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Reducing regional disparities in productivity in the United Kingdom

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Jagoda Egeland

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REDUCING REGIONAL DISPARITIES IN PRODUCTIVITY IN THE UNITED KINGDOM

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By Peter Gal and Jagoda Egeland

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ABSTRACT/RÉSUMÉ

Reducing regional disparities in productivity in the United Kingdom

The United Kingdom displays large regional disparities in productivity compared to most other OECD countries, with a large gap between London and most other regions. This holds back aggregate productivity and growth, and contributes to regional differences in living standards. To make the lagging regions more attractive to companies and workers, transport links between and within cities should be improved by increasing infrastructure investment outside London. Another policy priority is to improve the local business environment through more spending on innovation and increased support for investment and skills. Also, local authorities should have more freedom in setting education and training goals and the land-use planning system has to be more responsive to meet housing needs in cities. The role of subnational government is sub-par relative to the OECD average, but more devolution has recently been introduced in several city-regions. Such efforts towards more decentralization need to continue to cover larger parts of the country and involve greater transfers of powers and responsibilities at the local level.

This Working Paper relates to the *2017 OECD Economic Survey of the United Kingdom* (www.oecd.org/eco/surveys/economic-survey-united-kingdom.htm).

JEL classification: O4, R3, R4, R5
Keywords: Productivity, regional development, transport, decentralisation

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Réduire les disparités régionales en matière de productivité au Royaume-Uni

Comparé à la plupart des autres pays de l'OCDE, le Royaume-Uni affiche de fortes disparités régionales en matière de productivité, leur ampleur étant importante entre Londres et la plupart des autres régions. Ces disparités brident la productivité globale et la croissance et expliquent les différences de niveau de vie entre les régions. Pour que les régions à la traîne attirent davantage les entreprises et la main-d'œuvre, il faudrait améliorer les liaisons interurbaines et intra-urbaines en développant les investissements dans les infrastructures de transport en dehors de Londres. Une autre priorité des pouvoirs publics est d'améliorer l'environnement local des entreprises en consacrant plus de budget à l'innovation et en développant les aides à l'investissement et au développement des compétences. Les collectivités locales devraient également avoir plus de latitude pour fixer leurs objectifs en matière d'éducation et de formation et les décisions d'urbanisme doivent mieux répondre aux besoins de logements dans les villes. Le rôle des administrations infranationales n'est pas aussi développé qu'en moyenne dans l'OCDE, mais de nouvelles mesures de décentralisation ont été récemment mises en place dans plusieurs villes-régions. Ces initiatives en faveur de plus de décentralisation doivent se poursuivre pour s'étendre à de plus vastes pans de territoire et impliquent des transferts de pouvoirs et de compétences aux collectivités locales.

Ce Document de travail se rapporte à l'*Étude économique de l'OCDE du Royaume Uni, 2017* (http://www.oecd.org/fr/economie/etude-economique-royaume-uni.htm)

Classification O4, R3, R4, R5
Mots clefs: Productivité, développement régional, transport, décentralisation

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Reducing regional disparities in productivity in the United Kingdom

By Peter Gal and Jagoda Egeland[1]

Aggregate productivity is held back by weak regions, taking a toll on inclusiveness

Regional disparities are large in the United Kingdom

The United Kingdom has had weak labour productivity growth since the global financial crisis, a feature shared by many OECD countries. However, a comprehensive explanation of the global and the UK productivity slowdown is still yet to be established despite important research on several aspects (OECD, 2015a; Haldane et al. 2017; Kierzenkowski et al., 2017a). One of the main conclusions is that both capital accumulation and total factor productivity (TFP) have been disappointing. Weak TFP seems to be linked to structural problems that already existed before the crisis, such as the ability to adopt top innovations (OECD, 2015a). This has led to a widening in the distribution of productivity across firms (Andrews et al., 2016) and across regions (OECD, 2016), both in the OECD and in the United Kingdom (Haldane, 2017).

This paper focuses on the regional aspects of the UK productivity challenge, which have been analysed only in a few recent studies so far (CBI, 2017; Haldane, 2016), despite large productivity disparities across UK regions. There are measurement challenges when assessing productivity across regions (Box 1), but most available measures consistently show large and persistent regional differences across the United Kingdom. In particular, the difference between the most and least productive region is one of the largest in the OECD (Figure 1, Panel A) and laggard regions have not been showing signs of catching up over the past few years (Figure 2).

This disparity in productivity has two dimensions. *First*, it is driven by London's outstanding role as a highly productive global city, primarily driven by its financial sector (Figure 1, Panel B; Figures 8 and 11). *Second*, a large number of UK regions are lagging behind with low productivity levels. Despite the robust productivity of the capital region, the average UK region displays the lowest productivity across all G7 countries, standing only at the OECD average, with the second most productive region also having a relatively low productivity level (Figure 1, Panel B). Hence, reducing regional productivity disparities should be achieved through a stronger catch up of regions outside London.

Box 1. Measurement challenges of assessing regional productivity performance

Defining regions and measuring their economic performance in a meaningful and comparable way across countries faces numerous challenges. The appropriate choice for defining the size and area of regions is not

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straightforward. Official data for the United Kingdom defines 12 high-level regions at the European Union's NUTS-1 (Nomenclature des Unités Territoriales Statistiques – nomenclature of statistical territorial units) territorial level, which includes 9 regions in England – one of them being Greater London – and three separate ones for the three devolved administrations of Wales, Scotland and Northern Ireland. Internationally comparable data is compiled by the OECD's Public Governance and Territorial Development Directorate, based on EU-NUTS and national data for non-EU countries (OECD, 2016). The OECD definitions utilise two layers of regional statistics: a higher level TL2, which is equivalent to NUTS-1 for the United Kingdom but for most EU countries it is NUTS-2, and a lower level TL3, which is equivalent to NUTS-2 for the United Kingdom but for most EU countries it is NUTS-3. Throughout the paper, regions are TL2 OECD regions, unless indicated otherwise.

In addition to regions, the OECD and the European Union (EU) also define functional urban areas (FUAs) to better reflect the economic boundaries of cities (OECD, 2016). They are defined as densely populated municipalities (urban centres) and neighboring municipalities with commuting towards the centres (commuting zones). The minimum size on which data is available is 50 000 inhabitants. Working with such city-definitions has the advantage of not being constrained by administrative city borders when assessing economic performance. However, since some data – e.g. employment or value added – are not always available at a sufficiently detailed level, approximation-based imputations are needed when defining productivity.

Another issue regarding regional productivity analysis is the lack of regional price levels, which may exacerbate differences in regional productivity. Indeed, richer regions tend to have higher prices which in turn lead to higher measured productivity. Despite this shortcoming, available regional productivity measures are still useful: to the extent that large price differences are a reflection of strong market segmentation across regions, they induce similar policy challenges to those that aim to reduce productivity differences. For instance, they are both likely to require achieving better regional connectedness to facilitate knowledge spillovers, economies of scale, and competitive pressures on local markets.

Source: OECD, (2016) OECD Regional Outlook 2016, OECD Publishing.

Regional disparities have been increasing since the early 2000s and have further steepened since the global financial crisis (Figure 2, Panel A; Haldane, 2016). Performance gaps are also substantial and persistent not only at the level of large regions but also across smaller ones, comprising of cities and their immediate surroundings (IER, 2016a; next subsection). The phenomenon of increasing regional disparities within countries is becoming more common across the OECD (Blöchliger et al., 2016). It is likely driven by common structural changes in advanced economies, in particular by the increasing agglomeration benefits accruing to large cities due to the rise of knowledge-based activities that benefit from the proximity of people (OECD, 2016, Bartolini et al., 2016, Economic Innovation Group, 2016). However, since the start of the Great Recession, 2007, UK regional differences in productivity have widened whereas they increased by less or even declined in some other G7 countries (Figure 2, panel B). This indicates that national policies can play a role in mitigating or reversing the global technological drivers of productivity divergences across regions.

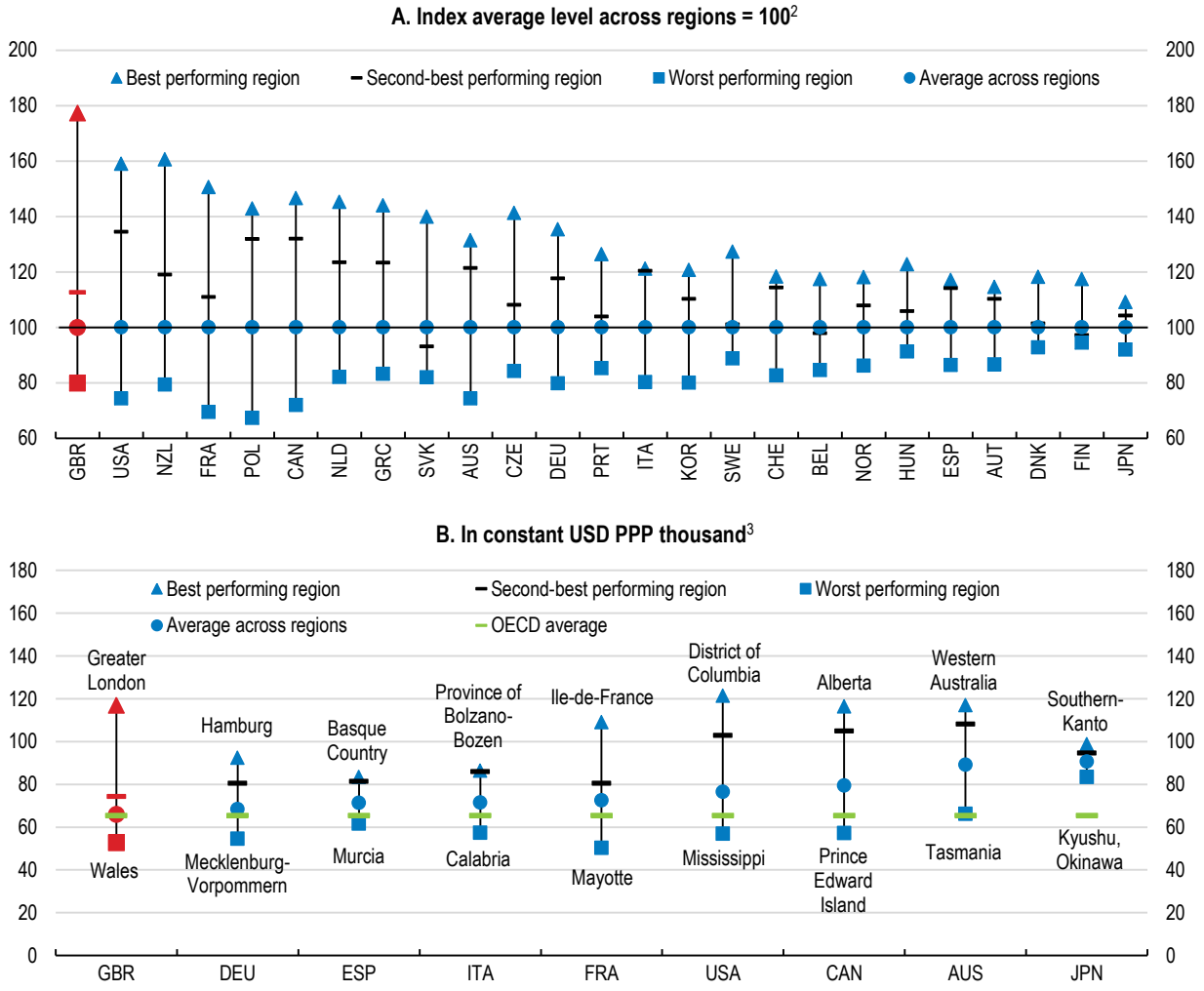
Regional differences in UK productivity also persist when considering either output per hour or output per worker (Figure 3, Panels A and B). In addition, more underemployment and part-time work arrangements – voluntary or not – in the less productive regions also contribute to their low levels of value added per employee. In turn, this explains lower gross domestic product (GDP) per capita in these regions (Figure 3, Panel C). Regional disparities in productivity have a marked geographic pattern in England: a more affluent South and a less prosperous North (Figure 4). Outside England, the three devolved administrations show quite heterogeneous productivity performance: weaker in Wales and Northern Ireland, and stronger in Scotland.

Regional productivity and income disparities of countries are positively correlated across the OECD (Figure 5). Hence, large differences in productivity have negative consequences for inclusiveness and more broadly for social cohesion. The United Kingdom shows one of the highest levels of regional productivity disparity in the OECD, but less so for income per capita. This suggests that taxes and transfers ensure a significant redistribution of income, playing an important role in mitigating income dispersions (Figure 3, Panel D).

However, reducing income disparities primarily through redistributive instruments is fiscally costly and holds back growth in the well-performing regions that need to be taxed more heavily. Also, large transfers to the lagging regions could hold back their incentives to implement productivity-enhancing policies that could create an environment that attracts and retains successful businesses and talented workers (Bartolini et al., 2016). These issues are relevant for the United Kingdom, since there are significant fiscal transfers from the South of England to other areas of the country (see below), coupled with persistent regional differences in productivity.

Figure 1. Regional disparities in labour productivity are high in the United Kingdom

Gross value added (GVA) per worker by region (at TL2 level), 2014[1]



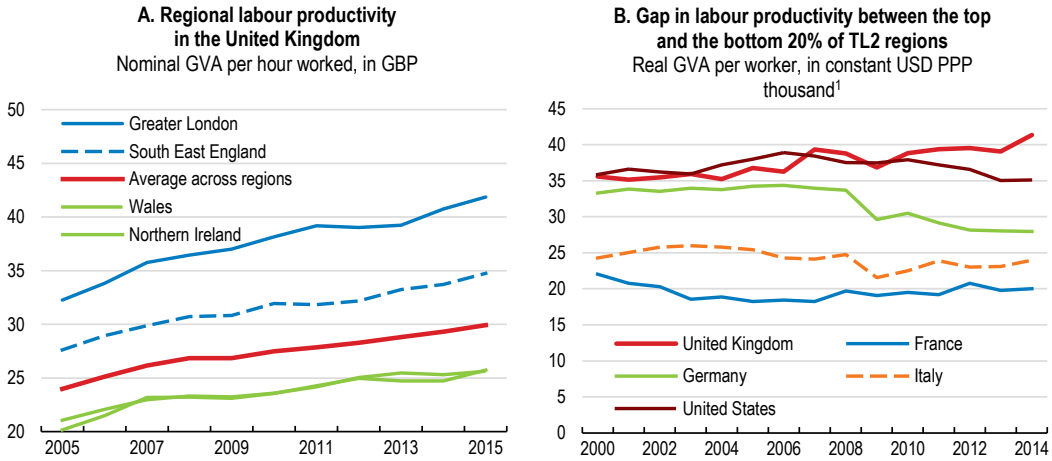
1. Data refer to 2013 for Finland and Hungary. Data refer to 2012 for Japan, New Zealand and Switzerland. In the case of the United Kingdom, there are 12 regions (i.e. North East England, North West England, Yorkshire and The Humber, East Midlands, West Midlands, East of England, Greater London, South East England, South West England, Wales, Scotland and Northern Ireland) at TL2 level.

2. Countries are ranked in descending order of the difference in the level of productivity between the best and the worst performing region. Chile and Mexico, where regional disparities in labour productivity are very high, are excluded from the chart. Territorial level 2 (TL2) refers to large regions within a country.

3. Countries are ranked in ascending order of the average level of productivity across regions. The OECD average is calculated as an unweighted average of the OECD regions for which data are available for 2014. PPP: purchasing power parities.

Source: OECD (2017), "Regional Economy", *OECD Regional Statistics* (database), April.

