innovation more easily.

Public equity stakes in new ventures are now being taken by government innovation agencies in several other countries (Mazzucato 2016). These include Sistra in Finland, Yozma in Israel and various sub-programmes of the Brazilian development bank BNDES. Public equity investments realise a return on the state's investment only when an innovation has been an unequivocal commercial success: signified either when the firm goes public (for example in Brazil) or when other investors buy out the government's share (in the Yozma model). With both the Brazilian and Israeli schemes, government has seen a positive financial return. For example, five years after it was launched in 1993, Yozma's venture capital fund was able to recuperate its original investment, plus 50 per cent interest (OECD 2011).

In the UK, the lack of a similar model means the taxpayer foregoes significant returns. For example, the firm Improbable Worlds recently raised close to £500 million in private equity funding, having previously received an £800,000 grant from Innovate UK (Murgia and Massoudi 2017). Had Innovate UK (or a National Investment Bank) taken just a 1 per cent stake in the company, their initial investment would have yielded a greater than sixfold return. These funds could then have been reinvested in new innovation ventures. There is a strong case, therefore, for Innovate UK to work with the British Business Bank, and subsequently a National Investment Bank, to take equity stakes in some of the companies it supports.

5.
Geographic rebalancing requires the creation of stronger regional institutions in England

We argued in chapter 1 that one of the key structural weaknesses of the UK economy is its geographically unbalanced character. A key objective of industrial strategy is therefore to stimulate economic growth and productivity improvement throughout the UK's nations and regions, rebalancing the economy away from London and the South East.

This does not mean that London and the South East should not grow. Geographical rebalancing is not a zero-sum game in which a static 'fund of growth' has to be divided up between different nations and regions. There are limits to government spending, which mean that allocations to different parts of the country must be reprioritised; but faster growth in the rest of the country will in the end, through stronger overall demand, benefit London and the South East too.

If the geographic objective is to be achieved, however, we need to understand why the UK has become so unbalanced, and how other countries have avoided this outcome. Without this, industrial strategy could accelerate rather than counter these regional imbalances. Geographically skewed growth tends to exhibit the self-reinforcing 'Matthew effect'.[11] Better infrastructure and higher-skilled workforces attract further private sector investment, which leads to inward movement of labour and requires more infrastructure spending. Unless specific policies are aimed at reducing geographic imbalances, well-meaning industrial strategy could simply exacerbate this cycle. It therefore needs an explicit focus on geography as well as on technologies and sectors (IPPR North/NEFC 2012; see also Industrial Strategy Commission 2017, TUC 2017).

The OECD has identified the key drivers of regional economic growth and variation between regions (OECD 2009). These include differences in transport infrastructure, human capital (workforce education and skills) and innovation capacity. These factors help to explain the variable resilience of the different nations and regions in the UK. As successive economic shocks have been superimposed on longer-term shifts in the structure of the economy, some areas have had the economic diversity and strength to adapt, while others with more sectorally concentrated economies, less-skilled workforces and poorer infrastructure – particularly transport connectivity – have suffered long-term decline (Martin and Sunley 2014). As this process has reinforced itself, it has led to the effective 'decoupling' of London and the South East from the rest of the country's economy (McCann 2016).

Much of government thinking about how to stimulate regional economic growth has focused on the economic benefits of 'agglomeration', through which the clustering of economic activity, particularly in city regions, leads to positive spillover effects and thereby faster growth (Glaeser 2007). The larger number of firms which locate in a city region, the more know-how and innovation tend to

11 'For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away, even that which he hath' – The Gospel of St Matthew 25:29. The term was first coined by Robert Merton (1968).

be shared and local supply chains developed. In turn this increases the pool of available labour, making the area more attractive for investment, and so leading to further growth. This is a familiar pattern which has led to the emergence in all developed countries of very large, diverse and productive city regions (McCann 2016) – but the UK is the only developed country that has only one major city region of this kind.

