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This Survey *is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.*

The economic situation and policies of the United Kingdom were reviewed by the Committee on 21 September 2017. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 3 October 2017.

The Secretariat's draft report was prepared for the Committee by Rafał Kierzenkowski, Mark Baker, Peter Gal and Sanne Zwart, under the supervision of Pierre Beynet. The Survey also benefited from contributions from Jagoda Egeland. Research assistance was provided by Gabor Fulop. Elisabetta Pilati formatted and produced the layout of the document.

The previous Survey *of the United Kingdom was issued in February 2015.*

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BASIC STATISTICS OF UNITED KINGDOM, 2016

(Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE

Population (million)	65.0		Population density per km^2	269.6	(37.2)
Under 15 (%)	17.6	(17.9)	Life expectancy (years, 2015)	81.0	(80.5)
Over 65 (%)	18.2	(16.6)	Men	79.2	(77.9)
Foreign-born (%, 2015)	13.1		Women	82.8	(83.1)
Latest 5-year average growth (%)	0.8	(0.6)	Latest general election	June 2017	

ECONOMY

Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	2 618.9		Primary sector	0.6	(2.5)
In current prices (billion GBP)	1 961.1		Industry including construction	19.2	(26.6)
Latest 5-year average real growth (%)	2.1	(1.8)	Services	80.2	(70.9)
Per capita (000 USD PPP)	42.7	(42.0)			

GENERAL GOVERNMENT

Per cent of GDP

Expenditure	41.9	(41.6)	Gross financial debt	121.9	(108.5)
Revenue	38.7	(38.7)	Net financial debt	91.8	(69.9)

EXTERNAL ACCOUNTS

Exchange rate (GBP per USD)	0.738		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	0.694		Machinery and transport equipment	39.2	
In per cent of GDP			Chemicals and related products, n.e.s.	16.6	
Exports of goods and services	27.9	(53.9)	Miscellaneous manufactured articles	13.9	
Imports of goods and services	30.1	(49.5)	Main imports (% of total merchandise imports)		
Current account balance	-5.6	(0.2)	Machinery and transport equipment	35.9	
Net international investment position (2014)	-22.5		Miscellaneous manufactured articles	15.0	
			Chemicals and related products, n.e.s.	11.2	

LABOUR MARKET, SKILLS AND INNOVATION

Employment rate for 15-64 year-olds (%)	73.5	(66.9)	Unemployment rate, Labour Force Survey (age 15 and over) (%)	4.8	(6.3)
Men	78.3	(74.7)	Youth (age 15-24, %)	13.0	(13.0)
Women	68.8	(59.3)	Long-term unemployed (1 year and over, %)	1.3	(2.0)
Participation rate for 15-64 year-olds (%)	78.2	(71.7)	Tertiary educational attainment 25-64 year-olds (%)	46.0	(35.7)
Average hours worked per year	1 676	(1 763)	Gross domestic expenditure on R&D (% of GDP, 2015)	1.7	(2.4)

ENVIRONMENT

Total primary energy supply per capita (toe, 2015)	2.8	(4.1)	CO_2 emissions from fuel combustion per capita (tonnes, 2014)	6.4	(9.4)
Renewables (%, 2015)	7.7	(9.6)			
Exposure to air pollution (more than 10 µg/m^3 of $PM_{2.5}$, % of population, 2015)	65.6	(75.2)	Municipal waste per capita (tonnes, 2015)	0.5	(0.5)

SOCIETY

Income inequality (Gini coefficient, 2015)	0.360	(0.311)	Education outcomes (PISA score, 2015)		
Relative poverty rate (%, 2015)	10.9	(11.3)	Reading	498	(493)
Median disposable household income (000 USD PPP, 2015)	22.1	(22.9)	Mathematics	492	(490)
Public and private spending (% of GDP)			Science	509	(493)
Health care	9.7	(9.0)	Share of women in parliament (%)	29.6	(28.7)
Pensions (2013)	7.3	(9.1)	Net official development assistance (% of GNI)	0.70	(0.39)
Education (primary, secondary, post sec. non tertiary, 2014)	4.8	(3.7)			

* Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 29 member countries.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund and Inter-Parliamentary Union.

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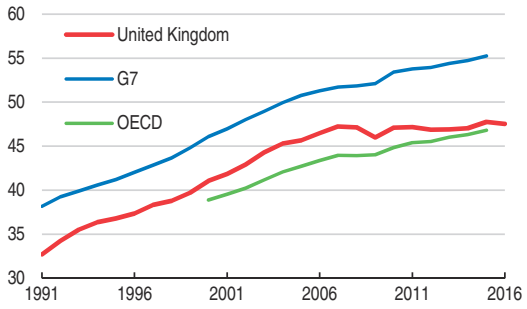
Executive summary

- *Securing higher living standards requires a revival in labour productivity*
- *Reducing regional discrepancies to support aggregate productivity growth*
- *Raising competencies of low-skilled workers to make the economy more productive and inclusive*

Securing higher living standards requires a revival in labour productivity

Labour productivity has stalled

Real GDP per hour worked, in constant 2010 USD PPP



Source: OECD (2017), "GDP per capita and productivity levels", *OECD Productivity Statistics* (database), September.

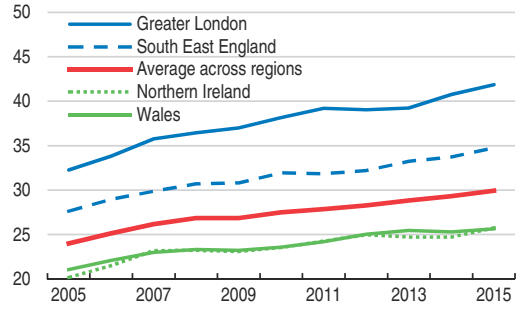
StatLink http://dx.doi.org/10.1787/888933600581

After a good performance until 2016, growth slowed in the first half of 2017. The unemployment rate has fallen to below 4.5%, but real wages are in a downward trend. Reviving labour productivity growth is key to ensuring higher living standards. Planned departure from the European Union (Brexit) has raised uncertainty and dented business investment, compounding the productivity challenge. Negotiating the closest possible EU-UK economic relationship would limit the cost of exit. The authorities should allow automatic stabilisers to work and identify in advance productivity-enhancing fiscal initiatives on investment, to be implemented rapidly were growth to weaken significantly in the run-up to Brexit, while safeguarding fiscal sustainability. A tax and spending review would enlarge fiscal space for further productive measures.

Reducing regional discrepancies to support aggregate productivity growth

Regional disparities in productivity are high

Nominal GVA per hour worked, in GBP



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

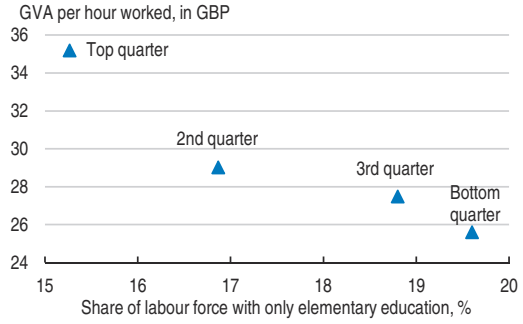
StatLink http://dx.doi.org/10.1787/888933600600

Regional labour productivity is weak outside Greater London and South East England. Policy packages building on existing strengths of lagging regions, and possibly developing new ones, should foster local and regional transport infrastructure, research and development, housing and skills. This would increase the economic benefits from national infrastructure projects. Sustaining high integration in global value chains would bolster goods-oriented regions. Services-oriented regions would benefit from services trade liberalisation and more integrated cities. Devolution should continue to better tailor policies to local needs and more co-ordination in transport plans across city-regions would help creating larger economic hubs.

Raising competencies of low-skilled workers to make the economy more productive and inclusive

Regional productivity and education are linked

Quarters of regions by productivity levels, 2014[1]



1. Quarters are calculated as un-weighted averages.

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

StatLink http://dx.doi.org/10.1787/888933600619

Over a quarter of workers in the United Kingdom have only low skills, which holds back labour productivity and job quality. Raising skills is a priority given plans to reduce net migration. The government has started to simplify vocational education and training and to raise the number of apprenticeships financed with a levy on large businesses. Enhancing teachers' training and other incentives, in particular in disadvantaged schools, would address teacher shortages. Low-skilled workers participate less in lifelong learning and introducing targeted re-training programmes would boost competencies more broadly. Tax and regulatory reforms of non-standard forms of employment would offset workers' weaker bargaining power and ensure better job quality.

MAIN FINDINGS	KEY RECOMMENDATIONS
Macroeconomic and trade policies	
Fiscal space has risen – with a fiscal buffer of 1¼% of GDP relative to the structural deficit target of 2.0% of GDP by 2020 – while monetary space is limited.	Allow the automatic stabilisers to work fully and identify in advance productivity-enhancing fiscal initiatives on investment that could be implemented swiftly (such as spending on repair and maintenance or soft investment), should growth weaken significantly ahead of Brexit.
The tax system favours self-employed people over employees and the indexation of state pensions is generous.	Perform a tax and spending review to allow for additional productivity-enhancing fiscal initiatives, for example by: Raising national insurance contributions for the self-employed; Indexing the state pension on average earnings only.
High consumer debt growth, coupled with stagnant household incomes, is a major financial stability risk.	Introduce debt-to-income ratios for borrowers depending on their exposure to shocks.
Disorderly exit from the European Union would hurt trading relationships, reducing long-term growth.	Maintain the closest possible economic relationship between the United Kingdom and the European Union.
Starting regional convergence in productivity	
Productivity growth has been stagnant and there are productivity differentials across sectors and regions.	Develop integrated, regionally focused policy packages based on current and emerging regional strengths. Prepare impact assessments of the EU departure and climate change objectives.
Low transport infrastructure investment outside the south of England may have created bottlenecks, holding back agglomeration effects and associated productivity gains.	Champion the recently created strategic planning and delivery agencies for transport infrastructure 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.
Subnational governments have limited fiscal autonomy, on both spending and taxes. Housing supply is not responsive enough to demand.	Continue decentralisation by concluding deals with all city-regions. Allow local authorities to retain more revenues from locally levied property taxes.
Research and development (R&D) is low, holding back innovation and its diffusion across regions, in particular in the least productive ones.	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.
Lagging regions find it difficult to attract or retain skills. Teacher shortages are high and retention rates are low, mainly at the secondary level. New teachers are unwilling to work in disadvantaged areas. As a result, not all students attain strong basic skills once they have completed their studies.	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.
Improving productivity and job quality of low-skilled workers	
Childcare participation is low at age 2 and the education and training of childcare staff could be improved, particularly in disadvantaged areas.	Prioritise funding to training and skills development of childcare staff.
Planned hikes in the minimum wage could price low-skilled workers out of standard forms of employment.	Use existing flexibility in reaching the National Living Wage 2020 target in case of negative economic shocks.
Growing use of non-standard forms of employment (self-employed, zero-hours contracts, etc.) can be detrimental to skill acquisition and job quality of low-skilled workers.	Grant workers on zero-hours contracts enhanced job security rights after three months. Keep under review the interplay of taxes and welfare benefits to raise incentives to work more hours. Introduce tighter criteria to restrict self-employment to truly independent entrepreneurs.
Low-skilled workers participate less in training relative to more skilled workers.	Introduce individually targeted programmes for low-wage and low-skilled workers to improve their lifelong learning opportunities.
The proportion of youth detached from the labour market is high, relative to other age groups.	Increase financing and continue to promote the effectiveness of active labour market policies for youth who are neither in employment nor in education or training.

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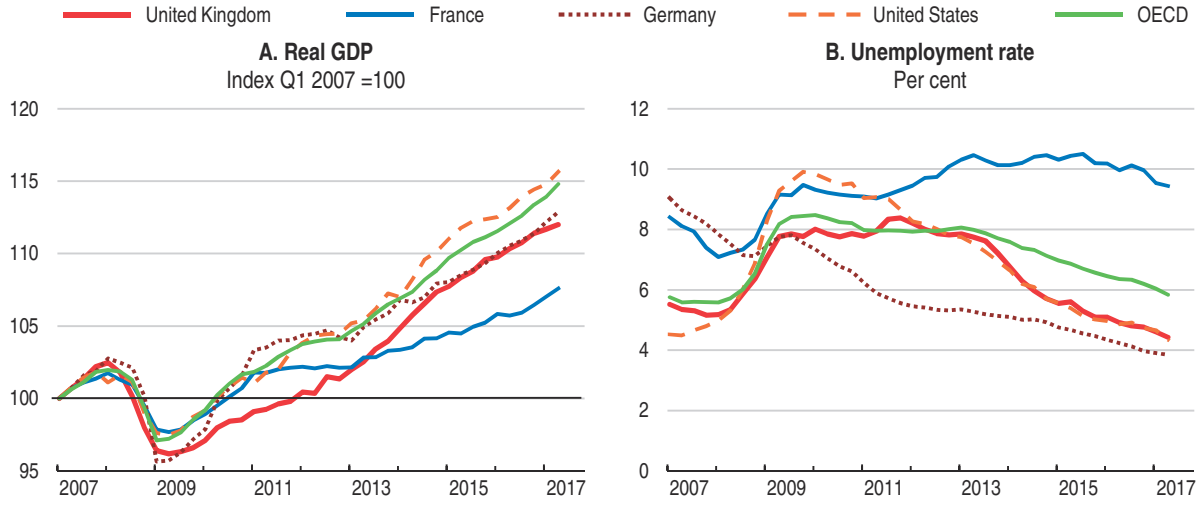
Assessment and recommendations

- *Macroeconomic developments*
- *Monetary and fiscal policy*
- *Stimulating regional productivity*
- *Improving productivity and job quality of low-skilled workers*

Economic performance was solid until the end of 2016, stimulated by a strong business-friendly environment, very supportive and reactive monetary policy, and a flexible approach in meeting fiscal goals (Table 1). The pace of economic expansion has been steady and gross domestic product (GDP) is about 9% above the peak just before the global crisis (Figure 1, Panel A), but the economic consequences of the planned exit from the European Union (EU) in March 2019 (Brexit) cut growth to the lowest annualised rate in the G7 in the first half of 2017. Growth, high labour market flexibility and large labour supply have pushed the unemployment rate down to below 4.5% (Figure 1, Panel B). Economic activity has been particularly job-rich. Both the employment rate at 75% for people aged 16 to 64 and total hours worked are the highest on record, partly due to immigration from the European Union which has expanded the labour market. Fiscal sustainability has also improved, with the budget deficit falling towards 3.0% of GDP and public debt stabilising at below 90% of GDP in 2016. Prudential policies have bolstered financial stability, but new pockets of risks have emerged and Brexit uncertainties have led to pressures to relocate some financial activities overseas.

Figure 1. **Economic performance has been good until recently, reducing the unemployment rate**



Source: OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September.

StatLink http://dx.doi.org/10.1787/888933600638

Peoples' quality of life in the United Kingdom is close to or above the average in the OECD (Figure 2, Panel A). In particular, social connections are significantly stronger, personal security is higher, and environmental quality is better. Jobs and earnings are good, and people enjoy good health status. Income and wealth, housing, and education and skills stand out as areas where progress is needed, and on which greater labour productivity would have had a beneficial impact. However, labour productivity performance has been

Table 1. **Macroeconomic indicators and projections**

Annual percentage change, volume (2015 prices)

	2013 Current prices (GBP billion)	2014	2015	2016	2017	2018
Gross domestic product (GDP)	**1 752.6**	**3.1**	**2.3**	**1.8**	**1.6**	**1.0**
Private consumption	1 153.2	2.1	2.6	2.8	1.6	0.9
Government consumption	348.1	2.5	0.6	1.1	0.7	0.7
Gross fixed capital formation	277.2	7.1	2.8	1.3	2.3	-1.1
Housing	70.1	10.6	4.3	5.1	3.9	-1.0
Business	161.4	5.1	3.7	-0.4	1.5	-2.1
Government	45.7	8.6	-2.8	1.5	2.0	2.1
Final domestic demand	1 778.4	3.0	2.2	2.2	1.5	0.5
Stockbuilding[1]	9.5	0.7	0.2	-0.1	-0.8	-0.1
Total domestic demand	1 787.9	3.6	2.5	2.1	0.7	0.4
Exports of goods and services	519.9	2.7	5.0	1.1	5.2	3.2
Imports of goods and services	555.3	4.5	5.1	4.3	2.5	1.1
Net exports[1]	-35.4	-0.6	-0.1	-0.9	0.7	0.6
Other indicators (growth rates, unless specified)						
Potential GDP	. .	1.6	1.7	1.5	1.6	1.3
Output gap[2]	. .	-0.8	-0.2	0.0	0.0	-0.2
Employment	. .	2.4	1.7	1.4	1.2	0.3
Unemployment rate	. .	6.2	5.4	4.9	4.5	4.8
GDP deflator	. .	1.7	0.5	2.0	2.2	2.0
Consumer price index (harmonised)	. .	1.5	0.1	0.6	2.8	2.7
Core consumer prices (harmonised)	. .	1.6	1.1	1.2	2.4	2.7
Household saving ratio, net[3]	. .	2.4	3.4	1.2	-1.0	-1.6
Current account balance[4]	. .	-5.3	-5.1	-5.6	-4.7	-4.5
General government fiscal balance[4]	. .	-5.7	-4.3	-3.3	-2.6	-2.5
Underlying general government fiscal balance[2]	. .	-6.6	-5.5	-4.0	-3.9	-3.0
Underlying government primary fiscal balance[2]	. .	-4.2	-3.5	-1.9	-1.7	-1.0
General government gross debt (Maastricht)[4]	. .	87.4	88.2	88.3	87.5	87.3
General government net debt[4]	. .	80.4	81.7	91.8	91.0	90.8
Three-month money market rate, average	. .	0.5	0.6	0.5	0.3	0.3
Ten-year government bond yield, average	. .	2.6	1.9	1.3	1.2	0.9

1. Contribution to changes in real GDP
2. As a percentage of potential GDP.
3. As a percentage of household disposable income.
4. As a percentage of GDP.

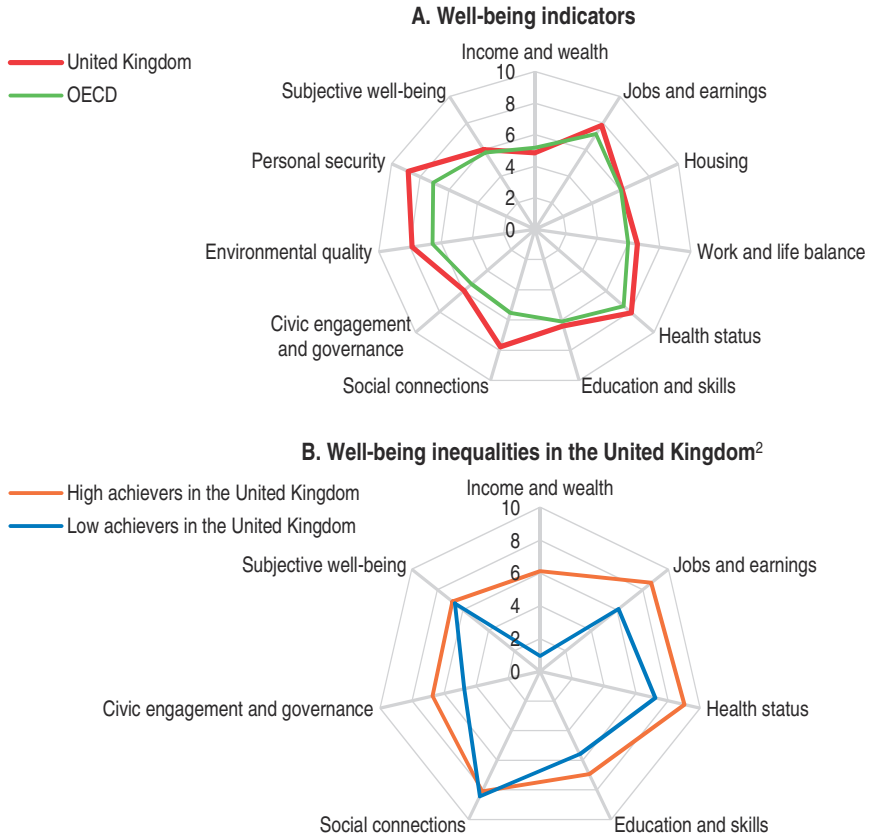
Source: OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), October.

very weak, and there has been little catch up across regions and workers (Chapters 1 and 2). This may lead to, or be the result of, important differences among people in terms of income and wealth, jobs and earnings, and education and skills (Figure 2, Panel B). Well-being inequalities may have been one of the causes of Brexit, as less educated workers in remote regions might have perceived to benefit less from the European project.

The main challenge facing the authorities in the near future is to implement Brexit at a minimum cost by securing comprehensive free-trade agreements with the bloc and other countries. About 45% of UK exports are destined for EU27 countries and are greatly facilitated by EU membership, which implies participation in both the EU single market and customs union. The single market supports trade among member countries by ensuring automatic compliance with European standards. The costs of checking the rules of origin (criteria to determine the national source of a product) are not applicable for trade with countries that belong to the EU customs union. The union also supports trade with

Figure 2. **Average social indicators are relatively solid, but they are unequally distributed**

Better Life Index, 2016[1]



1. Each well-being dimension is measured by one to four indicators from the OECD Better Life Index set. Normalised indicators are averaged with equal weights. Indicators are normalised to range between 10 (best) and 0 (worst) according to the following formula: (indicator value – minimum value)/(maximum value – minimum value) × 10.
2. The panel shows well-being outcomes in various dimensions for people in the United Kingdom with different socio-economic background. In the dimensions of "income and wealth", "health" and "civic engagement and governance", "high (/low) achievers" are people with an income belonging to the top/(bottom) quintile of the income distribution; in "jobs and earnings", "high (/low) achievers" are people with the high/(low)est educational attainment (i.e. ISCED 5/6 versus ISCED 0/1/2) or with gross earnings belonging to the top/(bottom) quintile of the distribution; in "education and skills", "high (/low) achievers" are people with a score belonging to the top/(bottom) quintile of the PISA index of economic, social and cultural status; and in "social connections" and "subjective well-being", "high (/low) achievers" are people with the high/(low)est educational attainment (i.e. ISCED 5/6 versus ISCED 0/1/2). Outcomes are shown as normalised scores on a scale from 0 (worst condition) to 10 (best condition) computed over OECD countries, Brazil, the Russian Federation and South Africa.

Source: OECD (2016), *OECD Better Life Index*, *www.oecdbetterlifeindex.org*.

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third countries through approximately 40 free-trade agreements with 53 non-EU countries, but member countries are not allowed to negotiate their own agreements as long as they are part of the union. It is critical that the outcome of negotiations ensures the most frictionless trade possible between the European Union and the United Kingdom, bearing in mind that frictionless trade as currently enjoyed by the United Kingdom with the European Union is due to being part of the EU single market and customs union.

The UK government does not seek to replicate existing models of relationship, such as remaining a member of the European Economic Area (like Norway and Iceland), which implies participation in the EU single market, or like Turkey, which implies participation in

the EU customs union. Instead, the government plans to leave both the EU single market and customs union from March 2019 and has recently published a number of papers to sketch its vision of a new partnership with the European Union, notably for trade right after Brexit (transition period) and in the medium term (Box 1). The UK authorities want to explore an interim period where they could form a new and time limited customs union between the UK's and the EU's customs union, based on a shared external tariff and without customs processes and duties between the two. They also propose two models for their future relationships with the European Union. These proposals seek to replicate the facilitations of trade that EU membership creates. However, some proposals appear unprecedented (technology-based solutions for customs procedures) or untested (mechanisms to ensure that goods which do not comply with EU trade policy stay in the United Kingdom, and those that do comply and transit through the United Kingdom pay

Box 1. **Overview of the United Kingdom's vision for the new trade partnership with the European Union**

The UK government has published a number of "position" and "future partnership" papers to avoid a cliff edge for businesses and individuals, and to underpin its vision to build a new, deep and special partnership with the European Union in several policy areas.

In the papers published so far, the main policy objectives for trade are to ensure UK-EU trade is as frictionless as possible; avoid a "hard border" between Ireland and Northern Ireland; and establish an independent trade policy.

Right after Brexit, the UK government seeks a new and time-limited close association with the EU customs union, based on a shared external tariff and without customs processes and duties in trade with the EU bloc. In the medium term, two types of customs arrangements are proposed to ensure UK-EU trade remains as frictionless as possible:

- A "highly streamlined customs arrangement" to continue some of the existing arrangements between the United Kingdom and the European Union; put in place new negotiated and potentially unilateral facilitations to reduce and remove barriers to trade; and implement technology-based solutions to make it easier to comply with customs procedures;
- A "new customs partnership with the European Union" to remove the need for a UK-EU customs border, with one possible approach being that the United Kingdom would mirror the EU's requirements for imports from the rest of the world where their final destination is the European Union.

Four principles have been proposed to ensure the availability of goods at the date of the withdrawal and to support the move to a future relationship:

- Goods placed on the single market before exit should continue to circulate freely in the United Kingdom and the European Union, without additional requirements or restrictions;
- Where businesses have undertaken compliance activities prior to exit, they should not be required to duplicate these activities;
- The agreement should facilitate the continued oversight of goods;
- Where the goods are supplied with services, there should be no restriction to the provision of these services that could undermine the agreement on goods.

Source: HM Government (2017), *Future customs* arrangements, A future partnership paper; HM Government (2017), *Continuity in the availability of goods for the EU and the UK*, Position paper.

the correct EU duties, which could be different from the United Kingdom's). Ensuring the continuity of trade in goods and services at the point of exit would reduce the cliff edge for businesses and individuals, but there could be practical and legal difficulties to achieve this.

The European Union has indicated that any free-trade agreement should be balanced, ambitious and wide-ranging and must ensure a level playing field in terms of competition and state aid (with safeguards against unfair tax, social, environmental and regulatory measures). Yet, the core objective of the European Union is to preserve the integrity of the single market, which excludes participation based on a sector-by-sector approach. Also, the guidelines of the European Council for Brexit negotiations stress that a country outside the European Union that does not live up to the same obligations as a member, cannot have the same rights and enjoy the same benefits as a member (European Council, 2017).

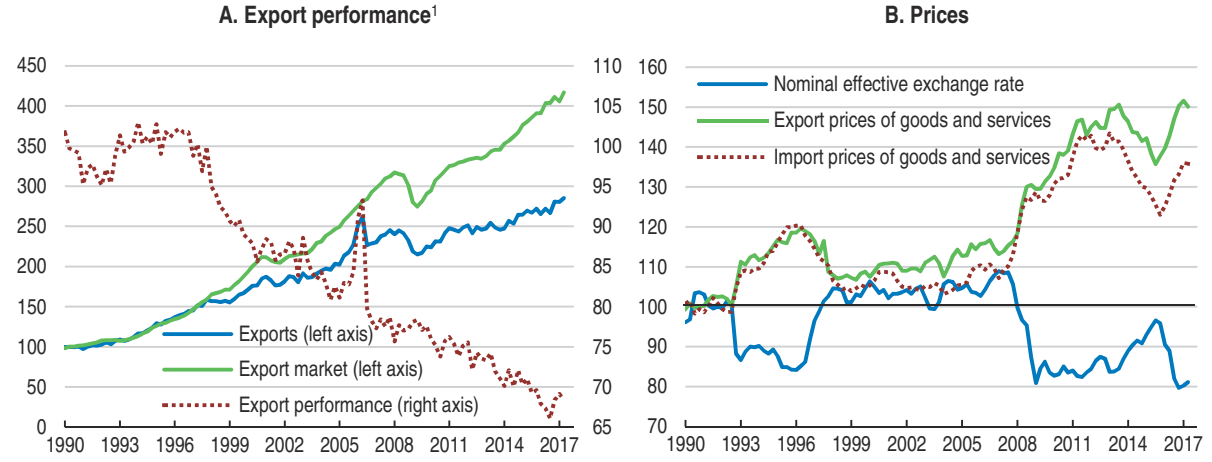
European leaders have indicated that an overall understanding on the framework for the future relationship should be identified during the second phase, which can start only once sufficient progress is made on the first phase of ongoing negotiations, focusing on citizens' rights, the financial settlement and the border issue in Ireland. An agreement on a future relationship between the European Union and the United Kingdom as such can only be finalised and concluded once the United Kingdom has become a third country. In the absence of a free-trade agreement in 2019, switching to World Trade Organization (WTO) rules would cut UK growth by 1.5 percentage point that year (Kierzenkowski et al., 2016). This assumption underpins the projections in this *Survey*, given the large uncertainty about the outcome of negotiations, but the United Kingdom should eventually conclude a free-trade agreement with the European Union (Kierzenkowski et al., 2016). However, putting in place a transition period of a few years after 2019 during which most of current trade arrangements with the European Union would be maintained until a new agreement is found would reduce the economic consequences in the run-up to Brexit and right after. In her speech on 22 September 2017, the UK Prime Minister proposed an implementation period during which UK and EU access to one another's markets should continue on current terms.

To maximise the benefits of trade, an important policy priority is to strengthen the productivity and competitiveness of the export sector. The United Kingdom faces a structural difficulty to benefit from growing markets, as illustrated by a long-standing decline in export performance (Figure 3, Panel A). Moreover, exports have a low responsiveness to exchange rate movements, which could partly be due to increased participation in global value chains, implying a high import content in exports (Ollivaud et al., 2015). This leads to a high pass-through of import prices into export prices (Figure 3, Panel B), reducing scope for exporters to win market share following currency depreciation. Moreover, exporters may have increased their margins, which could have been an additional drag on rising exports.