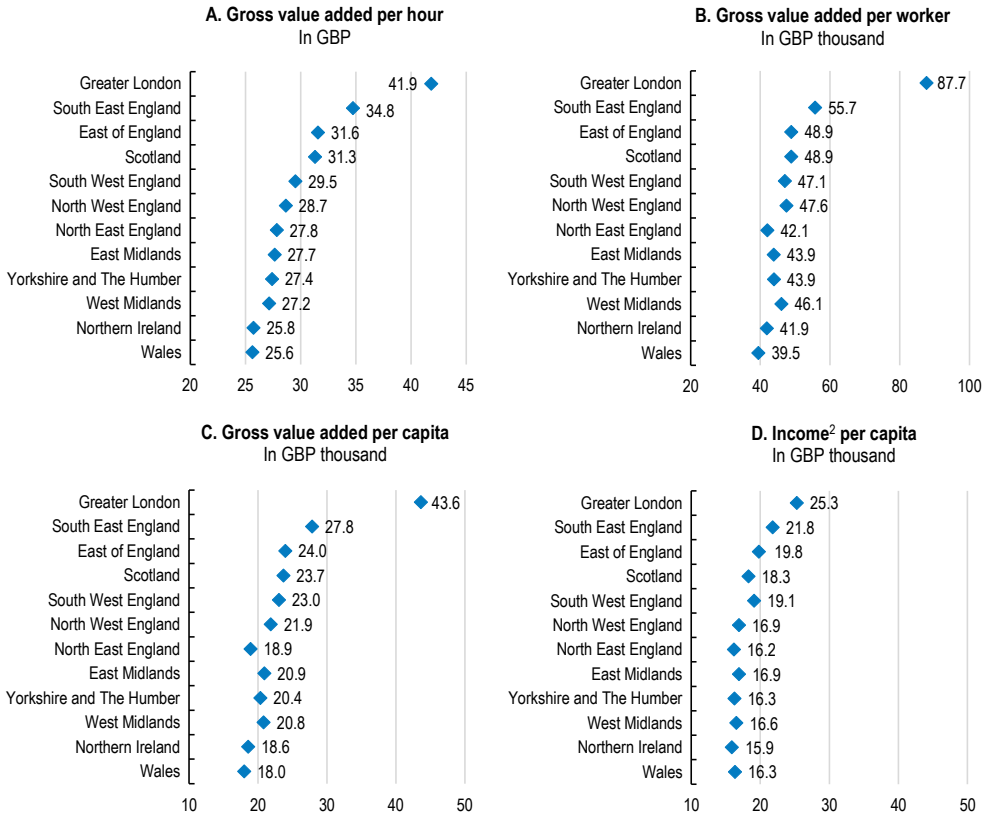
Figure 2. There is no convergence in productivity across UK regions



1. Territorial level 2 (TL2) refers to large regions within a country. In the case of the United Kingdom, there are 12 large regions at TL2 level. Gross value added (GVA) per worker is expressed at constant prices (year 2010) in USD purchasing power parities (PPPs). The labour productivity gap between the top and the bottom 20% of TL2 regions is calculated based on the unweighted average of the respective regions.

Source: ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January; and OECD (2017), "Regional Economy", *OECD Regional Statistics* (database), June.

Figure 3. Regional disparities in UK productivity contribute to differences in living standards
2015[1]



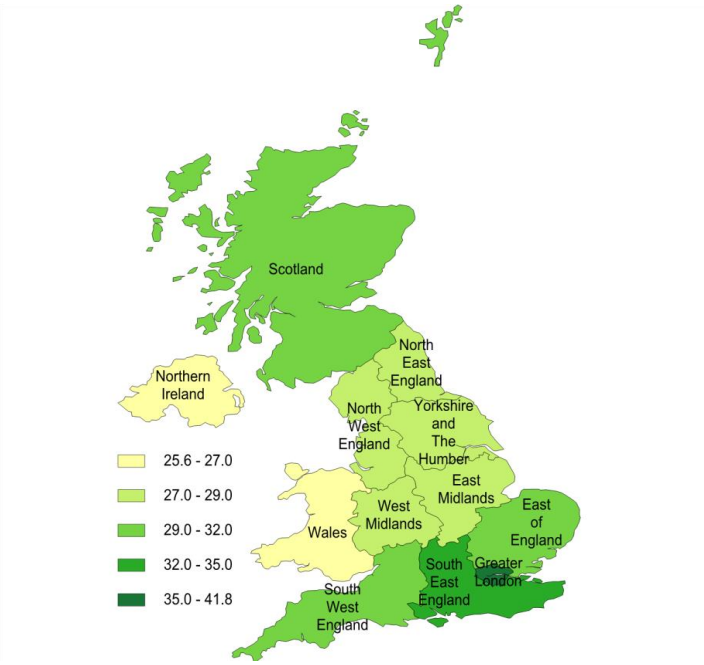
1. Data for gross value added per worker refer to 2014.

2. Gross disposable household income.

Source: ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January; OECD (2017), "Regional Economy", *OECD Regional Statistics* (database), May; OECD (2016), "Regional gross value added (income approach), UK: 1997 to 2015", Office for National Statistics, December; and ONS (2017), "Regional gross disposable household income (GDHI): 1997 to 2015", Office for National Statistics, May.

Figure 4. Regional disparities in productivity are large, driven by a North-South divide in England

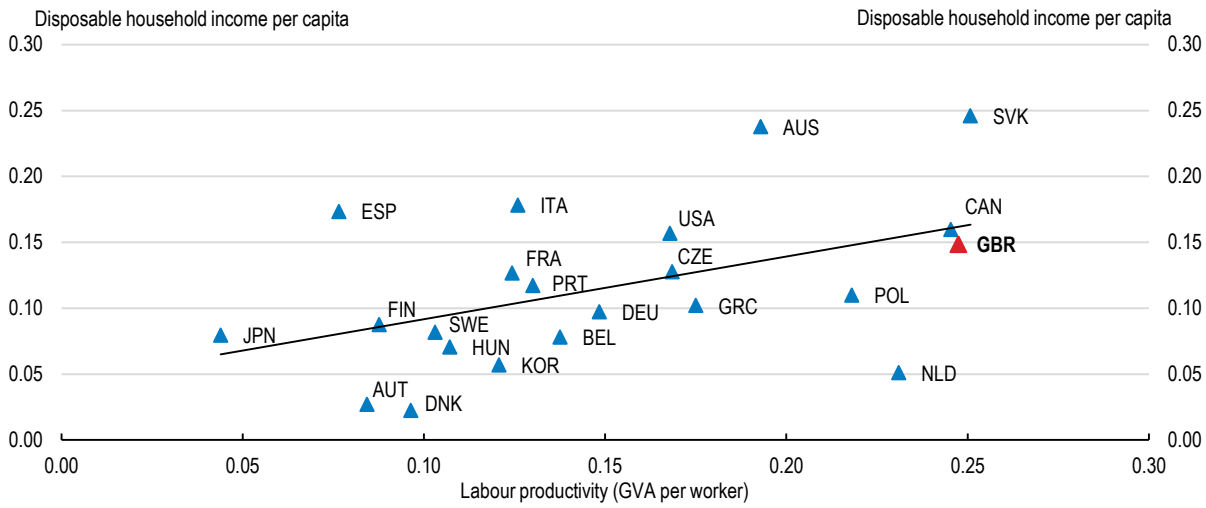
Gross value added per hour at TL2 level, 2015



Source: ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January.

Figure 5. Taxes and transfers mitigate regional differences in productivity in the OECD

Coefficient of variation (standard deviation / mean) across regions at TL2 level, 2014[1]



1. 2013 for Belgium, Finland, France, Greece, Hungary, the Netherlands, Poland, Portugal, the Slovak Republic, Spain and Sweden. 2012 for Japan. Mexico, where regional disparities in labour productivity are very high, is excluded from the chart. Territorial level 2 (TL2) refers to large regions within a country. In the case of the United Kingdom, there are 12 regions (i.e. North East England, North West England, Yorkshire and The Humber, East Midlands, West Midlands, East of England, Greater London, South East England, South West England, Wales, Scotland and Northern Ireland) at TL2 level.

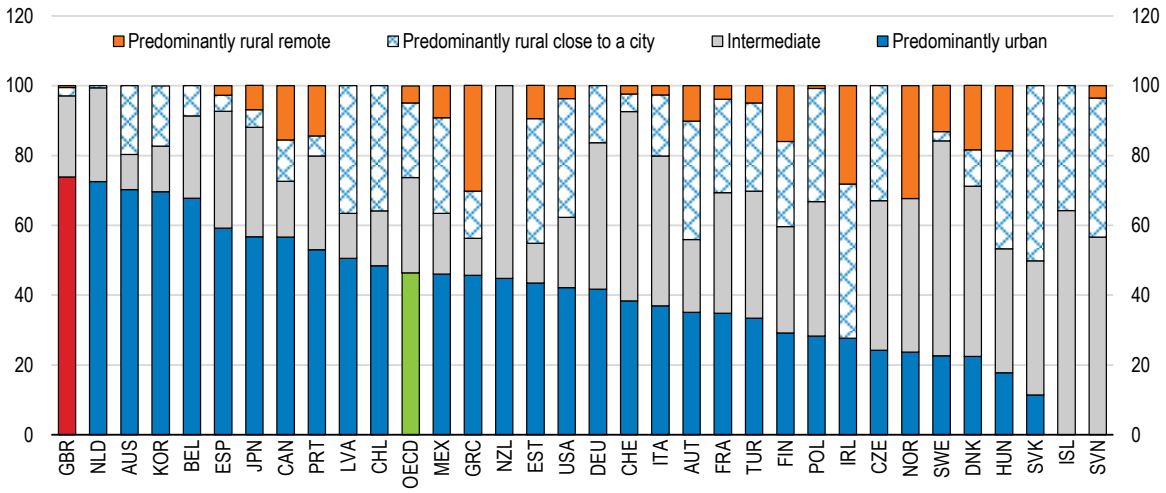
Source: OECD (2017), "Regional Economy", *OECD Regional Statistics* (database), July.

Cities are key for the success of regions, but they also underperform

The low productivity of UK regions is to a large extent driven by a low productivity of its major cities. The percentage of urban population in the United Kingdom is the highest in the OECD (Figure 6). Hence, regional productivity differences need to be assessed through the lenses of major cities. Out of 15 UK metropolitan areas, most of them perform more weakly than the average metropolitan area in the OECD (Figure 7). Thus, regional policy should have a strong urban focus, in line with recent government initiatives focusing on city-regions (see below).

Figure 6. Percentage of UK population living in urban areas is the highest in the OECD

Distribution of population and area by type of region, percentage, 2014[1]

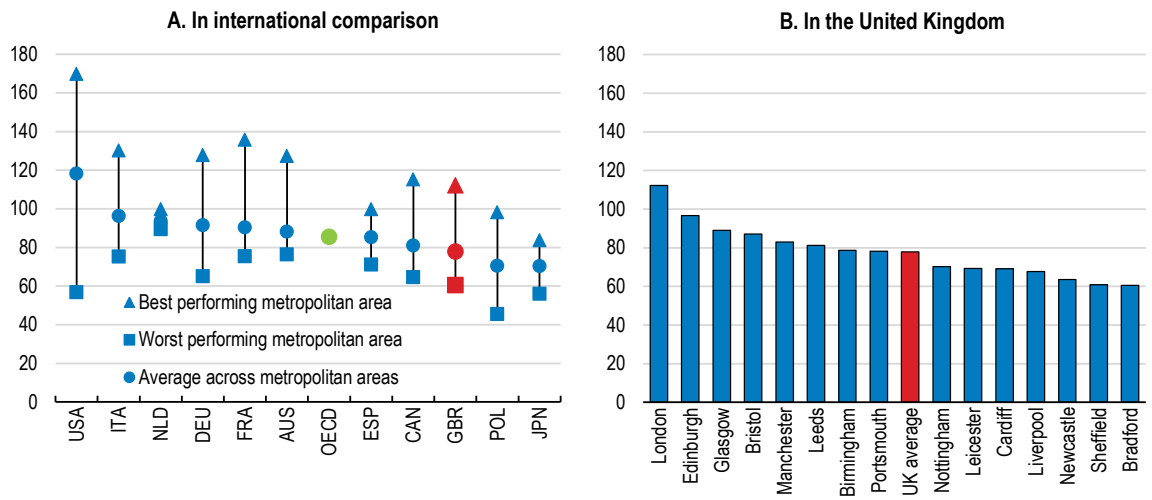


1. Extended typology of predominantly rural areas is not defined for Australia, Iceland, Latvia and Korea. Data refer to 2010 for Mexico.

Source: OECD (2016), *OECD Regions at a Glance 2016*.

Figure 7. Most UK metropolitan areas have a relatively low productivity

Labour productivity of metropolitan areas, in constant 2010 USD PPP thousand, 2013[1]



1. Labour productivity is defined as the ratio between GDP and total employment. Metropolitan area is defined as a functional urban area with a population of 500 000 or more. 2012 for France, Germany, Italy, Japan, Poland, Spain and the OECD aggregate. The OECD aggregate is calculated as an unweighted average of the metropolitan areas of 28 OECD countries for which data are available. PPP: purchasing power parities.

Source: OECD (2017), "Metropolitan areas", *OECD Regional Statistics* (database), April.

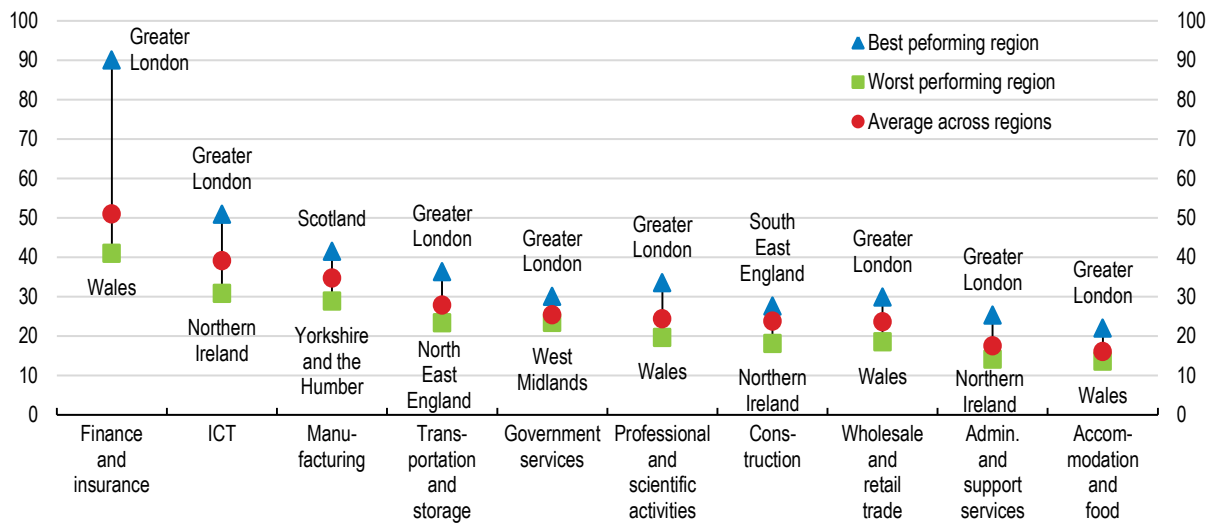
Firm and sector productivity performance has a strong regional dimension too

International evidence shows that the heterogeneity in firms' productivity performance appears large even within narrowly defined sectors (Syverson, 2011). These differences have been growing over time, as the technological frontier advances and the average firm gets further below the frontier (OECD, 2015a; Andrews et al., 2016), a pattern also observed in the United Kingdom (Haldane, 2017). Geographical distance and increasing spatial concentration could play a potentially important role in explaining such large and growing differences between businesses (Syverson, 2011; OECD, 2016).

The knowledge intensive services sectors, which tend to thrive in big cities – such as finance and insurance, information and communication services and professional services –, show large differences across UK regions (Figure 8). On the other hand, manufacturing, construction and especially government and distribution services exhibit much smaller regional differences, although London remains a top performer in productivity for all sectors except manufacturing and construction. Narrowing the gap with the most productive region could bring large productivity increases for knowledge intensive services. Since services rely strongly on agglomeration benefits and large local markets, it is important to improve transport connectivity in the less productive northern part of England so that such benefits can be realised as part of comprehensive, spatially-focused policy packages (see below).