Part of the reason lies in the particular economic geography of London; but part also lies in the approach taken by the UK Government to infrastructure investment and R&D over many years. The Treasury's project appraisal methodology, based on cost–benefit analysis of linear and marginal changes, simply reinforces the advantages of investment in London and the South East, since wages, property prices, congestion and other externalities are all greater in London than elsewhere in the country. So the returns to investment in infrastructure and housing, and the agglomeration effects modelled, are all higher. It is a particularly perverse approach when comparing the advantages of investment (for example in transport links) in London and the South East with investment elsewhere. The whole point of the latter is to rebalance the economy, creating non-linear and non-marginal changes in the structure of local economies. Such changes will raise wages and property prices; so modelling ex ante wages and prices when seeking to change them provides a badly misleading assessment of costs and benefits (Blakeley 2017).

In recent years the Government has sought to boost investment in city regions outside London, particularly Manchester; but it risks making a second mistake here. The development of information and communications technologies over the last decade has significantly changed the forces of agglomeration. It is simply not the case that all economic activity clusters in cities, and that economic development does not occur in areas outside them. In the north of England, for example, the Northern Powerhouse's Independent Economic Review has shown just how much economic activity – including manufacturing – now occurs outside the core city regions (SQW 2016). Furthermore, agglomeration works in very different ways for different 'types' of city system, and economic growth in the North is unlikely to be stimulated by a similar approach to that taken in London (Cox and Longlands 2016).

The crucial recognition here is that other countries have also experienced the decline of manufacturing and global economic change, but have not experienced the same degree of geographic polarisation as the UK. Indeed there are good examples of regions elsewhere in Europe that have successfully managed a process of economic restructuring over the last 20 to 30 years. German Länder (regional states) such as Brandenburg, North-Rhine Westphalia, Bavaria and Baden Württemberg, as well as the Italian region of Emilia-Romagna, have all modernised their industrial base in effective ways, especially when compared to the UK (Lawrence and Stirling 2016, TUC 2009, Bianchi and Labori 2011). What accounts for the UK's singular experience? The evidence from analysis of regional economic development and policy across Europe leaves an inescapable conclusion. The UK's nations and regions have simply not had the autonomy, powers and resources necessary to mobilise the capital and coordinate the actors required to respond to global economic change (McCann 2016, Cox 2017). Our system of economic governance is too centralised, with almost all economic powers located in the Treasury and Whitehall.

DEVOLVING ECONOMIC POWERS

Every country has a different set of subnational institutions, reflecting their diverse geographies and histories. Although there is no one model that can guarantee successful economic development, the UK's current arrangements clearly do not. This is less true of Scotland, Wales and Northern Ireland – and

London – than the rest of England. Since 2000 the transfer of economic powers to the devolved governments has led to consistently higher spending per head than in England (HM Treasury 2016b), and some significant developments in economic development strategy. At the same time the Scottish Government, in particular, has economic and fiscal powers which it has not yet fully used, which suggests that further strengthening of economic policy is possible – and indeed may now be occurring (Scottish Government 2017a).

However, within England – home to 55 million of the UK's 66 million population – regional institutions are extremely weak. The nine regional development agencies (RDAs) established by the Labour Government in 2000 were abolished a decade later under the Coalition. They were replaced by 39 local enterprise partnerships (LEPs) – business-led bodies covering travel to work areas under several local authority districts. They are not democratically accountable, though in practice they work closely with local authorities, and their powers and budgets are very limited. Many have been effective vehicles for bidding into central government funding pots, but their performance is generally regarded as patchy at best, and they do not have the authority to develop or implement an effective industrial strategy (Pike et al 2013). (They cannot legally spend EU funding, for example). The one exception is of course London, where an elected mayor and assembly have been successful in lobbying government for additional investment and resources even though the mayor's formal powers are far weaker than those exercised in comparable cities in other developed nations.

The latest development has been the creation of combined local authorities. Ranging in population size from 670,000 to 2.8 million people, there are currently nine combined authorities, bringing together councils in Greater Manchester, Liverpool City Region, the West of England, Cambridgeshire & Peterborough, Tees Valley, West Midlands, Sheffield City Region, West Yorkshire and North East England. The first six of these have elected mayors, and have arranged 'devolution deals' with central government – though their scope in terms of powers and resources varies significantly (House of Commons Library 2017). The 2016 Cities and Local Government Devolution Act enables combined authorities to take on public service functions from local or central government (subject to a devolution deal), which puts them in a strong position to deliver industrial strategy in collaboration with their local LEPs.