Another challenge, compounded by Brexit, is to revive the growth of labour productivity. Since the financial crisis, aggregate labour productivity growth has come to a standstill in the United Kingdom (Figure 4, Panel A). Productivity gains have made no meaningful contribution to output performance since 2007, which instead has been driven by higher employment and hours worked per employee. Output per hour is nearly 20% lower than it would have been had it continued to expand at its pre-crisis trend growth. Stagnant productivity has held back real wages and real GDP per capita (Figure 4, Panel B). Moreover, while the level of UK labour productivity is similar to the OECD average, it is about 20-25%

Figure 3. **Exports have not kept up with overseas demand**

Index 1990 = 100



1. Data refer to exports of goods and services in volumes. Export performance is the ratio of export volumes to export markets for total goods and services.

Source: OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), October; and Thomson Reuters Datastream.

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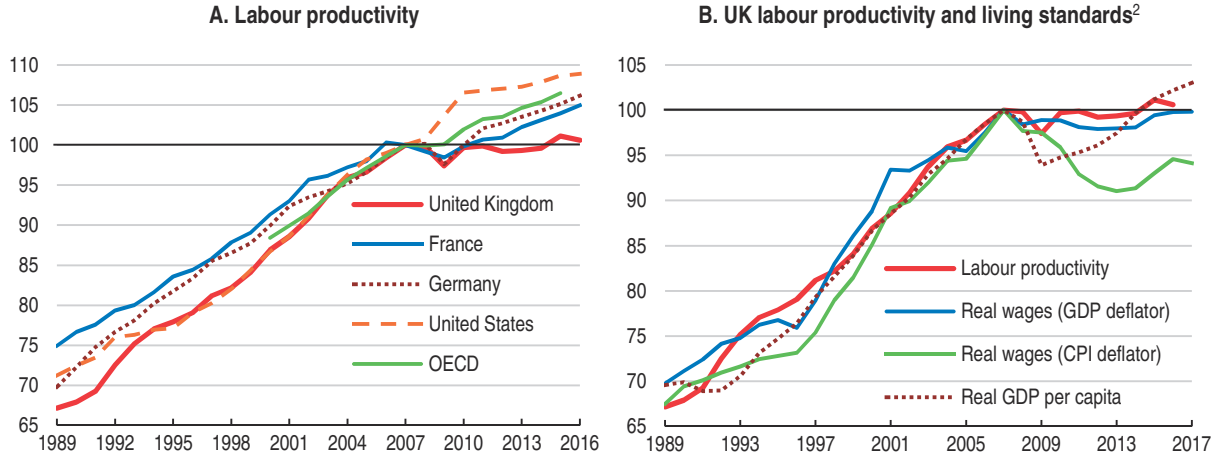
Figure 4. **Reviving labour productivity is essential to boost living standards**

Index 2007 = 100[1]



1. Labour productivity refers to real GDP in USD constant prices and constant purchasing power parities (PPPs) per total hours worked.
2. Wages refer to nominal wages divided by dependent employment. Data for 2017 refer to the second quarter of 2017.

Source: OECD (2017), "GDP per capita and productivity levels", *OECD Productivity Statistics* (database), September; OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September; and OECD (2017), *OECD National Accounts Statistics* (database), September.

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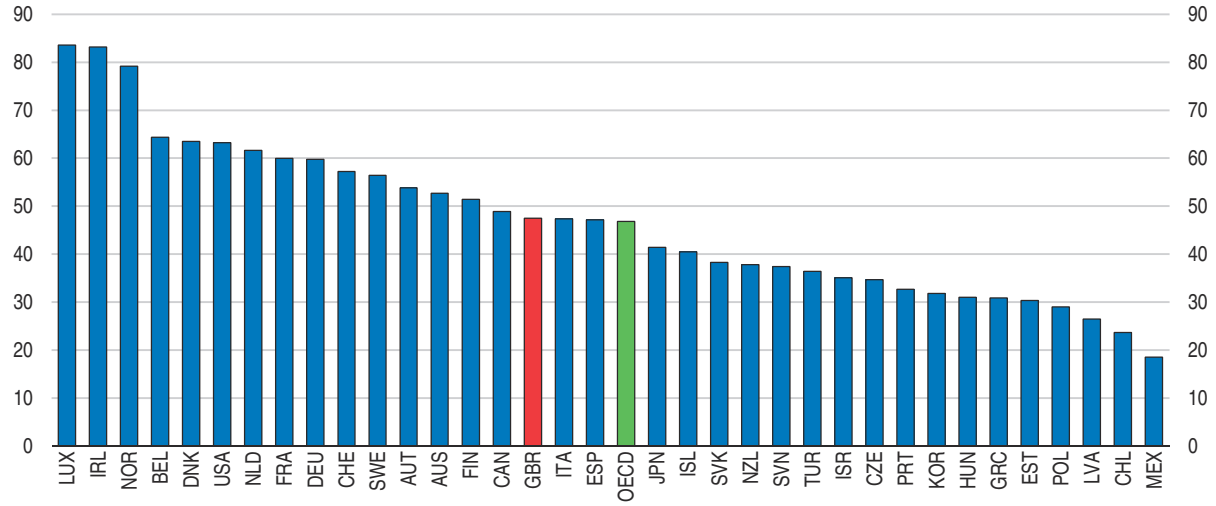
lower than in the United States, France and Germany (Figure 5). Brexit could reduce total factor productivity by about 3% after ten years, mainly through the channel of diminished trade openness, but also owing to a weaker research and development intensity and a smaller pool of skills (Kierzenkowski et al., 2016).

Immigration has enhanced living standards through higher labour resource utilisation and productivity gains (Figure 6), which shows the critical importance of keeping the labour market open for foreign workers. EU migrants in the United Kingdom have a higher educational attainment than in most other EU countries (Kierzenkowski et al., 2016) and

Figure 5. **Labour productivity is around the OECD average**

Real GDP in constant USD PPP per total hours worked, 2016[1]



1. 2015 for Belgium, Chile, Iceland, Israel, Japan, Korea, Mexico, Slovak Republic, Switzerland, Turkey and the OECD aggregate. PPP: purchasing power parities.

Source: OECD (2017), "GDP per capita and productivity levels", *OECD Productivity Statistics* (database), September.

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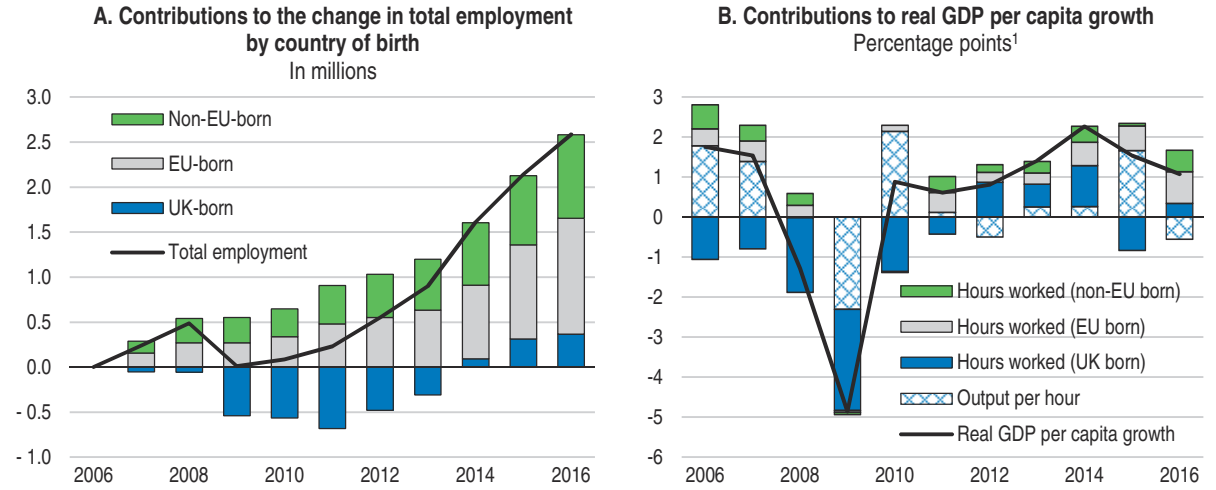
Figure 6. **Immigration has expanded the labour market, lifting GDP per capita over the last decade**



1. Data for hours worked by country of birth refers to hours worked per capita and it is calculated based on employment shares by country of birth.

Source: ONS (2017), "UK labour market: September 2017", Office for National Statistics; OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September; and OECD (2017), "GDP per capita and productivity levels", *OECD Productivity Statistics* (database), September.

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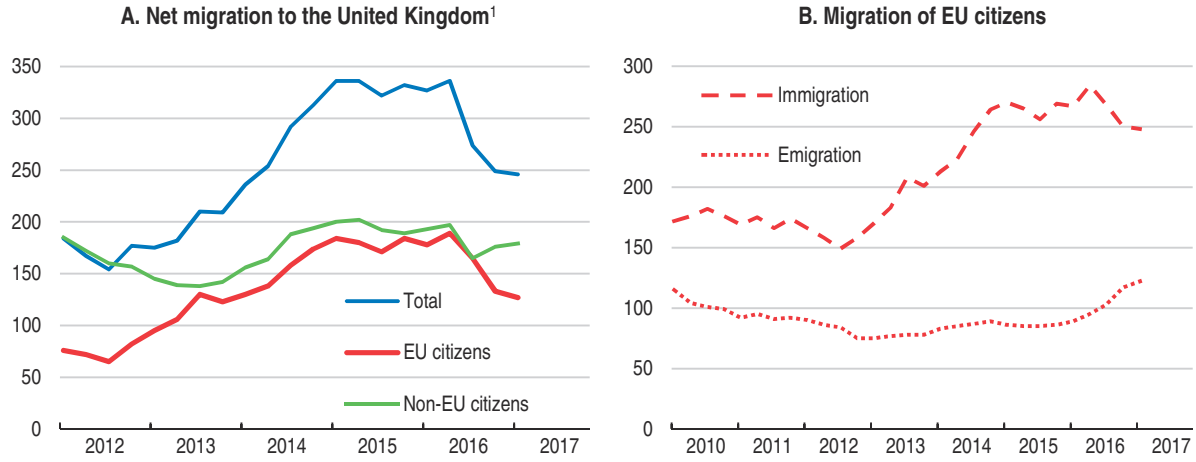
recent research has shown a positive impact on productivity related to the higher skills that migrants possess and the possible complementarity between their skills and those of the UK population (Rolfe et al., 2013; Wadsworth et al., 2016). Following the EU membership referendum in mid-2016, there has been an important fall in net migration, mainly of EU citizens, explained by increased emigration and reduced immigration (Figure 7). Declines in net migration could tighten the labour market if labour supply falls faster than labour

Figure 7. **Net migration from the European Union has been falling since mid-2016**

Rolling annual data, in thousands



1. Net migration is the difference between immigration and emigration.

Source: ONS (2017), "Migration Statistics Quarterly Report: August 2017", Office for National Statistics, August.

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demand, although nominal wage growth is contained at about 2%. In the longer term, lower immigration would reduce labour force and productivity growth (Kierzenkowski et al., 2016). Therefore, rapidly concluding negotiations to guarantee the rights of EU citizens is a priority to sustain labour supply and ensure further progress in living standards. The United Kingdom should adopt simple criteria to deal with EU citizens living and/or working in the United Kingdom, which would minimise administrative burdens.

Since the last *Economic Survey*, the government has undertaken major assessments of the productivity and other challenges faced by the economy. The authorities published a productivity plan in July 2015, launched a consultation to build an industrial strategy in January 2017, and acknowledged that the housing market is broken and published plans for reform in February 2017. Also, an independent review of employment practices, commissioned by the Prime Minister, was published in July 2017. Based on these diagnoses, several important policy steps have been initiated to stimulate labour productivity:

- New agencies have been created to improve infrastructure investment planning;
- Additional housing investment is planned;
- Devolution to local governments has progressed;
- A new scheme has been introduced to fund apprenticeship training.

Against this background, the main messages of this *Survey* are:

- Aggregate productivity is stagnant and growth fell significantly in the first half of 2017. Productivity-enhancing fiscal initiatives on investment should be identified in advance to allow their swift deployment (such as spending on repair and maintenance or soft investment) if the low-growth trap persists, with automatic stabilisers working freely.
- Comprehensive policy packages should boost the productivity of lagging regions and cities, which requires local transport investments to foster connectivity, spending on research and development to raise innovation, housing investments to ease the matching of skills to jobs, restructuring of deficient companies, and greater educational attainment and training tailored to business needs.

- Further devolution of tax and spending powers should continue and part of central government transfers could be conditional on collaboration across city-regions to create larger economic hubs.
- Negotiations with the European Union and other countries should promote high value chains integration for network industries and high access for services sectors to overseas markets, although there are important uncertainties about the duration and outcome of these negotiations.

Macroeconomic developments

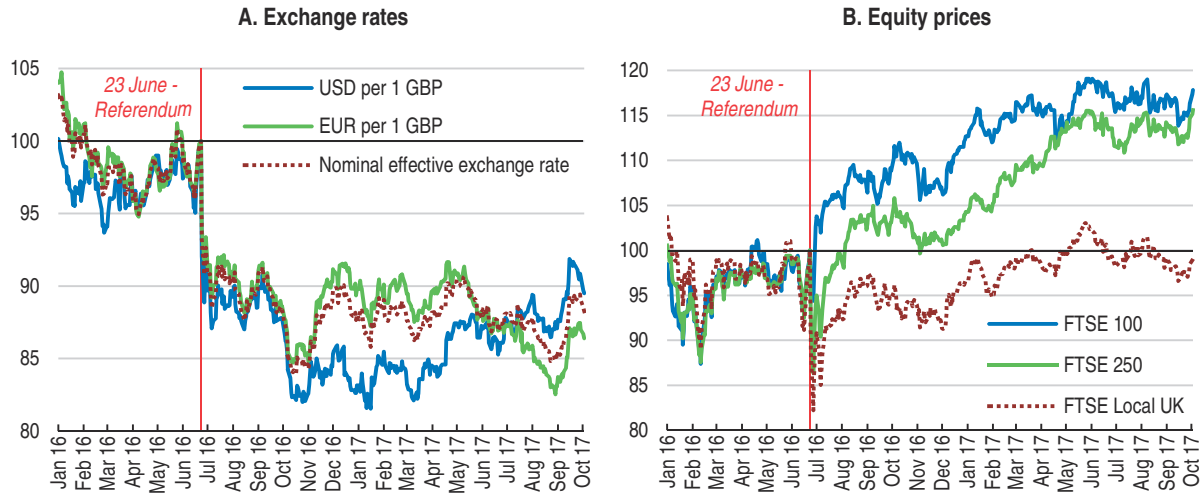
Stabilising the economy

Growth has gradually been losing momentum, slowing to 1.8% in 2016 and 1.1% (on annualised basis) in the first half of 2017. In the aftermath of the vote in the referendum to leave the European Union in June 2016, short-term confidence indicators fell, trading of several commercial property funds was suspended, and the UK's sovereign rating was downgraded. However, economic activity was resilient in the second half of 2016, in part because policies were implemented to stabilise the economy. The Bank of England increased its provision of liquidity to the financial system, cut the countercyclical buffer rate from 0.5% to 0% and signalled further significant easing of monetary policy, which it implemented in early August. In November 2016, the fiscal framework was amended, allowing greater policy flexibility, and fiscal policy was relaxed.

The exchange rate had been in a downward trend before the referendum and fell by about 10% right after the vote (Figure 8, Panel A), in line with the exogenous assumption made by the OECD prior to the vote (Kierzenkowski et al., 2016). In the year to October 2016, the nominal effective exchange rate depreciated by nearly 20%, almost as much as in the year to December 2008 at the start of the financial crisis. The persistence of currency weakness could notably reflect financial market expectations about the longer-term cost for the UK economy of changes in its trading arrangements after Brexit (Broadbent, 2017). In the

Figure 8. **Financial markets are pessimistic about the UK economic consequences of EU exit**

Index 23 June 2016 = 100[1]



1. Daily data; last data point refers to 3 October.

Source: Thomson Reuters Datastream.

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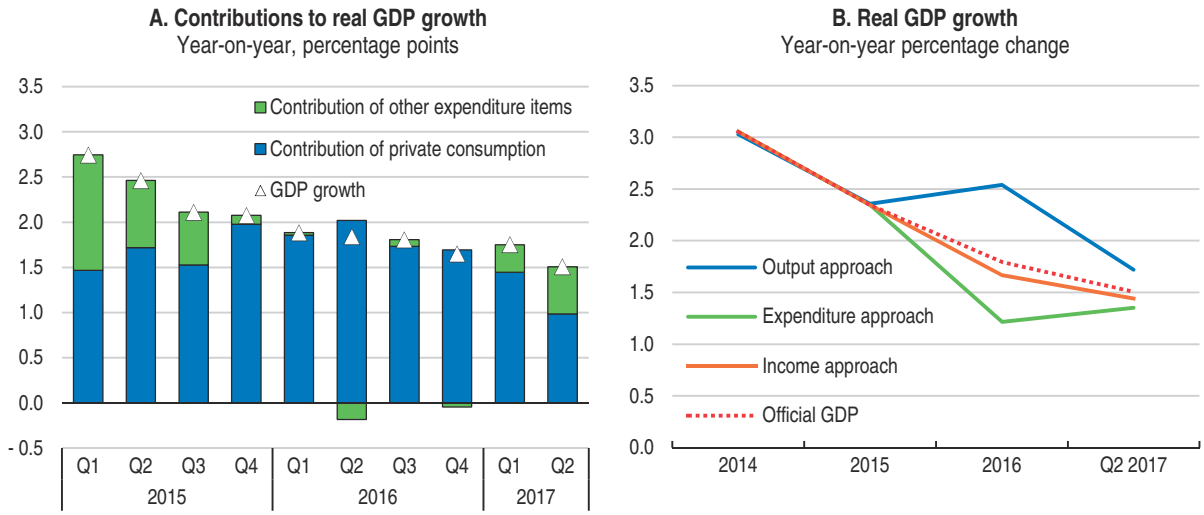
near term, a weaker sterling has propped up valuations of UK companies operating on foreign markets and reporting their profits in domestic currency. By contrast, the valuation of companies mainly selling on the local market has been subdued, as investors expect greater domestic consequences of Brexit (Figure 8, Panel B).

Private consumption has been the main driver of demand growth until recently (Figure 9, Panel A). However, a wide discrepancy exists in recent estimates of GDP according to output, income and expenditure approaches (Figure 9, Panel B), in particular for 2016. These discrepancies should eventually be eliminated by statistical revisions, as has been the case in the past. Household spending has been driven by robust employment growth, very low interest rates and increases in the minimum wage. As their real earnings and real incomes have come to a standstill notably with higher consumer price inflation and weak productivity growth, households have reduced the amount they are saving and increased indebtedness (Figure 10). As a result, the household saving ratio has been trending downwards. Household consumption grew at a small quarterly rate in the second quarter, and some high-frequency indicators suggest a continuation of weaker growth.

Figure 9. **Private consumption has led growth, which has been uncertain**



Source: OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), October; and calculations based on ONS (2017), "Quarterly national accounts: April to June 2017", Office for National Statistics, September.

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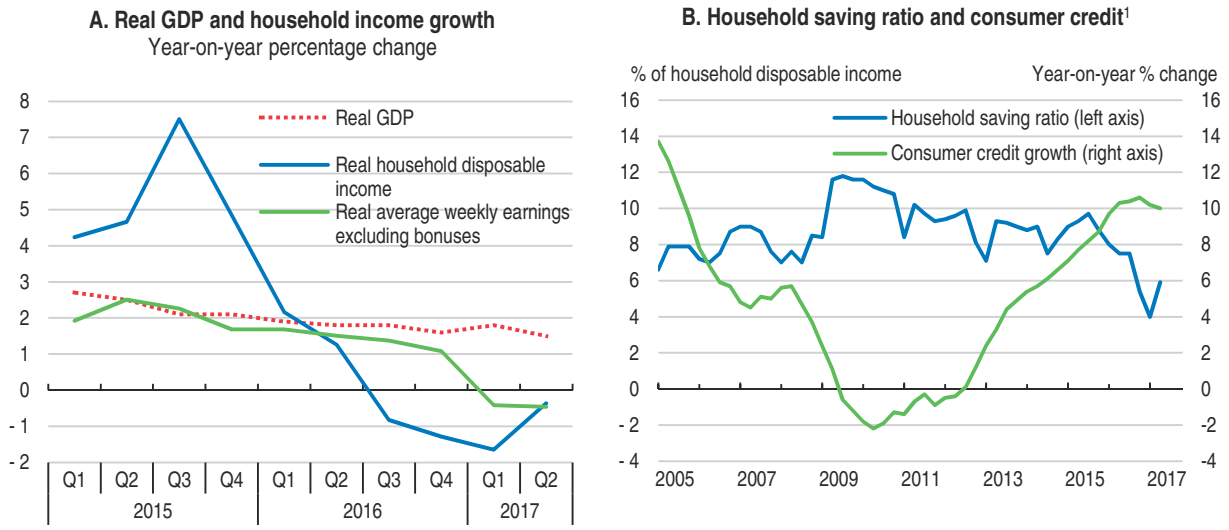
Growth is projected to weaken

Even as other advanced economies continue to recover, growth is projected at 1.0% in 2018 (Table 1) under the assumption that the United Kingdom exits the European Union in 2019 with the most favoured nation status of the WTO. It assumes that the United Kingdom will update the terms of its WTO membership by 2019 and before it concludes a new partnership with the European Union by 2023 (Kierzenkowski et al., 2016). This is the least favourable scenario which does not assume a smooth transition period to a close partnership after 2019. This scenario would increasingly weigh on private sector spending. While a weak sterling should support exports, exports have not been so far very responsive to exchange rate depreciation. High inflation will hold back purchasing power, but weaker economic activity should mitigate the pass-through of import prices into consumer prices. Lower corporate margins of domestic producers are likely to reduce their ability to finance

Figure 10. **Growth has become less inclusive, as savings are falling and borrowing is rising**



1. Households also include non-profit institutions serving households. Consumer credit refers to total (excluding the Student Loans Company) sterling net consumer credit lending to individuals.

Source: OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September; ONS (2017), "Quarterly sector accounts: April to June 2017", Office for National Statistics, September; ONS (2017), "UK labour market: September 2017", Office for National Statistics, September; and Bank of England (2017), "Monetary and Financial Statistics", *Statistical Interactive Database*, September.

StatLink http://dx.doi.org/10.1787/888933600809

investment and restrain wage growth as firms seek to reduce costs. The unemployment rate is projected to rise moderately, even though the flexible labour market may put more of the adjustment on lower wages rather than job losses.

There are internal and external risks to these projections. The outcome of Brexit negotiations is difficult to foresee. It could prove more favourable than assumed here, which could boost trade, investment and growth substantially. This calls for an ambitious EU-UK agreement and a transition period to allow for adjustment to the new agreement, which would further support economic activity. Meantime, however, uncertainty could hamper domestic and foreign investment more than projected and hurt consumption even more were the exchange rate to depreciate further. The pass-through of currency depreciation to prices could be larger, reducing private consumption into a greater extent. Recent pickup in global trade could benefit exports more than projected. Economic prospects are also subject to medium-term uncertainties, the probabilities and consequences of which are difficult to quantify in terms of shocks to the projections (Table 2).

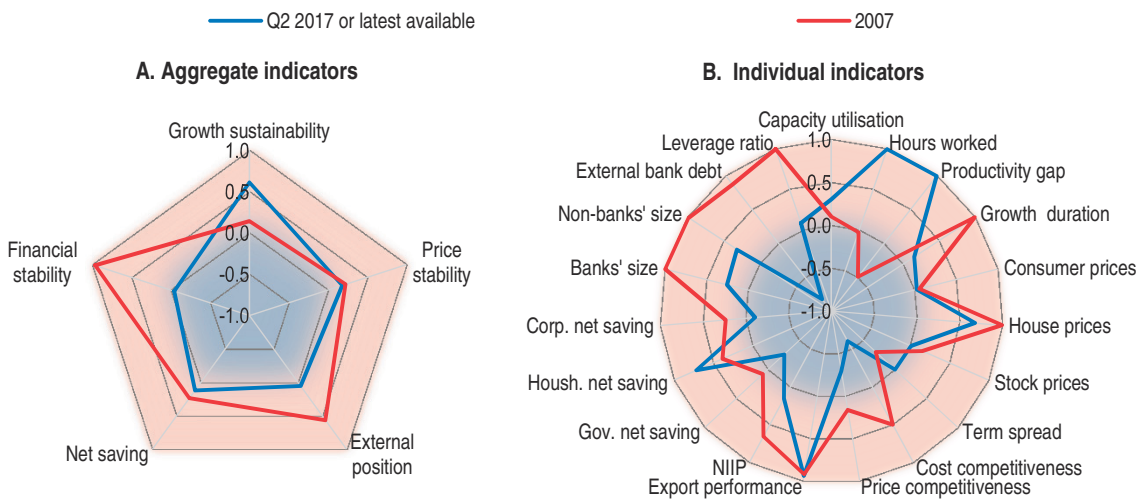
Potential macro-financial vulnerabilities have abated since 2007, but growth sustainability has worsened (Figure 11, Panel A). The size of the financial sector has shrunk, external bank debt has fallen sharply and banks are better capitalised (Figure 11, Panel B), as reforms of the financial sector have continued (Table 3). The net international investment position is close to balance and recent currency depreciation has boosted competitiveness, although export performance is below long-term trend pointing to difficulties by UK exporters to meet overseas demand. Corporate balance sheets are healthy, but the household net saving position is weak and suggests a reduced capacity to smooth consumption in case of shocks, although households also have significant assets. Labour productivity is well below long-term trend and total hours worked as a percentage of the working-age population are at an all-time high. The latter could be indicative of underlying wage pressures, which instead have been

Table 2. **Medium-term shocks to the UK's economic growth prospects**

Risk	Possible outcome
Disorderly Brexit.	A break-up of EU-UK negotiations, cancelling out the prospect of a trading relationship in the foreseeable future, would trigger an adverse reaction of financial markets, pushing the exchange rate to new lows and leading to sovereign rating downgrades. Business investment would seize up, and heightened price pressures would choke off private consumption. The current account deficit could be harder to finance, although its size would likely be reduced.
Disruption of territorial integrity.	Scotland and Northern Ireland voted to remain in the European Union. Scotland could vote for independence in another referendum and the introduction of a hard border in Northern Ireland could threaten the peace process. Changes to UK's borders would have major negative economic impacts, hampering business and consumer confidence.
Political instability.	The latest general election has led to a hung Parliament, which increases policy uncertainty and reduces ability to adopt structural reforms.
Continuation of EU membership.	In case Brexit gets reversed by political decision (change of majority, new referendum, etc.), the positive impact on growth would be significant.

Figure 11. **Potential macro-financial vulnerabilities are smaller, but growth sustainability is weaker**

Index scale of -1 to 1 from lowest to greatest potential vulnerability, where 0 refers to real time long-term average[1]



1. Each aggregate macro-financial vulnerability indicator is calculated by aggregating (simple average) normalised individual indicators. Growth sustainability includes: capacity utilisation, total hours worked as a proportion of the working-age population (hours worked), deviation of output per hour from its linear trend (productivity gap), and an indicator combining the length and strength of expansion from the previous trough (growth duration). Price stability includes: headline and core inflation (consumer prices; calculated by the following formula: absolute value of [core inflation minus inflation target] + [headline inflation minus core inflation]), the average of house prices-to-rent ratio and house prices-to-income ratio (house prices), stock market index for all shares adjusted by nominal GDP (stock prices), and the difference between long-term and short-term government bond interest rates (term spread). External position includes: the average of unit labour cost based real effective exchange rate (REER) and consumer price based REER (cost competitiveness), relative prices of exported goods and services (price competitiveness), ratio of exports to export markets (export performance) and net international investment position (NIIP) as a percentage of GDP. Net saving includes: government, household and corporate net saving, all expressed as a percentage of GDP. Financial stability includes: banks' size as a percentage of GDP, non-banks' size as a percentage of GDP, external bank debt as a percentage of total banks' liabilities, and shares and other equity as a proportion of total banks' liabilities (leverage ratio).

Source: OECD calculations based on OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), September; OECD (2017), *OECD Analytical House Prices Indicators* (database), September; ONS (2017), "UK productivity: Jan to Mar 2017", Office for National Statistics, July; and Thomson Reuters Datastream.

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Table 3. **Implementation of OECD recommendations on the financial sector**

Past OECD recommendations	Actions taken
Consider higher leverage ratios for global systemic banks to complement risk-weighted capital ratios.	The government granted the Financial Policy Committee (FPC) of the Bank of England powers over the leverage ratio framework in April 2015. The FPC's framework imposes additional leverage ratio buffer requirements on systemically important banks on top of a minimum leverage ratio of 3%, which the FPC is seeking to increase further to 3.25%.
Gradually extend regulatory instruments beyond the banking sector.	The government has made refinements to the regulatory regime for alternative finance providers through amendments to Peer-to-Peer lending regulations, to ensure the regime remains fit for purpose as the sector matures and evolves. The Financial Conduct Authority is currently undertaking a review of the regulatory rules for both Peer-to-Peer lending and equity crowdfunding.
Continue to uphold underwriting standards in mortgage lending.	Since January 2017, the Prudential Regulation Authority introduced tighter underwriting standards for lenders operating in the buy-to-let market.

weak. Price-to-rent and price-to-income ratios suggest an overvaluation of the housing market, although house price growth is easing and mortgage growth has been under control. Banks face limited exposure to losses on mortgages in a crisis according to past evidence, as unemployment does not rise too much and households cut sharply their spending to maintain repayments, but the latter could magnify the downturn (Brazier, 2017).