Figure 8 Productivity differences across regions tend to be the largest for knowledge intensive services

Labour productivity measured by value added per worker, in GBP thousand, 2015[1]



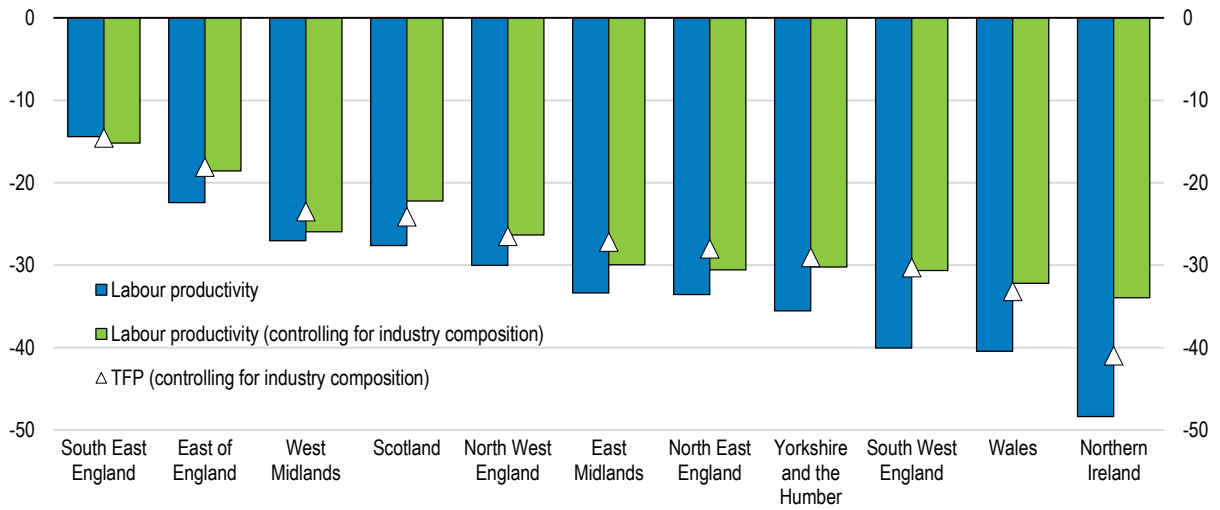
1. Sectors are ranked in descending order of the average level of labour productivity. The chart uses the TL2 definition of regions which yields 12 regions for the United Kingdom. ICT: information and communication technologies.

Source: ONS (2017), "Labour productivity: Jan to Mar 2017", Office for National Statistics, July.

Regional productivity differences in the United Kingdom also persist at the firm level (Figure 9). A large part of productivity gaps across firms, measured in terms of labour productivity and total factor productivity, remains when controlling for differences in industry composition. Put differently, firms are less productive outside London even when they engage in the same economic activity, in line with sector level patterns (Figure 8).

Figure 9. Productivity gaps are substantial at the firm level

Productivity gaps at the firm level compared to Greater London, per cent, average over 2012-2014[1]



1. The bars report the average gap between firms in the London region vis-à-vis all other 11 regions of the United Kingdom in terms of labour productivity and total factor productivity (TFP), as percentage differences from the average firm in the Greater London region. Controlling for industry composition is achieved by including 2-digit industry fixed effects in a regression and retaining regional fixed effects. The analysis focuses on the non-farm non-financial business sector and firms with at least 20 employees. TFP is a production-function estimation based total factor productivity measure. Regions are ordered in terms of TFP differences from Greater London. Percentage differences are approximated by log-point differences. For more details see Andrews, D., C. Criscuolo and P. Gal (2016), "The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy", OECD Productivity Working Papers, No. 5, OECD Publishing, Paris.

Source: OECD calculations using the Orbis database of Bureau van Dijk.

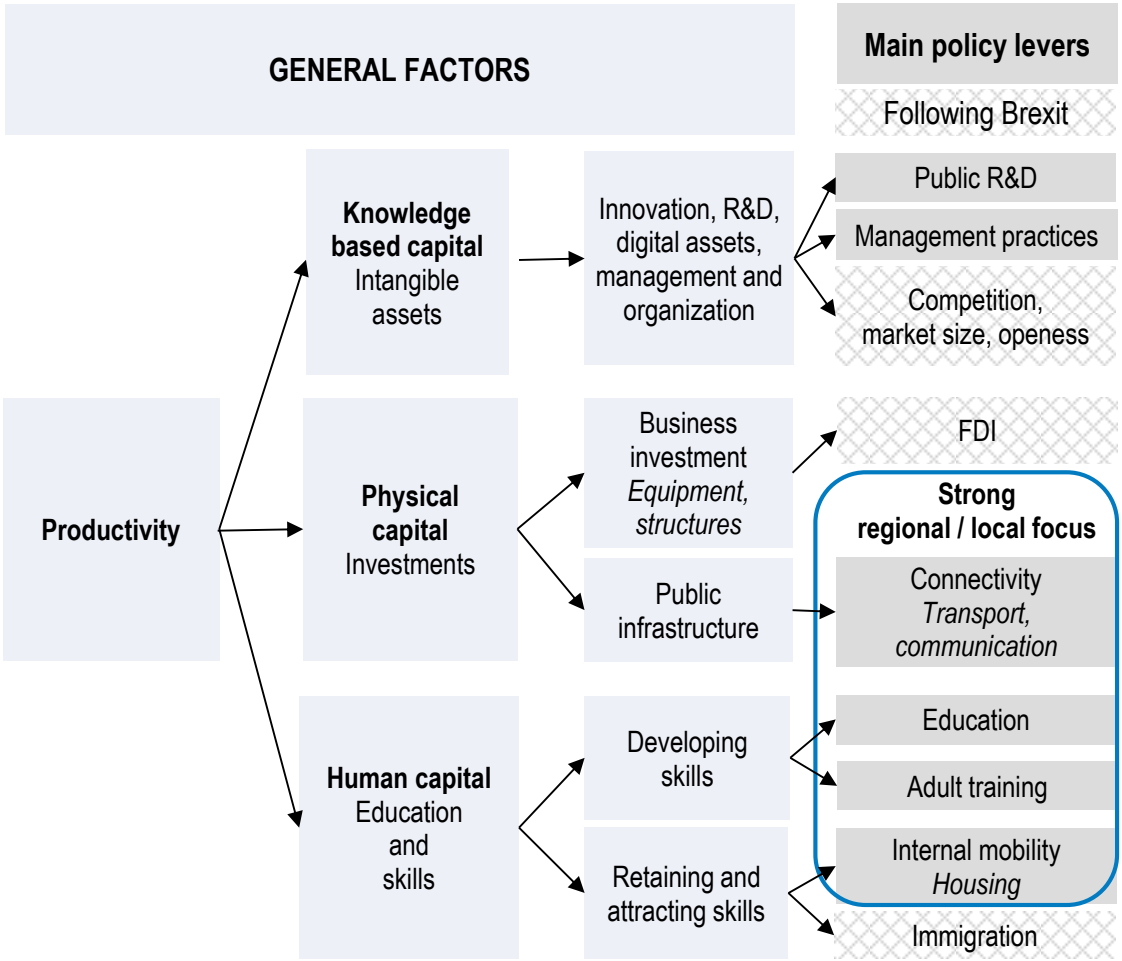
Boosting productivity at the regional level through co-ordinated policies

The general determinants of labour productivity at the regional level mirror those at the national level and can be grouped into three broad components: knowledge based capital (KBC) or intangible capital, physical capital and human capital (Figure 10). Improving productivity requires a multi-pronged co-ordinated policy approach across several domains that should have a strong geographical dimension to tackle the regional nature of the UK's productivity challenge.

Given shortcomings of the transport infrastructure in many lagging regions, improving connections between and within cities is a key priority. As transport investment alone is unlikely to improve productivity, it needs to be accompanied by policies to make these regions more attractive for firms and high-skilled workers, in particular by supporting innovation, investment, improving the affordability and availability of housing, and providing good quality local services. Against the background of low degrees of subnational powers and responsibilities in many of these key areas, more decentralisation (or devolution) is critical.

Additional potentially relevant policy areas can emerge depending on the exit conditions from the European Union (Brexit). A lower openness for goods, services, capital and labour relative to the present situation would weaken domestic competition for importers, reduce the market size for exporters, hold back knowledge flows embedded in foreign direct investment (FDI), and limit the supply of both manual workers and highly skilled talent.

Figure 10 Structural determinants of regional productivity and potential policy levers[1]

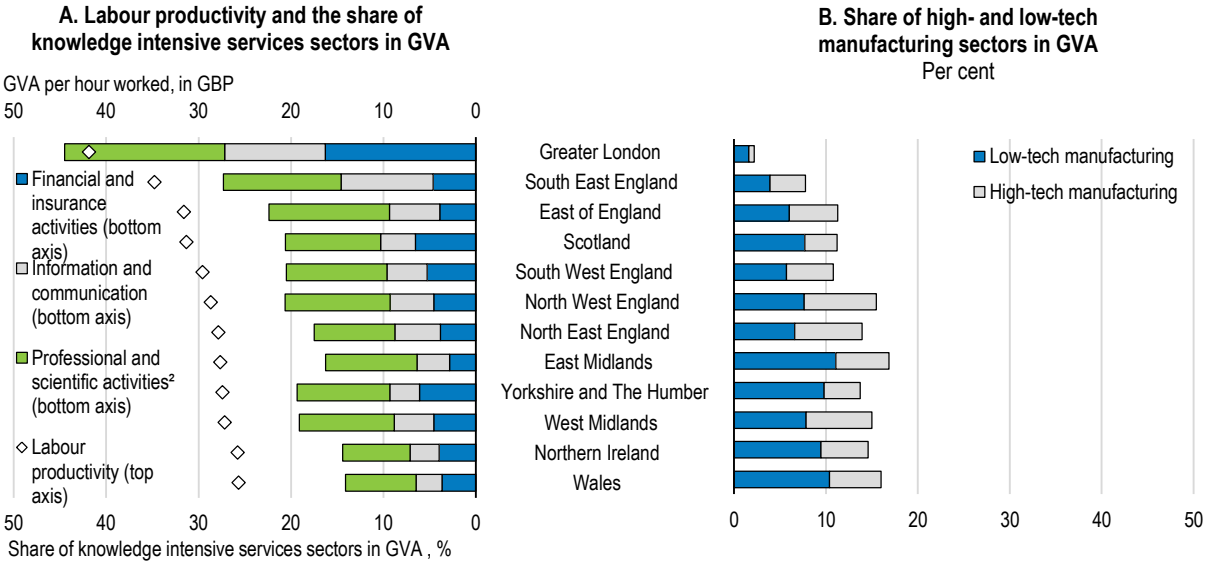


1. The left segment of the diagram – the first three columns – shows the general determinants of productivity at the regional level. The rightmost segment shows the most important policy areas in the United Kingdom where further action is most likely to bring benefits. The three policy areas highlighted with a pattern background under the label "Following Brexit" denote those that will likely become relevant after the UK's departure from the European Union.

The government's industrial strategy to boost productivity should take into account the regional concentration of many economic activities, leading to a focus on the needs and challenges of specific sectors (see below). In particular, the most productive regions in the South specialise predominantly in knowledge intensive services, while the percentage of manufacturing in regional gross value added – especially its low-tech segment – is larger in the less productive regions of Wales, North-East England and Northern Ireland (Figure 11). Knowledge intensive services in the densely populated South benefit from strong agglomeration effects, as reflected in particularly high productivity (Figure 8) and concentration (Figure 11). Hence, a strategic aim should be to create large integrated economic areas in other parts of the country where agglomerations can be fostered and hence where productivity benefits can be unlocked. This could be achieved by deploying key policy instruments – on transport, innovation and skills – in a co-ordinated way with a strong local engagement fostered by devolution to city regions. Recent regional development initiatives of the Northern Powerhouse and Midlands Engine are important steps in this direction (see below).

Figure 11. Most productive regions are heavily specialised in knowledge intensive services

By regions at TL2 level, 2015[1]



1. Regions are ranked in descending order of their level of labour productivity (i.e. gross value added (GVA) per hour worked). High-tech manufacturing refers to chemicals and chemical products (CE), basic pharmaceutical products and preparations (CF), computer, electronic and optical products (CI), electrical equipment (CJ), machinery and equipment not elsewhere classified (CK), transport equipment (CL) based on SIC07 industry classification. Low-tech manufacturing refers to food products, beverages and tobacco (CA), textiles, wearing apparel and leather products (CB), wood and paper products and printing (CC), coke and refined petroleum products (CD), rubber and plastic products (CG), basic metals and metal products (CH), other manufacturing and repair (CM) based on SIC07 industry classification.

2. Professional, scientific and technical activities and administrative and support service activities

Source: ONS (2016), "Regional gross value added (income approach), UK: 1997 to 2015", Office for National Statistics, December; and ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January.

Developing transport and other infrastructure to bolster the productivity of lagging regions

Facilitating the diffusion of knowledge and the best business practices from the top performers to other firms can boost productivity (Andrews et al., 2016). Geographical proximity stands out as a key factor helping this diffusion, which stresses the importance of enhancing connectivity through appropriate transport links (OECD, 2015b). Reducing travel times to large metropolitan areas can be a significant driver of higher growth in GDP per capita at the regional level (Ahrend and Schumann, 2014). Transport investment can help address labour market imbalances by increasing the pool of workers into which companies can tap, at the same time providing workers with better access to more jobs. Strengthening transport links across cities can be particularly effective when distances between them are relatively close – which corresponds to the characteristics of the northern part of England (Liverpool-Manchester-Leeds-Sheffield) – so that they can form a combined economic area. The currently fragmented agglomerations can be further integrated by not only reducing distances between cities (inter-city linkages), but also within cities (intra-city linkages).

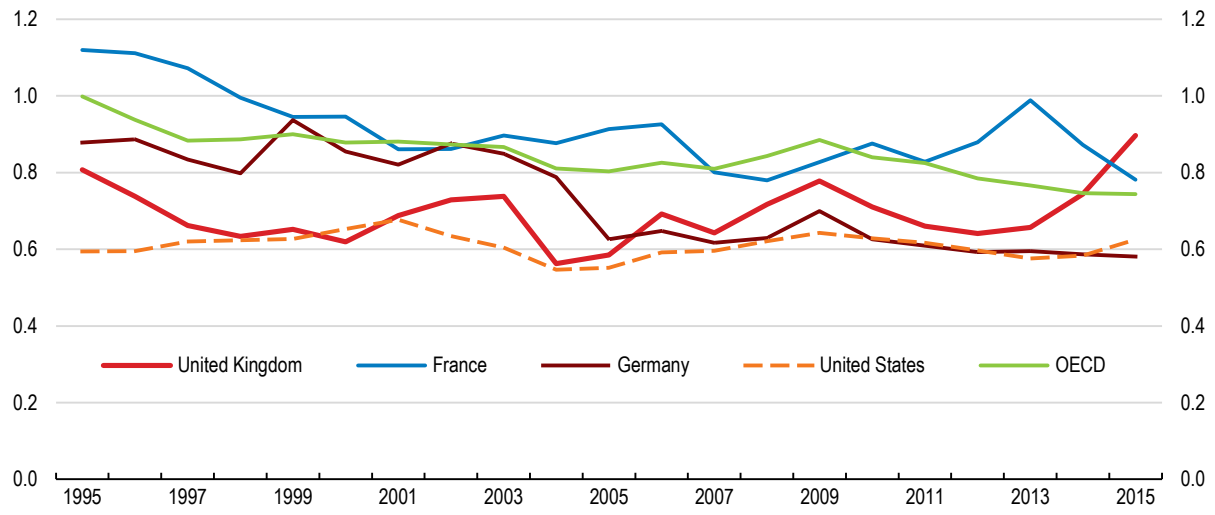
As discussed in detail in the previous *Economic Survey of the United Kingdom* (OECD, 2015c) and pointed out by other studies (LSE Growth Commission, 2013; NAO, 2013; Armitt, 2013), insufficient infrastructure investment has become a bottleneck in the development of the UK economy. Perceptions of road and rail transport quality are also low in international comparison (WEF, 2016). Total spending on transport investment and maintenance as a percentage of GDP tended to be lower than in other advanced

countries, such as France and the OECD average, but it rose in 2015 (Figure 12). Moreover, the government has recently set up a new National Productivity Investment Fund with a view to increase public spending at areas critical for productivity, including infrastructure. The creation of the Fund is a step forward, with a budget of 1.2% of GDP by 2021-22, but spending is mainly back loaded with nearly three-quarters of it scheduled after 2019.

Transport infrastructure investment is low outside London and the South of England (Figure 13). Where public investment is involved, nearly 30% of all transport infrastructure spending takes place in London (with the majority of spending by the local government body Transport for London). A similar picture emerges on a per capita basis: transport investment spending in London is about GBP 1 000 per resident, compared to Scotland with the second highest transport spending per capita at close to GBP 500 per resident. Northern Ireland has the lowest capital spending per resident, a little over GBP 200. Some of these differences may stem naturally from the different needs across more and less densely populated areas. However, transport connectivity could also drive agglomeration patterns and thus can contribute to the emergence of economic hubs.