Combined authorities have the legal status and democratic legitimacy that LEPs lack. But they are not regional economic governments of the kind that exist in most other European countries, which typically serve populations of 6 to 10 million. Even the most advanced of them (Manchester) does not currently have the range of powers of comparable city authorities, let alone regional ones, in other European nations. And the patchwork of variable arrangements in local government as a whole leaves most of England with still smaller authorities, including both unitary and two-tier councils.

The IPPR Commission on Economic Justice is currently examining the appropriate scale and powers of institutions to deliver economic policy across the UK. It is hard to avoid the conclusion, however, that 'place-based' industrial strategy, to which the Government is now committed, cannot be successfully delivered with the institutional arrangements we currently have. All the evidence from other countries suggests that the UK needs much stronger regional economic institutions.

Interestingly, this has already begun to happen. The Coalition Government's Northern Powerhouse initiative spans not just several city regions but three of the old government office and RDA regions (North West, North East and Yorkshire and the Humber). It has led not just to a generalised promotion and coordination of economic initiatives, but to a new body about to gain statutory status, Transport

for the North, Rail North (which co-manages two rail franchises), and a pan-northern economic development analysis (SQW 2016). It is already apparent that the latter will provide the basis for a much more focused approach to industrial strategy in the region. At the same time the new 'Midlands Engine' initiative is working towards similar goals, spanning both the old West and East Midlands regions.[12] As yet, neither the Northern Powerhouse nor the Midlands Engine has any democratic accountability (except at arm's length through the local authorities involved). But IPPR North has proposed a 'Council for the North' to bring together all the constituent local authorities, and this is already beginning to gain some political traction (Cox 2017).

These are early days for both initiatives, but the trend is unmistakeable. Over time there is clear potential for the Northern Powerhouse and Midlands Engine to develop into a fully fledged regional tier of government, and for similar initiatives at similar scales to be established and developed in the rest of England. Following experience elsewhere in Europe, such a regional tier of government would be responsible for overall economic analysis and planning, strategic spatial policy, regional infrastructure and transport policy and overall industrial strategy. This would include the development of industrial clusters and geographically focused supply chains, regional dimensions of innovation policy (working with Innovate UK), and inward investment. As IPPR has argued elsewhere, such a tier might also take on responsibility for a devolved migration policy (Griffith and Morris 2017), and potentially also some aspects of energy policy (Baxter and Cox 2017).

This would still leave considerable responsibilities for industrial strategy at the tier of combined local authorities and LEPs, which will have to work more effectively together than currently. These would include skills and adult education policy, business support (including the local delivery of the services provided by Productivity UK), and local planning, housing and transport policy, such as bus franchising and light rail. IPPR has argued for LEPs to be configured and strengthened as local productivity partnerships, with responsibility for adult education and skills (Dromey et al 2017). In areas with effective combined authorities there is a strong case for such partnerships to be brought within their remit.

Our focus is on the powers required to deliver industrial strategy, but it is clear that any transition from regional economic partnerships to a fully fledged tier of regional government would represent a new constitutional settlement in England, and could not happen overnight. We would therefore argue for a wide public debate on these ideas. This would need to encompass five major considerations.

- **Scale.** While the North and Midlands offer fairly 'natural' regions, given their histories and identities, their boundaries do not need to conform to those of the old English regions. There is a case, for example, for including part of the Eastern region within the Midlands. In the rest of the country choices would need to be made: there is a good case for a combined East and South East region, but that would leave the South West considerably smaller than the others in population terms and relative to most regions in Europe.
- **Accountability**. In the short term the governance model that has been adopted by Transport for the North and Rail North could be rolled out across the rest of the country, taking on more powers from central government. Like combined authorities, they are made up of the leaders of local authorities across the region (Cox 2017). It will also be important to build in real citizens' engagement from the outset, such as through regional citizens' assemblies (ibid).
- **Powers.** We have suggested above the economic development responsibilities which could be devolved to regional and combined authority tiers of

12 See https://www.midlandsengine.org/

government. There are others which should be added to the debate, including for education and health (Cox et al 2014). We discuss below the question of fiscal autonomy and public spending.