The authorities should continue to remain vigilant about financial stability challenges created by a rapid pace of financial innovation and the expansion of the shadow banking sector (Table 3). New forms of lending – such as dealership car finance, payday loans or second-charge mortgages – have eased credit conditions and exerted a downward pressure on quoted interest rates for consumer lending (OBR, 2017a). As a result, total consumer lending growth has picked up to around 10% in annual terms, the fastest increase since 2005 until recently (Figure 10, Panel B). Household debt remains high and has rebounded to above 140% of household income. While mortgage debt represents around 70% of household debt, banks face a high exposure to consumer loans, as write-off rates have been ten times higher than on mortgages over the last decade and defaults are much more sensitive to economic conditions (Brazier, 2017). Part of recent growth in consumer lending has been driven by car loans, which may have lower direct financial stability implications in the case of defaults for creditors who have securitised such loans, but more negative implications on institutional investors who have purchased related asset backed securities.

The Bank of England's Prudential Regulation Authority has recently performed a review of consumer credit. The regulator has found that underwriting standards are weakening, notably with falling interest rates (including longer interest-free periods), lower average risk-weights and higher lending into high-risk segments. In June this year, the Bank of England raised banks' countercyclical capital buffer rate from 0% to 0.5% and indicated an additional possible increase to 1% in November, in line with a more normal risk environment. In September it also recommended banks to prepare for further increases in capital buffers to raise loss-absorption capacity against consumer loan defaults. The Bank has also decided to perform earlier its stress tests on consumer lending and confirmed that the Term Funding Scheme – introduced to facilitate the transmission of the latest cut in the policy rate into retail interest rates – would close in February 2018. Latest credit conditions surveys suggest that close to 20% of lenders (net percentage balance) tightened the availability of unsecured credit to households in the first half of 2017, the highest percentage since late 2008, and expected a further decrease in the third quarter (Bank of England, 2017a,b). Despite some recent signs of easing annual growth, should consumer lending remain so robust, the Financial Policy Committee should introduce tighter macro-prudential measures. These

could include the adoption of debt-to-income ratios to limit high debt-servicing ratios for all types of debt with further affordability tests to assess household buffers to absorb shocks (such as higher interest rates).

Government net saving position is consistent with the long-term average (Figure 11), but the Office for Budget Responsibility has assessed in its first Fiscal Risk Report that fiscal sustainability is exposed to interest rate, inflation and productivity shocks (OBR, 2017b). Inflation shocks are likely to be temporary and the accommodating behaviour of the Bank of England does not suggest that the policy rate could be raised to 4% and the quantitative easing programme scaled down in a downturn, as assumed in the stress scenario. However, if trend productivity and GDP growth were just 0.3 percentage points a year lower than assumed by the Office for Budget Responsibility, half of the fiscal buffer against the structural deficit target (see below) would be lost. Therefore, implementing additional productivity-enhancing measures on investment would foster fiscal sustainability.

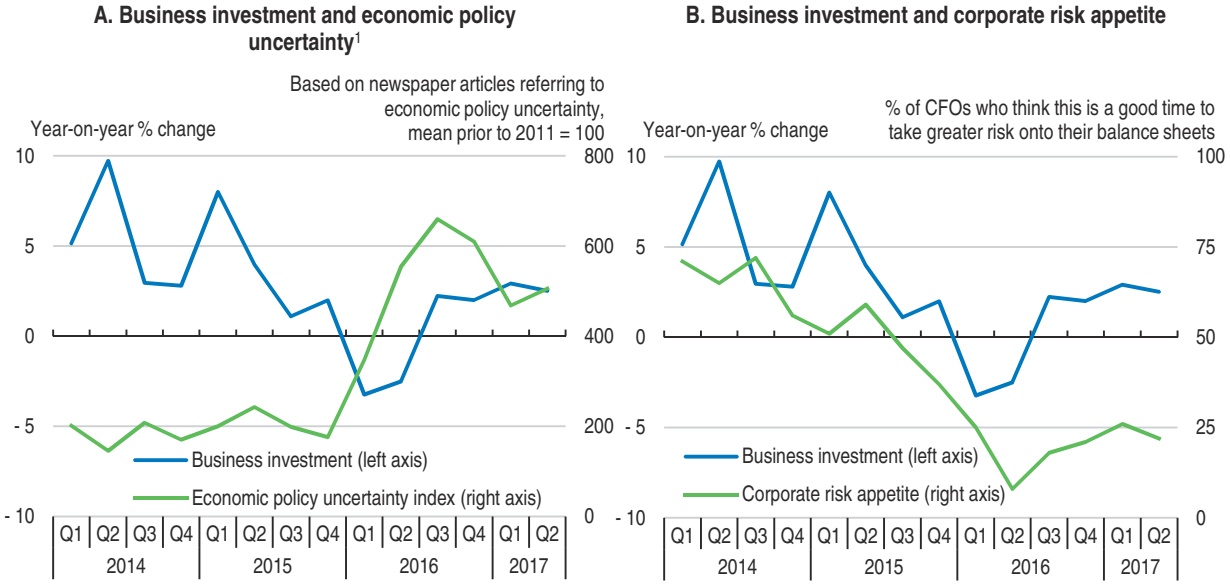
Brexit will likely have financial stability implications (IMF, 2017). A less concentrated banking sector would reduce systemic risks, but incipient relocation pressures could also lead to a split of financial activities across jurisdictions, generating greater complexity and costs for supervisory authorities. So-called single-market "passports", which allow financial services companies licensed in one EU member state to perform their activities across the bloc, are likely to feature prominently in the negotiations. Nearly 5 500 UK-based companies have passporting rights and reliance on them is important for the United Kingdom, which has a sizeable trade surplus in financial services. The Prudential Regulation Authority has recently requested all firms with cross-border exposures to draft contingency plans for a range of possible scenarios following a formal exit from the European Union (Bank of England, 2017c). The Financial Policy Committee has started to elaborate a scenario in which there is no agreement in place at the point of exit. Brexit creates also legal challenges for the financial sector. The Financial Policy Committee has warned that Brexit poses challenges for about a quarter of derivatives contracts, while the European Banking Authority has warned that most EU banks have issued loss-absorbing capital under British law, which could create difficulties when bail-in clauses are implemented since British courts will not have to apply European directives. Stress tests should be used to assess financial stability and macroeconomic consequences of different outcomes. Stress tests are frequent, conducted once a year, and a careful monitoring of risks needs to continue before and in the wake of Brexit.

Monetary and fiscal policy

Monetary policy should look through imported inflation

Monetary policy has been extremely supportive for some time, in the United Kingdom as in all other major currency areas. The base rate was lowered to 0.5% in early 2009 and since then the Bank of England has been pursuing quantitative easing. In early August 2016, to support activity following the referendum on EU membership, it adopted a further stimulus package by cutting the policy rate to 0.25%, restarting quantitative easing (taking the total stock of asset purchases from 20% of GDP to 23% of GDP), and introducing the Term Funding Scheme (with central bank reserves of up to 5% of GDP lent to banks and building societies for an extended period at a rate close to the policy rate). These measures boosted consumer spending and lending, but were less effective in offsetting the effects of uncertainty and low corporate risk appetite on business investment (Figure 12).

Figure 12. **Business investment growth has weakened as uncertainty is high**



1. The newspaper-based Economic Policy Uncertainty Index is constructed based on articles from two newspapers: The Times of London and Financial Times. The number of newspaper articles containing the terms uncertain or uncertainty, economic or economy, and one or more policy-relevant terms are counted and then scaled by a measure of the number of articles in the same newspaper and month. Newspaper-level monthly series are standardised to unit standard deviation prior to 2011. The country-level index is calculated as an unweighted average of the standardised newspaper-level monthly series, which is then normalised to a mean of 100 prior to 2011. Quarterly figures are calculated as unweighted averages of monthly data.

Source: ONS (2017), "Quarterly national accounts: April to June 2017", Office for National Statistics, September; *www.policyuncertainty.com*; and Deloitte (2017), "Deloitte CFO Survey: 2017 Q2", July.

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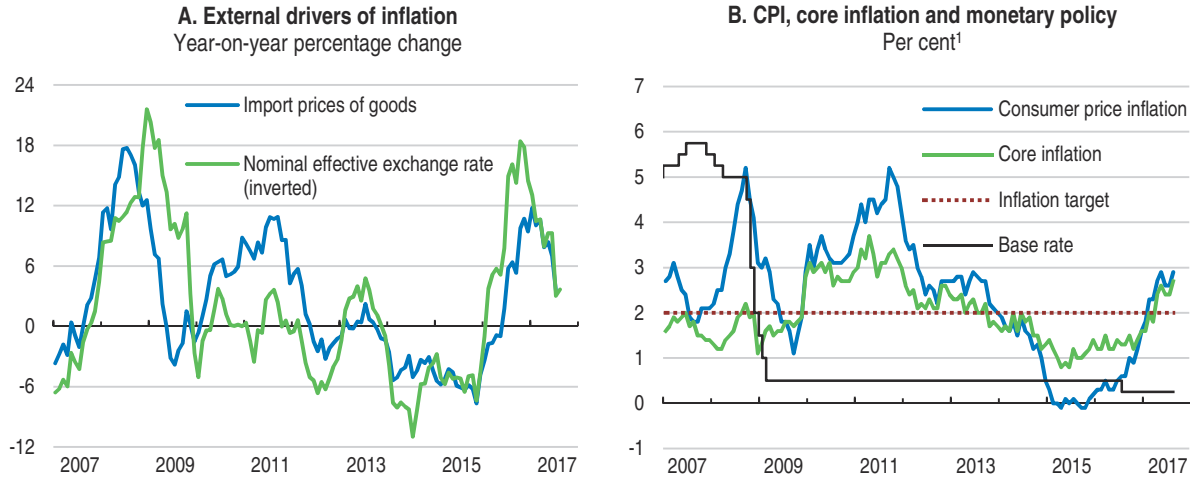
The size of the stimulus package was larger than market participants had expected, which helped to reduce uncertainties about the price and the availability of finance, bolstered confidence in the face of weak survey indicators, and left time for fiscal policy to calibrate its reaction. Also, the commitment to ease monetary policy further if economic activity were to stagnate provided an additional fillip to economic agents' expectations. In parallel, the Bank of England has been stressing that monetary policy cannot prevent necessary real adjustment and weaker real income growth before the United Kingdom establishes new trading arrangements after Brexit. Expansionary monetary policy may have slowed the restructuring of businesses, but the issue of inefficient firms – a major problem in Southern Europe – is less significant in the United Kingdom (Adalet McGowan et al., 2017) and is concentrated in the low-tech segment of the manufacturing sector (see below).

Monetary policy should remain supportive amidst the ongoing slowdown in the economy as the negative effects of Brexit continue to materialise. Household debt remains high and slightly over 40% of outstanding mortgage loans are at variable interest rates, which would magnify the transmission of an interest rate hike in the context of weakening private consumption (Figure 9, Panel A). Inflation has picked up to above the Bank of England's inflation target of 2%, but this in part reflects the transitory boost from the exchange rate depreciation which has sharply boosted import prices (Figure 13). The Bank can safely look through this effect. Inflationary risks appear to be building, as near-term and longer-term inflation expectations have increased (Figure 14), but projected slower near-term growth will ease such pressures. The unemployment rate has fallen to a very low level, and the tighter labour market may lead to higher wage demands, although the Phillips curve has flattened significantly.

Figure 13. **Price pressures have increased, as the exchange rate has fallen**



1. Core inflation excludes energy, food, alcohol and tobacco.

Source: Thomson Reuters Datastream; ONS (2017), "UK consumer price inflation: August 2017", Office for National Statistics, September; and Bank of England.

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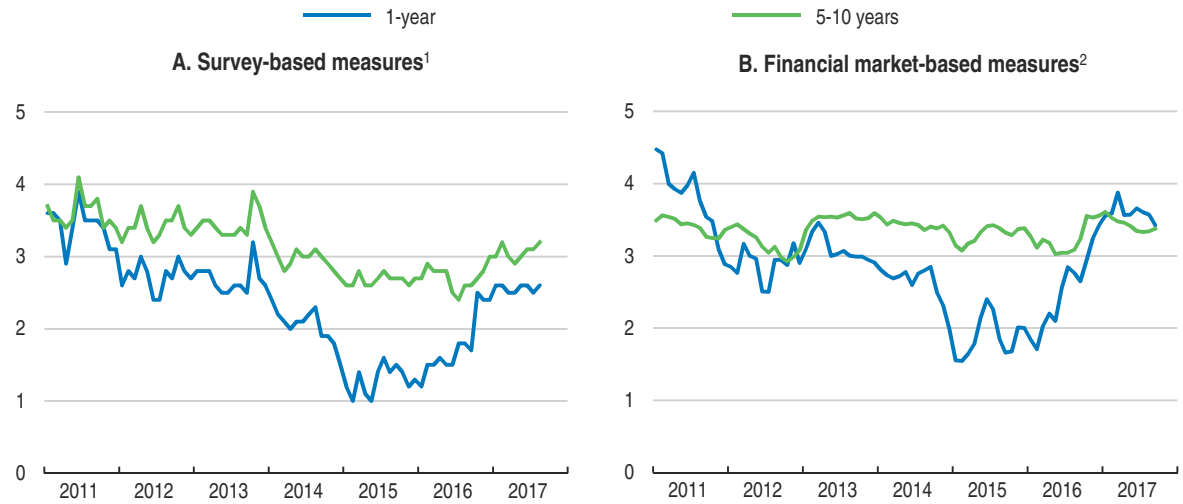
Figure 14. **Inflation expectations have risen**

Per cent



1. Last data point refers to August 2017.
2. Last data point refers to September 2017. For financial market-based expectations the series for short-term expectations (i.e. 1-year) is based on inflation swaps and the series for long-term expectations is based on 5-year and 10-year inflation swaps.

Source: Thomson Reuters Datastream; and YouGov/Citi.

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A number of reasons could explain the absence of the expected pick up in wages, including technology and globalisation, the changing nature of work (with lower unionisation and collective bargaining), and the shifting relationship between employers and employees (with rising self-employment, flexible and part-time working and zero-hours contracts) (Haldane, 2017; Carney, 2017). Planned increases in the minimum wage to 60% of the median wage in 2020, a high ratio by OECD standards (see below), could increase wage claims in response to pay scale compression. Even though monetary policy should look through these temporary effects, it needs to remain vigilant to signs of persistent domestic inflationary pressures.

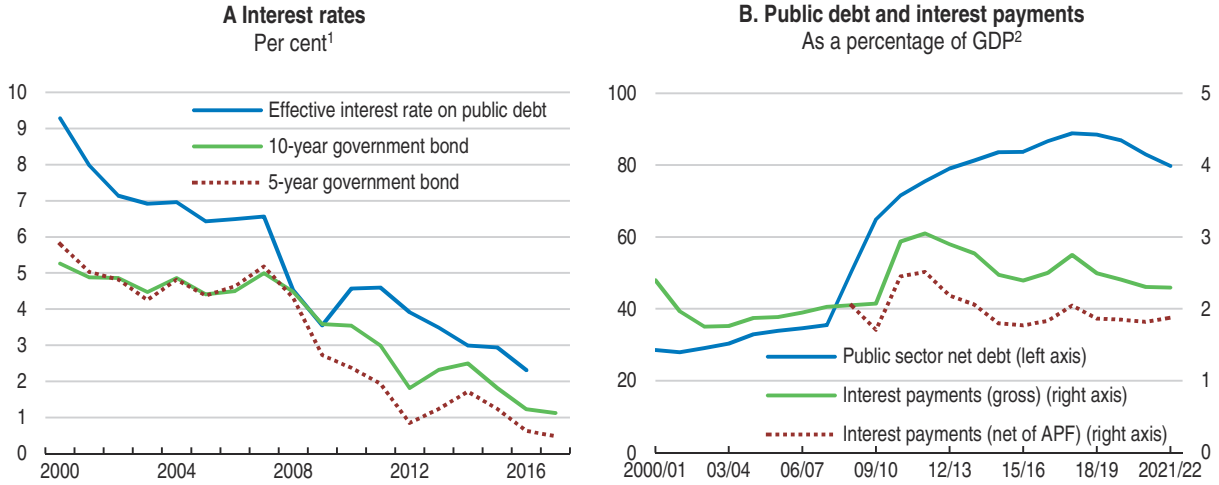
Ensuring fiscal sustainability

After peaking at nearly 10% of GDP in 2009, the budget deficit has been gradually reduced to around 3.0% of GDP more recently. Both the overall and the cyclically-adjusted deficits have been reduced, with fiscal adjustment concentrated on the spending side, mainly on welfare. Public debt has stabilised at just below 90% of GDP.

The government has allowed for a more accommodative fiscal policy stance this year, which is welcome, notably as public investment made an important contribution to growth in the second quarter. Also, acknowledging the impact that higher uncertainty and weaker projected growth will likely have on public finances, the government has revised the fiscal framework to increase policy flexibility. In November 2016, the updated fiscal targets required: i) to achieve a fiscal surplus as early as possible in the next parliament (after 2020) and to ensure that the structural deficit falls to 2% by 2020-21; ii) to reduce the public debt as a percentage of GDP in 2020-21; iii) and to reach a higher cap on certain welfare spending (excluding pensions and unemployment benefits) with a target date of 2020-21. After the June 2017 general election, the government has reiterated its commitment to these targets. The fiscal framework also contains an escape clause in the event of a significant negative shock to the economy (the magnitude of which is undefined), which provides additional policy flexibility to respond to significantly weaker growth.

Monetary policy has indirectly improved fiscal sustainability. Underpinned by an unprecedented monetary stimulus, market and effective interest rates on public debt have fallen (Figure 15, Panel A). Quantitative easing has led to a further reduction in debt interest payments, as all coupons on government bonds acquired by the Bank of England's Asset Purchase Facility (which implements the programme) are transferred to the Exchequer.

Figure 15. **Low interest rates and quantitative easing have had positive spillovers on debt sustainability**



1. The effective interest rate is calculated as the total interest and dividends paid by the government divided by the stock of outstanding government securities at the end of the financial year. Securities that have been purchased through the Bank of England's Asset Purchase Facility are excluded from the calculation. Data for 10-year government bond refer to annual average of daily data. Data for 5-year government bond refer to annual average of monthly data. Data for 2017 refer to the average of the available data.
2. Data refer to fiscal years. The Asset Purchase Facility (APF) was set up for the Bank of England (BoE) to carry out quantitative easing, which aimed to stimulate the economy.

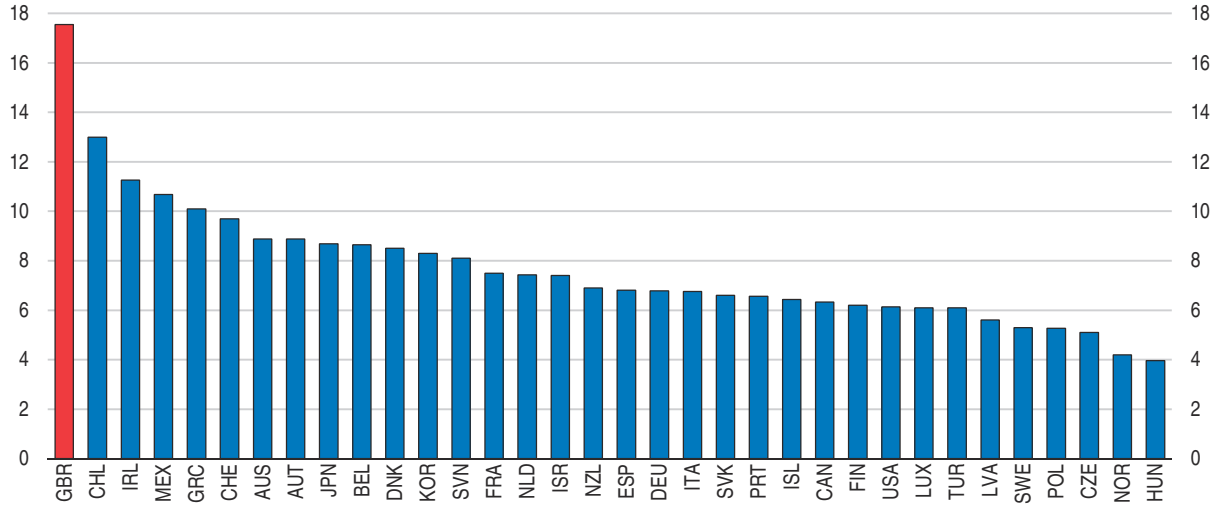
Source: HM Treasury; ONS (2017), "Public Sector Finances borrowing by sub-sector ", *Dataset*, Office for National Statistics, June; Thomson Reuters Datastream; and House of Commons Library (2017), "Government borrowing, debt and debt interest: historical statistics and forecasts", *Briefing Paper*, No. 05745, 21 March 2017.

StatLink http://dx.doi.org/10.1787/888933600904

Between 2017-18 and 2021-22, the government will have saved around GBP 40 billion (2% of current GDP). Net debt interest payments as a percentage of GDP are similar to pre-crisis levels, despite a higher public debt (Figure 15, Panel B). The United Kingdom has also the highest average maturity of public debt in the OECD (Figure 16), which reduces rollover risks.

Figure 16. **Average maturity of public debt is high**

Average term-to-maturity in years, 2016[1]



1. Data refer to the latest, publicly available, information. Average term-to-maturity in years (e.g. 0.5 years correspond to 6 months) of outstanding marketable debt. Data are collected from debt management office and national authorities' websites. Data are not strictly comparable across countries. The average term-to-maturity of outstanding debt might include government holdings (e.g. Norway), might include short-term debt (e.g. Denmark, United Kingdom) or exclude it (e.g. Ireland), include the effect of swaps (e.g. for France and Norway) or exclude that effect.

Source: OECD (2017), *OECD Sovereign Borrowing Outlook 2017*.

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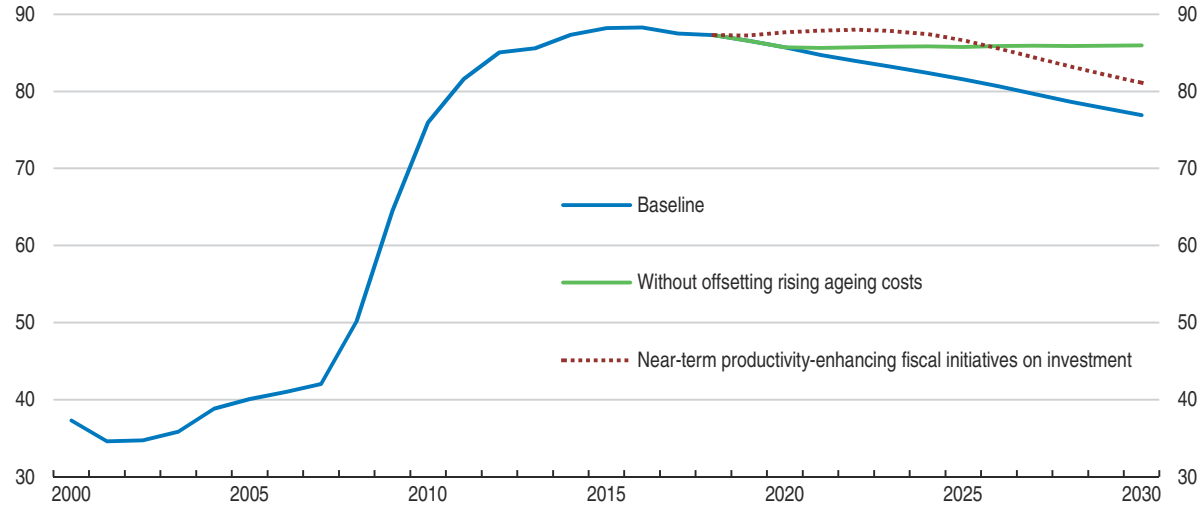
There is fiscal space to support the economy in the near term, should growth remain poor, but additional measures are needed to address population ageing in the longer term (Figure 17). Assuming the government pursues its fiscal consolidation programme, the debt-to-GDP ratio will fall in the baseline scenario to below 80% of GDP, but more gradually as Brexit will lead to lower growth relative to the counterfactual (Kierzenkowski et al., 2016). To cushion the economic impact of Brexit in 2019, the government should work on a contingency fiscal plan by already identifying productivity-enhancing fiscal initiatives on investment that could be deployed swiftly if need be, to support demand in the short term and supply in the medium term. If the amount of those contingency measures is about the size of the fiscal buffer (1¼% of GDP), this would still allow the government to meet its structural deficit target of 2.0% of GDP in 2020. Population ageing will increasingly weigh on public debt in the 2020s, preventing the debt-to-GDP ratio from continuing its downward trajectory in the absence of offsetting policy measures. This highlights the importance of sustaining fiscal sustainability with a robust fiscal framework and a sound medium-term strategy.

Making fiscal policy fairer and creating additional fiscal space

While the post-tax and transfer Gini coefficient is lower than in 2009, policies foreseen until the end of the decade will have important distributional effects, as official estimates show (Figure 18). Higher in-kind benefits from public services will benefit all households and the richest will make the greatest contribution to fiscal consolidation by 2019-20. However,

Figure 17. **Illustrative public debt paths**

General government debt, as a percentage of GDP[1]



1. General government debt according to Maastricht definition. The "Baseline" scenario uses growth projections from the Economic Outlook database until 2018 and from Kierzenkowski et al. (2016) thereafter; changes in the government balance are in line with OBR projections from 2019 to 2021 and then kept constant thereafter. The "Without offsetting rising ageing costs" scenario assumes that increased ageing effects add an additional 1.2% of GDP to annual government spending by 2030, in line with estimates by the European Commission (2015). The "Near-term productivity-enhancing fiscal initiatives on investment" scenario assumes an additional stimulus of 1¼% in 2019 and that the deficit gradually reduces to baseline levels from 2022 onwards.

Source: Calculations based on OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), October; Office for Budget Responsibility (OBR); Kierzenkowski, R., N. Pain, E. Rusticelli and S. Zwart (2016), "The Economic Consequences of Brexit: A Taxing Decision", *OECD Economic Policy Papers*, No. 16, OECD Publishing, Paris; and European Commission (2015), "The 2015 Ageing Report: Economic and budgetary projections for the 28 EU member states (2013-2060)", Directorate-General for Economic and Financial Affairs.

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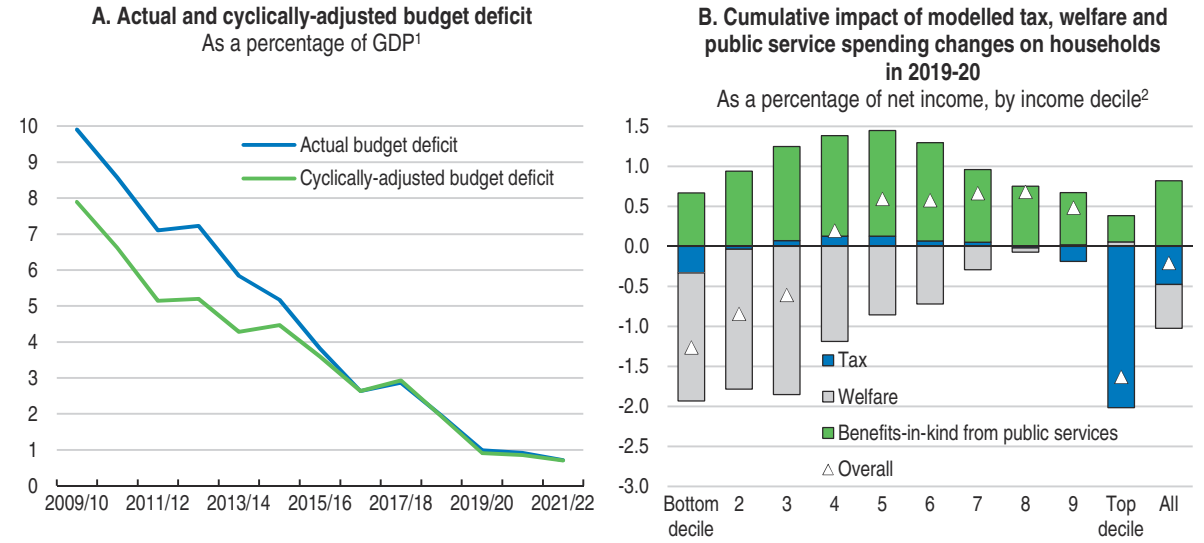
Figure 18. **Further fiscal consolidation is planned, with important distributional effects by 2020**



1. Data refer to fiscal years.
2. Net income includes households' benefits-in-kind from public services. All refers to all households.

Source: OBR (2017), "Economic and fiscal outlook", Office for Budget Responsibility, March; and HM Treasury (2017), *Impact on households: distributional analysis to accompany Spring Budget 2017 March.*

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planned cuts in welfare spending will reduce incomes of the poorest. In particular, lower child tax credits introduced in 2017 will negatively affect households with more than two children (IFS, 2017), reducing incomes for a number of them to below 60% of the median income and/or below the poverty threshold (Ghelani and Tonutti, 2017).