Figure 12. Transport infrastructure investment in the United Kingdom has been weak until recently

As a percentage of GDP[1]



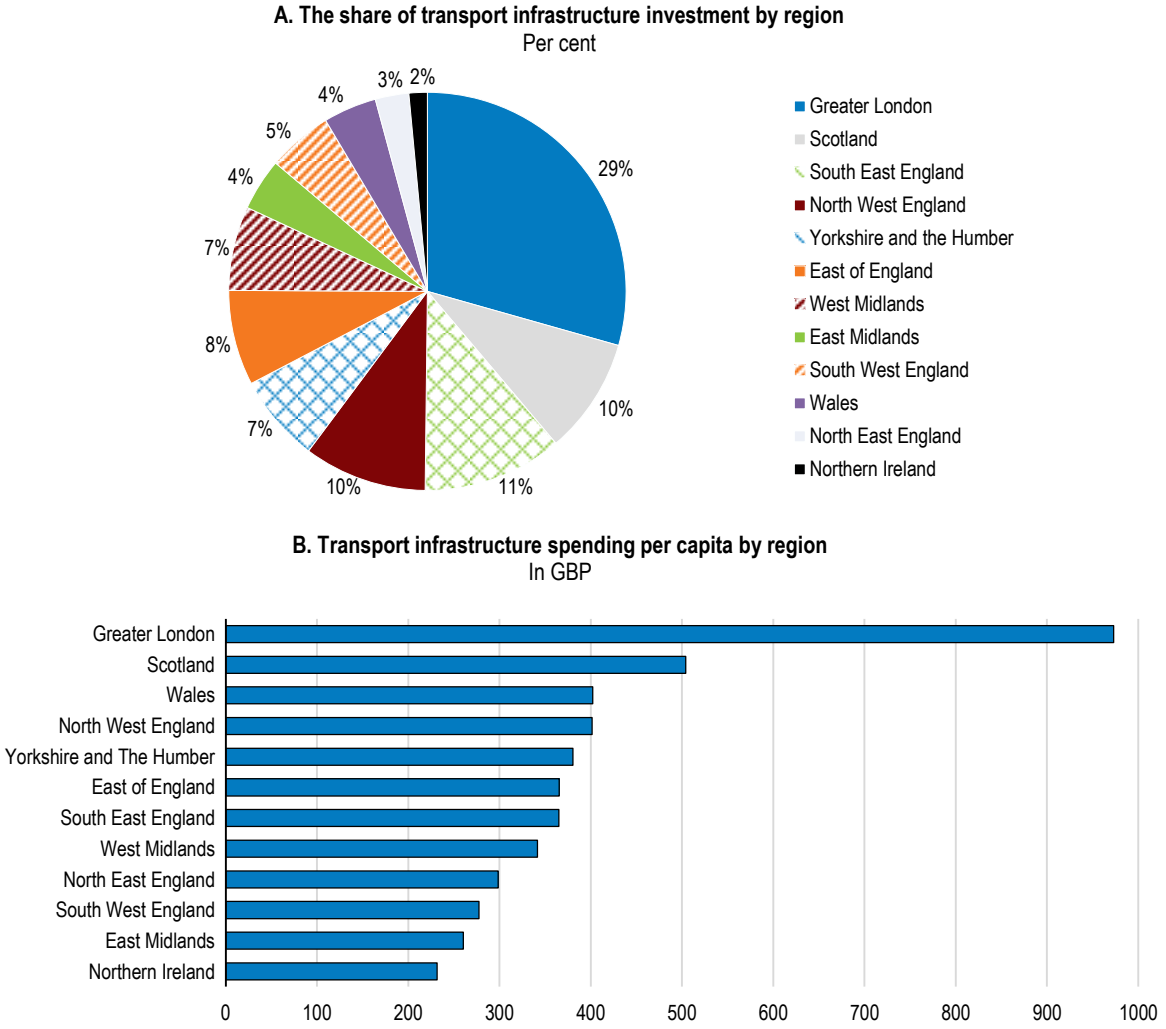
1. Data refer to total (both public and private) inland transport infrastructure investment.

Source: OECD (2017), "Transport infrastructure investment and maintenance spending", International Transport Forum, April.

The United Kingdom adheres to best practice regarding transport project appraisal and selection (ITF, 2017; OECD, 2017a). However, while the Government continues to prioritise the highest value-for-money projects, wider strategic aims should also be considered in the investment decision-making process, in particular the potential of some projects in some places to foster agglomeration and unlock the potential productivity benefits. The ways of dealing with such challenges are outlined in the recent Transport Investment Strategy published by the Department for Transport (HM Government, 2017a). Importantly, the specific characteristics of local areas and their existing plans and aspirations should be taken into account. Moreover, regional economic displacement effects should be considered to ensure that the benefits of transport projects are not overstated, a particularly relevant consideration for developed regions where transport investments can attract economic activity away from less developed areas.

Figure 13. Most transport infrastructure investment is concentrated in London

2015/16[1]



1. Data refer to fiscal year. Figures represent the sum of local and central government expenditure.

Source: HM Treasury (2016), *Country and regional analysis*.

Adopting new approaches to long-term infrastructure planning and delivery

Low infrastructure provision in the United Kingdom has partly been linked to insufficient long-term infrastructure planning and related policy uncertainty (LSE Growth Commission, 2013; NAO, 2013). To address these challenges, the Government has recently set up the National Infrastructure Commission (NIC) in 2015, followed by the creation of the Infrastructure and Projects Authority (IPA) in 2016. These are welcome changes and the government should continue its support for the NIC and the IPA to corroborate a stable framework for infrastructure investment.

Apart from strengthening UK's investment framework, the new institutional setting can also help unlock the benefits of transport investment by taking a broader view of the UK's investment needs, across all infrastructure sectors and in conjunction with any related policy considerations. The NIC's National Infrastructure Assessment is the first-ever multi-sector strategic infrastructure planning exercise in the United Kingdom. The NIC will use both bottom-up and top-down approaches to identify investment needs

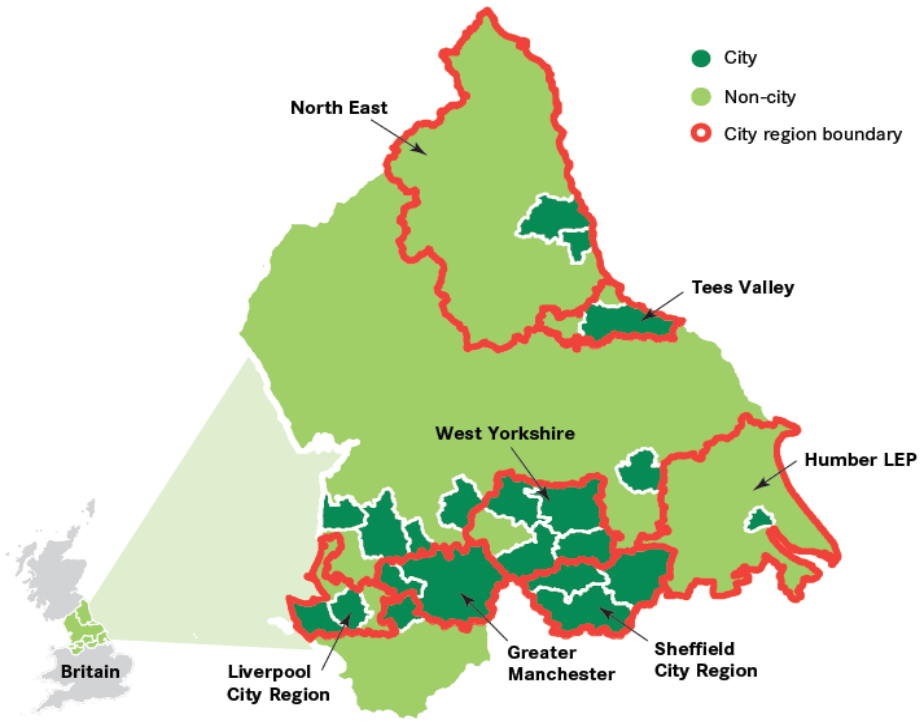
across sectors of the economic infrastructure (OECD, 2017b). Such a planning approach can assist the government with creating integrated policy and investment packages to unlock the benefit potential of transport and other infrastructure projects.

The IPA is in charge of producing a National Infrastructure Delivery Plan (NIDP) every five years, which sets out the government's highest priority infrastructure plans across all infrastructure sectors. In 2016, housing and social infrastructure were added to the NIDP, which is a welcome step insofar as it will contribute to a more integrated approach to local infrastructure development.

Sustaining regional initiatives: Northern Powerhouse and Midlands Engine

Recent micro-level analyses have shown that neither the productivity of firms nor the wages of workers increase with city size in the North of England and in the Midlands, pointing to weak agglomeration benefits there (Ahrend et al., 2017; ONS, 2017). This contrasts with the South of England, where there is a positive relationship between city size and productivity, which is largely driven by London and a few medium-sized cities in its neighbourhood. The Northern Powerhouse strategy is based on unlocking agglomeration benefits through connecting the biggest centres of population in the north of England. The strategy includes goals to provide better connections between the biggest Northern cities, along with plans to improve other types of infrastructure so as to gain from the combined economic power of several important medium-sized cities such as Manchester and Leeds (Figure 14).

Figure 14 Geography of the Northern Powerhouse



Source: Swinney, P., (2016) "Building the Northern Powerhouse: Lessons from the Rhine-Ruhr and Randstad," Centre for Cities; and Transport for the North, (2015) "The Northern Powerhouse: One Agenda, One Economy, One North," London: the Stationery Office

The Northern Powerhouse area is located in the North of England and includes the North East, North West, and Yorkshire and the Humber regions, and has among its goals to address barriers to productivity in the North, including transport, skills, innovation and investment (Transport for the North, 2015). This area

accounts for nearly a quarter of the UK's population, but output per capita is almost 20% below the UK average, as a result of lower productivity and lower employment. The authorities have put forward programmes of devolved investments in the Northern Powerhouse Strategy (NPS, HM Treasury, 2016a), along with a similar regional initiative called the Midlands Engine Strategy (MES, HM Government, 2017b). It is welcome that the authorities have recently confirmed their commitment to the Northern Powerhouse and Midlands Engine Investment Funds in subsequent budgets (HM Treasury, 2016b).

The North of England needs significant transport investment to improve both intra- and inter-city transport links (in terms of reducing journey times, increasing capacity and improving transport reliability), wherever this investment can foster positive agglomeration effects and unlock the benefits for productivity. The focus on intra-urban accessibility is essential to improving connectivity, because most journeys are not city centre to city centre but from city centre to agglomeration. For example, the new high speed line connecting the two major cities of the Northern Powerhouse (Northern Powerhouse Rail or High Speed Three, HS3) or between the Northern Powerhouse and the South of England, going through the Midlands (High Speed Two, HS2) will shorten the time of travel between these cities and areas, but their success in creating economic benefits will hinge on whether intra-city transport is appropriately linked to them. Evidence from other countries on high speed rail investments is difficult to compare given important differences in geography. Nevertheless, the effects of high speed rail investment in France is mixed, with Paris and the largest regional cities such as Lyon benefiting, but smaller regional centres seeing an outflow of businesses.

Such infrastructure investment efforts need to be considered in the context of maximising the benefits from currently planned investments. An urban perspective on transport infrastructure planning can help achieve this goal. The scale of investment needs implies that the plans will have to be delivered in phases. It is thus important to start from those projects that deliver the greatest benefits and where relatively quick progress can be made. Moreover, the government should focus not only on building new infrastructure, but also on infrastructure maintenance and renewal, as well as on upgrading the existing infrastructure.

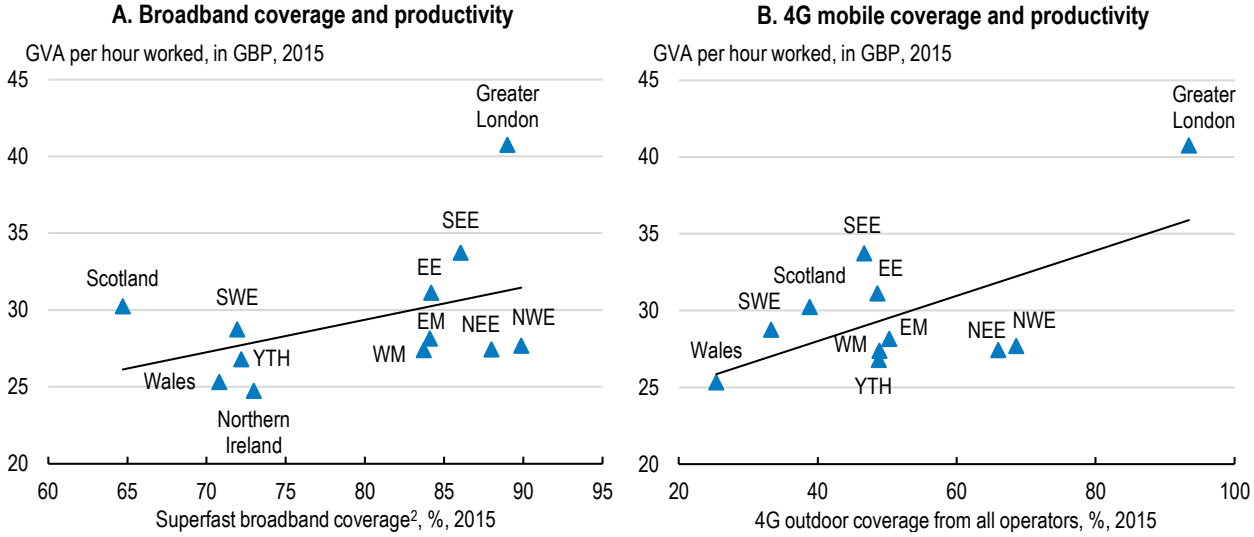
To unlock the economic potential of these regional initiatives, transport investment plans need to be coupled with policies to foster economic growth, as building infrastructure alone generally does not create economic potential. A transport infrastructure project for which there is little latent demand is unlikely to improve productivity and drive economic growth (OECD, 2017b). The Jubilee Line in the London Underground is often quoted as an example of a successful investment "package", coupling the development of the line with favourable business property tax rates that attracted business investment to the Docklands area of East London. Similarly, the success of the Oresund fixed link between Copenhagen and Malmö was linked to major investments in universities, science parks and housing, on both sides of the straights as part of a joint policy of the governments of Denmark and Sweden to create a pole of high-tech activity in the region. The initial large demand using the bridge and tunnel linking the two countries mostly reflected a large difference in the wage and unemployment rates between Copenhagen and Malmo regions. In the longer term, demand was driven by the increased productivity effects of integrating the labour and service markets of the two cities, which was also spurred by other complementary policies at the local level.

Continuing the development of digital infrastructure

Digital infrastructure ensures the flow of communication, data and knowledge across the country, helping remote areas to stay connected with the rest of the economy and thus also contributing to catching-up with the best practice in productivity. In particular, broadband internet connection capacity is crucial at the regional level as it seems linked to productivity (Figure 15), but it tends to be underdeveloped in international comparison (OECD, 2016). Building infrastructure in remote areas needs direct outreach to those communities, and the example of the government initiative – Community Broadband Scotland – is

encouraging in this respect. Given the overall positive impacts of faster connectivity on productivity and economic development, it is welcome that the government has pledged to deliver superfast broadband for 95% of households by 2017 and 97% by 2019 (HM Government, 2015).

Figure 15. Access to ICT and productivity are positively related at the regional level[1]



1. Regional data for broadband and mobile coverage are calculated unweighted averages of county and unitary authority level figures. SEE: South East England; SWE: South West England; NWE: North West England; NEE: North East England; EE: East of England; EM: East Midlands; WM: West Midlands; YTH: Yorkshire and The Humber.

2. Superfast broadband refers to 30Mbit/s to less than 300Mbit/s.

Source: Calculations based on Ofcom (2015), *Connected Nations 2015*; and ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January.

Broadband internet access tends to have positive effects on economic activity, although their magnitude varies widely across firms and households (What Works Centre, 2015). The immediate economic benefits tend to be larger for places that are closer to urban areas (What Works Centre, 2015). However, studies that take a detailed look and isolate the role of information and communication technology (ICT) alone find only weak growth impacts, in the United Kingdom and elsewhere (De Stefano et al., 2014; Mölleryd, 2015). The reason is that complementary factors – managerial quality and investments in the reorganisation of workers and supply chains – appear to be required to gain the full benefits of ICT. Put differently, faster internet access alone is unlikely to generate better performance, unless accompanied by further restructuring steps by firms. This highlights that in order to maximise the benefits from improving the digital connectivity of cities and regions, policy should ensure that appropriate management and training is available, pointing again to the importance of a regionally and locally focused policy packages.