- **Capacity**. One of the core weaknesses of the UK's current regional arrangements is the relatively low level of capacity in existing institutions. It is simply not possible to attract the right level of skills and experience needed to deliver a serious industrial strategy in organisations with few powers and little status. This is something of a Catch-22, since their relative lack of capacity is one of the reasons that government has not granted LEPS and local authorities many powers. One option to help remedy this might be for the regional offices of central government to become 'shadow' regional structures, gradually accruing responsibilities as a stepping stone to full autonomy, with powers and accountabilities later being transferred as new institutions were established.
- **'Asymmetry with coherence'.** In the short term, asymmetry in the arrangements in different regions is vital: a single 'big bang' approach would simply not recognise the different readiness of different regions. If Greater Manchester, which now has the largest group of devolved powers, had had to wait for the rest of England it would not have made any progress at all. Arguably, without leading areas blazing a trail, no other region would have progressed either; but ultimately, there does need to be a clear framework to govern the process of devolution, and coherence to the final settlement. This needs wide public debate.
- **Implications for central government.** Any reform of national and regional government will have implications for the structures and powers of central government and the coordination of the nations and regions in UK-wide economic policy. For example it might be appropriate to establish a new 'Council of Nations and Regions' to advise and work with the chancellor of the exchequer.

RESOURCING INDUSTRIAL STRATEGY AT REGIONAL LEVEL

Fiscal devolution

It is possible to imagine a regional tier of government and set of combined authorities with no more fiscal autonomy than local government has today. Each of these institutions could receive almost all of their income from a combination of block grants and special spending allocations from central government, as local councils do now. But it would not be logical. If the point of larger and stronger authorities is to give greater freedom to implement strategies determined at regional level, they should have greater fiscal autonomy as well.

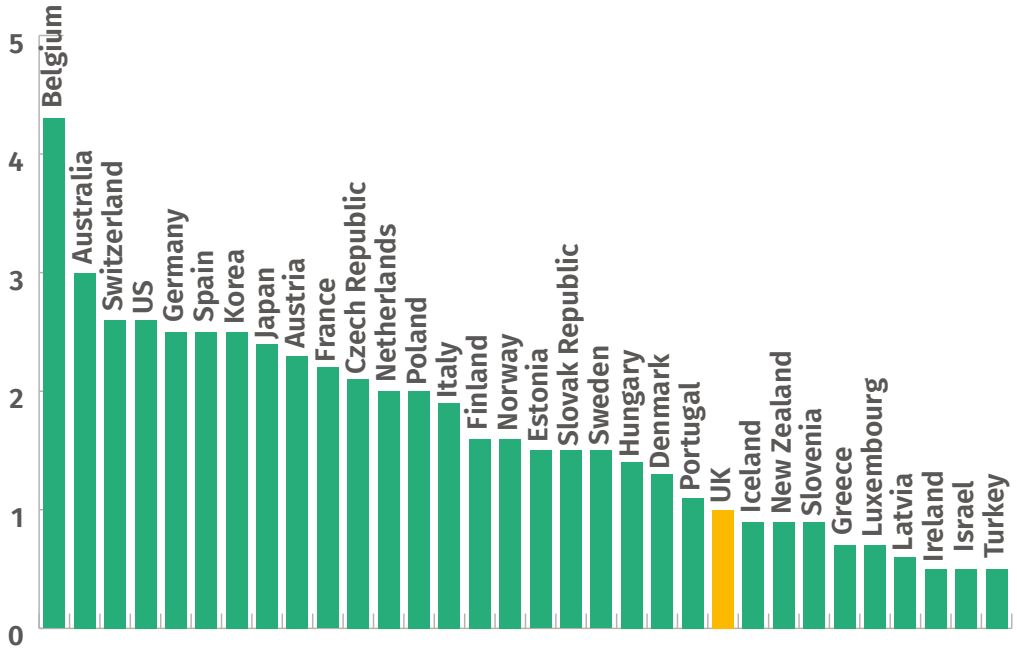
The UK is among the most fiscally centralised countries in the developed world (OECD 2016b). Just 5 per cent of total tax revenues are collected at local level in the UK, compared to over 20 per cent at local or regional level in the US, Canada, Japan, Germany, Sweden, Denmark, Switzerland, Spain, Finland and Iceland, and over 10 per cent in another nine OECD countries (including France). In practice even this is an overstatement of local fiscal autonomy in the UK, since local authorities don't have full control over how council tax or business rates are raised. They are also deeply constrained by Treasury rules in their powers to borrow.