Working-age individuals have made the largest contribution to consolidation efforts, whereas older individuals have been relatively unaffected (IFS, 2017). Reforming the "triple-lock" indexation for state pensions – pensions rise by highest of the rate of inflation, the rate of increase in average earnings, or 2.5% – would share consolidation efforts more widely. Indexing the state pension solely to average earnings would be fairer, while it would still allow pensioners to benefit from improvements in living standards. The replacement rate for state pensions is one of the lowest in the OECD, although some pensioners have significant assets in occupational pensions and/or in housing. Therefore, while state pensions should be indexed to average earnings, pensioners with no or low assets should benefit from flanking policies to head off poverty risks. Relative poverty rates (50% of the median income) are currently slightly below the OECD average (10.4% vs. 10.7%) for those aged 66-75, but they are above the OECD average (18.5% vs. 13.9%) for those aged 76 and more.

Self-employment has continued to expand, which is narrowing the tax base as self-employed workers pay lower national income contributions relative to employees, which historically reflected differences in state pensions and contributory welfare benefits. However, these differences have been reduced with recent reforms, as self-employed workers build up the same entitlements to state pensions as employees since 2016. Self-employed workers benefit from public services in the same way as employees. There is also a risk that employers are pushing workers into self-employment to bypass national income contributions and minimum wage regulations. To improve fairness in tax policy and reduce risks for the financing of the social insurance system, the authorities should gradually reduce the gap between national income contributions for self-employed and employees, as they planned to initiate in early 2017 (Table 4).

The corporate income tax (CIT) rate has been reduced substantially over the last decade, from 30% in 2007 to 19% 2017, the lowest single rate for businesses of all sizes in the G20. An additional cut to 17% at a cost of 0.2% of GDP has been legislated by the authorities for 2020. This would broaden the gap between the taxation of capital and labour, which could reduce inclusiveness. The effects of Brexit and weak demand in the United Kingdom are top risk factors for respectively 60% and 57% of businesses (Deloitte, 2017). In this context, the impact of the CIT rate cut on investment and supporting demand might be lower than previously anticipated. Hence, public spending on hard and social infrastructure could be considered instead to support demand in the short term and to enhance potential growth in the longer term.

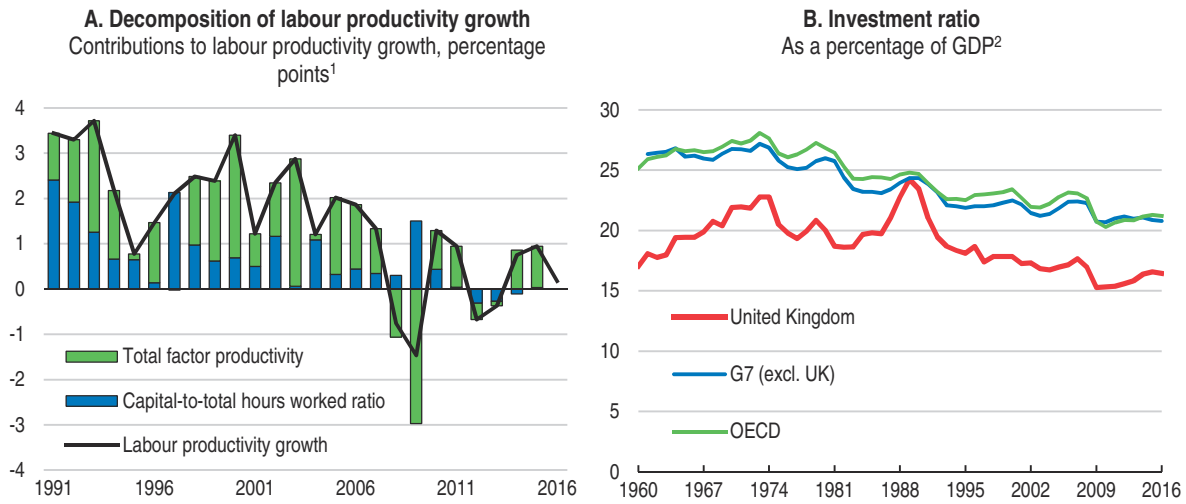
Table 4. **Implementation of OECD recommendations on fiscal policy fairness**

Past OECD recommendations	Actions taken
Ensure consolidation efforts are fair.	The income tax personal allowance was increased to GBP 11 500. To reduce the incidence of low pay and increase returns to entering work, the National Living Wage (minimum wage for workers aged 25 and over) was increased cumulatively by 15% between 2015 and 2017.
Broaden the tax base, such as equalising income taxes and social security contributions between the self- employed and employees.	In the 2017 March Budget, the government planned to raise the lower national insurance contributions (NIC) that self-employed individuals pay compared to employees, but shelved its plan soon afterwards owing to the electoral promise not to raise income taxes, NICs or value added tax (VAT) following the election in 2015.

Using fiscal space for new fiscal initiatives, including to support the new industrial strategy

There is a need to increase productivity-enhancing spending on investment to make growth more sustainable and inclusive. Since the financial crisis, the weakness of labour productivity growth has stemmed from lower growth in total factor productivity and capital deepening, with the former showing some signs of recovery but the latter remaining subdued (Figure 19, Panel A). The weakness of capital stock accumulation and total factor productivity reflects poor investment, with the investment ratio being below pre-crisis levels and remaining comparatively low (Figure 19, Panel B).

Figure 19. **Total factor productivity and capital deepening have fallen along with overall investment**



1. Labour productivity is defined as real GVA per total hours worked. Contributions to growth are calculated using a weight of 0.67 for total hours worked and 0.33 for productive capital; total factor productivity is calculated as a residual. Productive capital excludes investment in housing.
2. In nominal terms. Investment refers to gross fixed capital formation. The aggregate for G7 (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and the United States) is calculated as an unweighted average.

Source: ONS (2017), "Quarterly sector accounts: April to June 2017", Office for National Statistics, September; ONS (2017), "UK labour market: September 2017", Office for National Statistics, September; ONS (2016), "Capital stocks, consumption of fixed capital: 2016", Office for National Statistics, August; and OECD (2017), *OECD Economic Outlook: Statistics and Projections* (database), October.

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Higher and well-targeted spending on infrastructure would raise the capital stock and improve resource allocation in the economy, raising efficiency. The previous *Survey* assessed how to improve infrastructure. Since then, the authorities have made progress to strengthen long-term strategic infrastructure planning, and to sustain the provision of infrastructure by the private sector (Table 5). Total public investment has been in a downward trend as a result of fiscal consolidation, being at about 2.5% of GDP despite a recent uptick, which is 1 percentage point less than the OECD average. Infrastructure investment needs remain significant (Figure 20). In 2016, the authorities updated a list of strategically important projects for which private and public investment is sought. Total investment need, mainly pertaining to the energy and transport sectors, is estimated at 13% of GDP by the end of this decade and an additional 10% of GDP beyond 2020.

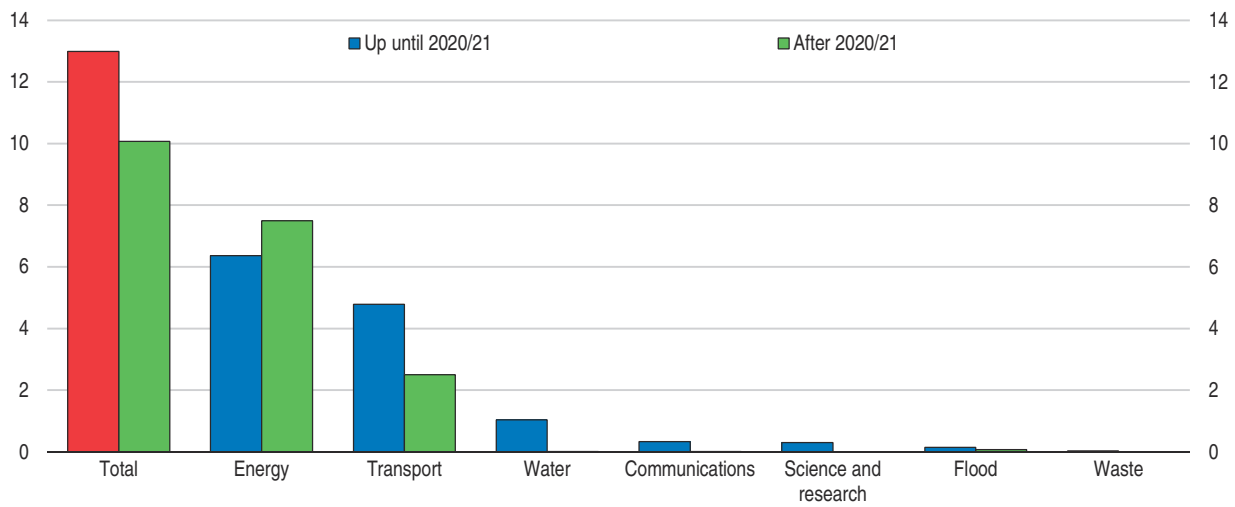
More recently, the government has set up a new National Productivity Investment Fund with a view to increase public spending in areas that are critical for productivity:

Table 5. **Implementation of OECD recommendations on infrastructure**

Past OECD recommendations	Actions taken
Continue to build on the progress made with the National Infrastructure Plan to further enhance long-term infrastructure strategy and planning.	In January 2016, the government established the National Infrastructure Commission as an executive agency of HM Treasury to provide advice and make independent recommendations to the government on national infrastructure priorities. In January 2016, the Infrastructure and Projects Authority was established as part of both the Cabinet Office and Treasury to support the delivery of the government's infrastructure priorities.
Develop further the use of public-private partnerships (PPP) and public guarantees for privately financed infrastructure projects, recording the associated assets and liabilities in the government fiscal accounts. Enhance the provision to investors and the public of comparable data about public guarantees, and the financial and operational performance of PPP projects.	The government supports private sector infrastructure provision through the UK Guarantees Scheme (UKGS), with total guarantees of GBP 40 billion (2% of GDP). In late 2016, government extended the UKGS to at least 2026. All PPP projects are recorded in the Whole of Government Accounts. For new PPP projects (PF2), the government plans to publish the forecast and actual rates of return annually, hence allowing a comparison between the expected and actual performance of projects.

Figure 20. **Largest investment needs identified by the authorities are in energy and transport**

As a percentage of GDP[1]



1. In real terms. Includes public and private investment.

Source: HM Treasury (2016), "National Infrastructure Pipeline 2016", March.

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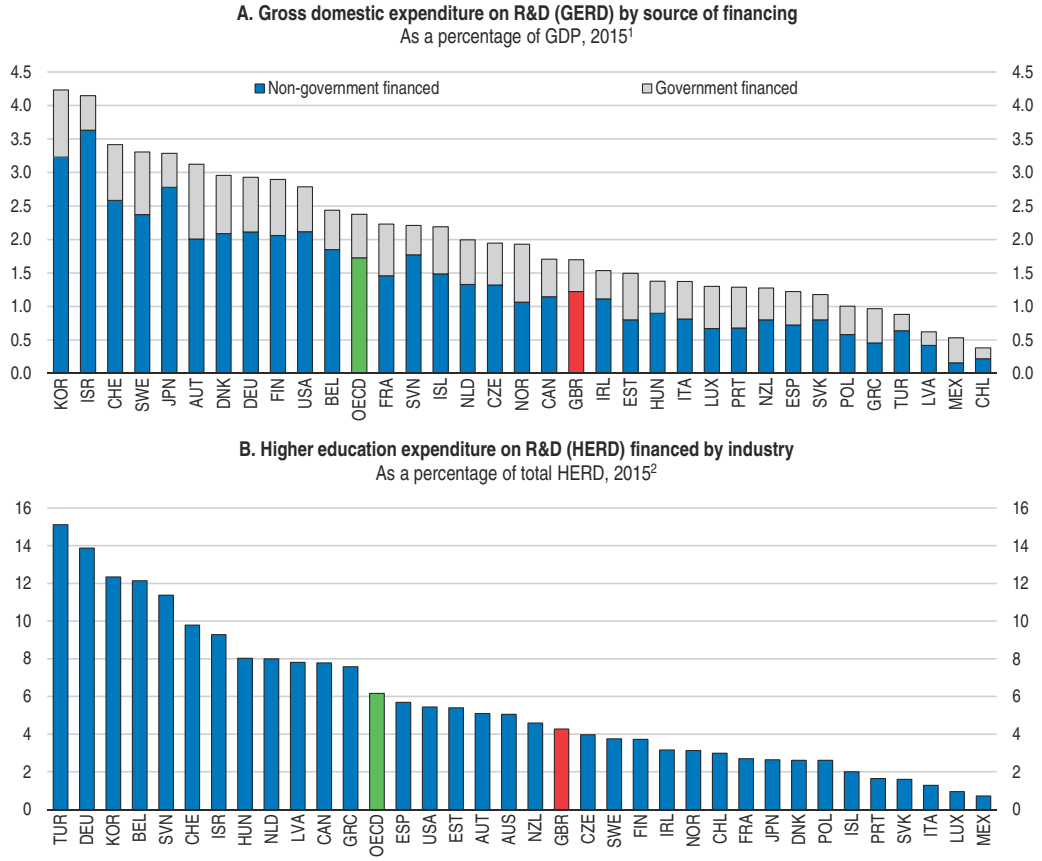
infrastructure, research and development (R&D) and housing. This is a welcome step, in line with the recommendations made in this *Economic Survey*. The Fund will allocate a budget of GBP 23 billion (1.2% of GDP) by 2021-22, but spending is mainly back loaded with nearly three-quarters of it scheduled after Brexit (OBR, 2016).

More spending on R&D would enhance not only the invention but also the diffusion of new technologies and their adoption by businesses. Total spending on R&D is below the OECD average and the government could complement existing tax relief schemes by further increasing direct funding of R&D (Figure 21). Collaboration between businesses and universities should also be encouraged by expanding and refining existing initiatives (Higher Education Innovation Fund, Catapult centres). As R&D can also help the absorption of knowledge and business practices, the least productive regions should have priority in applied R&D (Figure 22), while support for basic research should be directed to the centres of excellence. Moreover, the density of industrial robots is one of the lowest in the OECD (Figure 23).

Figure 21. **Research and development spending and collaboration is below the OECD average**



1. 2014 for France, Ireland, Italy, Portugal, and the OECD aggregate. 2013 for Belgium, Israel, Luxembourg, and Sweden. R&D: research and development.
2. 2014 for Australia, France, Italy and Portugal. 2013 for Austria, Belgium, Israel, Luxembourg and Sweden. R&D: research and development.

Source: OECD (2017), "Main Science and Technology Indicators", *OECD Science, Technology and R&D Statistics* (database), September.

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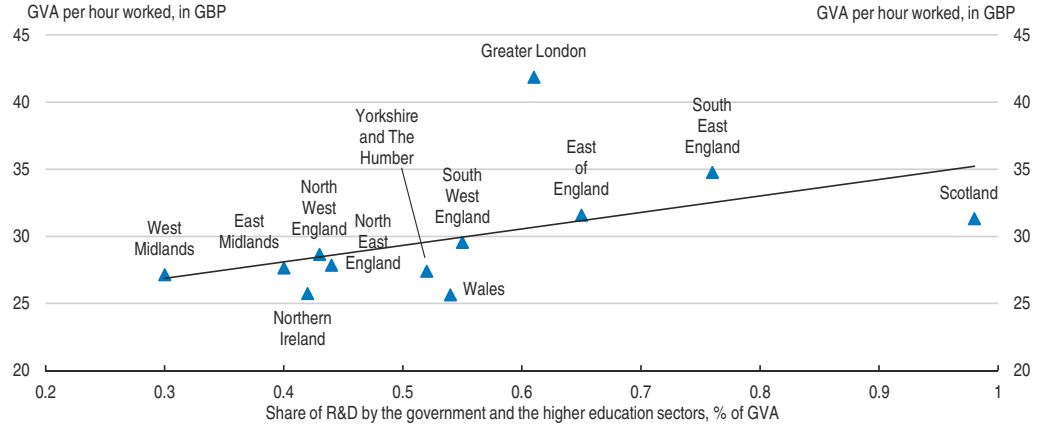
Figure 22. **Public R&D intensity is relatively weaker in lagging regions**[1]



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.

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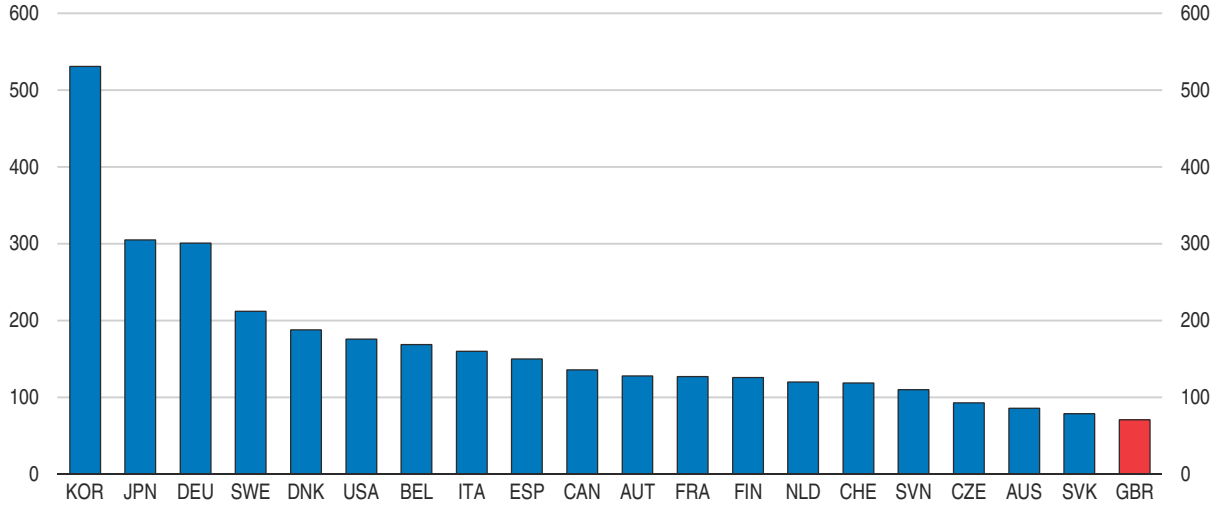
Figure 23. **Industrial robot density is low**

Number of multipurpose industrial robots (all types) per 10 000 employees in the manufacturing industry, 2015



Source: International Federation of Robotics (IFR).

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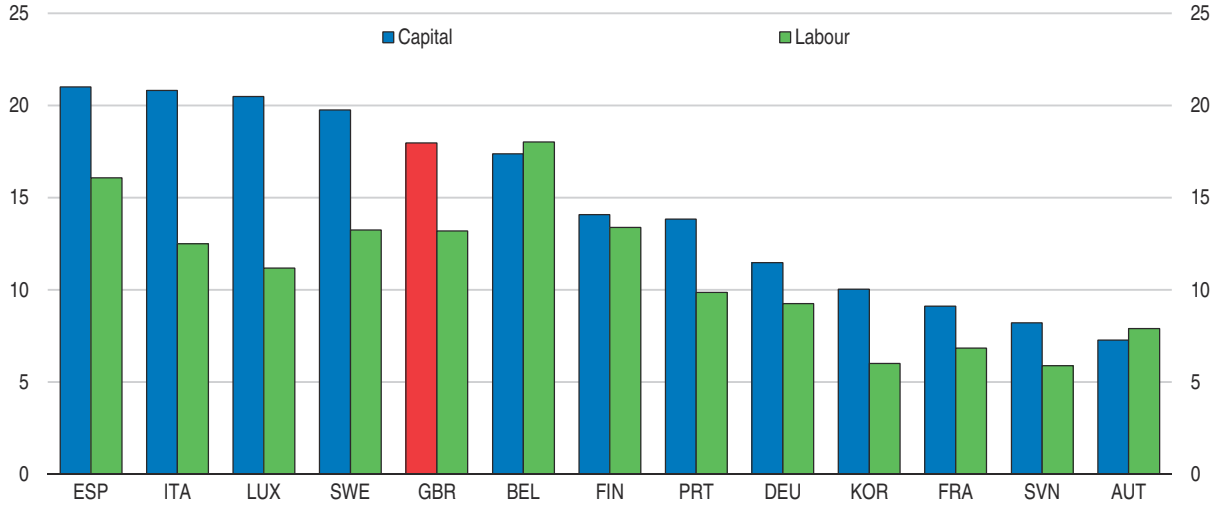
Although differences in production structure can partly account for this, France has nearly 80% more robots than the United Kingdom, despite industrial production representing slightly less than 15% of gross value added in each country. The authorities could consider introducing an exceptional depreciation scheme for the purchase of industrial robots, as has recently been done by France, which allowed small and medium-sized enterprises to depreciate 140% of the value of their investment.

The government has launched the preparation of a modern industrial strategy to boost productivity and living standards across the whole country, by stimulating investment and skills. The strategy aims at creating the conditions where winners can organically emerge and grow, instead of trying to prop up failing industries or picking winners. An important dimension that the strategy should address to foster productivity-enhancing capital reallocation and business investment is the issue of "zombie firms" – defined as firms which persistently fail to cover their interest payments from current profits (Adalet-McGowen et al., 2017). The low-tech manufacturing sector requires restructuring, as the percentage of capital and labour that is held up by zombie firms is respectively at around 18% and 13% (Figure 24). There is evidence that bank forbearance and some tax reliefs may have helped less viable firms to stay in business (Arrowsmith et al., 2013; Barnett et al., 2014).

Investment support should be targeted at sectors and regions that are lagging behind and whose productivity would be the most responsive to higher capital intensity. From a sectoral perspective, half of the productivity shortfall is explained by non-financial services (with information and communication being the largest contributor), a fourth by financial services, and another fourth by manufacturing, other production and construction (Kierzenkowski et al., 2017a). UK firm-level evidence also suggests that for most regions, knowledge intensive services (ICT and business services) appear the most promising, given the strong potential for spillovers from leading firms in these areas and the large weight of such activities in regional output, comparable to the weight of manufacturing activities (Kierzenkowski et al., 2017b). However, raising R&D intensity of the manufacturing sector would also deliver important productivity increases in the most lagging regions.

Figure 24. **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.

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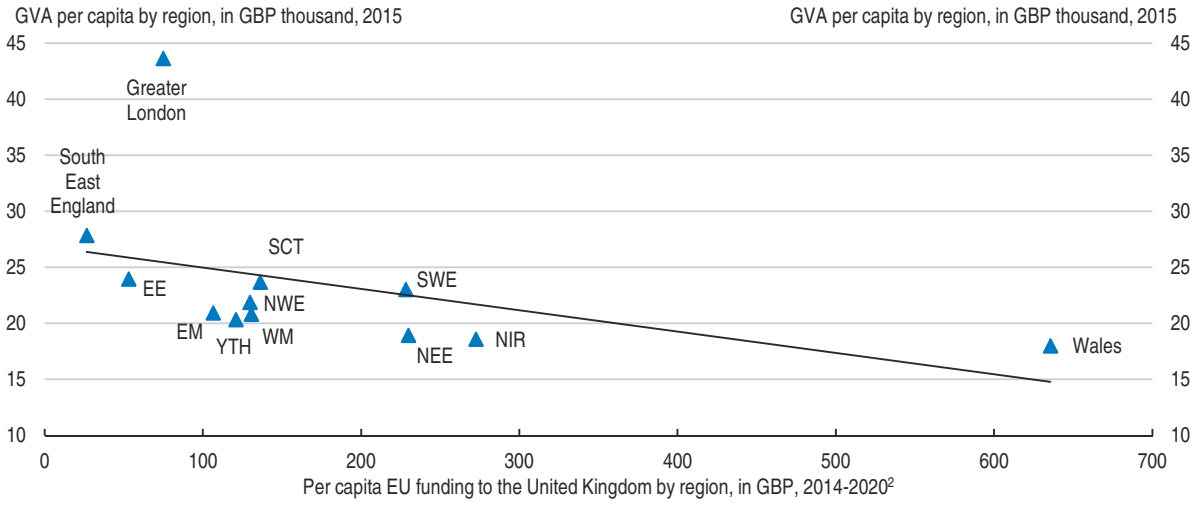
The industrial strategy should delineate policies to deal with the regime change implied by Brexit. This should imply the development of sectoral impact assessments, in particular for sectors deeply integrated with European value chains, such as the aerospace and automotive sectors. The UK authorities have indicated that they may seek to continue the country's participation in some European programmes. However, a number of poorer regions may lose eligibility of the European structural funds (Figure 25) and lending from the European Investment Bank, which should also require a detailed evaluation and the definition of offsetting policies.

The strategy should have a stronger focus on green growth (Figure 26), notably by promoting related investment, to continue recent policy progress (Table 6). The UK economy is less energy intensive than the average in the OECD, reflecting a low share of industry and a high share of services in output. However, there is scope to further increase the share of renewables in total primary energy supply, which is below the OECD average despite rapid growth since 2007. The UK's imports have more embodied CO_2 than exports so the per capita carbon footprint (demand-based CO_2 emissions) is higher than actual (production-based) emissions would imply. Air quality measured by the average exposure of individuals to particulate matter is good, but the UK population suffers from frequent air pollution hotspots in cities, and NO2 limits are repeatedly exceeded. Raising environmental-related taxation would address pollution, as revenue collected from green taxes is considerably below the median OECD country, although the United Kingdom is one of the few countries that do not tax diesel road fuel at a lower rate than petrol. The pursuit of green growth through research and innovation should be continued, as patents per capita are well below the OECD average. Brexit should also not lead to a relaxation of environmental standards.

Figure 25. **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.

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Stimulating regional productivity

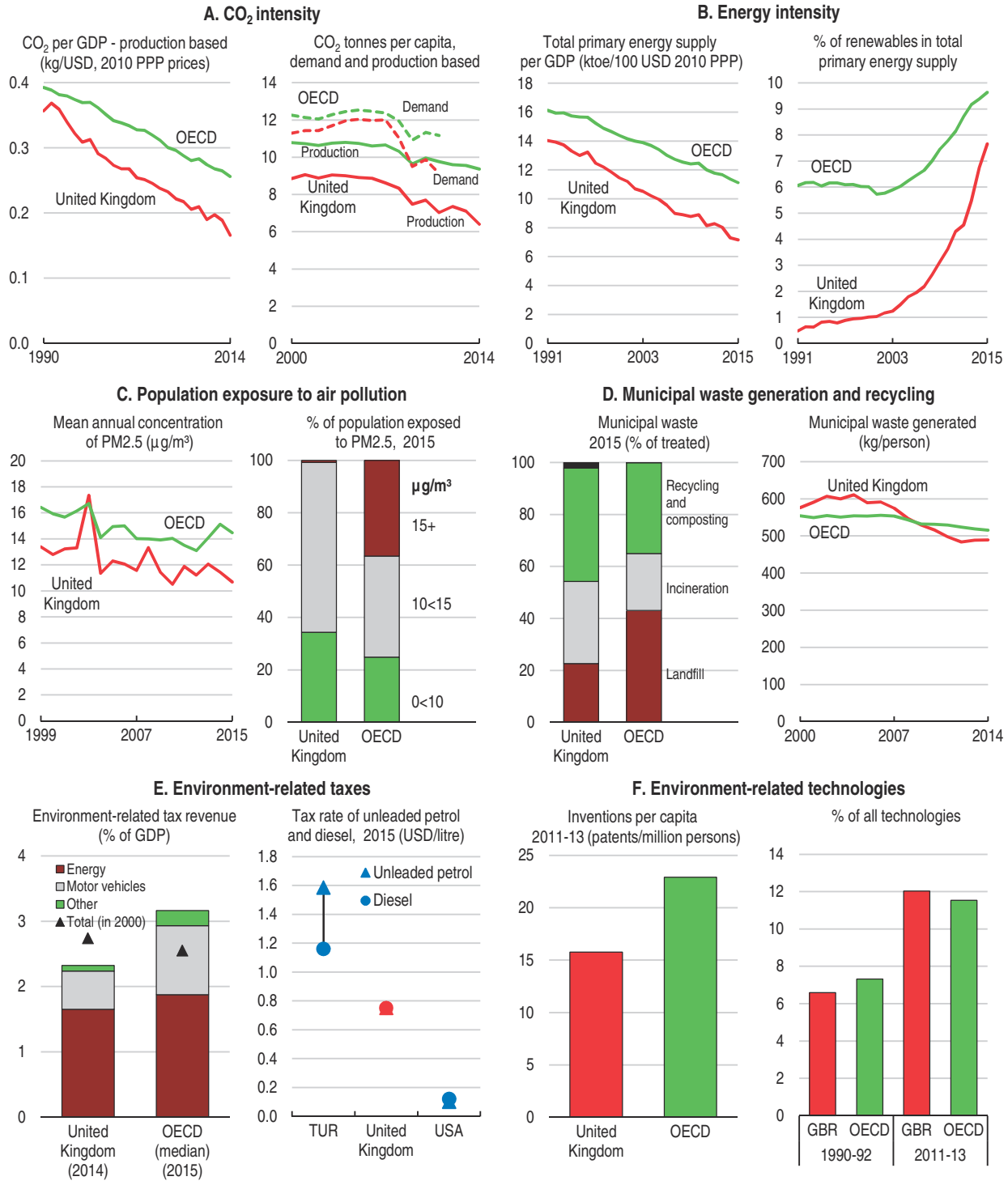
Regional disparities in productivity are high

Regional differences in labour force participation rates and unemployment rates are relatively small in the United Kingdom, but regional disparity in labour productivity remains large and persistent (Figure 27, Panel A). This large gap is mainly driven by London with the productivity of other UK regions falling significantly behind. The average UK region is less productive than the average region in other G7 countries, being on par only with the average region in the OECD (Figure 27, Panel B). Large regional disparities in productivity lead to regional differences in household incomes (Figure 28), with transfers across regions mitigating somewhat income differences (see below).