Creating an attractive environment for firms at the regional level

Expanding the modern industrial strategy plan

Policy should recognise the strong linkages between sectors and regions, and the recently announced industrial strategy could play an important role in this respect. Appropriately, the government's objective with the strategy is not to prop up failing industries or picking winners, but to create the conditions where winners can emerge and grow (HM Government, 2017c). The strategy is still evolving and it aims to be primarily horizontal rather than relying only on sectoral elements (Clark, 2016). Importantly, it is not restricted only to the manufacturing or industrial sectors, but to encompass all segments of the economy

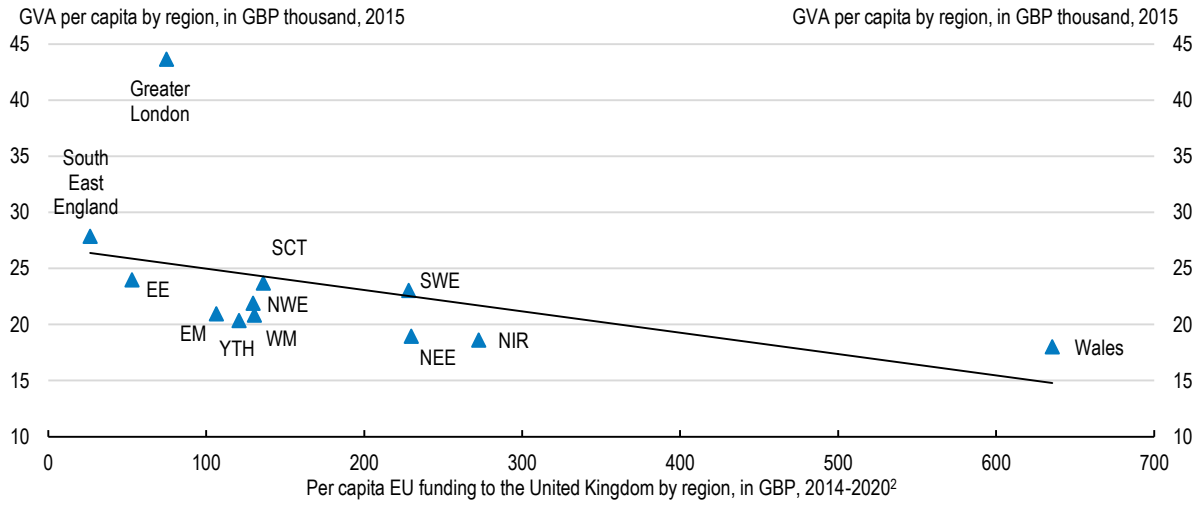
including services, which play a major role in the UK economy. Product and labour markets are already flexible and the proposal rightly focuses on other areas where improvements could be made (Figure 10). These include more incentives for innovation – also through better corporate governance and antitrust regulation – and more resources devoted to research and development (R&D); a better supply of skills; and more provision of transport infrastructure and increasing housing supply (Mor, 2016).

Beyond the focus on specific policy areas, an additional important dimension of the industrial strategy is on regions: it aims to drive growth across the country and to ensure more widespread prosperity throughout the country by continuing devolution to cities outside London. The focus on cities is welcome and should build on successful examples of devolution deals with city-regions (Swinney, 2017). It also receives strong support from the group of the 10 most important cities ("Core Cities"), which offer their explicit help with formulating the details of the strategy and show a desire to take on more powers and responsibilities in its delivery (Core Cities, 2017; see below).

Resources to support investment are scarce, hence they should be targeted at such sectors and regions that are lagging behind and whose productivity would be the most responsive to higher capital intensity. Building on this idea, recent OECD analysis has shown by using UK firm-level evidence that for most regions knowledge intensive services (ICT and business services) appear the most promising (Kierzenkowski et al, 2017a). The reasons are threefold: *First*, such activities have a strong potential for spillovers from leading UK firms (Figure 8); *second*, they have shown strong responsiveness historically to increases in capital intensity; and *third*, such activities have a large weight in the output of most regions, comparable to the weight of manufacturing activities in lagging regions (Figure 11). More detailed analysis reveals that within capital investments, focusing on raising R&D intensity would also deliver important productivity increases in the most lagging regions, in particular for the manufacturing sector. Still, a strong overall focus on services would be consistent with the position of UK sectors in global value chains, which shows a decline in manufacturing and a sustained good position in knowledge intensive services (Criscuolo and Timmis, 2017). Finally, to complement and to fully leverage capital investments, it is important to invest in the necessary skills (Baker and Zwart, 2017).

The industrial strategy should also consider the role of European Union (EU) funds and lending provided by the European Investment Bank, and design offsetting policies in case access to finance would be diminished or lost, given potentially strong regional implications (Figure 16). This could take the form of sectoral and regional impact assessments, which would be particularly important for industries that are strongly integrated with European value chains, such as the aerospace and automotive sectors, and for regions that are large beneficiaries of EU funds due to their low levels of income. Moreover, the restructuring needs in low-tech manufacturing – which is more important in the lagging regions – and the lack of equity finance in those regions also highlight the need for sector-specific approaches (see below).

Figure 16. Least affluent regions are the most exposed to the loss of EU structural funds[1]



1. SWE: South West England; NWE: North West England; NEE: North East England; EE: East of England; EM: East Midlands; WM: West Midlands; YTH: Yorkshire and The Humber; SCT: Scotland; NIR: Northern Ireland.

2. Data on EU funding refer to the European Regional Development Fund (ERDF) and the European Social Fund (ESF), but do not include the European Agricultural Fund for Rural Development (EAFRD), the European Maritime and Fisheries Fund (EMFF) and the Youth Employment Initiative (YEI).

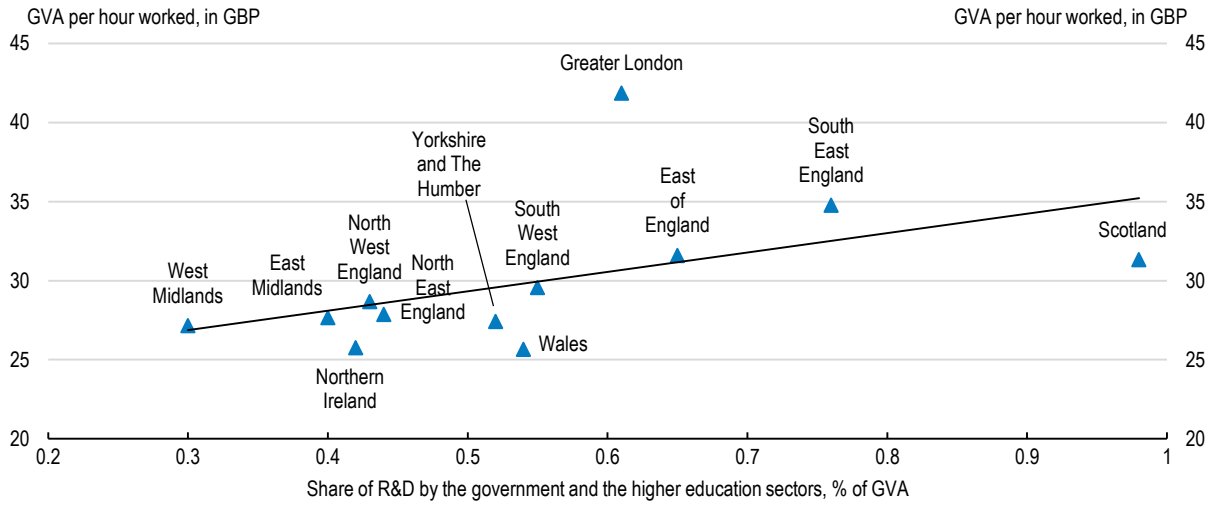
Source: SPERI (2016), "UK regions and European structural and investment funds", Sheffield Political Economy Research Unit, *SPERI British Political Economy Brief,* No. 24, May; and ONS (2016), "Regional gross value added (income approach), UK: 1997 to 2015", Office for National Statistics, December.

Stepping up innovation and R&D support

The United Kingdom is below the OECD average for total R&D spending, and for both private and public spending on R&D, while lagging regions show particularly low levels of R&D in the government and higher education sectors (Figure 17). The effectiveness of the UK R&D tax credit system has been positively evaluated, with for every GBP 1 spent on the policy, the additional R&D spending being 1.7 (Dechezleprêtre et al., 2016). As R&D can also help the absorption of knowledge and business practices, the least productive regions should have priority in applied R&D, while support for basic research should be directed to the centres of excellence. This also applies when it comes to public sector spending, especially since it is found to speed up the convergence of lagging regions (OECD, 2016). Further, collaboration between businesses and universities should be encouraged by expanding and refining existing initiatives: the Higher Education Innovation Fund which grants additional funding to universities who engage with businesses, and the Catapult centres which provide a platform for small businesses to collaborate with universities. Against this background, it is welcome that the emerging new industrial strategy (see above) has a strong focus on R&D.

Foreign-owned multinationals have been better able to harness information and communication technologies through better management, pointing to the positive impact of foreign direct investment (FDI) inflows on productivity and the complementarities between digital investments and management practices (Bloom et al., 2012). Given international evidence on the beneficial productivity effects of knowledge flows from foreign companies to domestic firms (Beugelsdijk et al., 2008; Javorcik, 2004), the government should aim to keep all channels of such productivity spillovers open, including through attracting FDI. This is particularly important in the less productive northern regions that rely on FDI-intensive manufacturing (Figure 11).

Figure 17. Public R&D intensity is relatively weaker in lagging regions[1]



1. Data refer to the latest year available. In the case of GVA per hour worked data refer to 2015. In the case of the share of research and development (R&D) by the government and the higher education sectors data refer to 2013 for all regions except for North East England, North West England and Northern Ireland for which data refer to 2012.

Source: OECD (2017), "Regional Innovation", *OECD Regional Statistics* (database), June; and ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January.

Relaxing financial constraints which hold back resource reallocation

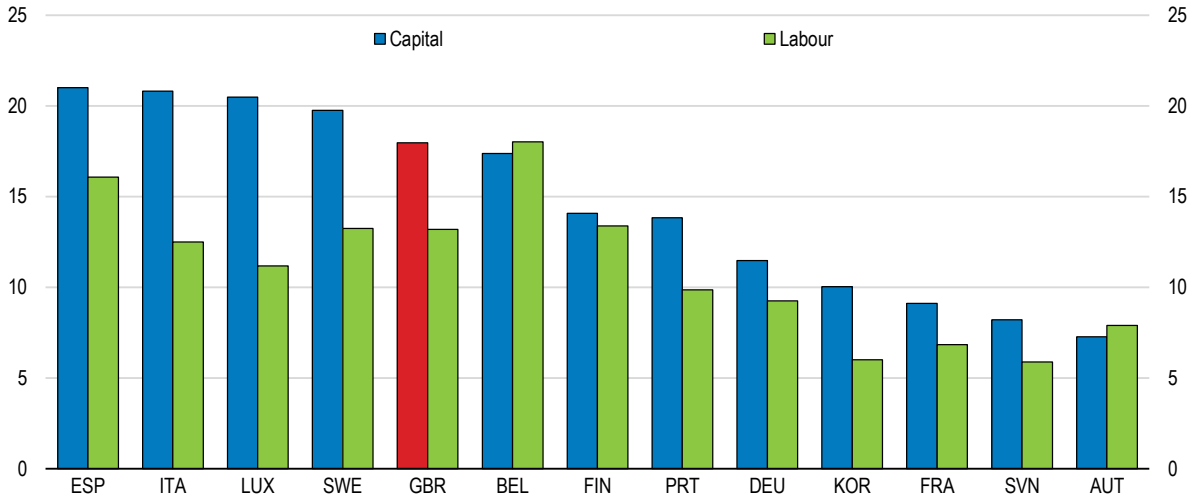
A healthy and dynamic economy requires intensive reallocation of resources from less to more productive firms, and from declining to thriving sectors. This is especially true in the aftermath of a large turbulence, such as the financial crisis. The United Kingdom does not seem to be among the worst performing countries in this respect, as shown by its relatively low share of "zombie firms" – defined as firms which persistently fail to cover their interest payments from current profits (Adalet McGowan et al., 2016). In Southern Europe, the phenomenon is much more severe. Nevertheless, there are weaknesses in some sectors of the United Kingdom.

An increasing number of loss-making businesses do not exit the market in the manufacturing sector (Barnett et al., 2014), which plays a relatively more important role in lagging regions (Figure 11). In particular, some segments of the low-tech manufacturing sector require restructuring and freeing-up of resources both within the sector and potentially to other, more productive sectors. Zombie firms stunt potential growth by slowing down productivity-enhancing capital reallocation and business investment (Adalet McGowan et al., 2016). The percentage of capital and labour that is held up by zombie firms in low-tech manufacturing industries in the United Kingdom is at around 18% and 13%, respectively (Figure 18), and bank forbearance and some tax reliefs are likely factors behind it (Arrowsmith et al., 2013; Barnett et al., 2014). These percentages are in the upper part of the cross-country ranking, and can contribute to the poor productivity performance of the northern regions of England and Wales, which tend to rely more on traditional and low-tech manufacturing than the rest of the country (Figure 11).

There is a strong concentration of successful, fast-growing start-ups in the South East, which is underpinned by buoyant small business finance both through credit and equity (British Business Bank, 2016). However, the fact that private equity finance is disproportionately concentrated in London can suggest an inadequate supply of or a lack of interest in such forms of finance outside the capital (Figure 19). The government should continue the initiative of examining more closely the financial barriers to growth of businesses, as envisaged by the Patient Capital Review (HM Government, 2017c).

Figure 18. Deficient companies in low-tech manufacturing trap capital and labour resources

The share of capital and labour captured by "zombie" companies, per cent, 2013[1]

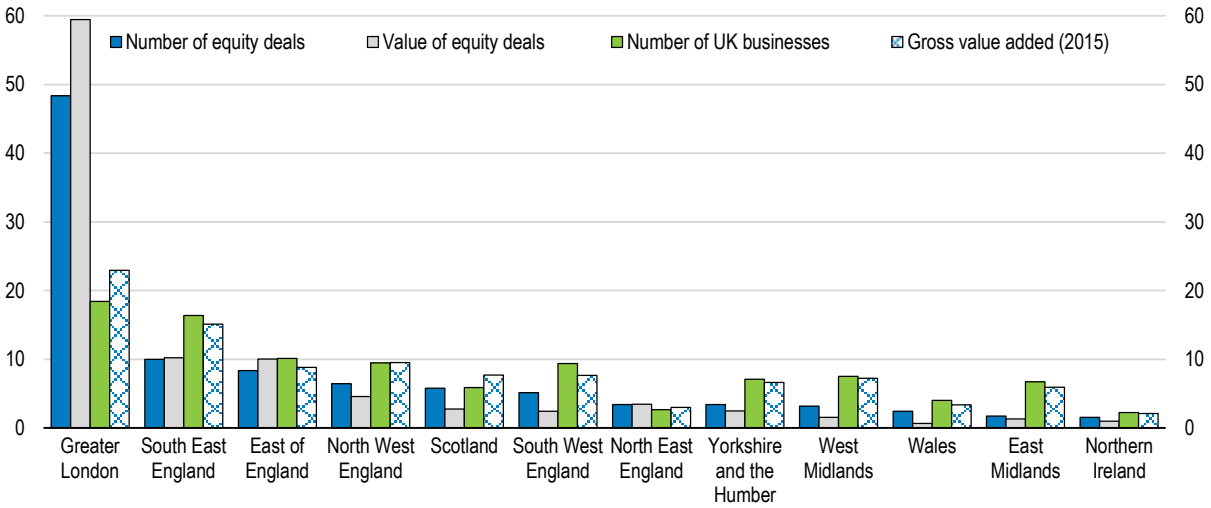


1. Zombie companies are defined as those that are over 10 years old and with interest costs exceeding operating income for at least three consecutive years. Low tech manufacturing follows the Eurostat classification for the NACE Rev.2. industries and comprises of the following sectors: food, beverages, tobacco; textile, wearing apparel, leather; wood, paper, printing and reproduction of recorded media; furniture, coke and refined petroleum; rubber and plastic; other non-metallic minerals; basic and fabricated metals; repair and installation of machinery and equipment; and other manufacturing.