With little power to raise revenue, spending on economic policy by local authorities is severely restricted. As figure 5.1 shows, local economic spending as a proportion of GDP is lower than in all comparable countries. Where the UK spends around 1 per cent of GDP on local economic affairs, including transport and R&D, France and Germany, with more fiscal control at regional and local tiers of government, spend respectively 2.2 per cent and 2.5 per cent (OECD 2016c).

FIGURE 5.1

Local government in the UK can't afford to invest in economic growth

Sub-central economic affairs spend as a proportion of GDP, 2015



Source: OECD, 'Subnational Government Structure and Finance' (OECD 2016c)

Fiscal devolution would mean giving regional and combined authorities greater powers to raise their own revenue and to spend it as they chose. This could happen in any of four ways. First, such authorities could be granted control over the revenues raised locally from national taxes, such as vehicle excise duty, landfill tax or the aggregates levy, and ultimately even part of income tax. Second, they could be given greater powers to levy and vary local taxes, such as tourism or hotel taxes, congestion charges, workplace parking levies or landlord licensing schemes. Third, there are a number of current constraints on local taxes which could be lifted, such as the restriction on business rate supplements to 2p in the pound, or the restriction on council tax rises without a referendum. And fourth, they could be given greater licence to borrow for investment than local authorities are currently allowed, by issuing regional or municipal bonds, including through the new Municipal Bonds Agency.

Most other developed countries give a fair degree of fiscal and borrowing autonomy to their regional tiers of government. The evidence suggests a strong correlation between fiscal decentralisation and investment in education, infrastructure and higher per capita GDP (Blöchliger et al 2013). Contrary to a common assumption, regional inequalities tend to be reduced in countries where more local spending is financed by local taxes, because subnational governments tend to spend more on economic development (Bartolini et al 2016). This does not diminish the requirement, however, for redistribution between richer and poorer areas: this is needed in any system of fiscal devolution, particularly where there are wide regional inequalities as currently in the UK. With larger regional authorities, there is a much greater scope for redistribution to take place within regions as well as between them.

Regional development banks

Alongside greater fiscal autonomy, there is also a strong case for the establishment of subnational development banks to support investment in infrastructure, housing, business growth and innovation in the nations and regions of the UK. The general case for public investment banks was made in chapter 2: such banks can often provide long-term or 'patient' capital on terms which the private sector is unwilling to, developing specialist expertise and taking on investment risk and thereby 'crowding in', or leveraging, private finance (Mazzucato and Penna 2015).

The case for regional development banks builds on this. By restricting their mandate to investment in a specific geographic region, regional banks must develop specialist local knowledge, enabling them to discover, and to nurture, small and medium-sized enterprises (SMEs) with good growth prospects which might otherwise not have access to affordable debt or equity. It is notable that in two of Europe's most industrially successful economies, Switzerland and Germany, the majority of SMEs rely on local banks (Cox and Schmuecker 2013, NEF 2015). In Switzerland, 80 per cent of medium-sized firms and 58 per cent of small firms bank with their cantonal bank. In Germany, 75 per cent of SMEs bank with one of the local Sparkassen, which are publicly owned, local independent banks, while regional Landesbanken focus on wholesale banking (Choulet 2016). They are run like commercial banks, but have an explicit public purpose and specialist mandate tailored to the local area. Their rate of return averages around 10 per cent, but with returns far less volatile than those of larger international banks. This local and regional banking system is widely credited with having supported the country's well-known 'Mittelstand' of SMEs through the long-term economic transitions of the postwar period, providing resilience to and insulation from economic shocks, particularly by lending counter to the business cycle (ibid). This was particularly true in the immediate aftermath of the financial crisis of 2008, when they were able to counteract the fall in commercial bank lending (Mazzucato and Penna 2015). Overall, they are generally judged to have performed an important role in supporting Germany's much more geographically balanced economic development.