The percentage of the population living in urban areas is the highest in the OECD, which implies that regional productivity reflects to a large extent the productivity of major cities. The average UK metropolitan area has a weaker productivity performance than the average metropolitan area in the OECD and in some other large or medium-sized OECD countries (Figure 29). Moreover, out of fifteen UK metropolitan areas, eleven of them have a lower productivity than the average metropolitan area in the OECD.

Differences in industrial structure provide further evidence about regional gaps in productivity, consistent with trends observed elsewhere in the OECD (OECD, 2016a). London, where knowledge intensive services – financial and insurance activities, information and communication, professional and scientific activities – represent a high percentage of gross value added (GVA), is also the most productive, as opposed to other regions that are more specialised in manufacturing, in particular its low-tech segment (Figure 30). Also, London stands out as being the most productive within nearly all sectors. However, given differences in sectoral composition, less productive regions face greater difficulties to catch up through

Figure 26. **Green growth indicators: United Kingdom**



Source: OECD (2017), *Green Growth Indicators* (database). For detailed metadata, see *http://stats.oecd.org/wbos/fileview2.aspx?IDFile=7ad102dd-e16d-4da0-a20c-624582b9984e.*

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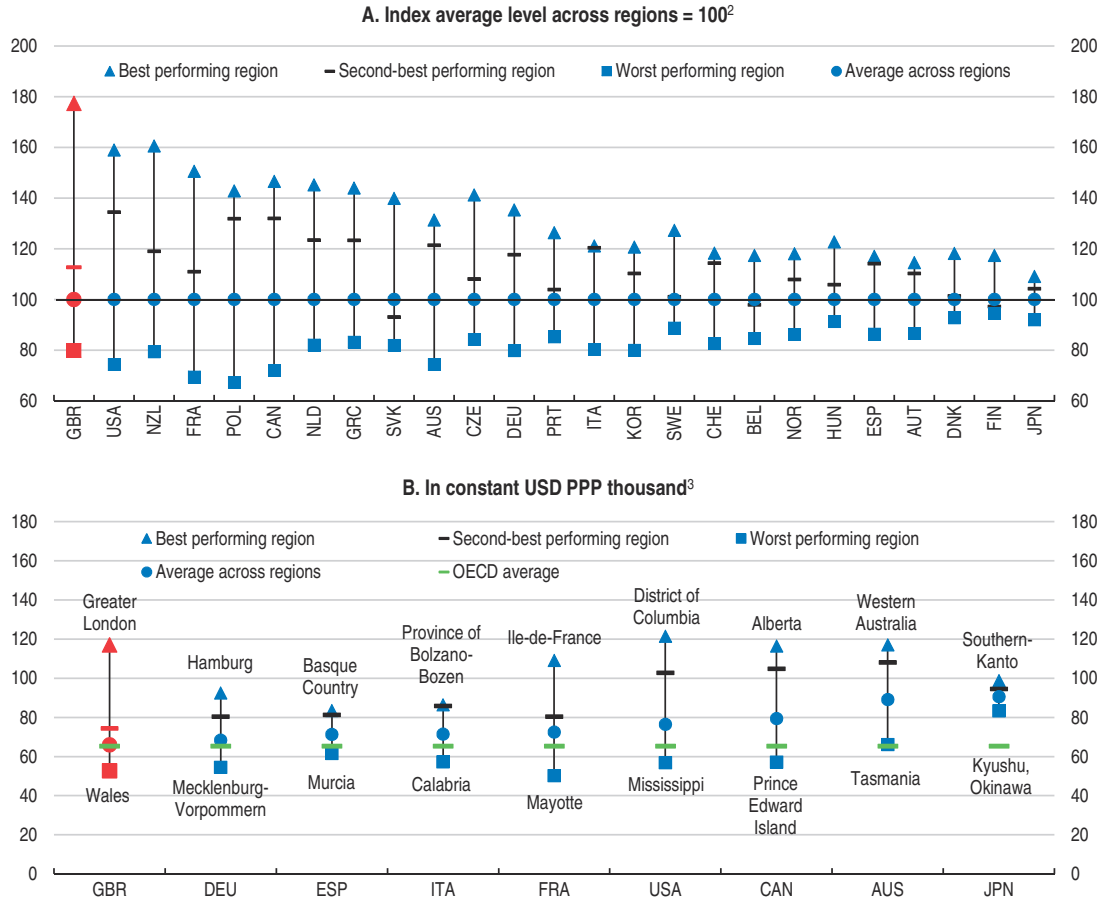
Table 6. **Implementation of OECD recommendations on green growth**

Past OECD recommendations	Actions taken
Strengthen the Green Investment Bank (GIB) and other targeted financial aids to further support the implementation of not yet commercially viable low-carbon technologies that have the prospect of becoming so in the foreseeable future.	Since its launch in 2012, the Green Investment Bank has become a leading investor in the UK's green economy and has committed GBP 2.8 billion (0.15% of GDP) directly into 83 green infrastructure projects and funds, mobilising over GBP 8 billion (0.4% of GDP) of private capital. The government has announced it would be seeking to sell the GIB to the private sector, which is ongoing.
Move towards a uniform carbon price across sectors and fuels.	The government has announced that it will rebalance the Climate Change Levy rates between energy sources. From 2019, the government will gradually move from a ratio of 1:2.9 and reach parity between gas and electricity in 2025.
Continue to build capacity to adapt to climate change, with a focus on reducing market failures such as the appropriate provision of public goods, including information, better risk-assessment frameworks and more advanced metrics for monitoring and evaluation.	The government continues to support climate change adaptation through policies and actions identified in the first National Adaptation Programme published in July 2013. The second UK Climate Change Risk Assessment was published in 2017, which will be followed by the second National Adaptation Programme setting out how the government will update its approach to address these risks.

Figure 27. **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.

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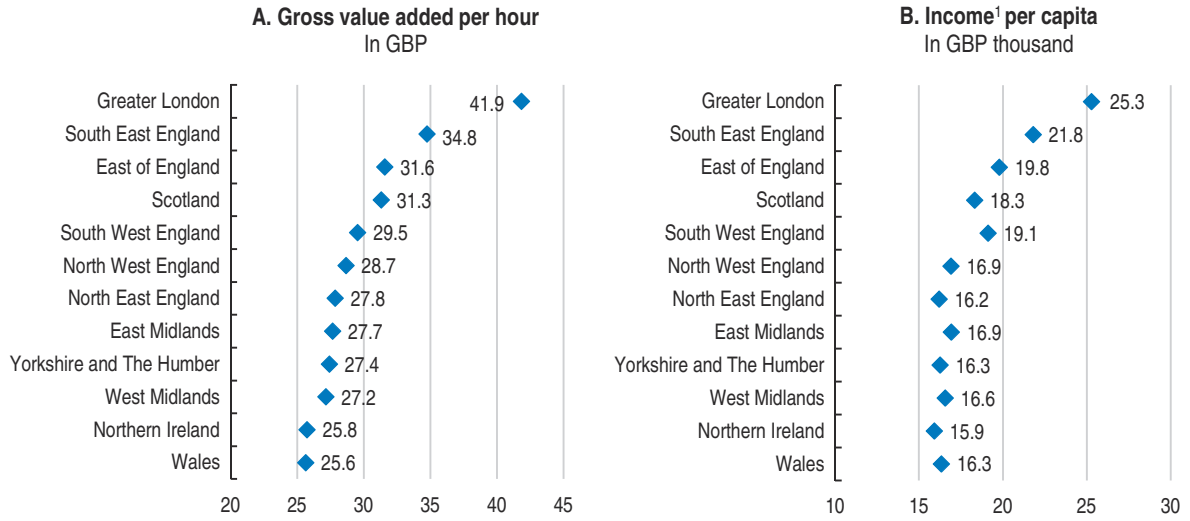
Figure 28. **Regional differences in labour productivity and living standards are linked**

2015



1. Gross disposable household income.

Source: ONS (2017), "Regional and sub-regional productivity in the UK: Jan 2017", Office for National Statistics, January; and ONS (2017), "Regional gross disposable household income (GDHI): 1997 to 2015", Office for National Statistics, May.

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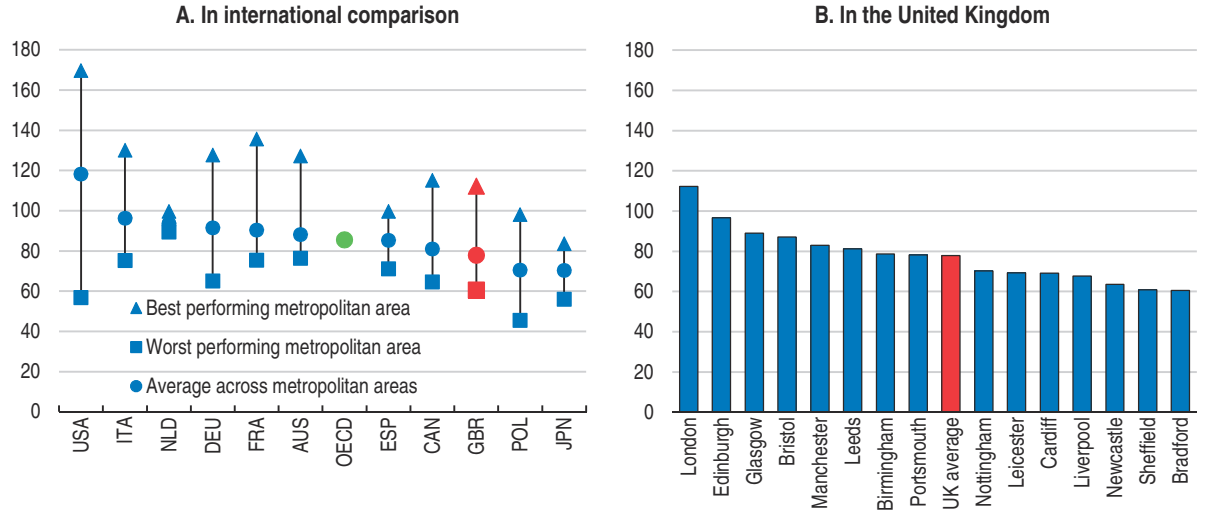
Figure 29. **Most UK metropolitan areas have a relatively low productivity**

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.

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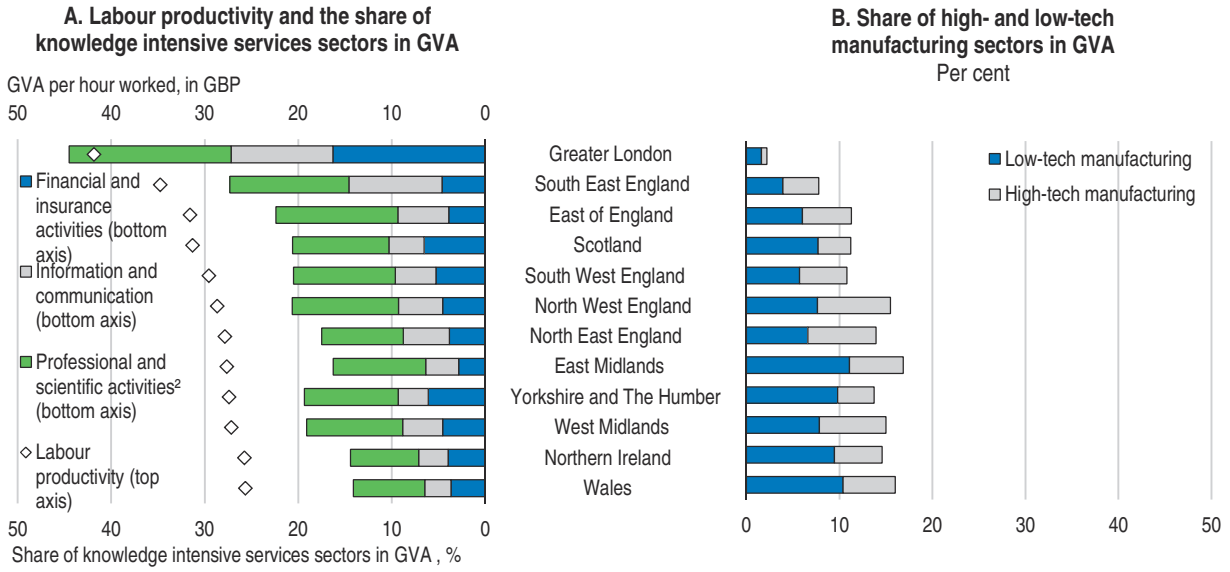
knowledge and technology diffusion, as associated spillovers are generally more important within the same activities (OECD, 2016a).

The composition of tradable sectors also influences regional differences in productivity. Regions with the highest services exports in total exports combine higher productivity and wage levels (Figure 31). Although subject to complex and multiple negotiations, maintaining

Figure 30. **Most productive regions are heavily specialised in knowledge intensive services**

By regions at TL2 level, 2015[1]



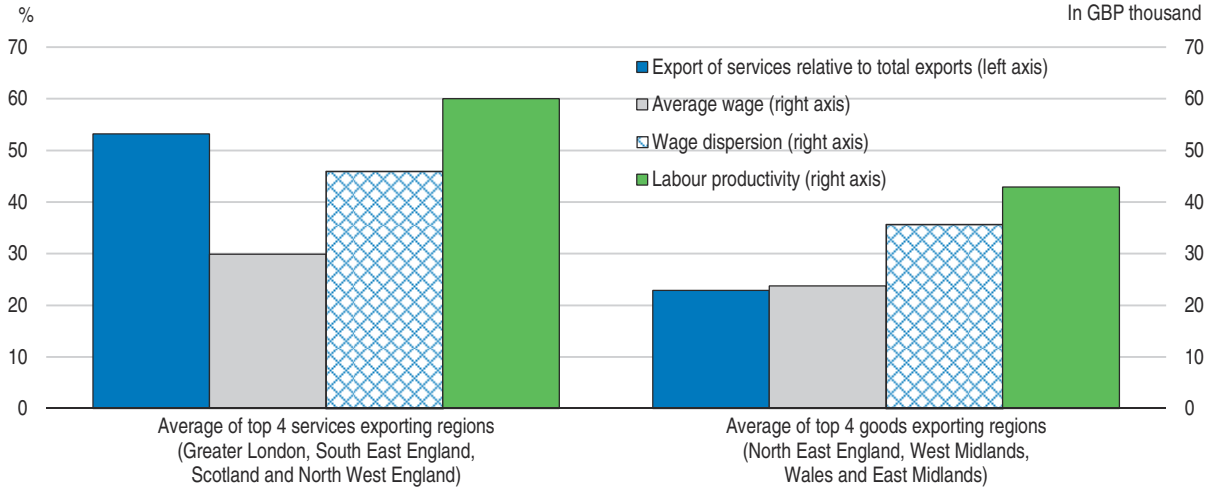
1. Regions are ranked in descending order of their level of labour productivity (i.e. gross value added (GVA) per hour worked). High-tech manufacturing refers to chemicals and chemical products (CE), basic pharmaceutical products and preparations (CF), computer, electronic and optical products (CI), 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.

StatLink http://dx.doi.org/10.1787/888933601189

Figure 31. **Regions specialised in tradable services have higher productivity, wages and inequality**

2014[1]



1. The top 4 services/goods exporting regions are identified by exports as a share of regional gross value added (GVA). Data for average gross annual earnings refer to all employee jobs including part-time employee jobs. Wage dispersion refers to the difference between top and bottom percentiles. Labour productivity refers to GVA per worker.

Source: HM Revenue & Customs (2016), "Regional Trade Statistics", December; ONS (2016), "Estimating the value of service exports abroad from different parts of the UK: 2011 to 2014", Office for National Statistics, July; OECD (2017), "Regional Economy", *OECD Regional Statistics* (database), May; and ONS (2016), "Annual Survey of Hours and Earnings: 2016 provisional results", Office for National Statistics, October.

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comprehensive free-trade agreements to ensure strong integration into global value chains and working towards global liberalisation of services would support productivity and wages in tradable sectors after Brexit. Further steps could be made to reinforce the tradable goods sector through comprehensive policy packages building on regional specialisation, for instance by supporting investment and research and development activities of firms so as to enhance productivity and export performance.

Improving infrastructure investment in weaker regions

As discussed in detail in the previous *Economic Survey* (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. Almost 30% of public transport infrastructure investment is on projects in the capital and represents the highest per capita spending among all other regions, with the majority of investment ensured by the local government body Transport for London (Figure 32).

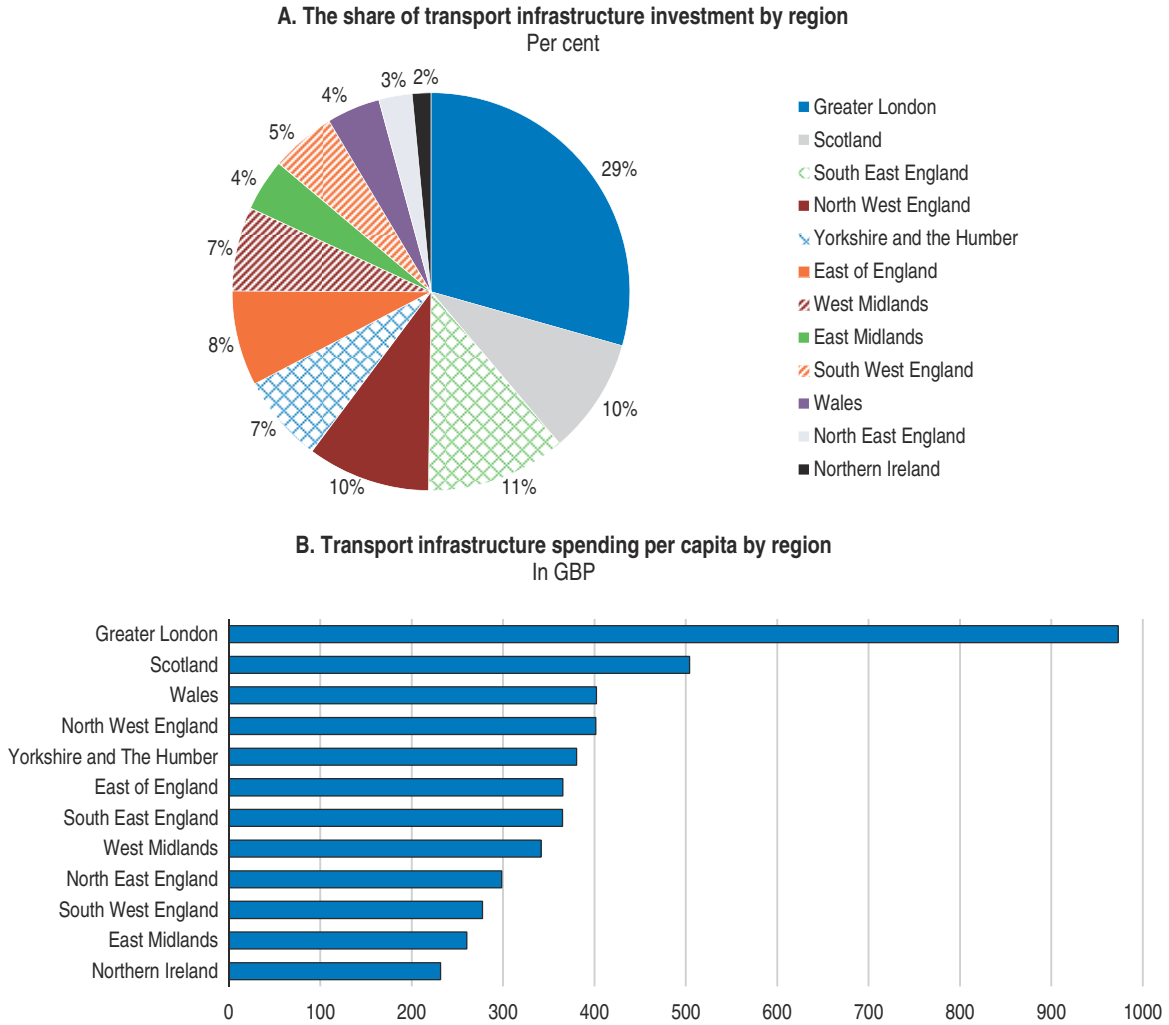
The authorities have undertaken broader reforms to address these challenges (Table 5). The creation of the National Infrastructure Commission (NIC) in charge of long-term planning in 2015, and the establishment of the Infrastructure and Projects Authority (IPA) in charge of project delivery in 2016, are important steps forward. Importantly, the NIC is to make recommendations independent of political influence, while the IPA reports to government decision-makers. The government should champion both agencies to develop a stable long-term framework for infrastructure investment across all sectors of economic infrastructure and transparent monitoring of progress on delivery.

To reduce economic disparities across regions, the government has launched new investment programmes, which include the Northern Powerhouse Strategy and the Midlands Engine Strategy (HM Government, 2016; HM Government, 2017b), along with major rail investment plans (High Speed Two and Northern Powerhouse Rail). The Northern Powerhouse Strategy (HM Government, 2016) sets out insufficient transport connectivity as one of the barriers holding back productivity in the North of England relative to the South. However, apart from the plans to create better connections between major cities there, significant investment plans are needed to improve intra-city linkages to make transport networks more accessible to those who live outside of the city centres.

Transport project appraisal in the United Kingdom is guided by a so-called "Five Case Model" to ensure projects set out a compelling case on their strategic fit, economic value for money, financial affordability, commercial achievability and management of benefits (HM Treasury, 2015). This approach allows a comprehensive and comparable assessment which helps the United Kingdom prioritise its investments. It ensures that a wide range of options are considered and assessed proportionately at different stages of project development. It is important that, while the government continues to prioritise the highest value-for-money projects, wider strategic aims are also considered in the investment decision-making process, in particular the potential of some projects in some places to foster agglomeration and productivity benefits. The ways of dealing with such challenges are outlined in the recent Transport Investment Strategy of 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 32. **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*.

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Developing and retaining skills locally

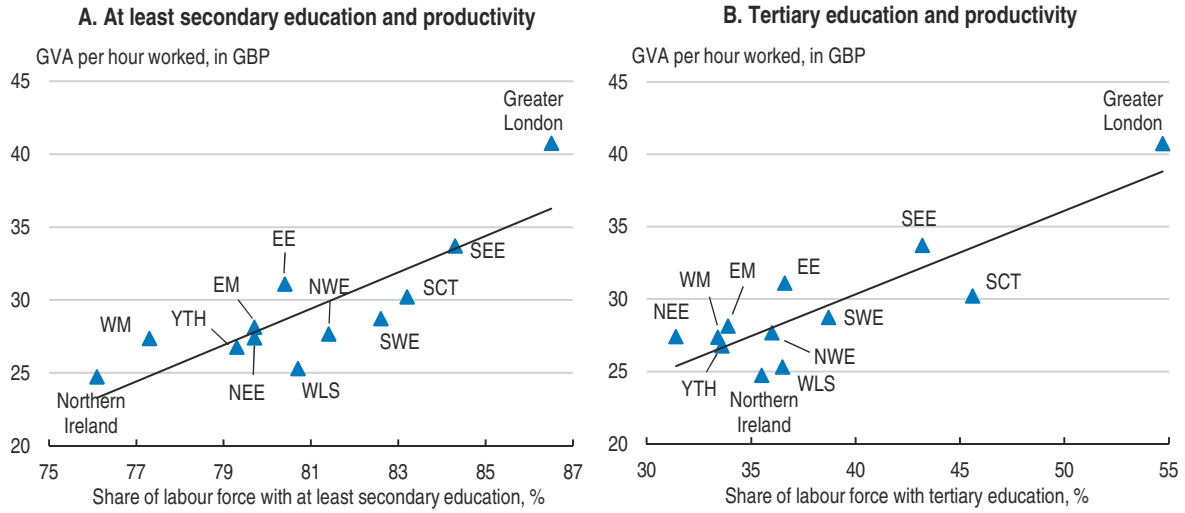
There is a strong positive relationship between productivity and educational attainment across UK regions (Figure 33). Moreover, a quarter of working age adults have low basic skills (see below).

Hence, it is important to raise secondary and tertiary educational attainment, and to make sure that the curriculum and the quality of teaching are adapted to local needs. Beyond national policies to foster skills, such as the introduction of apprenticeship levy (see below), assigning the adult education budget to mayors of regions with devolution deals is a step in the right direction. However, insufficient resources could be a barrier, also in the case of devolved administrations, which can choose to allocate the block grant that they receive from the central government for other priorities, such as health care.

An integrated approach is needed for attracting and retaining skills, which in turn goes hand-in-hand with attracting businesses that create high-skilled and well-paying

Figure 33. **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", Office for National Statistics, January.

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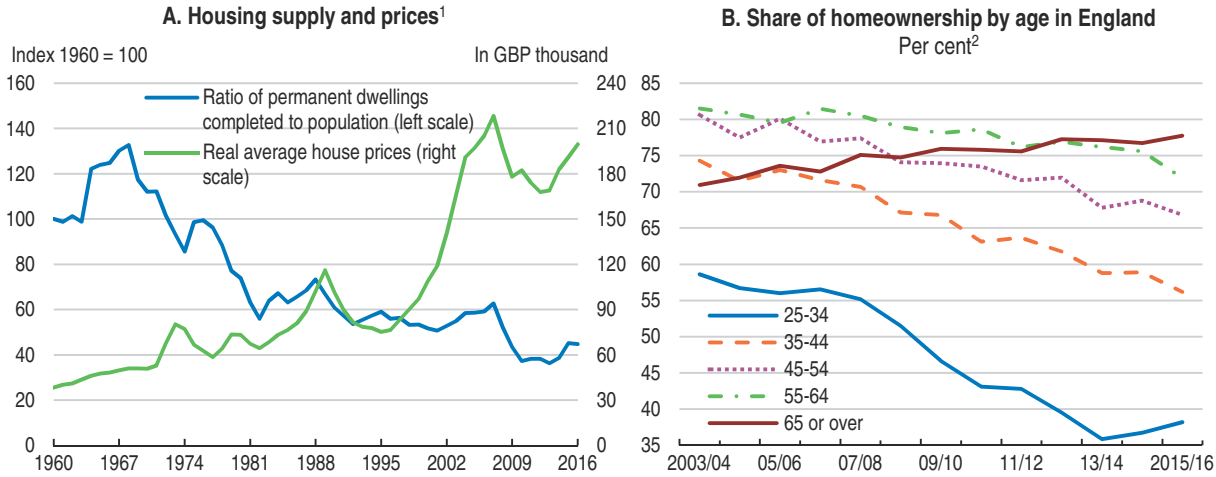
jobs. This notably requires the provision of quality amenities, including childcare and schools, and of leisure facilities (OECD, 2016a). The authorities are considering better aligning education and training with local labour demand, for instance as part of business support schemes and bodies developed at the subnational level (Local Enterprise Partnerships and Enterprise Zones; OECD, 2015b). Creating a centrally managed system of quality standards, as for instance in Sweden (OECD and ILO, 2017), would reduce the risk of quality differences in education.

Relaxing housing constraints to boost labour mobility and agglomeration benefits

Higher flexibility of the housing market would raise productivity from the skills that workers possess, improving the matching of skills to jobs (Adalet McGowan and Andrews, 2015). There are significant skills and qualification mismatches in the labour market (see below) and labour mobility is low (CBI, 2017). In parallel, supply has been falling short of demand in the housing market resulting in rising house prices over time (Figure 34, Panel A), with an estimated long-run price elasticity of housing supply of 0.4, one of the lowest in the OECD (Caldera Sanchez and Johansson, 2011). High house prices have curtailed affordability, as reflected by falling homeownership rates, in particular for young and middle-age people (Figure 34, Panel B), but they also increase costs for businesses reducing their competitiveness. The authorities acknowledge that 250 000 new homes would be needed each year (Department for Communities and Local Government, 2017), against 170 000 built in 2015, and they plan to expand the provision of social housing (Table 7).

Recent government plans also foresee the simplification of the delivery of building permits, which would be a major step forward. A key bottleneck to the growth of cities or city-regions are tight land use and planning regulations, both for residential and commercial real estate across all major urban areas, with London showing the strongest price increases (Hilber and Vermeulen, 2016). Urban areas allow more easily an exchange

Figure 34. **Tight housing supply has pushed house prices up, reducing home ownership**



1. House prices are deflated by CPI.
2. Homeownership by age group is defined based on the age of household reference person. Data refer to fiscal years.

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 Department for Communities and Local Government (2017), "English Housing Survey 2015 to 2016: headline report", March.

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of ideas in a knowledge-based economy, which is done more efficiently through personal, physical contacts, despite advances in communication technology (OECD, 2016a; 2015a). Therefore, creating conditions for cities to expand in an organic way by allowing land permits to match local demand should be a key priority.