Source: OECD calculations following the methodology of Adalet McGowan, M., D. Andrews and V. Millot (2017), "The Walking Dead? Zombie Firms and Productivity Performance in OECD Countries", *OECD Economics Department Working Paper*, No. 1372. using the Orbis firm level data by Bureau van Dijk.

Figure 19. Private equity investments are disproportionately concentrated in London

Percentage share in UK total by region, Q4 2015 - Q3 2016[1]



1. Data for gross value added shares refer to 2015. Regions are ranked in descending order of the share of number of equity deals.

Source: British Business Bank (2017), *Small Business Finance Markets 2016/17*; and ONS (2016), "Regional gross value added (income approach), UK: 1997 to 2015", Office for National Statistics, December.

Roughly a third of total venture capital finance in the United Kingdom (around GBP 2.3 billion or 0.1% of GDP) has been spent with the support of the European Investment Fund (EIF) (EIF, 2016), with a

smaller role for early stage and private equity investments (HM Treasury, 2017). These funds should be substituted for by other sources following the UK's departure from the European Union, given that young innovative companies will continue to face challenges in attracting finance, especially in knowledge intensive services characterised by little tangible collateral. The government has promised extra funding from the British Business Bank (BBB) of GBP 400 million (HM Treasury, 2016a), which is a step in the right direction. To target local business development needs, the government has also pledged that the BBB will make its first investments from the Northern Powerhouse Investment Fund throughout 2017 to support local small and medium-sized enterprises (SMEs) and from the Midlands Engine Investment Fund shortly after (HM Treasury, 2016a).

Making lagging regions more attractive for skilled workers

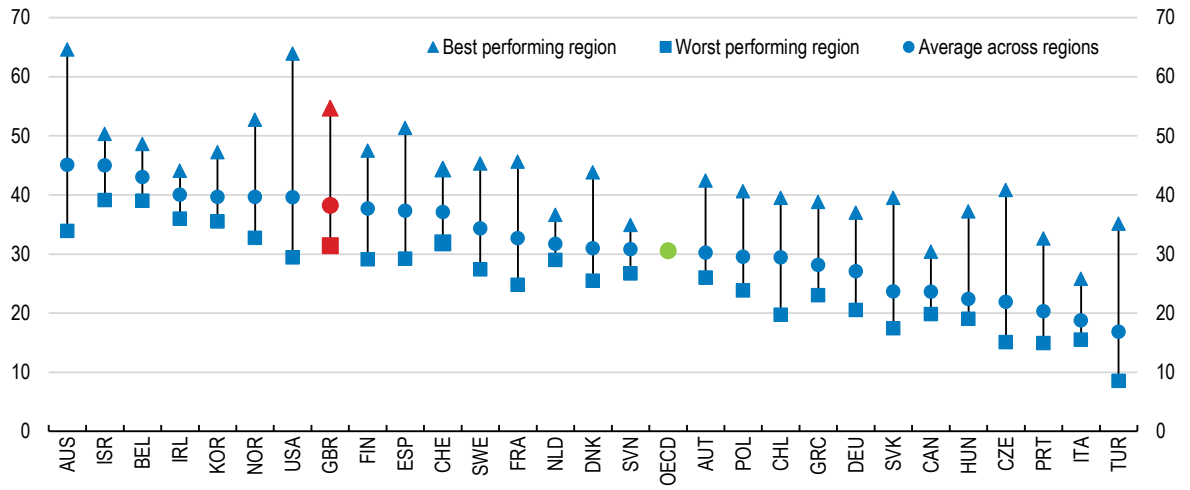
Reducing skills shortages across the country and addressing related regional challenges

Human capital is a key determinant of productivity and economic performance more generally. The percentage of tertiary educated labour force is relatively high in the average region in the United Kingdom, within the upper quarter among OECD countries (Figure 20). This performance is to a large extent driven by London's outstanding percentage of highly educated people (55% of the labour force), which is the highest among European regions and the third highest in the OECD.

There is a strong positive relationship between productivity and education levels across UK regions (Figure 21). The least (Northern Ireland) and most (Greater London) productive regions are respectively those with the lowest and the highest levels of educational attainment. This relationship holds when measuring educational attainment by either the secondary or the tertiary level, with the correlation being stronger in the former case. The percentage of high-skilled adults based on literacy and numerical skills, as derived from the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC) database, also shows a positive relationship with productivity across regions. However, it is mainly the percentage of primary educated students that shows the strongest – negative – relationship with regional productivity (OECD, 2012).

Figure 20 Average educational attainment is relatively high, with cross-regional differences

Share of labour force with tertiary education by region (at TL2 level), as a percentage of total labour force, 2014[1]

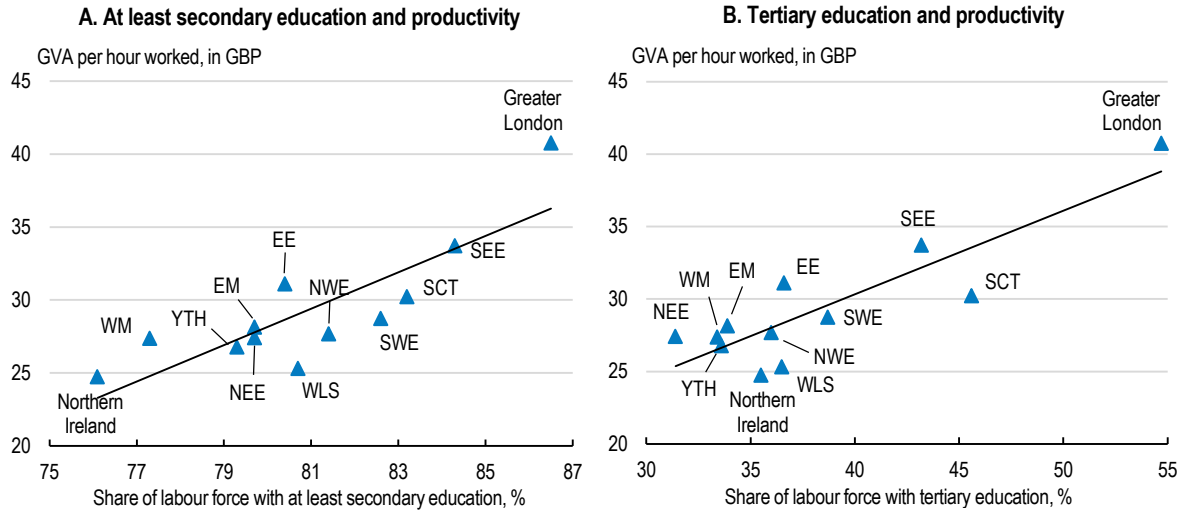


1. Territorial level 2 (TL2) refers to large regions within a country. In the case of the United Kingdom, there are 12 regions (i.e. North East England, North West England, Yorkshire and The Humber, East Midlands, West Midlands, East of England, Greater London, South East England, South West England, Wales, Scotland and Northern Ireland) at TL2 level. Data refer to 2013 for Canada, Greece, Israel, the Netherlands and the United States. Countries are ranked in descending order of the average share of labour force with tertiary education across regions.

Source: OECD (2017), "Regional Innovation", *OECD Regional Statistics* (database), July.

Figure 21 Educational attainment and productivity are closely related at the regional level

2014[1]



1. SEE: South East England; SWE: South West England; NWE: North West England; NEE: North East England; EE: East of England; EM: East Midlands; WM: West Midlands; YTH: Yorkshire and The Humber; SCT: Scotland; WLS: Wales;

Source: OECD (2017), "Regional Innovation", *OECD Regional Statistics* (database), April; and ONS (2017), "Sub-regional productivity: March 2016", ONS, January.

It is difficult to ascertain whether education levels are drivers of productivity or that highly educated workers move to better performing regions offering higher wages and better living standards more generally (sorting). In Spain, sorting of workers may not be the primary cause for the higher productivity of big cities, as movers seem to experience increased productivity once being there, suggesting agglomeration benefits are at play (De La Roca and Puga, 2016). These benefits go hand-in-hand with a positive impact on individual skills through learning from other highly-skilled workers. Interestingly, this "skill-boost" has been found to have gradual but long-lasting effects on individuals. As such, their return to their previous location might bring benefits for those regions. However, evidence for the United Kingdom finds strong sorting effects of people across cities, meaning there seem to be little benefits inherent to places or regions as opposed to people (Gibbons et al., 2010). This implies that regions should focus not only on education, but also on retaining and attracting high-skilled individuals.

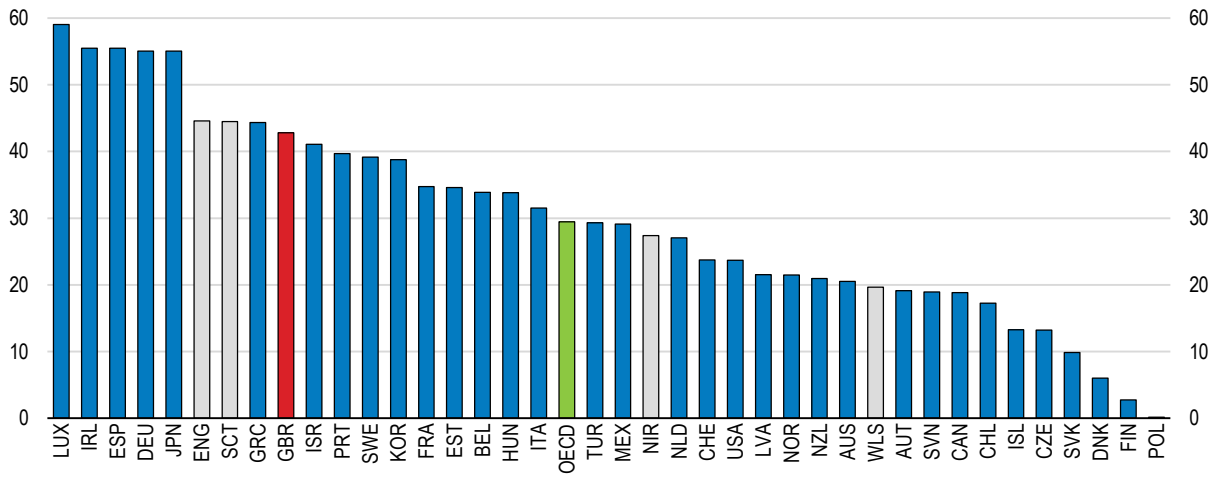
With London's dominant position, retaining and attracting high-skilled workers to other areas and cities is even more difficult. This challenge is echoed by the experience of various stakeholders – local municipalities, business and trade union representatives – in less developed regions. Importantly, it is not only the geographic differences in sector composition that matter, but also the local and regional availability of desired occupational types within those sectors. Put differently, there is a higher share of managerial and professional occupations in London and the South East of England than in the rest of the United Kingdom. As such, different geographic areas are in need of different types of skills, but overall skill shortages – measured by employer surveys (UK Commission for Employment and Skills, 2016) – do not show large regional differences.

Policies should focus on several levers to improve, retain and better utilise skills to improve productivity performance at the local level. *First*, it is important to raise enrolment rates at the secondary and tertiary levels, and to make sure that the curriculum and the quality of teaching are adapted to local needs. A long-term goal should be to ensure that skills are adequately supplied already at the basic education level across the country (Baker, 2017). A related important challenge would be to increase the number of teachers, as nearly 45% of school principals identify teacher availability as an issue (Figure 22),

a percentage above the OECD average (30%). Regional shortages of teachers are weakly addressed due to centralised hiring, which suggests scope for greater decentralisation (NAO, 2016a). In this context, disadvantaged areas should have the means and adequate resources to provide the appropriate incentives and training to teachers to address shortages and ensure the provisions of skills (Baker and Zwart, 2017). For instance, the lack of technical skills (OECD, 2017b) can be a hindrance to the success of the advanced manufacturing industries, which are considered as key pillars of future economic development, especially in lagging regions (IER, 2016b). Planned reforms to the technical education system in England will help address some of these issues (Baker and Zwart, 2017).

Figure 22 Insufficient number of teachers is an issue for a number of schools

Percentage of students in schools whose principal reported that the lack of teachers is a problem to at least some extent, 2015[1]



1. The bars highlighted with grey refer to the four main regions of the United Kingdom: England (ENG), Northern Ireland (NIR), Scotland (SCT) and Wales (WLS).

Source: OECD (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*.

Second, adult skill development should also be improved. To this end, the government aims to foster the use and effectiveness of training by introducing the Apprenticeship Levy system (Baker and Zwart, 2017). It is also a welcome step that with more devolution to local levels, the adult education budget will be assigned to mayors. This is in line with the desire of local councils and businesses who specifically would like to gain more autonomy in setting up technical academies and training facilities in order to better match local needs (Core Cities, 2017). However, decentralisation can also lead to quality differences across areas. This risk should be minimised by creating a centrally managed system of quality standards, as is done in Sweden, for instance (OECD and ILO, 2017).

Third, it is also important from a regional perspective that areas in need of better skills have the ability to attract and retain both workers and businesses that create high-qualification jobs. This involves not only the availability of well-paying jobs but also the quality of amenities, including childcare and schools as well as facilities for leisure (OECD, 2016). For instance, France has been developing an indicator that measures the accessibility of key public services (health, education), leisure opportunities (sports, tourism, culture) and commercial services (food and other retail stores). This could help policymakers assessing the progress being made in making local areas more attractive. To achieve improvements, an integrated approach is needed, hence more local responsibility for a wider range of tasks is a welcome step and should continue (see below).

Alleviating housing constraints to enhance labour mobility and agglomeration benefits

To make the most out of the skills that workers possess, it is also crucial that the right employees are matched with the right jobs (Adalet McGowan and Andrews, 2015a, 2015b). However, the United Kingdom appears to have substantial skill and qualification mismatches in the labour market (Figure 23, Panel A). Given flexible labour market regulations in the United Kingdom, reducing skill mismatches and thus raising labour productivity should rely on geographical mobility, pointing to the important role of the housing market (Figure 23, Panel B). When measured by the long-run responsiveness of housing supply to price changes, the United Kingdom is at the lower-end in the OECD (Caldera-Sanchez and Johansson, 2011 and Figure 24). More recent studies also confirm that supply is substantially falling short of demand in the UK housing market (Wilson et al., 2016).

Detailed geographical data on planning regulations confirms the key role these regulations play in house price inflation (Hilber and Vermeulen, 2016). Planning regulations contribute importantly to making the South East of England and London to be among the most expensive areas in the world (Cheshire and Sheppar, 2002). Tight regulations go beyond residential real estate and also have a negative impact on commercial real estate. The British office market is found to be substantially more supply constrained by regulation than elsewhere in Europe (Cheshire and Hilber, 2008). Lowering regulatory constraints in cities is estimated to raise GDP by a large amount – up to 10% in the US – by allowing a better allocation of workers to productive metropolitan areas (Moretti and Hsieh, 2015). Since the UK's regional disparities are essentially driven by disparities across urban areas (Figure 7), enabling cities to expand in an organic way by allowing land permits to match local demand should be a key priority.