In the UK the Scottish Government has already announced the establishment of a Scottish National Investment Bank with a mandate to provide patient capital to growing Scottish businesses (Scottish Government 2017b). There is a good case for similar institutions in Wales, Northern Ireland and the north of England. These should start out as regional divisions of the National Investment Bank we propose, with a degree of accountability to their respective tiers of government. Over time the benefits of institutional independence would need to be weighed against the costs of smaller balance sheets and less pooling of risk. We do not underestimate the difficulty of establishing new institutions of this kind, but over the long-term believe that they can play a powerful role in raising the overall investment rate in the UK economy and ensuring investment is spread across the whole country.

Conclusion and summary of recommendations

Industrial strategy is not a new idea, even in the UK. In its most recent incarnation it has been a feature of economic policy since 2009. But the present moment needs to mark a step change from the past. The problems of the UK economy are too deep for a continuation of previous policies to be sufficient. Industrial strategy needs to be recognised and institutionalised as the second pillar of the state's economic functions, next to macroeconomic policy, with public service provision and welfare policy alongside. Only by coordinating the full range of supply side interventions available to government, applying a strong set of purposes and missions to them, and integrating them with demand side management, can the structure of the UK economy be reshaped. To address our economy's deep structural weaknesses, we need not just to seek a higher rate of economic growth, but its redirection.

In this discussion paper we have not sought to lay out a comprehensive framework for industrial strategy. Rather we have attempted to identify some key insights and propositions which should inform it. Our recommendations can be brought together as follows.

Objectives

Industrial strategy should be aimed at structural reform of the UK economy, and its success or otherwise measured against the following objectives:

- raising the level of productivity in the economy as a whole, particularly in the many firms, sectors and regions which currently lag behind those in other developed economies, thereby enabling higher median earnings
- increasing the diversity and level of UK exports, particularly in world-leading sectors, and increasing the level of import substitution, in order to improve the UK's balance of trade
- raising the rate of research and development (R&D) throughout the UK economy, and diversifying the range of firms at the technological frontier
- stimulating economic growth and productivity improvement throughout the UK's nations and regions, rebalancing the economy away from London and the South East
- reducing the UK economy's environmental impact, particularly through its almost full decarbonisation by around 2050.

Missions and goal

Industrial strategy should be focused on three missions aimed at addressing key challenges for society, and one economy-wide goal:

- green growth – to reduce the UK's environmental footprint to levels consistent with global sustainability by 2040
- responding to demographic change – to make the UK's population the healthiest and best cared for in the world by 2040
- accelerating the digital economy – to make the UK the most digitally advanced society in the world by 2040
- 'good jobs' – to improve the quality of work across the economy, particularly in low-wage and low-productivity sectors.

UK national institutions

An Industrial Strategy Act should govern the development of this field. This should provide a new legal framework for state aid policy after the UK leaves the European Union. Industrial strategy should be implemented through the following institutions:

- Productivity UK – a new institution aimed at raising firm-level productivity across the country, particularly in the 'everyday economy'. It would focus on improving the quality of management, the wider adoption of digital and other technologies, the better utilisation of skills and promotion of good jobs. With a budget of around £100 million per annum, it would work with sectoral bodies, the devolved governments and local economic partnerships to deliver diagnostic services, training, advice and funding to businesses.
- Innovate UK – the existing institution under the umbrella of UK Research and Innovation, with an enhanced role to promote innovation in frontier companies, research clusters and associated value chains.
- Small Business Research Initiative – a reformed agency under Innovate UK working with government departments to coordinate public procurement and policy with the development of innovative domestic suppliers and value chains.
- National Investment Bank – a new institution to provide public investment in infrastructure, housing, innovation and business growth, leveraging co-investment from private finance. It would have a strong focus on geographic rebalancing of the economy, and enhancing productivity and competitiveness in key sectors. It would seek to leverage co-investment from the private sector.
- Committee on Industrial Strategy – an independent committee of experts drawn from relevant fields and across the country, to monitor and report to parliament on progress against the industrial strategy objectives and to offer independent advice to government on their achievement.

Institutions in the nations and regions

Stronger institutions to develop and implement industrial strategy at the sub-UK national level are required. Consideration should be given to enhancing the economic development powers of the governments of Scotland, Wales and Northern Ireland. In England reforms should include the following.