The authorities should also thoroughly review the boundaries of protected areas around major cities, so-called "Green Belt", as recommended in past *Surveys* (OECD, 2011, 2013, 2015c). Developing small sites and increasing densities (Table 7) may prove insufficient to address housing shortages. A careful reassessment of the overall economic costs and environmental benefits of maintaining the Green Belt is needed, including alternative ways to preserve or create green space, more integrated in the cities (parks) rather than around

Table 7. **Implementation of OECD recommendation on housing**

Past OECD recommendations	Actions taken
Ensure access to decent affordable housing through a mix of means-tested housing benefits and subsidies for affordable housing construction, paying attention to the diversity of local needs.	The government provides means-tested support through Housing Benefit and Universal Credit. In the 2015 Spending Review, the government announced the investment of over GBP 8 billion (0.4% of GDP) in housing until 2020-21. In the Autumn Statement 2016, the government committed to invest an additional GBP 1.4 billion (0.1% of GDP) to deliver 40 000 new affordable homes, allowing providers to build a range of tenures to support people in various circumstances and in various stages of their lives.
Enhance competition between developers by facilitating even access to land.	The housing White Paper published in February 2017 contains several measures to boost competition between developers, including greater transparency over land ownership and interests, requiring local authorities to release more small sites to help SME developers, and introducing a housing delivery test to incentivise local authorities to release sites for developers.
Further relax regulatory constraints to boost housing supply, in particular by thoroughly reviewing the boundaries of protected areas of the Green Belt.	The government does not consider Green Belt release to be the most appropriate means of bringing additional land for housing. Instead, the housing White Paper published in February 2017 focuses on a other ways in which more homes can be accommodated, such as on small sites and by increasing densities. It also proposes a number of new policy tests to be satisfied before Green Belt is released for development. The aim is to ensure that the use of Green Belt land remains a last resort, while enabling its boundaries to be reviewed where there is a clear and specific justification.

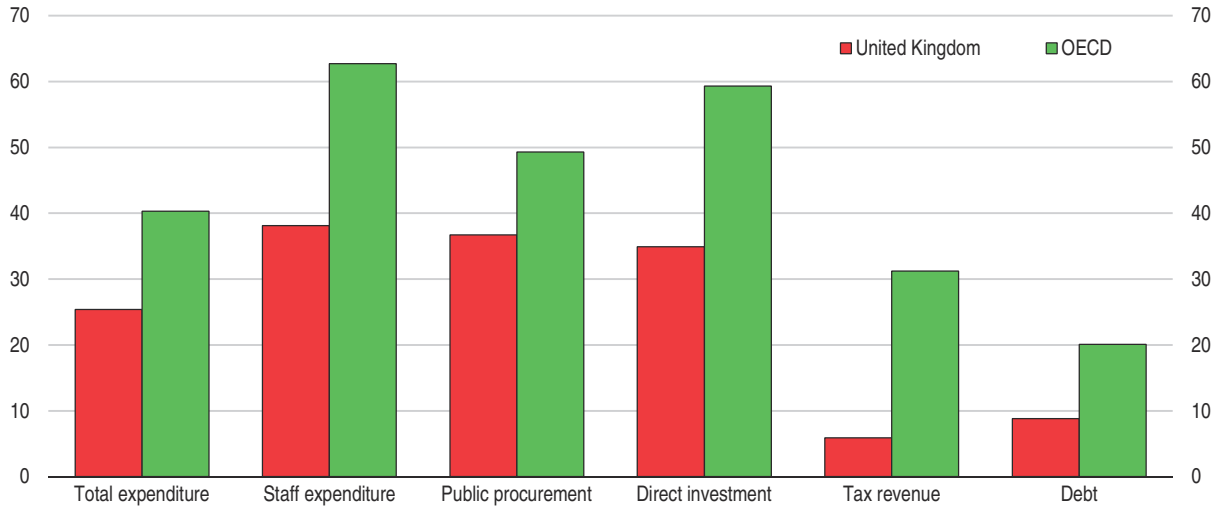
them. Planning decisions should also be put on a more rule-based system, and local authorities should be better incentivised to approve housing projects (see below) to avoid that particular interests impede real estate developments.

Raising decentralisation to improve responsiveness to local needs

The United Kingdom is less decentralised on all dimensions than the average OECD country (Figure 35), which may contribute to the low productivity of most regions and metropolitan areas outside London (Figures 27 and 29). The devolved administrations of Wales, Scotland and Northern Ireland have a relatively high degree of autonomy, but they represent only 15% of the total population. In contrast, England is very centralised and their local councils preside over little power (McCann, 2016).

Figure 35. **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.

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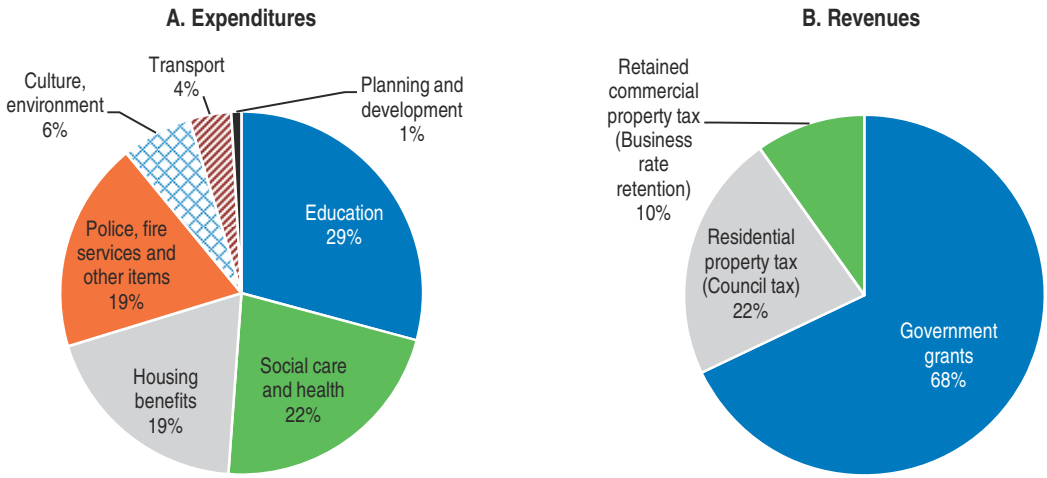
Decentralisation in England should continue for spending which is better dealt with at the local level, matched by appropriate governance and accountability. Recent "devolution deals" take an appropriate stance by focusing on city-regions that constitute a functional urban area, meaning cities and their surroundings within the same commuting zone. Most deals also require the election of a mayor, which is a welcome step as it has the potential to increase accountability, can streamline local decision-making and improve representation *vis-à-vis* the national government compared to the prevailing system of local councils. However, the current deals do not yet constitute a major devolution of growth-enhancing spending decisions (Shared Intelligence, 2016). Transport planning features prominently, but it represents less than 5% of local budgets (Figure 36). Policies on larger growth-related spending – such as education, skills and housing – remain largely centrally controlled. London and the devolved administrations (Scotland, Wales and the Northern Ireland) have comparatively more functions and fiscal means to determine key policy areas affecting productivity than local bodies with completed devolution deals.

In parallel to increased devolution, fiscal transfers to weaker regions will also have to remain important given large disparities in economic performance and incomes. Transfers

Figure 36. **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.

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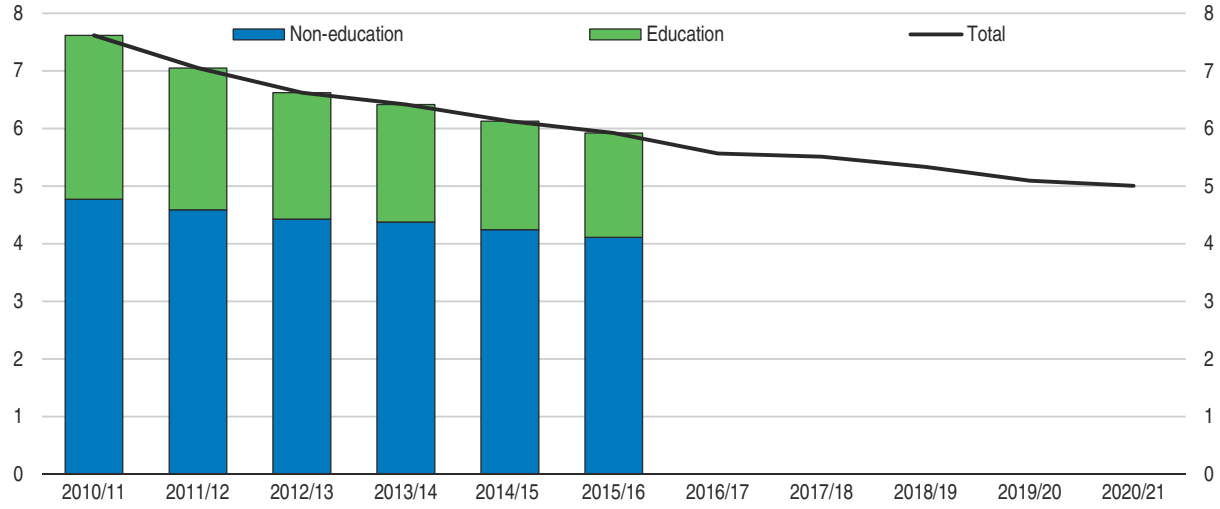
across regions can have beneficial effects in the near term, but they might undermine local incentives and encourage rent-seeking in the longer term (Bartolini et al., 2016). With this as a background, it is important that transfers are rebalanced towards growth-enhancing measures on infrastructure, education and locally targeted business development so that UK regions can become more self-sufficient over the medium to longer term.

Devolution can raise public sector efficiency by increasing accountability, and providing flexibility in setting and meeting local government objectives (Beidas-Strom, 2017). The United Kingdom has high levels of general public administration efficiency, but health care and education efficiency is weak (Dutu and Sicari, 2016). This may hamper business sector productivity, as education and health care influence the quality of human capital. Although spending on schools remains protected in real terms, local education budgets have fallen as a share of GDP (in part reflecting the shift to centrally-funded academies; Figure 37). This could make it more difficult to address teacher shortages at the local level, particularly in some secondary school subjects in some areas. More targeted resources to retain and attract new teachers, financed with a combination of higher efficiency gains and more direct funding through the pupil premium system, would improve responsiveness to local needs, supporting education and skills needed to raise regional productivity. Also, greater allocation for running the Teaching and Leadership Innovation Fund would help to address training for teachers in disadvantaged schools and improve teacher quality, which would positively affect the productivity of low-skilled workers (see below).

More devolved fiscal powers increase incentives and provide more tools to subnational bodies to create a better local business environment (Bartolini et al., 2016). There is also evidence that granting tax-setting powers to sub-national bodies and leaving the proceeds there increases sub-national public infrastructure investment (Fredriksen, 2013; Kappeler et al., 2013). Indeed, most OECD countries display higher tax autonomy than the United Kingdom, along with smaller regional differences in productivity (Blöchliger et al., 2013, 2016). In England, the two local taxes are the council tax on residential property, and the business

Figure 37. **England's local authorities' net current expenditure on education has been falling**

As a percentage of GDP[1]



1. Data refer to fiscal years.

Source: OBR (2017), "Economic and fiscal outlook", Office for Budget Responsibility, March.

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rate, which is a tax on commercial property, and together these taxes represent one-third of local revenues (Figure 36). Further decentralisation of these taxes – as started by the New Homes Bonus initiative – could provide more incentives for approving real estate developments. If carried out successfully, such decentralisation could broaden the local tax base by creating a virtuous circle between greater investments in infrastructure and skills, and higher attractiveness of businesses. However, international experience suggests that lagging regions that rely significantly on transfers should implement such steps gradually, to avoid growing revenue differences across local areas (OECD, 2017; Akgun and Dougherty, 2017).

Devolution should not lead to an overly fragmented governance structure. The process should be comprehensive, involving all parts of the country to head off the risk of greater regional imbalances. Central government should aim at building on the most successful elements of the deals concluded so far to mitigate the risk of a piecemeal approach to decentralisation when developing new deals. Moreover, local bodies may internalise the costs that accrue to them but not the benefits to their wider surrounding region. Therefore, it will be important to not lose sight of the broader, more regional, focus beyond the local areas (McCann, 2016; IPPR, 2016). The government should monitor and facilitate the co-operation across local areas – be it city-regions or smaller entities – so that synergies are identified and exploited across them at a larger, more regional level, just as in the context of the Northern Powerhouse project. Making a fraction of central government transfers conditional on the development of larger economic hubs across city-regions would further raise incentives for collaboration.

Improving productivity and job quality of low-skilled workers

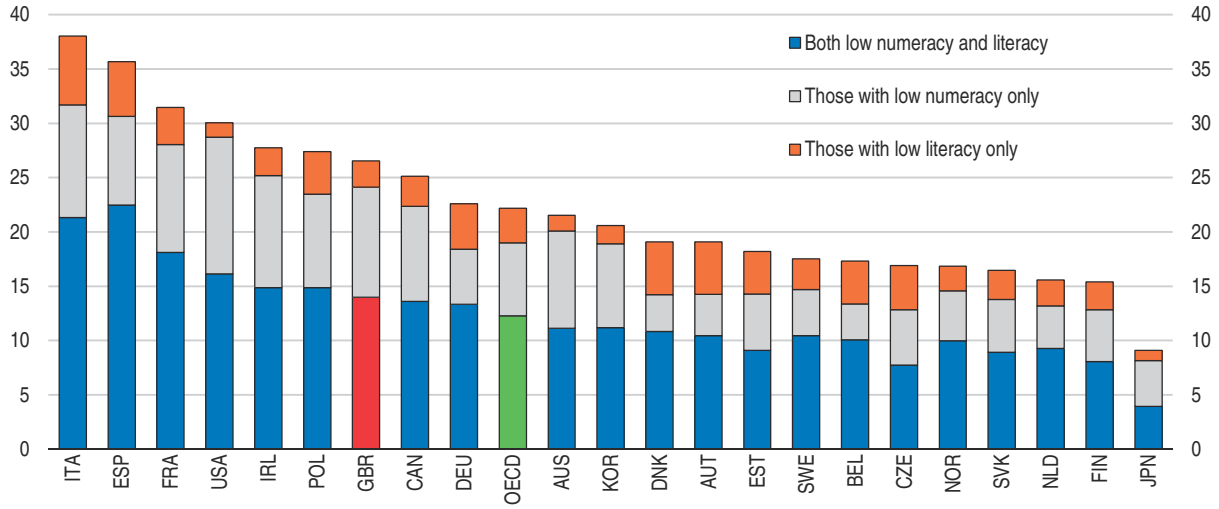
Skills are weak

More than a quarter of adults in England and Northern Ireland have low basic skills, as measured by the Survey of Adult Skills of the OECD Programme for the International

Assessment of Adult Competencies (PIAAC) (Figure 38). The numeracy skill proficiency of working-age adults is low relative to other OECD countries, while their literary skill proficiency is at the OECD average. The percentage of young people with weak basic skills is particularly high, with almost 30% of 16-24 year olds possessing only weak skills. This is nearly as high as the percentage of people nearing retirement (55-65), the opposite of what is observed in most other OECD countries where younger cohorts are better educated than older ones.

Figure 38. **Over 25% of working aged adults have low basic skills in the United Kingdom**

As a percentage of all adults aged between 16 and 65, 2012[1]



1. Low-skilled are defined as those who are below level 2 on either literacy or numeracy as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Low-skilled adults struggle with basic quantitative reasoning or have difficulty with simple written information. Data for Belgium refers to Flanders. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland. The OECD aggregate is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills.

Source: OECD (2016), "Building Skills for All: A Review of England", *OECD Skills Studies*.

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The productivity of low-skilled workers is weak in the United Kingdom, and some estimates suggest that their contribution to aggregate productivity growth has been negative (CEDEFOP, 2014). Insufficient skills could explain the high reliance of the UK economy on immigration (Figure 6). Between 2010 and 2016, average annual GDP per capita growth was 1.2%, out of which increases in hours worked per capita of immigrants explain nearly 60%. Over the same period, the contribution of native workers was about nil.

Weak basic skills not only reduce employability, as low-skilled people are about twice as likely to be unemployed than those with higher skill levels, but also reduce job quality and earnings. Low-skilled workers in the United Kingdom have comparatively lower earnings than low-skilled workers in other G7 countries, and the effect of higher skills proficiency on wages is particularly important in the United Kingdom (OECD, 2016b). The type of skills also matters for social and economic integration, and insufficient information-processing skills could be a major obstacle to full participation in modern societies (OECD, 2016b). The recently announced initiative by the UK authorities that entitles all individuals to free basic digital skills training will help to address this issue.

Improving the skills of low-skilled individuals and fostering the utilisation of existing skills that these individuals already possess would boost both productivity and job quality,

and the government has initiated several important reforms in this direction (Table 8). Strengthening basic skills of students requires action throughout the entire education system and should be complemented by measures to better target disadvantaged pupils. Outside formal education, developing on the job skills through training and apprenticeships would improve workers' job quality and productivity.

Table 8. **Implementation of OECD recommendations on education**

Past OECD recommendations	Actions taken
Simplify the system of vocational education, and focus further on high-quality apprenticeships.	In July 2016, the government published a plan to transform post-16 education, with a view to create a streamlined set of 15 technical skills routes. The qualifications will be designed together with employers and the number of hours of learning for students increased by more than 50%, with the first routes planned for 2020. The government recorded the start of nearly 2.5 million apprenticeships since 2010, and is on track to deliver a further 3 million by 2020. The authorities have also introduced an apprenticeship levy, to ensure that businesses invest in apprenticeships and are in control of related training content.
Increase focus and transparency of funding for disadvantaged students. Review the effects of schooling reforms, including Free Schools, on equity, fair access and user choice for disadvantaged students. Encourage the highest quality teachers to move to the most disadvantaged schools.	To make the allocation of school funding in England fairer, the government has replaced the existing system with a National Funding Formula. The transition to a National Funding Formula has been supported by an additional GBP 1.3 billion of funding across 2018-19 and 2019-20. Public schools in England have also received additional funding worth nearly GBP 2.5 billion (0.1% of GDP) to raise the attainment of disadvantaged pupil of all abilities and to close the gaps between them and their peers. A Strategic School Improvement Fund has been created to target schools most in need of improvement. To bolster teacher quality, teacher training providers using innovative models have benefited from incentives, and the National Professional Qualifications and the Teaching and Leadership Innovation Fund have received additional funding. Free schools are providing more choice for disadvantaged students and are one of the highest-performing groups of non-selective state schools (nearly 30% are rated outstanding).
Seek further efficiency gains in education.	The government has developed tools to support efficiency in the education sector, including financial benchmarking for schools, support for workforce planning, and a strategy to help save schools over GBR 1 billion (0.05% of GDP) a year by 2020.

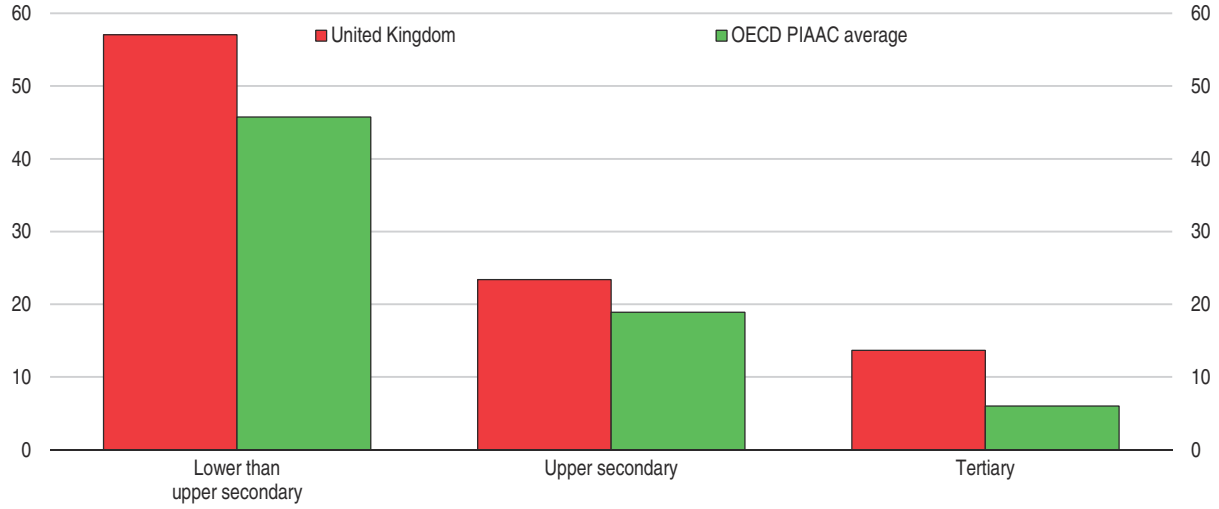
Developing skills through general education

Early childhood, primary and secondary education should primarily be focused on ensuring that all students gain at least the minimum level of basic skills needed to properly function in a modern society. Given the high proportion of individuals with low basic skills, this is an area where formal education needs further improvement. Leaving the education system with strong basic skills helps individuals to find a higher quality first job, which in turn has a more positive impact on employment outcomes during their career (OECD, 2016c). However, low basic skills in the United Kingdom prevail across all education levels, and the percentage of young adults with low basic skills is higher than in the OECD (Figure 39). Important steps have been taken to improve the educational outcomes and basic skills of disadvantaged students. They include the introduction of pupil premium grants and reforms of school funding, although the attainment gaps in early childhood education and secondary education are still quite high (SMC, 2017).

Giving equal chances to all students to succeed would increase equity in education and improve the long-term productivity of low-skilled individuals, in particular by focusing more on students with disadvantaged socio-economic background. In the United Kingdom, family background is more important for an individual's skill level than in most other OECD countries. Young people whose parents have low levels of educational attainment have the lowest level of basic skills proficiencies than in all other countries surveyed (OECD, 2016c). Moreover, higher child poverty threatens to increase the number of children

Figure 39. **Low basic skills at every education level are more prevalent than the OECD average**

Percentage of young adults with low basic skills who have left formal education by highest qualification, 16-34 year-olds, 2012[1]



1. Low-skilled are defined as those who are below level 2 on either literacy or numeracy as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Low-skilled adults struggle with basic quantitative reasoning or have difficulty with simple written information. Lower than upper secondary includes ISCED 1, 2 and 3C short. Upper secondary includes ISCED 3A, 3B, 3C long and 4. Tertiary includes ISCED 5A, 5B and 6. Data for the United Kingdom are calculated as the population weighted average of the figures for England and Northern Ireland. The OECD PIAAC average is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills.

Source: Calculations based on the PIAAC database.

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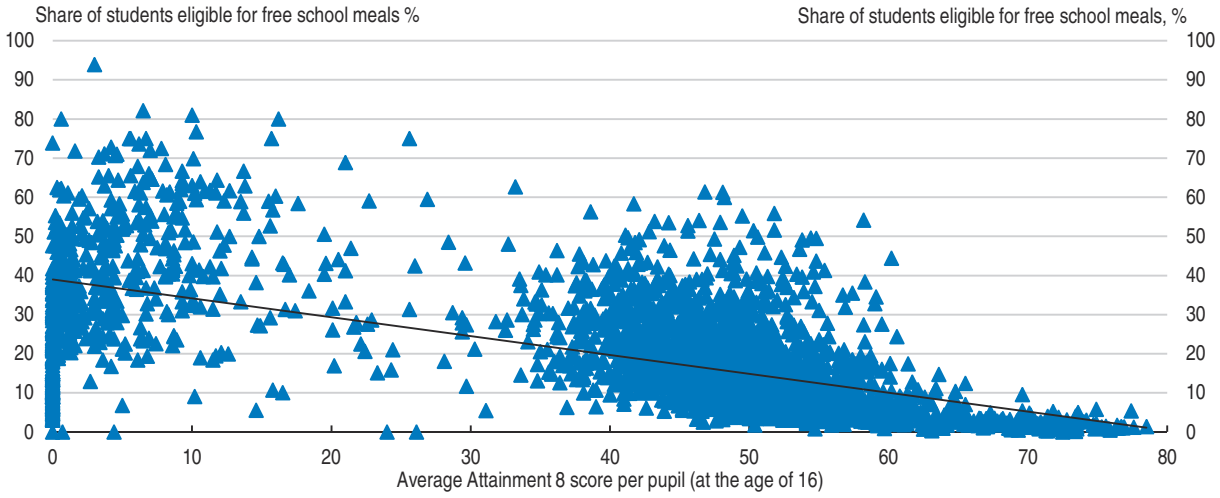
whose disadvantaged background affects their educational chances. Recent projections show that relative child poverty, after stalling since 2010, could increase from around 30% to about 35% by 2021-22 (Hood and Waters, 2017).

At the earliest stages of education, it is important that children, particularly those who are disadvantaged, are equipped with learning abilities needed to effectively progress throughout later schooling and ultimately to exit the formal education system with strong basic skills. Children from disadvantaged families are eligible for free early childhood education and care (ECEC) from age 2, but enrolment rates and the quality of services that they face need to be raised, which would have beneficial effects in the long term (Melhuish, 2013; Taggart et al., 2015). Targeted training programmes should be provided for staff in disadvantaged areas that are responsible for larger and more diverse groups of children. Participation in ECEC is nearly universal for 3 to 5 year olds, but only 44% of 2-year olds are enrolled, slightly higher than the average in the OECD. The low participation could be linked to high out-of-pocket expenses although it could partly be influenced by personal choices of some parents who believe 2 year olds are too young for ECEC (NAO, 2016). To address the high costs, the government has recently doubled the number of hours of free childcare entitlement for 3 and 4 year olds and introduced a subsidy to cover the taxes paid on the childcare expenses of working families, which complement existing entitlements of free care for 2 year olds from disadvantaged families. Take-up of the ECEC entitlement for 3 and 4 year olds is 95% but for 2 year olds it is at 71%, below the government's target in the range of 73-77% (DfE, 2017). Therefore, the government should reduce compliance costs and raise awareness in local areas where participation is low, so as to increase the take-up of this benefit and foster participation of 2 year olds.

Improving the overall quality of UK schools needs to be complemented by student-level interventions, particularly for disadvantaged students and students who are having difficulty progressing through the education system. Schools that have a higher percentage of students who are eligible for free school meals, an indicator for disadvantage in the United Kingdom, tend to have a lower student performance (Figure 40). The supply of quality teachers is also insufficient with ongoing issues related to both recruitment and retention. Beyond targeted resources to retain and attract new teachers (see above), non-wage incentives should be encouraged to improve their job-satisfaction, including the implementation of more collaborative working environments and decentralised decision-making in schools.

Figure 40. **Disadvantaged students have a weaker academic progression**

2015-16[1]



1. The Attainment 8 score is a companion metric of Progress 8, which aims to capture the progress a pupil makes from the end of primary school to the end of secondary school. Attainment 8 measures the achievement of a pupil across 8 qualifications including mathematics (double weighted) and English (double weighted), 3 further qualifications that count in the English Baccalaureate (EBacc) measure and 3 further qualifications that can be GCSE qualifications (including EBacc subjects) or technical awards from the DfE approved list. Attainment 8 is calculated by translating GCSE grades into numbers. An A* is worth eight and an A is worth seven, and so on down to G, worth one point. The points allocated according to grades the pupil achieves for all 8 subjects are added together to give the Attainment 8 score.

Source: Department for Education (2016), *Schools Census 2015-16*.

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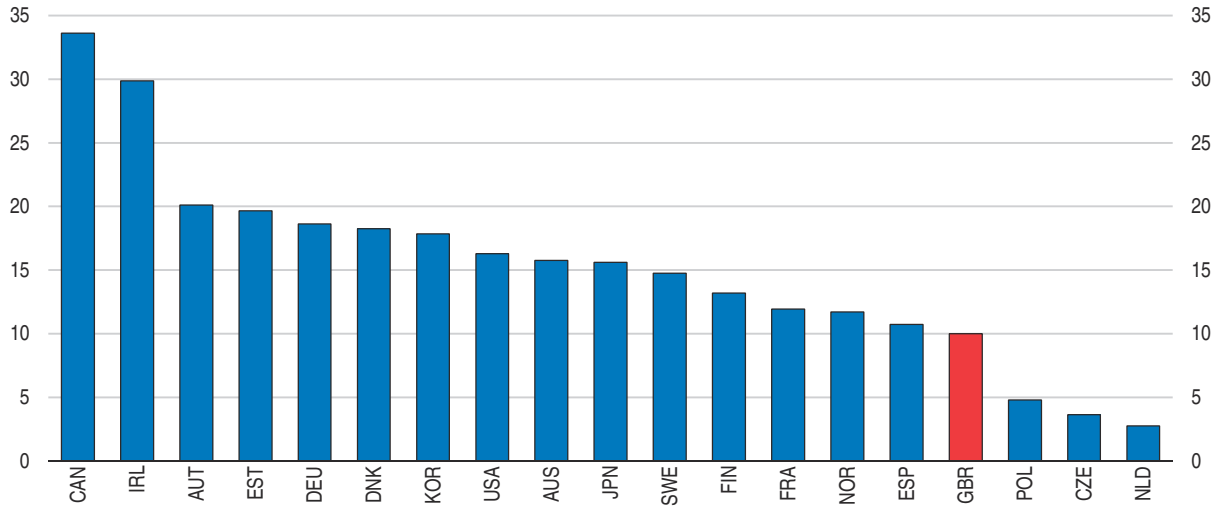
Developing skills through specialised education

The vocational education and training (VET) system in England is complex, but important reforms have been initiated to simplify it (Table 7). In the current system, there are over 20 000 courses provided with qualifications offered by around 160 different organisations. Despite the large number of courses offered, the provision of post-secondary VET is much more limited than compared to most other OECD countries. As a result, the percentage of adults who have short-cycle education VET as their highest qualification is one of the lowest in the OECD (Figure 41).