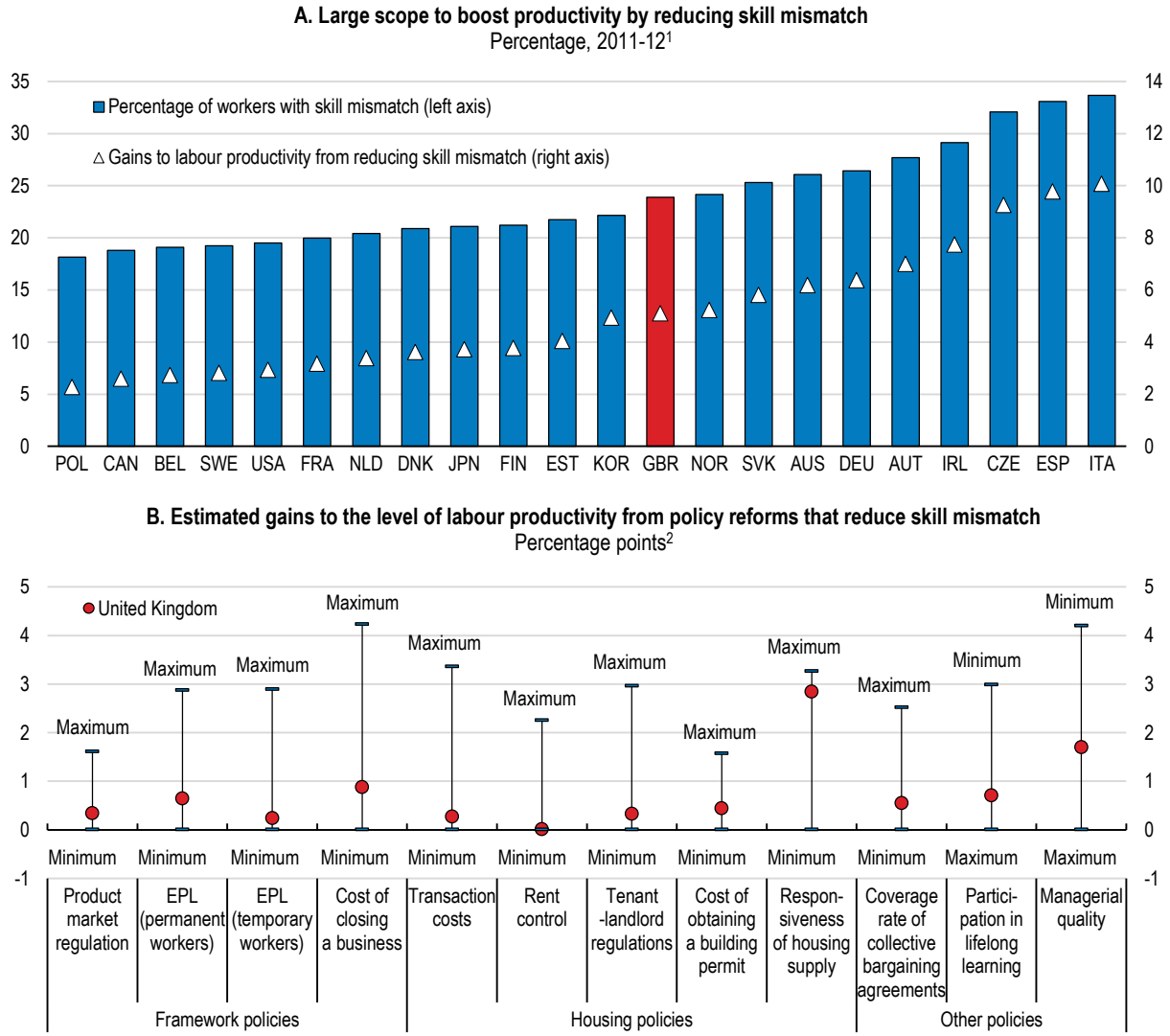
In light of these important problems in the housing market, the authorities should thoroughly review the boundaries of the protected areas surrounding major urban areas ("Green Belts"; OECD, 2011). A careful reassessment of the overall economic costs and environmental benefits of maintaining the system is needed, given housing shortages and alternatives to preserve or create green space, more integrated in the cities (parks) rather than around them. Planning decisions could be put on a more rule-based system, instead of leaving too much discretion at the local level, risking that decisions are more easily affected by particular interests against further developments. Increasing the incentives of local authorities for property development, for instance by leaving them a larger fraction of collected tax revenues, would support real estate building. Recent government plans also aim to simplify the granting of building permits, which would also be a welcome step (Department for Communities and Local Government, 2017).

The "New Homes Bonus" scheme, introduced in 2011, is a step in the right direction as it gives councils more incentives to approve the development of residential buildings. It links the amount of funding that local governments receive to the amount of new housing built in their area, by raising the amount of council tax collected by local authorities. This tilts the incentives towards approving homes that fall into the more expensive segments of the council tax bands. The effectiveness of the policy in creating additional housing is difficult to assess at the current stage, as strong real estate development could either be driven by more lenient approvals (the intended "supply-boost" effect of the policy) or simply by increased demand for housing (Department for Communities and Local Government, 2014; Smith et al., 2016).

In parallel to improving incentives, the government could consider developing residential investment directly or through local authorities. The National Productivity Investment Fund, announced in the Autumn Statement of 2016, pledges GBP 2.3 billion (0.1% of GDP) on housing infrastructure to build 100 000 new homes in areas of high demand (Housing Infrastructure Fund) and GBP 1.4 billion (0.07% of GDP) to fund 40,000 affordable homes by 2020 (HM Treasury, 2016a), on top of the previously planned 400,000 affordable homes (HM Treasury, 2015). This is a welcome step but it is important to ensure that implementation is co-ordinated with land-use planning and transport policies (OECD, 2015b). It requires regular consultations between agencies responsible for housing and for transport in order to ensure that

development plans complement each other. Also, ensuring the availability of workers in the construction industry is an important prerequisite to fulfil these plans, which may involve hiring employees from abroad, and thus should be considered when shaping immigration policy following Brexit.

Figure 23 There is scope to boost productivity by reducing skill mismatches

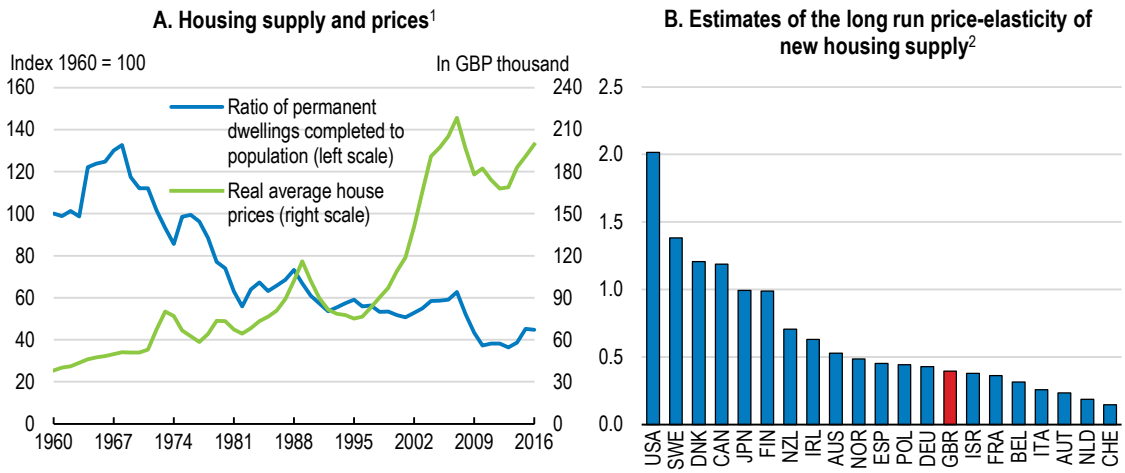


1. Skill mismatch refer to either over- or under- skilled workers. Gains to labour productivity from reducing skill mismatch refer to the difference between the actual productivity and a counterfactual productivity level based on lowering the skill mismatch in each country (and industry) to the best practice level of mismatch. For instance, reducing skill mismatch from its level in the United Kingdom to best practice is associated with a 5% gain in the level of labour productivity.

2. Aligning policies related to managerial quality in the United Kingdom to best practice as witnessed in Finland is associated with a 1.7 percentage point gain in the level of labour productivity. EPL: employment protection legislation.

Source: Adalet McGowan, M. and D. Andrews (2015), "Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data", *OECD Economics Department Working Papers*, No. 1209, OECD Publishing, Paris and Adalet McGowan, M. and D. Andrews (2015), "Skill Mismatch and Public Policy in OECD Countries", *OECD Economics Department Working Papers*, No. 1210, OECD Publishing, Paris.

Figure 24 Low housing stock leads to high prices, with little positive feedback on housing supply



1. House prices are deflated by CPI.

2. Estimates of the long-run price elasticity of new housing supply where new supply is measured by residential investments (i.e. the coefficient on lagged prices in the long-run investment equation as reported in Table 1). All elasticities are significant at least at the 10% level. The estimation period is from early 1980s to early/mid 2000s.

Source: Department for Communities and Local Government (2017), "House building: new build dwellings statistics", August; Thomson Reuters Datastream; OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September; and Caldera Sánchez, A. and Å. Johansson (2011), "The Price Responsiveness of Housing Supply in OECD Countries", *OECD Economics Department Working Papers*, No. 837, OECD Publishing

Increasing decentralisation for better tailored regional and local policies

More decentralisation can directly contribute to better public sector efficiency and productivity (Beidas-Strom, 2017). The United Kingdom shows very high levels of general public administration efficiency regarding judiciary, anti-corruption and for maintaining low administrative burdens on businesses. However, the country scores only near or below average for health care and education efficiency, requiring managerial improvements, and international evidence shows that devolution improves education efficiency (Blöchliger et al., 2013).

There are further indirect effects of decentralisation on business sector productivity. By fostering education and health care productivity, higher public sector productivity leads to spillovers to business sector productivity through enhanced quality human capital. This is in line with recent experience of UK regions as in those where public sector efficiency increased, private sector productivity increased as well (Beidas-Strom, 2017). More generally, more decentralisation leaves more incentives and more tools in the hands of subnational bodies to create a better local business environment so that their tax base can rise (Bartolini et al., 2016). A number of studies found that greater decentralisation is associated with smaller regional disparities (Bartolini et al, 2016; Ezcurra and Pascual, 2009). Also, it has been shown that revenue decentralisation increases sub-national public infrastructure investment (Fredriksen, 2013; Kappeler et al, 2013). Consistently with these findings, more decentralisation tends to lead not only to more equal performance across regions, but also to better aggregate performance (Blöchliger et al, 2013).

The United Kingdom relies less on sub-national levels of government than most other countries

The United Kingdom is below the OECD average regarding all dimensions of decentralisation (Figure 25). The devolved administrations of Wales, Scotland and Northern Ireland have a relatively high degree of autonomy in most areas of government (Box 2), but together they represent a relatively small percentage of the total population (around 15% in 2013). In contrast, England is very centralised and its

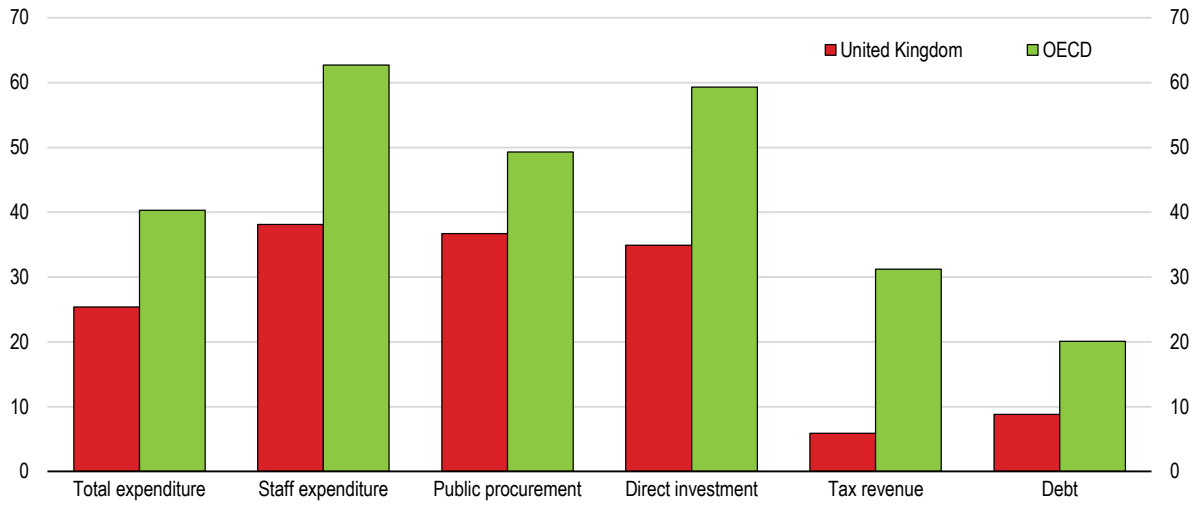
local councils preside over little power (McCann, 2016). On the spending side, only 35% of public investment is carried out by subnational levels of government, compared to almost 60% on average across the OECD. On the revenue side, a little over 5% of revenues are collected by the sub-national government in the United Kingdom, versus about a third in the average OECD country. This is also significantly less when compared to the average of countries with unitary, non-federal systems (at 20%). Most OECD countries display higher tax autonomy than the United Kingdom, along with smaller regional differences in productivity (Blöchliger et al., 2013, 2016).

To address regional disparities in economic performance and incomes, there is substantial redistribution across the UK regions going from the more productive southern regions of England to the rest of the country (Figure 26; Overman, 2017). As a result, expenditure levels per person in the regions with poor productivity – North of England, Wales and Northern Ireland – are nearly as high as in London, despite generating much lower revenue per person.

Decentralisation involves delegating more rights and responsibilities, thus creating better incentives for local policymakers to implement policy in a co-ordinated manner. One of the most effective ways to create better local incentives is to allow freedom in setting and collecting sub-national taxes (Bartolini et al., 2016). Financial transfers might achieve some degree of risk sharing across regions with different levels of development or exposures to external economic shocks, and providing uniform public services meeting the desired standards across the whole country (Bartolini et al., 2016; Smith et al., 2016). However, when relied on excessively, transfers may create disincentives for local leadership as its main objective can become receiving transfers from central government rather than working towards a productive local economy.

Figure 25 Role of UK sub-national government in public finance is below the OECD average

Sub-national government as a percentage of general government, 2015[1]



1. Subnational government is defined as the sum of subsectors: federated government and local government.

Source: OECD (2017), "Subnational government structure and finance", *OECD Regional Statistics* (database), July.

Box 2. Comparing the extent of devolution across the United Kingdom

The status of the three devolved administrations (DAs) is complex and unique, laid out in "Devolution Settlements". Table 1 summarises the main competences that are devolved to these administrations and compares them to the arrangements in England. England must follow legislation that is created by Westminster, and only very

recent steps towards devolution deals with cities – especially with London – gives English cities more powers.

Table 1. Comparing the devolution of productivity-related policies across the United Kingdom

Policy area	England		Scotland	Wales	Northern Ireland
	Devolution Deals	London			
Direct business support	• Support for Growth Hubs • Investment grants	• Economic development strategy • London Enterprise Panel (LEP) • Managing EU regional funds in London	• Support for industry and research (except for Research Councils) • Promotion of exports	• Support for industry and research (except for Research Councils) • Promotion of exports	• Support for industry and research (except for Research Councils) • Promotion of exports
Transport decisions	• Multi-year budget with transport plan • Franchise system possibility for buses'	• Integrated treatment through "Transport for London" agency	Devolved	Partially devolved	Devolved
Education and skills related policies	• Devolved adult education budget to vocational education or "Further education" • Joint Work and Health Programme	• • Devolved adult education budget to vocational education or "Further education" • Joint Work and Health Programme	Devolved	Devolved	Devolved
Housing and land use planning decisions	• Housing Investment Fund • Statutory spatial plan • Powers to establish Mayoral Development Corporations	• Strategic housing and spatial development • Strong mayoral powers	Devolved	Devolved	Devolved
Health and social services	Partial, gradually increasing devolution	• London Health Board • Devolution pilots	Devolved	Devolved	Devolved
Taxing powers	• Tax on business occupied property or "business rate (pilot) • Limited role in setting taxes on residential property or "council tax" (also applies to councils not covered by deals)	• Business rate (pilot) • Levy to support infrastructure • Congestion and emissions charges	• Income Tax • Housing transaction tax or "Stamp Duty" • Waste disposal site tax or "Landfill Tax" • Air Passenger Duty	• Income Tax (planned) • Stamp Duty • Landfill Tax	• Air Passenger Duty (long haul) • Corporation Tax (planned)

Source: Adapted from Harding and Nevind (2015), devolution agreements and consultations with the UK government.

Wales is the most closely linked to England, but still many areas are devolved to the Welsh assembly (for instance, health and education). The other two DAs have more autonomy, either by collecting own tax resources (Scotland) or by receiving more central government funds (Northern Ireland). Overall, the emerging picture on the extent of devolution is a very limited degree for English cities without devolution deals, followed by more powers to those with deals and especially London, followed by Wales, then Northern Ireland and finally Scotland on the most devolved end of the spectrum (Harding and Nevind, 2015).