- A regional tier of economic governance – developed initially from the Northern Powerhouse and the Midlands Engine, and later throughout the country. This tier would be responsible for overall economic planning and industrial strategy, strategic planning, regional infrastructure and transport policy, and potentially devolved migration policy and some aspects of energy policy. It would have a degree of fiscal autonomy (able to collect local portions of some national taxes and levy taxes at local level), and powers to borrow for investment.
- The creation of further combined authorities at city or county regional level – responsible for skills and adult education policy, business support and local planning, housing and transport policy. Local economic partnerships (LEPs) should be reconfigured and strengthened as 'local productivity partnerships', and in due course brought under effective combined authorities. Combined authorities would have some fiscal autonomy and powers to borrow for investment.
- National and regional investment banks in Scotland, Wales, Northern Ireland and the north of England, initially developed (other than in Scotland) as divisions of the National Investment Bank, with the possibility of independent governance in due course.

Policies and funding

Industrial strategy would be implemented and funded by the following (among other policies).

- Increasing public investment spending by £20 billion a year by 2021/22, or around 1 per cent of GDP. Of this at least £10 billion should go towards industrial strategy spending on infrastructure, housing, research and development and business growth, channelled largely through Innovate UK and the National Investment Bank.
- Converting the current apprenticeship levy into a 'productivity and skills levy' – levied at the current rate of 0.5 per cent of payroll for firms with fewer than 250 employees, but at a higher rate of 1.0 per cent for firms above this threshold. This would raise and effectively ringfence around £5.1 billion in 2017/18. The funds raised would be redeemable by participating companies for a wide range of initiatives aimed at raising productivity through skills training and workplace organisation, including skills utilisation and 'good jobs' strategies.
- Introducing a new 'good jobs standard' – to establish a set of guidelines on the design of high-quality jobs. Drawing on Scotland's Fair Work Convention, this could cover elements such as skills utilisation and training, pay and benefits, working hours, career progression, opportunities for voice and participation in decision-making and union representation. Government could incentivise firms by requiring the good jobs standard in procurement policy and through a 1 per cent reduction in corporation tax for accredited small and medium sized firms.
- Expanding and developing university-based industrial and innovation clusters around the UK – through a coherent strategy under UK Research and Innovation.
- Phasing down and in due course largely abolishing the R&D tax credit and patent box schemes. The R&D tax credit for large firms should be ended and the SME scheme restricted to young companies under five years old. The patent box system should be wound down and discontinued, ideally alongside similar schemes in other European countries. The money saved should be used for direct support to R&D through Innovate UK and the National Investment Bank.
- Using some public R&D spending for equity funding as well as grants and loans – enabling the taxpayer to share in the rewards as well as the risks of innovation.

We welcome responses and further debate as the IPPR Commission on Economic Justice works towards its final report in 2018.

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IPPR
14 Buckingham Street
London
WC2N 6DF
T: +44 (0)20 7470 6100
E: info@ippr.org
www.ippr.org
Registered charity no: 800065 (England and Wales),
SC046557 (Scotland)

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Industrial Strategy

Steering structural change in the UK economy

Discussion Paper

The IPPR Commission on Economic Justice is a landmark initiative to rethink economic policy for post-Brexit Britain. The Commission brings together leading figures from across society to examine the challenges facing the UK economy and make practical recommendations for reform.

This discussion paper argues that industrial strategy should become a central pillar of economic policy. Given the UK economy's deep structural weaknesses – in productivity, trade, research and development, geographic imbalances and environmental impact – it argues that industrial strategy must go well beyond correcting 'market failures'. It must be a more fundamental attempt to change the structure of the economy, including the volume and direction of private and public sector investment. The paper argues that industrial strategy should seek to integrate higher demand in the economy, achieved through an increase in public investment, with the strengthening of UK-based businesses in innovation and value chains. Industrial strategy should focus not just on already world-leading 'frontier' sectors but on the majority of firms in the 'everyday economy' where productivity and wages are low. It requires much stronger governance in the UK's nations and regions. The paper sets out a series of proposals on how to achieve these goals, including the establishment of national missions, the creation of new institutions, new tax incentives and changes to the funding of innovation.

The IPPR Commission on Economic Justice