Ongoing transformation of the vocational system is consistent with earlier OECD recommendations (OECD, 2015c). As part of the reforms to make post-16 education compulsory, students must choose between academic or vocational qualifications after age 16. Furthermore, the existing numerous vocational qualifications will be simplified, with

Figure 41. **Provision of post-secondary vocational education and training is limited**

Percentage of adults aged 20-45 who have short-cycle professional vocational education and training as their highest qualification, 2012[1]



1. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland.

Source: OECD (2014), "Skills Beyond School: Synthesis Report", *OECD Reviews of Vocational Education and Training*.

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standards being set in consultation with employers and training providers. Importantly, the proposed changes will encourage more private sector co-operation, better utilising the Local Enterprise Partnerships, which will help to ensure that the new programmes meet regional needs. To foster implementation, local institutions that are the most effective in meeting these regional economic needs could benefit from additional funding streams.

The apprenticeship system is also in the process of reform to ensure that individuals are gaining skills and experience more closely aligned with business sector demand. The government has set ambitious goals of improving apprenticeship quality through moving to employer-led standards and creating an additional 3 million apprenticeship starts by 2020. In order to incentivise the take-up of apprenticeships by businesses, a new apprenticeship levy has been introduced that applies to larger companies where proceeds of the levy can be recovered by these companies in the form of a discount on incurred apprenticeships costs. Furthermore, smaller companies will have up to 90% of their apprenticeship costs subsidised by the government. The new system should be closely monitored to ensure that any increase in apprenticeship take-up reflects the skills needs of individual employers, particularly for public employers who are subject to quantitative targets.

Young adults in the United Kingdom who drop out of education before age 18, and have low skills, do worse in the labour market not only relative to their higher-skilled counterparts, but also compared to low-skilled individuals in other countries. The budget for adult learning has fallen significantly in recent years, reflecting overall expenditure cuts and shifts towards other types of adult education, like apprenticeships. The government is seeking to devolve the budget for adult education to local governments, which should help to align programmes to meet regional economic priorities and better address local productivity challenges.

On-the-job training has increased in recent years in the United Kingdom, although it tends to be taken up disproportionately by workers with higher skills, particularly younger

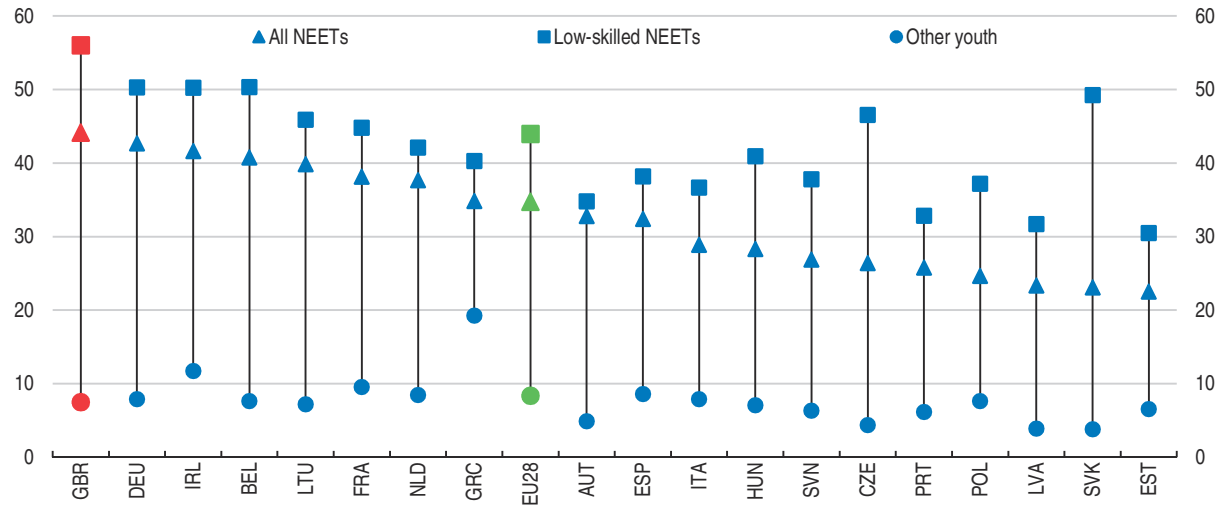
well-educated individuals and by employees in larger companies (UKCES, 2016). Introducing individually targeted programmes on workers who have low earnings or are low-skilled would improve their training participation.

Improving skills through labour market policies and institutions

After initial formal education ends, the majority of learning is typically done while in employment. Increasing job market perspectives for low-skilled workers (see below) is thus crucial in developing their skills. Active labour market policies play an important role in reducing unemployment and increasing the employment prospects of low-skilled individuals in particular (Escudero, 2015). There is scope to increase their effectiveness through increased financing from the central government, and by improving the targeting of benefits and job-seeker profiling procedures. In particular, focus should be on raising the job prospects of low-skilled individuals who are not in employment, education or training (NEET) and who come from disadvantaged households, with nearly 60% of low-skilled NEETs living in jobless households (Figure 42). In this context, it is important that active labour market policies improve the monitoring and counselling components of the job search services offered to NEET youth. The youth obligation, introduced through the Universal Credit benefit system, should contribute to a reduction in NEET youth through the provision of intensive job search support and a requirement to undertake an apprenticeship, training or a work-placement if out of work for six months or more. An additional step would be to further decentralise the planning and delivery of unemployment assistance programmes to better address local needs.

Figure 42. **NEETs, and in particular those with low skills, are likely to live in jobless households**

Percentage of indicated group living in jobless households, persons aged 15-29, 2014[1]



1. NEETs: Youth not in employment, education or training. The EU28 aggregate refers to the European Union.
Source: OECD (2016), *OECD Employment Outlook 2016*.

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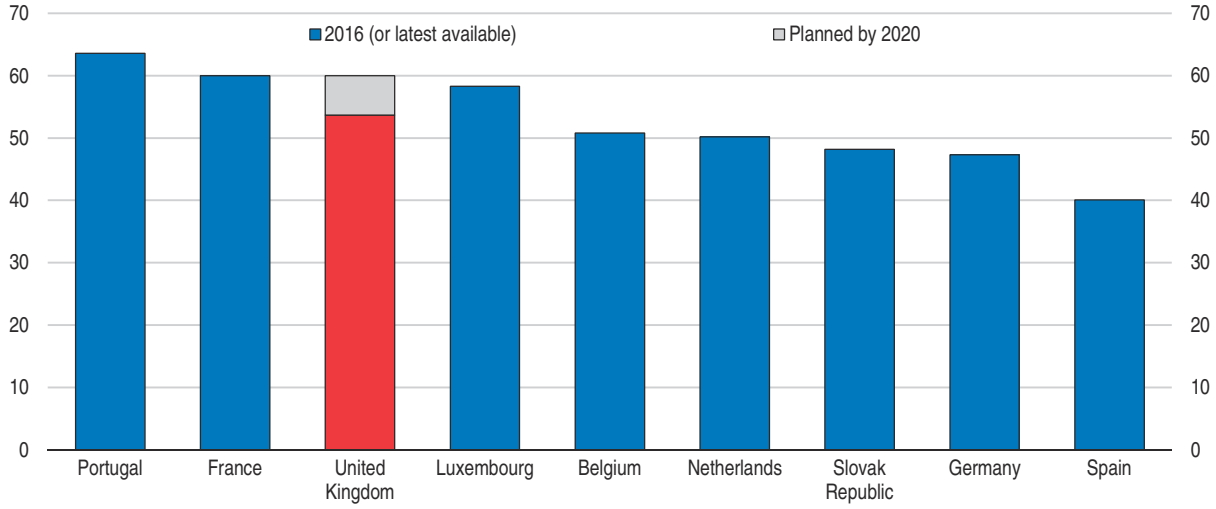
The authorities have been raising the National Living Wage, the minimum wage for workers above 25, which could provide incentives for firms to improve skills of existing workers as recent evidence suggests (D'Arcy, 2016). The government plans to raise the minimum wage to 60% of the median wage by 2020, which is expected to make it one of the highest ratios in the OECD (Figure 43). This comes against the backdrop of cuts to welfare

Figure 43. **Planned minimum wage will be high relative to other European OECD countries**

Monthly minimum wage as a percentage of median monthly earnings[1]



1. Data cover the industry, construction and services (except activities of households as employers and extra-territorial organisations and bodies) sectors. Data refer to 2015 for the Netherlands, Portugal and the Slovak Republic. Data refer to 2014 for Belgium, France and Spain.

Source: Eurostat (2017), "Minimum wages", *Eurostat Database*, July.

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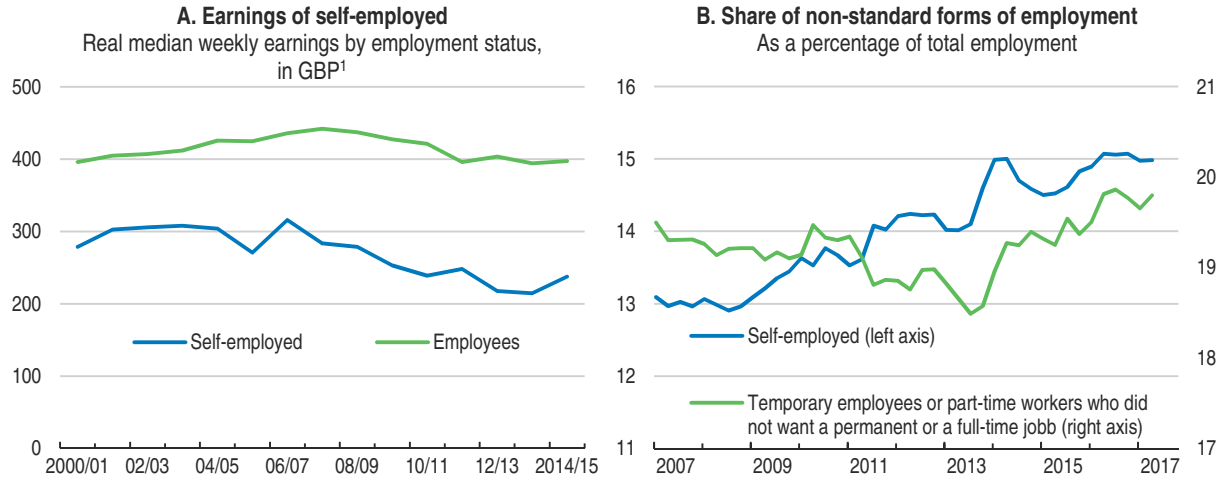
and in-work benefits, although the raise in the minimum wage would offset at most a quarter of the drop in household incomes associated with benefit cuts to 2020 (Elming et al., 2015). The planned pace of increases may be too steep given the ongoing economic slowdown, with a risk that low-skilled workers are either priced out of employment or that employers push them into self-employment, which is not subject to minimum wage regulations. However, the 2020 target is conditional on sustained economic growth and the Low Pay Commission, who recommends the pace of the increase, should continue to take into account the state of the economy. This flexibility should be used to respond to possible shocks associated with Brexit by meeting the target later.

Making labour more mobile by limiting barriers that workers face in moving to jobs where their skills are better utilised would limit skill mismatches, particularly for low-skilled workers who have a low propensity to re-locate to chase better job opportunities (Bauernschuster et al., 2014). Beyond transport infrastructure, insufficient information on labour market prospects in different regions could be a barrier for low-skilled workers in making the decision to re-locate. To address this, information regarding local skills and training needs, provided by local businesses and governments, should be consolidated and provided to students from all regions in the technical stream of the new post-16 secondary school plan (see above).

The rise in self-employment, which is across all skill levels, may have a negative impact on productivity growth, as in some occupations the economies of scope and scale of an organised work are lost. Indirect evidence of weaker productivity of the self-employed workers is their significantly lower earnings relative to employees (Figure 44, Panel A). The inability of workers to find salary employment does little to explain the increase, as a growing number of employees on temporary contracts do not seek more stable jobs (Figure 44, Panel B). The recent trend towards self-employment is partly related to older workers transitioning to self-employed work before retiring, or re-entering the labour force on a part-time basis while already in retirement (ONS, 2016).

Figure 44. **Self-employed have low earnings and non-standard forms of employment are increasing gradually**



1. CPI-adjusted (in 2014-15 prices) weekly earnings. Data refer to fiscal years.
Source: Resolution Foundation Earnings Outlook; and ONS (2017), "UK labour market: September 2017", Office for National Statistics.

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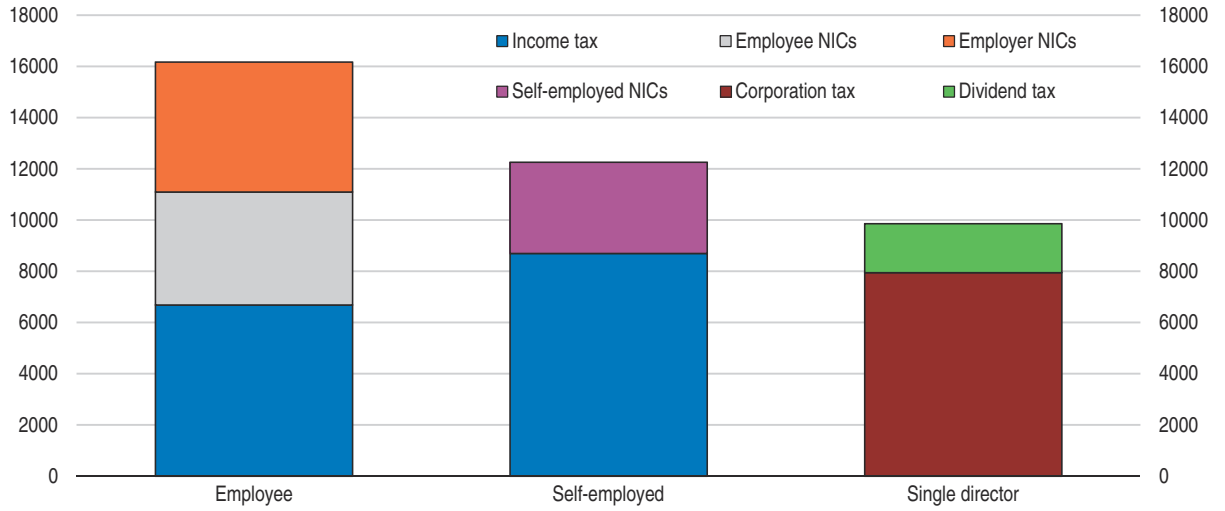
Tax incentives also play an important role in the expansion of self-employment, with a significantly lower labour tax wedge facing self-employed relative to employees (Figure 45). Moreover, half of the growth in self-employment over the last decade has been in the form of single directors, who are subject to even lower taxes (OBR, 2017b). The government should strive to reduce this gap to promote equity across different types of the workforce and sustain the financing of the social insurance system (see above). In parallel, to address the issue of job security the authorities should introduce tighter criteria to become self-employed, notably by focusing on the extent of economic independence of self-employed workers *vis-à-vis* their clients. A recent report on modern working practices

Figure 45. **Large differences in tax burden depending on the form of employment**

Tax paid on GBP 50 000 of income by form of employment, in GBP, 2017/18[1]



1. Data refer to fiscal year. NICs: National Insurance contributions.
Source: OBR (2017), "Fiscal risks report", Office for Budget Responsibility, July.

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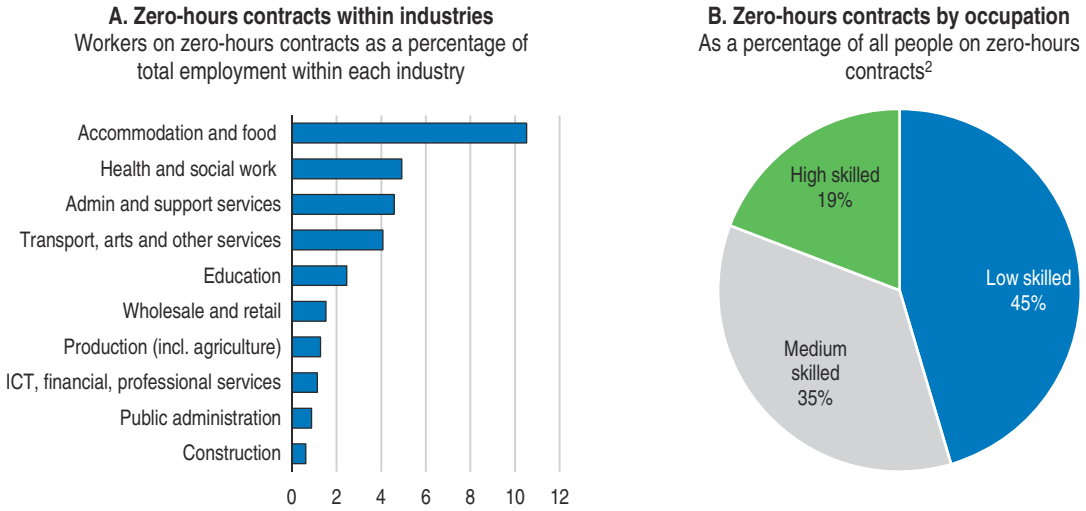
commissioned by the authorities provides a similar recommendation to introduce a new definition of worker, a "dependent contractor", to address the difficulty in identifying those who are genuinely self-employed (DfBEIS, 2017). The government is considering the recommendations in this review and will respond by the end of this year.

The number of workers on "zero-hours contracts" – under which the employer has no obligation to provide a minimum number of hours and the worker has no obligation to work a minimum number of hours – has been quickly expanding to account for nearly 3% of total employment, although some of this trend might be attributed to the increasing public focus and recognition of the presence of such contracts. These contracts offer flexibility and low attachment to a specific employer, who must pay at least the minimum wage. The use of such contracts is more developed in food and accommodation services, an industry that has a higher proportion of low-skilled workers (Figure 46, Panel A). Across all industries, around half of all zero hour contract workers are in the low-skilled occupations (Figure 46, Panel B). Around a third of people on zero-hours contracts would like to work longer hours, but two-thirds do not want more hours (ONS, 2017); while many on flexible contracts work part time to accommodate other responsibilities, this also suggests that the tax and benefit system may affect work incentives.

Figure 46. **Lower skilled workers account for a large proportion of zero-hours contracts**[1]

April-June 2017[1]



1. Zero-hours contracts refer to labour contracts which do not guarantee any hours in a given week.
2. High skilled occupations include managers, professional and associate professional and technical occupations. Medium-skilled occupations include administrative and secretarial occupations, skilled trades and caring, leisure and other services. Low-skilled occupations include sales and customer services, plant and machine operatives and elementary occupations.

Source: ONS (2017), "Contracts that do not guarantee a minimum number of hours: September 2017", Office for National Statistics, September; and ONS (2017), "UK labour market: August 2017", Office for National Statistics.

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The flexibility of zero-hours contracts is desirable from a business standpoint, allowing for easier workforce adjustment in response to economic shocks, and such contracts can meet work preferences of those looking for flexibility (such as students or semi-retired workers). Non-guaranteed work contracts can also play an important role in genuinely short-term casual work or in seasonal jobs, where the variability of the hours provided might not necessarily be in the full control of the employer.

However, lower-skilled and lower-income people do not necessarily benefit from the flexibility of non-guaranteed contracts and are limited in their ability to refuse work or negotiate for more hours for fear of job loss (DfBEIS, 2017). Lower-skilled workers may also find it difficult to invest in improving their skills, through increased training and education, given the low income and employment security associated with a non-guaranteed contract. Furthermore, in short-term or intermittent working situations, workers are unlikely to be compensated for annual and sick leave which they are entitled to (DfBEIS, 2017). This precariousness was a primary motivation for recent regulatory changes in Ireland and New Zealand, with the former effectively banning zero-hour contracts except in special cases and the latter outlawing them altogether (O'Sullivan et al, 2015; Ireland Department of Jobs, Enterprise and Innovation, 2017).

To improve job security and incentives of low-skilled workers on zero-hours contracts, the government should review the regulatory, tax and benefit underpinnings of this form of employment. Individuals on zero-hours contracts, who already have full worker rights, could receive enhanced rights after three months to increase job security, including minimum notice periods and redundancy pay.

Employees and employers have incentives to limit the number of hours worked so that they fall below the primary and secondary earnings threshold (GBP 157 per week in 2017-18) at which National Insurance contributions start to be paid. Those earning below the primary or secondary thresholds may still be eligible for contributory benefits as they earn above the Lower Earnings Limit (GBP 113 per week in 2017-18) or because they are entitled to National Insurance credits. Overall, the authorities should continue to review the effect of the interplay of taxes and welfare on incentives for employers to offer, and employees to work extra hours.

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Thematic chapters

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Chapter 1

Reducing regional disparities in productivity

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 decentralisation need to continue to cover larger parts of the country and involve greater transfers of powers and responsibilities at the local level.

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 chapter 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 1.1), 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 1.1, Panel A) and laggard regions have not been showing signs of catching up over the past few years (Figure 1.2).

Box 1.1. **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 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 chapter, regions are TL2 OECD regions, unless indicated otherwise.

Box 1.1. **Measurement challenges of assessing regional productivity performance** *(cont.)*

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.

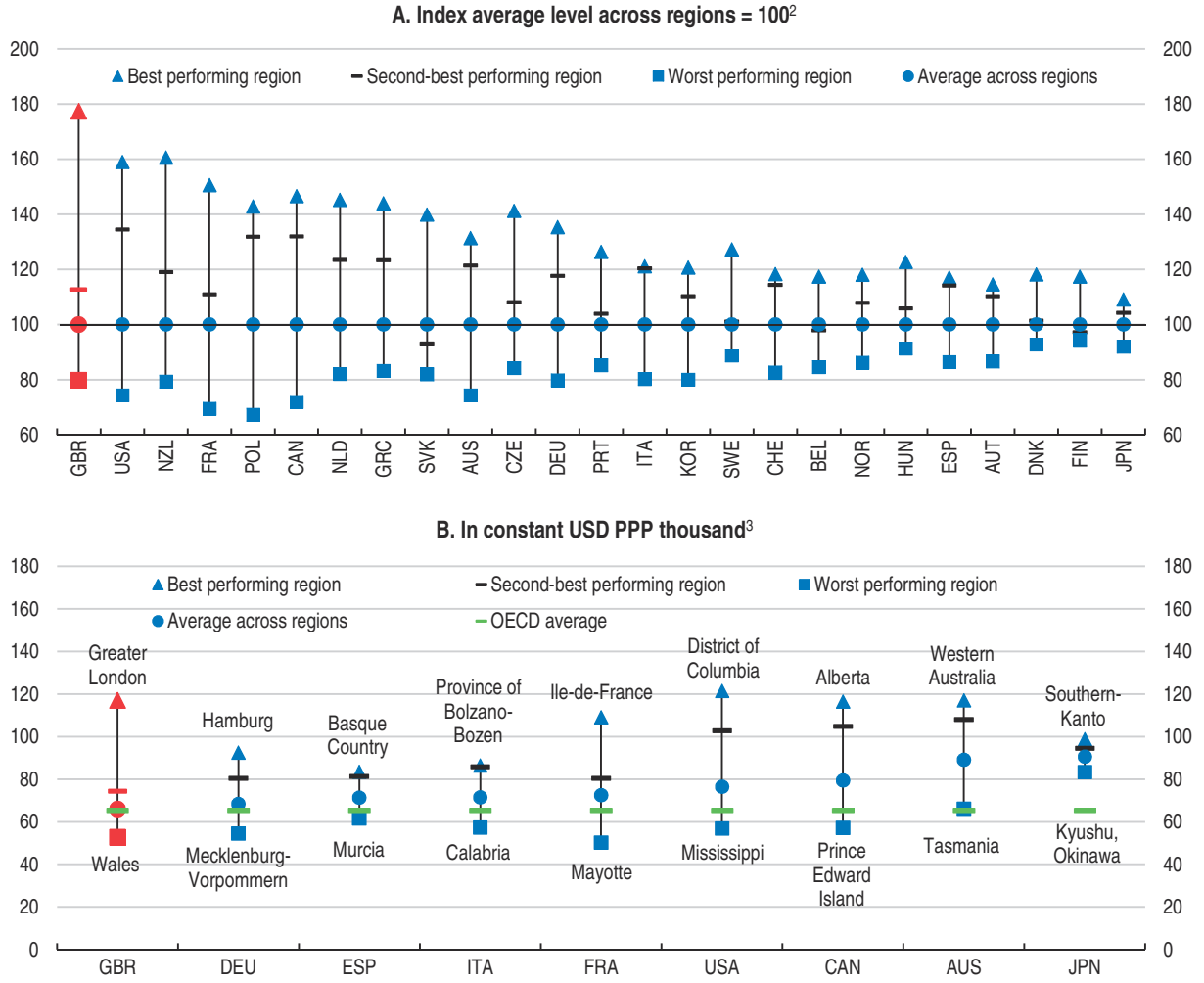
This disparity in productivity has two dimensions. *First*, it is driven by London's outstanding role as a highly productive global city, primarily driven by its financial sector (Figure 1.1, Panel B; Figures 1.8 and 1.11). *Second*, a large number of UK regions are lagging behind with low productivity 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 1.1, Panel B). Hence, reducing regional productivity disparities should be achieved through a stronger catch up of regions outside London.

Regional disparities have been increasing since the early 2000s and have further steepened since the global financial crisis (Figure 1.2, 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 1.2, 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 1.3, Panels A and B). In addition, more underemployment and part-time work arrangements – voluntary or not – in the less productive regions also

Figure 1.1. **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.

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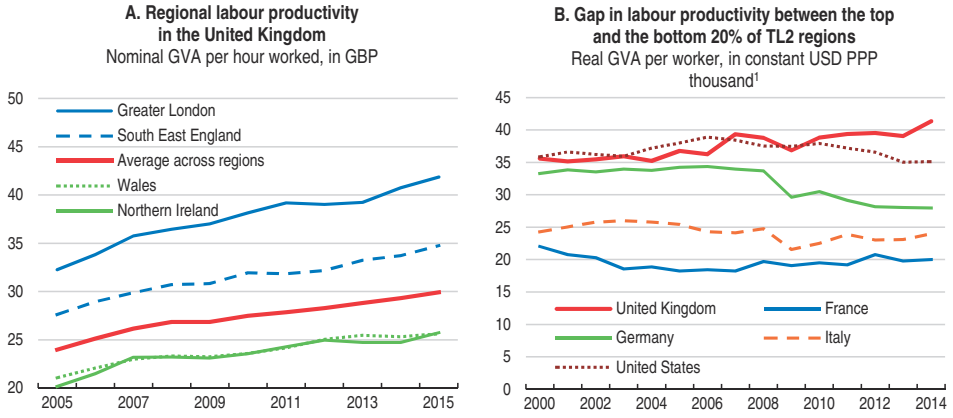
contribute to their low levels of value added per employee. In turn, this explains lower gross domestic product (GDP) per capita in these regions (Figure 1.3, Panel C). Regional disparities in productivity have a marked geographic pattern in England: a more affluent South and a less prosperous North (Figure 1.4). 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 1.5). Hence, large differences in productivity have negative consequences for inclusiveness and more broadly for social cohesion. The United Kingdom

Figure 1.2. **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.

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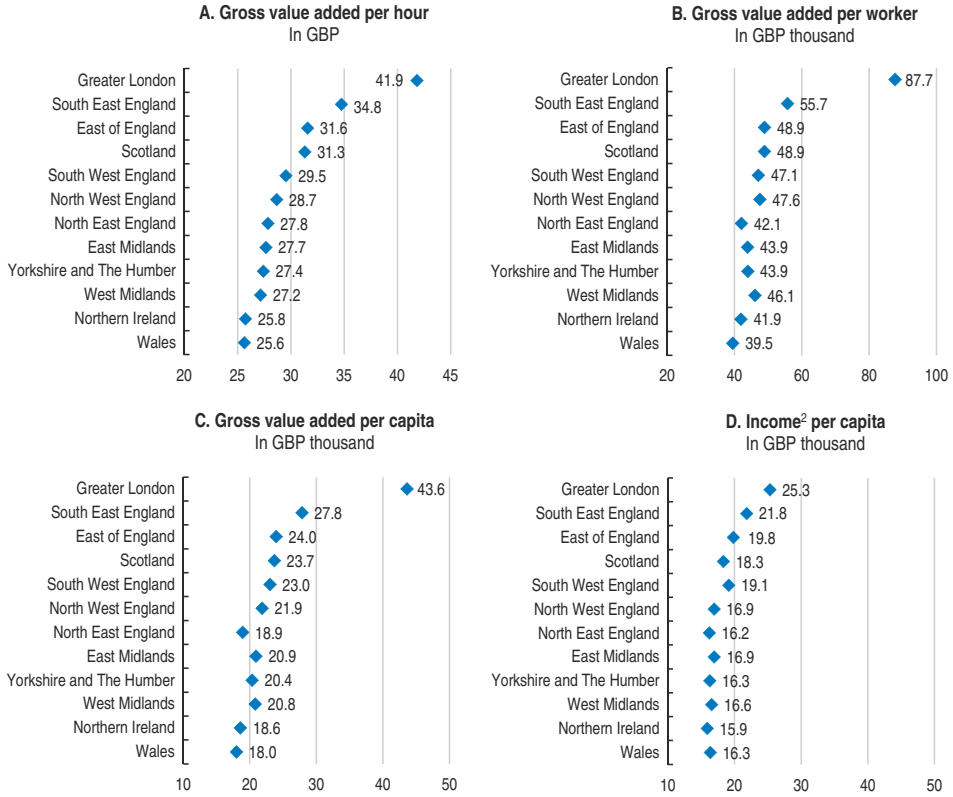
Figure 1.3. **Regional disparities in UK productivity contribute to differences in living standards**
2015[1]



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.