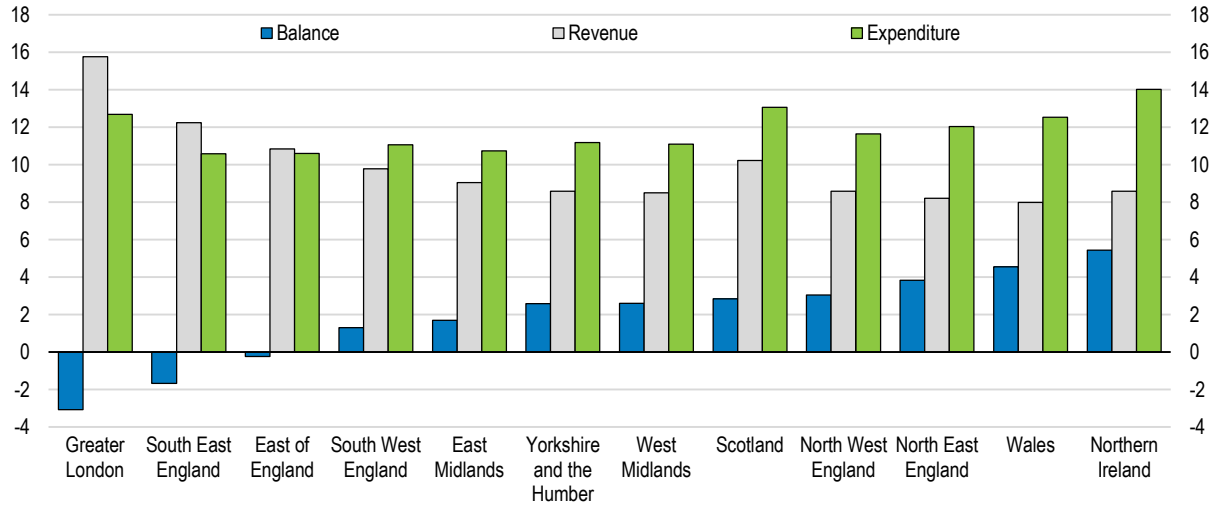
Spending across DAs is allocated through the application of the so-called Barnett Formula. The Formula, created by Joel Barnett (Chief Secretary to the Treasury) in 1978, was originally intended to be a temporary solution. However, it remains in force ever since then. The Formula underpins a large part of income of the DAs: for instance, it represents 85% of the total budget of the Scottish Parliament. It covers mainly those policy areas that are devolved – i.e. controlled autonomously by the DAs –, which are typically health care and education. Consequently, it works as a block grant: the DAs are free to distribute it among the devolved set of tasks as they see fit.

One of the shortcomings of the Formula is that it is not based on assessed needs, but that it automatically follows spending changes in England, adjusted for population shares in each DA. The initial levels of spending were not determined with the intention to be needs-based, being inherited from the pre-1978 period. Nevertheless, the Formula still follows redistributive patterns, leading to the highest levels of public spending per capita in Northern Ireland, then in Scotland and Wales, followed by England. In other words, the richest part of the United Kingdom, England, subsidises the less affluent DAs through the Formula.

This funding system also does not build on the incentives of the DAs to raise more revenues through stronger economic growth since changes in local taxes are not reflected in their revenues. This shortcoming is partly alleviated by granting borrowing powers, but this is only applies to Northern Ireland and not for Wales. From 2016, the Scottish Parliament has been granted new borrowing powers and the ability to set a variable rate of income tax. It is welcome that devolution deals also involve more borrowing powers against the long-term Investment Fund Grants which are part of the deals promised over 30 years as regional financial support. However the total amount is relatively small, over the initial 5 year period amounting to only about GBP 1 billion (0.01% of GDP annually).

Figure 26. Significant fiscal redistribution from the South of England to the rest of the country

Fiscal flows per person, in GBP thousand, 2015/16[1]



1. Data refer to fiscal year.

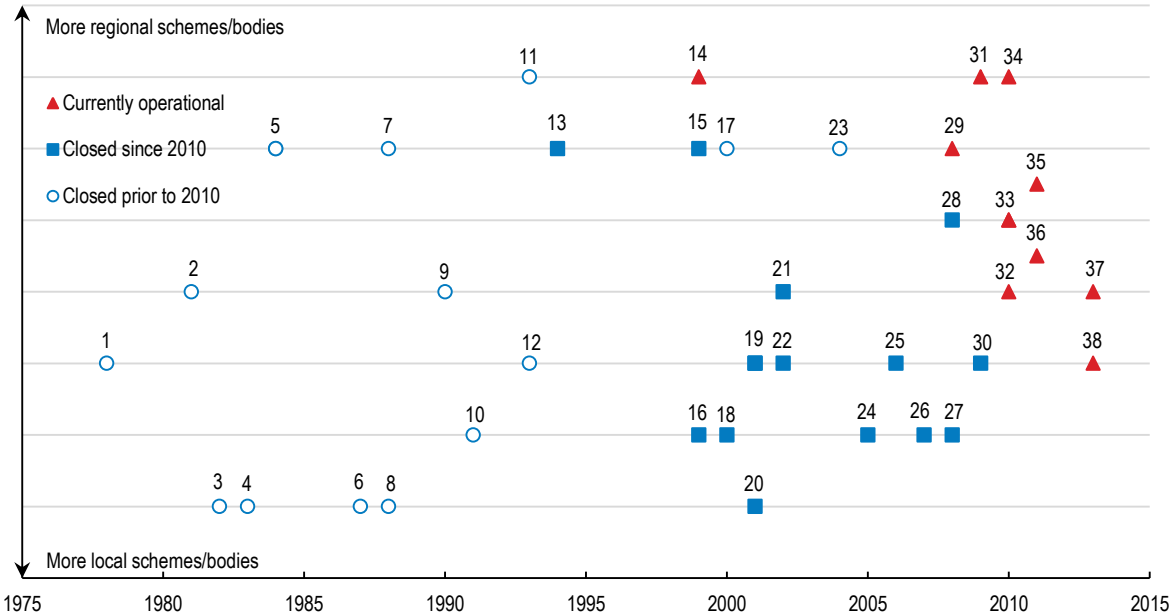
Source: ONS (2017), "Country and regional public sector finances: Financial year ending March 2016", Office for National Statistics, May.

Continuing the process of decentralisation through "Devolution Deals" with city-regions

Devolution can be implemented at a larger, regional level, or at a more local level, and the recent focus in the United Kingdom has been on the latter. Over the last decades, the United Kingdom has seen various changes in its institutional arrangements, with the latest trend pointing towards the local level, away from the regional one (Figure 27). In particular, the government has encouraged the creation of Local Enterprise Partnerships (voluntary partnerships between local authorities and businesses) and Enterprise

Zones (designated areas across England that provide tax breaks and government support). The most recent devolution to local levels occurs primarily in England (see below), and to some extent also in the devolved administrations. In parallel, more fiscal autonomy is assigned to local levels since around 2010 (Smith et al., 2016). However, the degree of devolution involved in the majority of deals has been subject to debate, with the exception of the agreement with Greater Manchester (Harding and Nevind, 2015; Jones, 2016; Shared Intelligence, 2016).

Figure 27 UK territorial governance initiatives have varied widely over the last decades



1 Urban Programme (expansion)
2 Urban Development Corporations
3 Urban Development Grant
4 Derelict Land Grant
5 Regional Development Grant (revision)
6 Urban Regeneration Grant
7 Regional Enterprise Grant
8 City Grant
9 Training and Enterprise Councils
10 City Challenge
11 English Partnerships
12 Single Regeneration Budget
13 Government Offices for the Regions
14 National Coalfields Programme
15 Regional Development Agencies
16 New Deal for Communities
17 Enterprise Grant Scheme
18 Urban Regeneration Companies
19 Local Strategic Partnerships
20 Neighbourhood Renewal Fund
21 Housing Market Renewal Pathfinders
22 Local Authority Business Growth incentive
23 Selective Finance for Investment
24 Working Neighbourhoods Fund
25 Local Area Agreements
26 Local Enterprise Growth Initiative
27 City/Economic Development Companies
28 Multi Area Agreements/City Region Pilots
29 Grants for Business Investment
30 Future Jobs Fund
31 Homes and Communities Agency
32 Enterprise Zones (new phase)
33 Local Enterprise Partnerships
34 Regional Growth Fund
35 City Deals
36 Growing Places Fund
37 Tax Increment Finance
38 Business Rates Retention

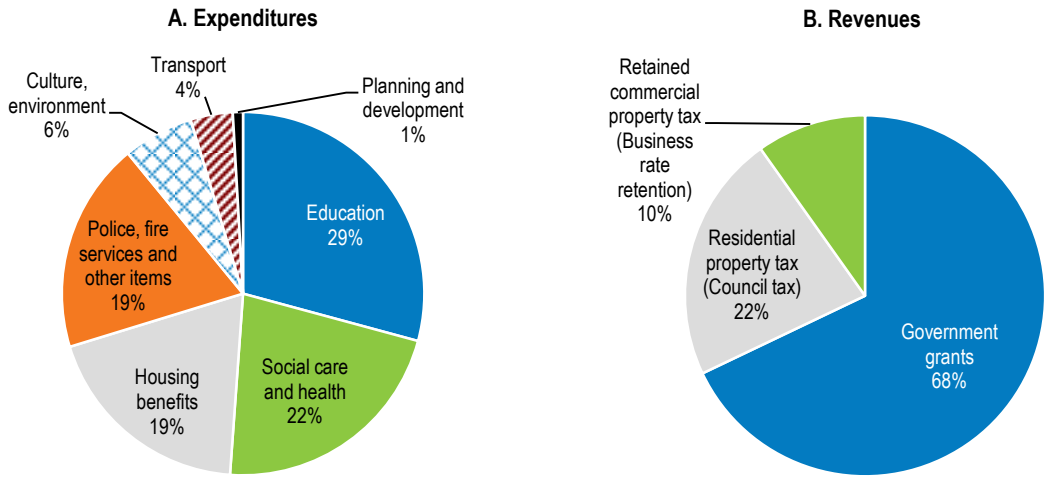
Source: OECD (2016) *Regional Outlook 2016*, based on National Audit Office (2013), "*Funding and structures for local economic growth*, London, United Kingdom".

The involvement of and support from the central government *vis-à-vis* cities and their surroundings (city-regions) is outlined in City-Deals or Devolution Deals (Burn-Murdoch, 2017). City-regions comprise of cities and their neighbouring local authorities within the same commuting zone, representing a functional urban area instead of an administrative city (OECD, 2016). Most deals require the election of a mayor – or as sometimes called "metro mayor" since the function is for the metropolitan area –, to improve accountability and responsibility by appointing a full-time civil servant to represent the city. This comes in exchange for more spending powers, in particular in the area of transport, and granting extra allocated funds (Investment Fund Grant, see Box 2), although this is relatively small (0.01% of GDP each year). While transport planning is an important element (see above) and it features prominently, it represents only

less than 5% of local budgets (Figure 28). Policies on other important growth-related spending areas − such as education, skills and housing − remain to a large extent centralised, unlike in the Devolved Administrations (Box 2).

Figure 28. Composition of expenditures and revenues of the local authorities in England

As a percentage of total expenditures/revenues, 2016/17[1]



1. Data refer to fiscal year.

Source: Department for Communities and Local Government.

The cities and the government recognise that the optimal deal should be tailor-made and focus on the local circumstances (Core Cities, 2017). More than 10 city regions have achieved at least one devolution deal in England, including a comprehensive major deal completed by Greater Manchester (NAO, 2016b). A few other cities were negotiating but eventually could not reach an agreement (Sandford, 2016). In Scotland, there have been four city deals agreed to date, all of which involve both the UK and the Scottish government as the counterparty to the local councils, and a further three cities are negotiating (Burn-Murdoch, 2017). Scope has been more limited than in England, in particular the city-deals do not involve the strengthening of local accountability through the creation of mayors, neither a stronger link between local businesses through similar constructs as the Local Enterprise Partnerships of England. Wales has completed two deals involving the capital city Cardiff and Swansea, with negotiations under way for a further deal. The funding settlement with Northern Ireland – following the June 2017 general election – also commits to agreeing on city deals there.

Further devolution would imply greater tax and spending autonomy. On the spending side, general grant funding from central government will be phased out, and new responsibilities will be assigned to local councils. On the revenue side, devolution in England involves greater tax powers over two locally levied taxes: the "council tax" on owned property, and the "business rate" on property for businesses. The reform to grant greater tax powers to local authorities should continue. Leaving business rates at the local level and allowing for more freedom to set its rate provides more tools to attract and retain companies – a key challenge for the less developed regions –, with strong implications on the quality of available jobs (see above). Such steps are also in line with the desires of the most important cities, which support greater local retention of revenues so that their capacity to manage local assets can increase (Core Cities, 2017). Overall, if carried out successfully, decentralisation can lead to a broadening of the local tax base, creating a virtuous circle of enabling cities to become more attractive through more investments in infrastructure and skills.

Enterprise zones (EZs) are offering simplified rules to grant automatic planning permission for certain developments (such as new industrial buildings). Local authorities, with the help from the central government if necessary, commit to the provision of information and communication technology (ICT) infrastructure (OECD, 2016). Tax relief for investments and on business rates are also provided. A welcome element is that local bodies are explicitly encouraged to shape the geographical boundaries of EZs in such a way that they reflect functional economic areas and not administrative borders. A key issue going forward, however, is related to the practical application of the somewhat less precise criteria (e.g. "added value" and "ambition") when the central government decides on granting the EZ status to applicants.

The United Kingdom is one of the most urbanised countries in the OECD and its cities tend have weak productivity (Figures 6 and 7), hence putting more explicit focus on cities and their immediate surroundings is welcome (Overman, 2017). Placing functional urban areas as the natural unit of governance is also promising, as metropolitan areas with fragmented governance structures are generally found to have lower levels of productivity (Ahrend et al., 2017). For a given population size, a metropolitan area with twice the number of municipalities is associated with around 6% lower productivity, and this effect can be mitigated substantially by having in place governance bodies at the metropolitan level (OECD, 2015b). Stronger collaboration and closer links across cities could also raise their productivity (see above). Moreover, it is crucial that the system of criteria to evaluate the deals is transparent, underpinned by a set of well-defined criteria.

The process of establishing devolution deals is ongoing and needs to continue, building on the emerging lessons of existing deals, in policy areas which are better dealt with at the local level. Moreover, it has to be matched by an appropriate governance framework for the partnership across local authorities and vis-a-vis central government along with enhanced local accountability. Hence, the government should signal its strong commitment to the completion of the devolution process. This would steer the expectations of further potentially interested local authorities and could prompt them to start preparing their bid for a deal in due time. Clear guidelines as to what is expected from local authorities would be also important, along with making sure that all parties involved are aware of the consequences of devolving functions to local levels. This applies to not only the local level but also to the central bodies (ministries), which should be ready to transfer responsibilities and powers and assume a more arm's-length role *vis-à-vis* the city region in case of a successful deal (Randall and Casebourne, 2016).

Importantly, devolution to local levels should not come with the risk of creating an overly fragmented structure, as it could imply that the local bodies internalise the costs that accrue to them but not the benefits to the wider geographical region (McCann, 2016; IPPR, 2016). For some large geographical areas, the optimal subnational level should not be the city-region due to the amount of co-ordination required to make sure that the benefits from economies of scale and externalities, such as knowledge spillovers, materialise. This is exemplified in the case of the Northern Powerhouse area, which is a collection of Local Enterprise Partnerships and the institutional background is provided by Transport for the North in the area of infrastructure planning. Going forward, the government should monitor and facilitate the co-operation across the city regions so that synergies are identified and exploited at the larger regional levels, not only within but also across the city-regions (Overman, 2017).

Recommendations to reduce regional disparities in productivity

Invest more in transport infrastructure outside London

Key recommendations

- Champion the recently created strategic planning and delivery agencies for transport infrastructure planning and delivery to achieve a stable and more efficient long-term investment framework.

- Invest in improving inter- and intra-city transport links where such investments can foster agglomeration effects and unlock related productivity benefits.

Other recommendation

- While continuing to prioritise the highest value-for-money projects, explicitly consider wider strategic aims (particularly in terms of the existing plans and aspirations of local areas) as well as economic displacement effects (to ensure that the benefits of transport projects are not overstated) in the decision-making process

Improve the business environment in lagging regions

Key recommendations

- Continue to increase direct and indirect support for private and public R&D, and for the collaboration between businesses and universities to promote applied innovations and their diffusion.
- Develop integrated, regionally focused policy packages based on current and emerging regional strengths and prepare impact assessments of the EU departure.

Develop, attract and retain skills at local levels

Key recommendations

- Allow more freedom to adapt technical education to local business needs.
- Raise training and other incentives to recruit and retain teachers in disadvantaged areas and/or regions with high teacher shortages.

Other recommendation

- Make land-use regulations more flexible by encouraging local planning authorities to respond to local demand so as to enhance the responsiveness of housing supply to price increases.

Continue decentralisation to the subnational level

Key recommendations

- Continue decentralisation by concluding deals with all city-regions.
- Allow local authorities to retain more revenues from locally levied property taxes.

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