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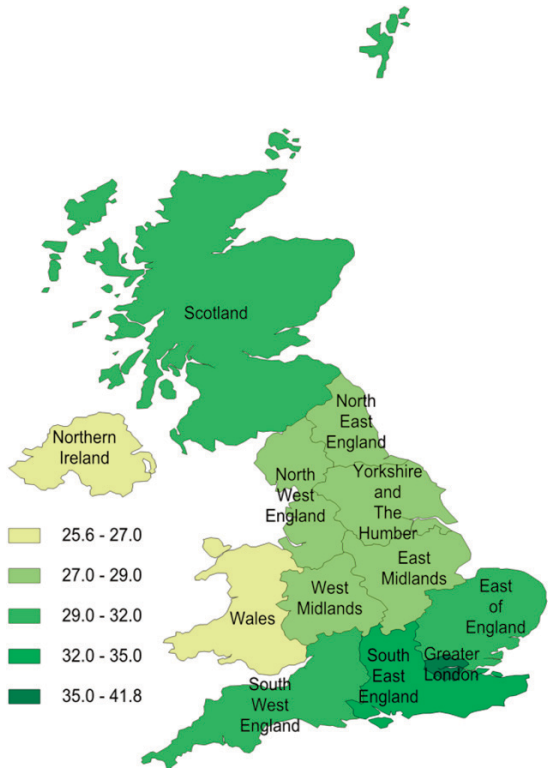
Figure 1.4. **Regional disparities in productivity are large, driven by a North-South divide in England**

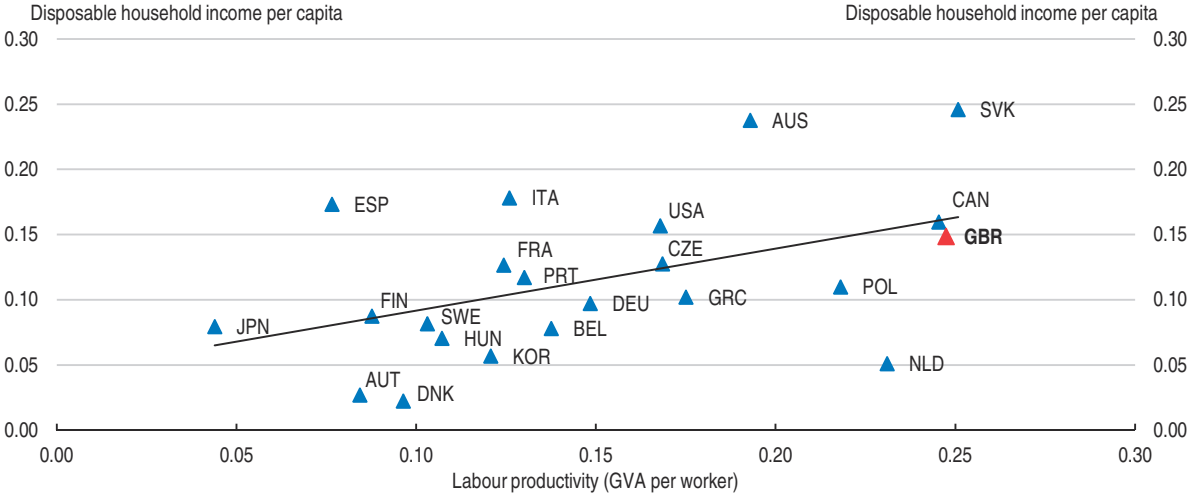
Gross value added per hour at TL2 level, 2015



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

Figure 1.5. **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.

StatLink http://dx.doi.org/10.1787/888933601550

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 1.3, Panel D).

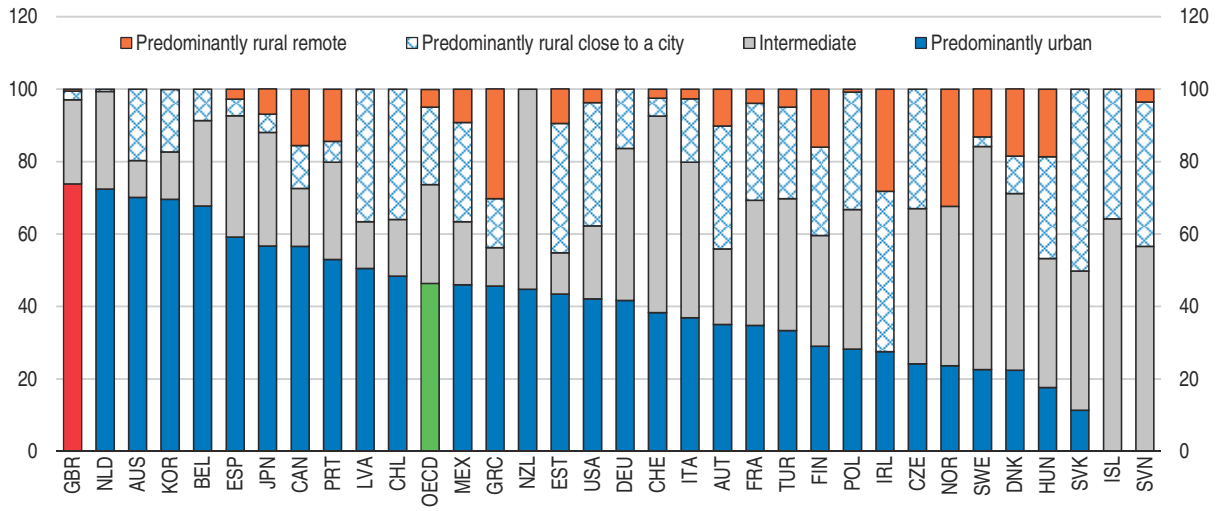
However, reducing income disparities primarily through redistributive instruments is fiscally costly and holds back growth in the well-performing regions that need to be taxed more heavily. Also, large transfers to the lagging regions could hold back their incentives to implement productivity-enhancing 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.

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 1.6). 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 1.7). Thus, regional policy should have a strong urban focus, in line with recent government initiatives focusing on city-regions (see below).

Figure 1.6. **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*.

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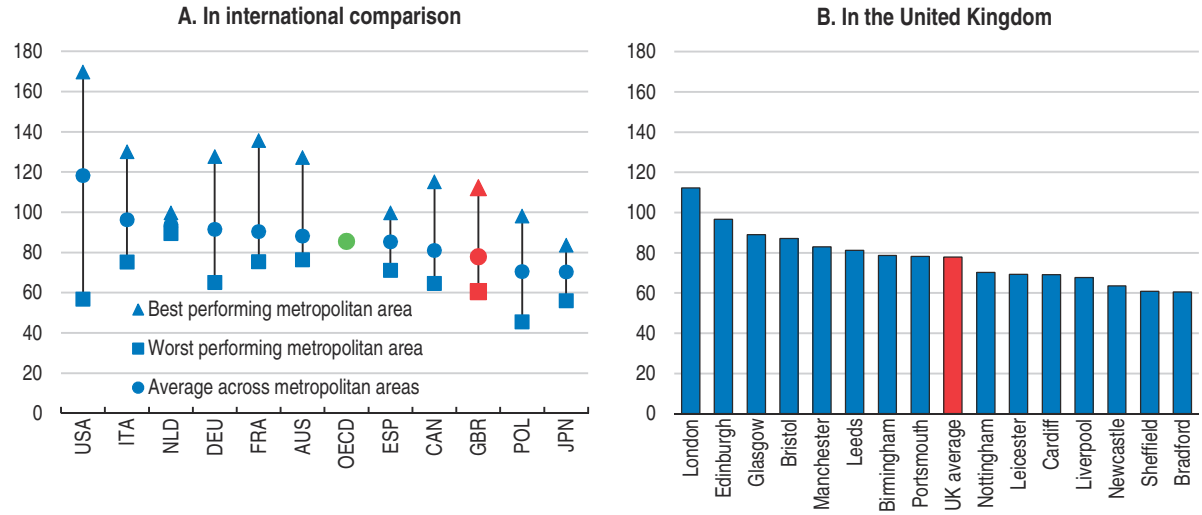
Firm and sector productivity performance has a strong regional dimension too

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

Figure 1.7. **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.

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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 1.8). 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).

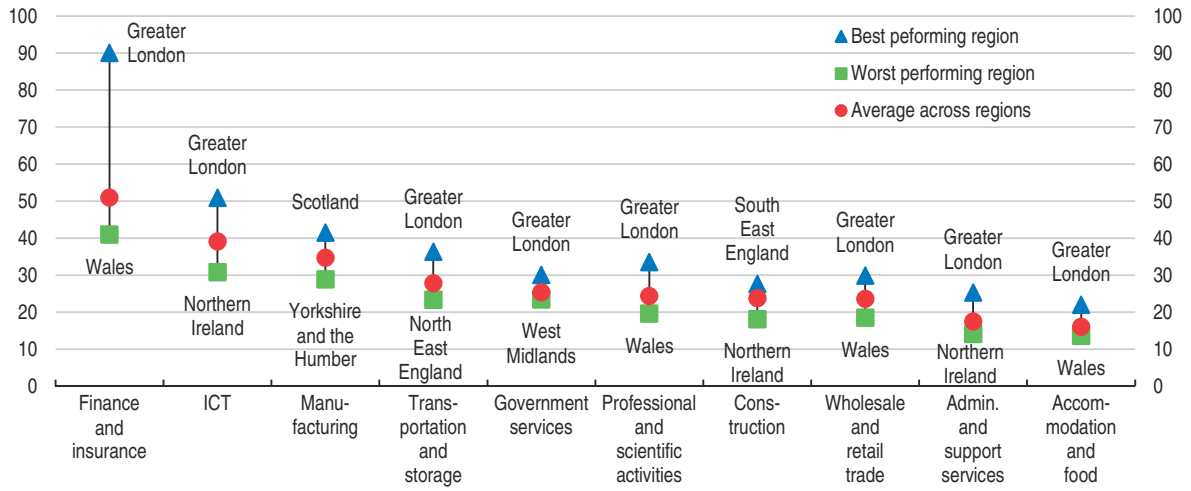
Regional productivity differences in the United Kingdom also persist at the firm level (Figure 1.9). A large part of productivity gaps across firms, measured in terms of labour productivity and total factor productivity, remains when controlling for differences in industry composition. Put differently, firms are less productive outside London even when they engage in the same economic activity, in line with sector level patterns (Figure 1.8).

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 1.10). 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.

Figure 1.8. **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.

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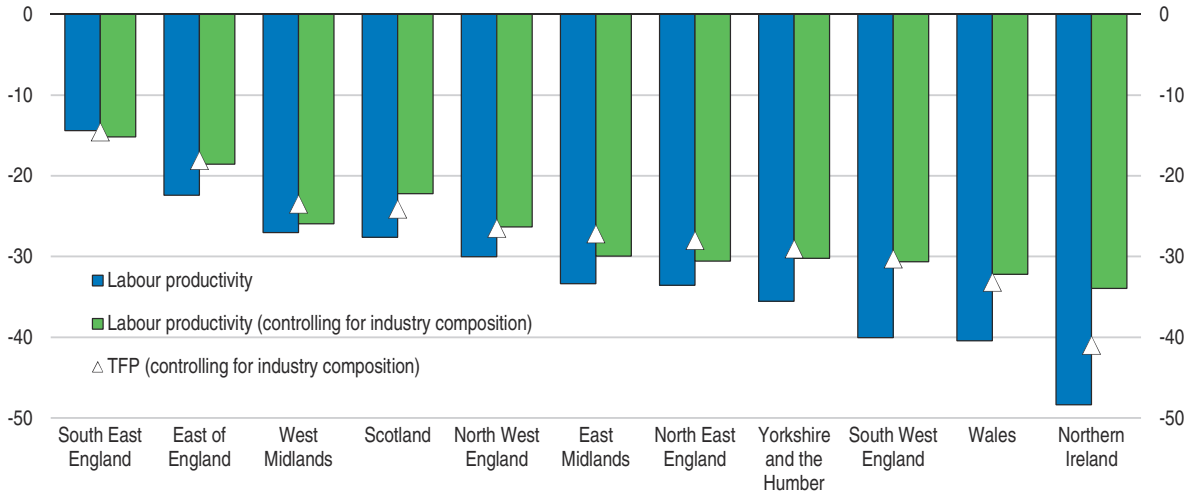
Figure 1.9. **Productivity gaps are substantial at the firm level**

Productivity gaps at the firm level compared to Greater London, per cent, average over 2012-14[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.

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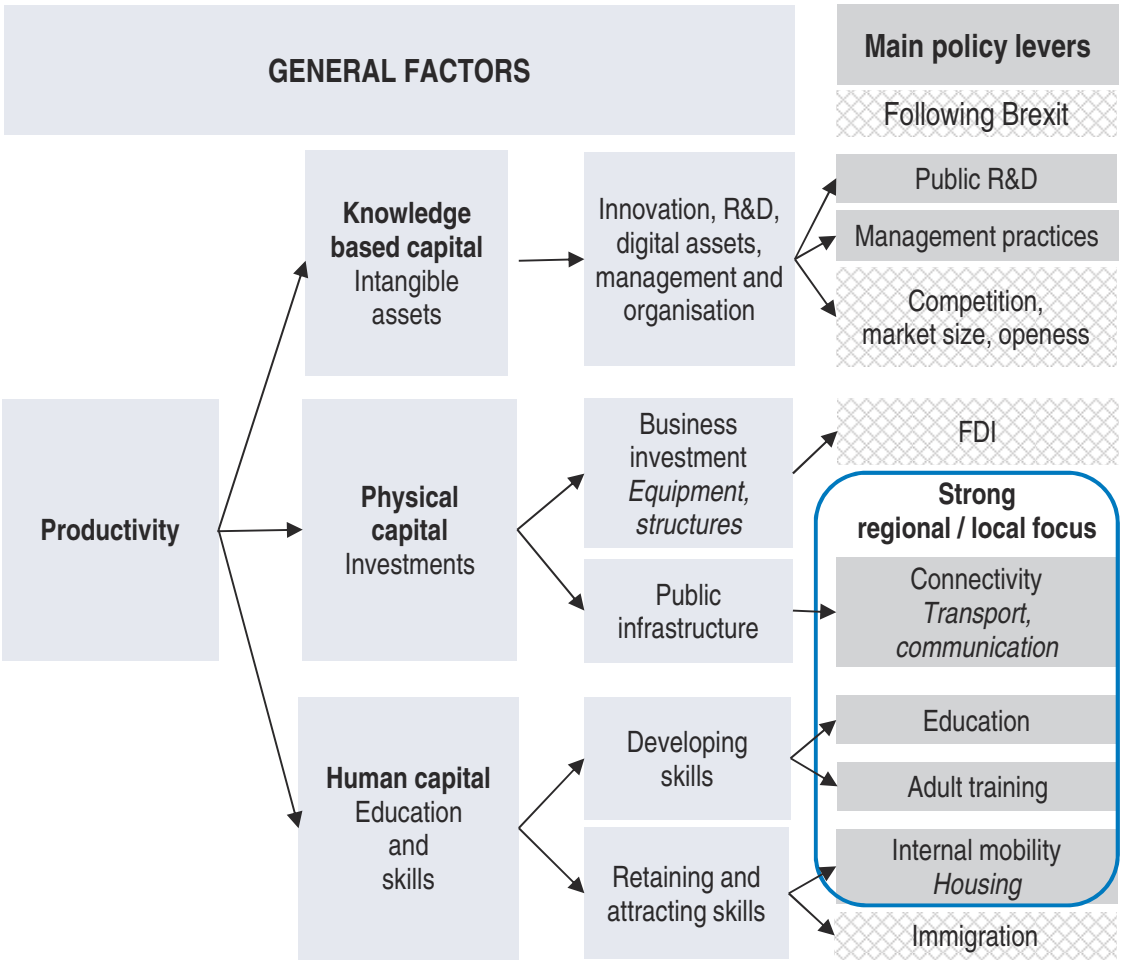
Given shortcomings of the transport infrastructure in many lagging regions, improving connections between and within cities is a key priority. As transport investment alone is unlikely to improve productivity, it needs to be accompanied by policies to make these

Figure 1.10. **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.

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.

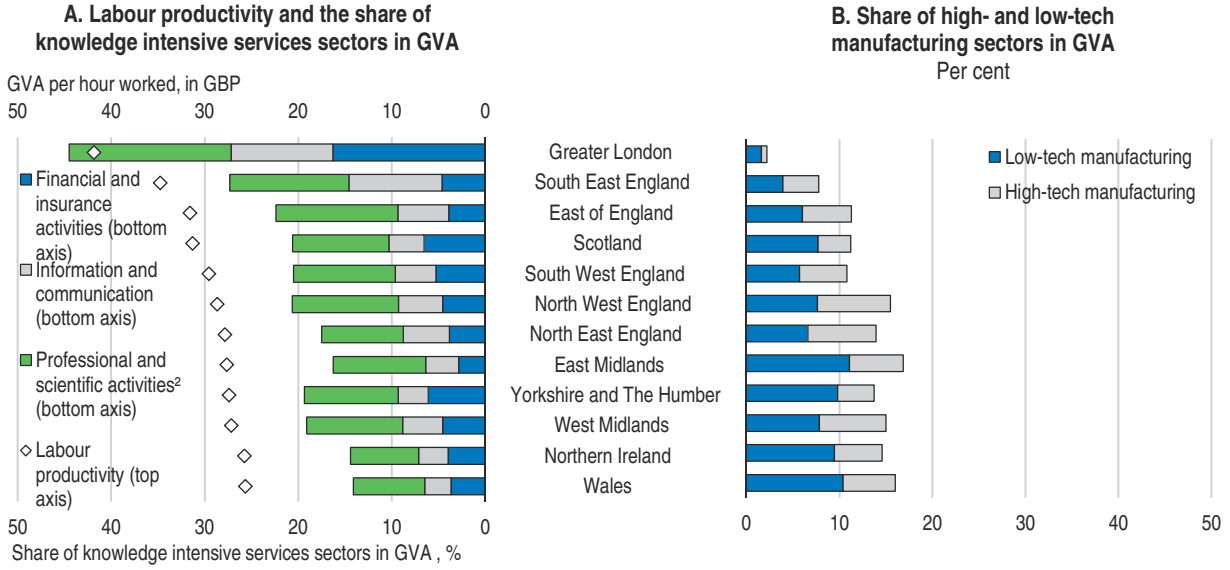
Additional potentially relevant policy areas can emerge depending on the exit conditions from the European Union (Brexit). A lower openness for goods, services, capital and labour relative to the present situation would weaken domestic competition for importers, reduce the market size for exporters,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

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 1.11). Knowledge intensive services in the densely populated South benefit from strong agglomeration effects, as reflected in particularly high productivity (Figure 1.8) and concentration (Figure 1.11). 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 1.11. **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.

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

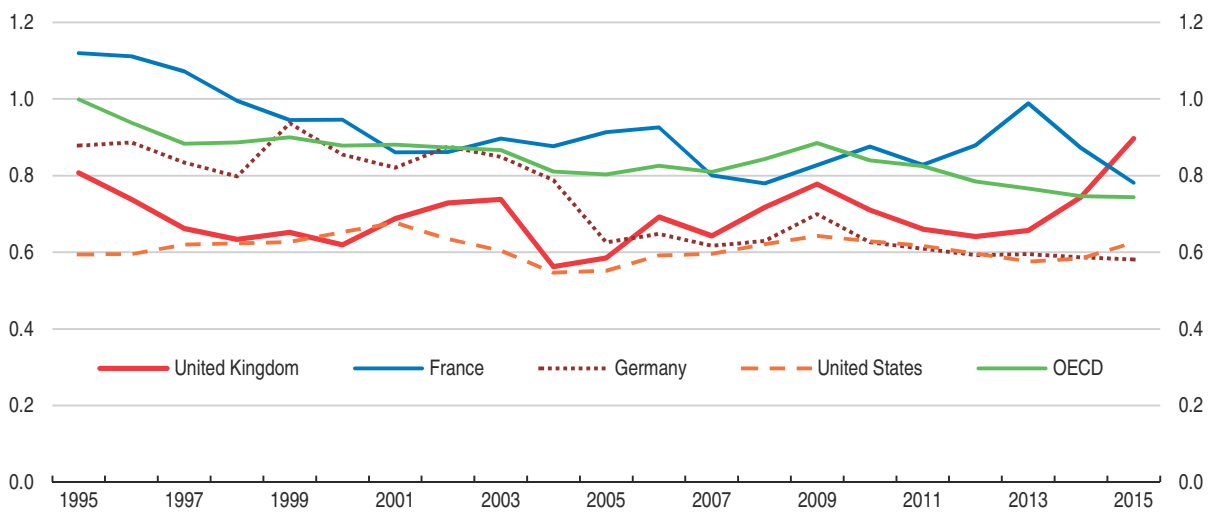
Facilitating the diffusion of knowledge and the best business practices from the top performers to other firms can boost productivity (Andrews et al., 2016). Geographical proximity stands out as a key factor helping this diffusion, which stresses the importance of enhancing connectivity through appropriate 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* (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 1.12). 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.

Figure 1.12. **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.

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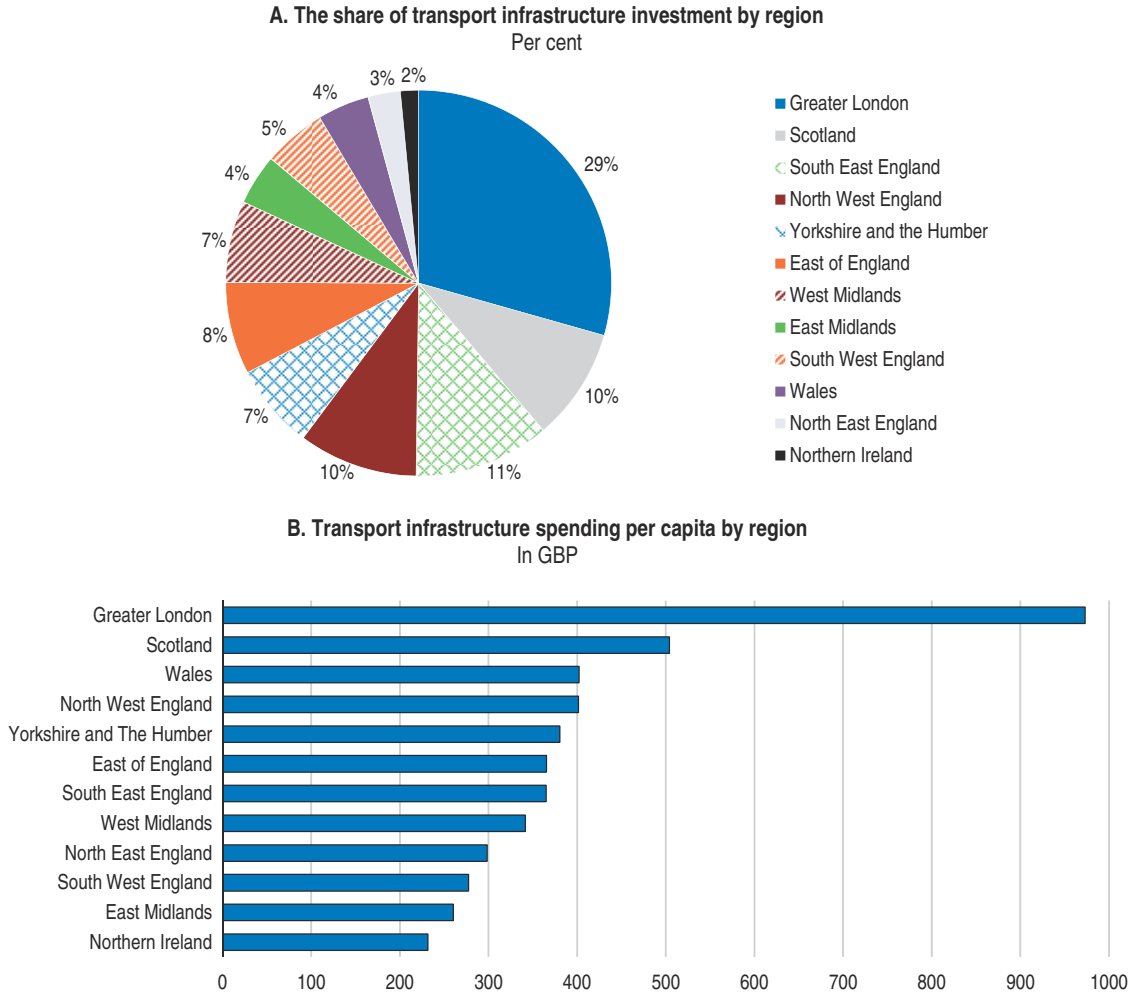
Transport infrastructure investment is low outside London and the South of England (Figure 1.13). Where public investment is involved, nearly 30% of all transport infrastructure spending takes place in London (with the majority of spending by the local government body Transport for London). A similar 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

Figure 1.13. **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.

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less densely populated areas. However, transport connectivity could also drive agglomeration patterns and thus can contribute to the emergence of economic hubs.

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.

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.

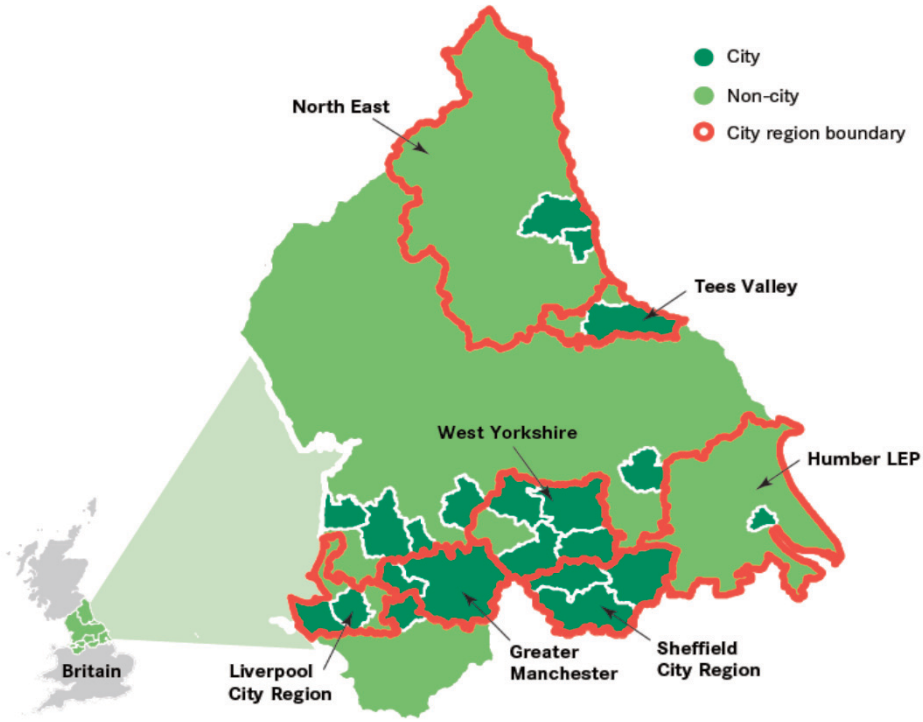
The IPA is in charge of producing a National Infrastructure Delivery Plan (NIDP) every five years, which sets out the government's highest priority infrastructure plans across all infrastructure sectors. In 2016, housing and social infrastructure were added to the NIDP, which is a welcome step insofar 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 1.14).

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).

Figure 1.14. **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 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.

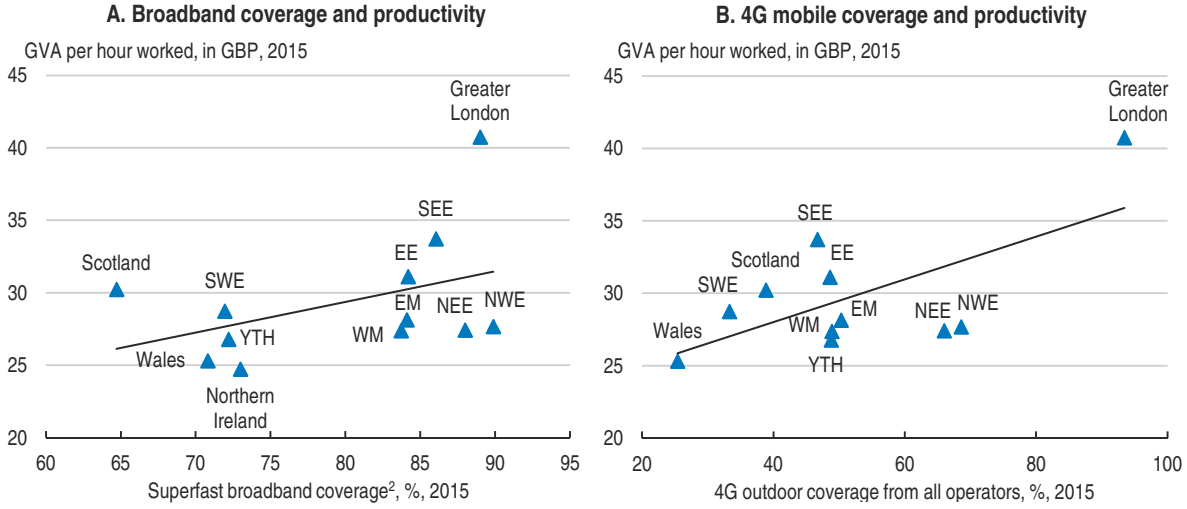
Such infrastructure investment efforts need to be considered in the context of maximising the benefits from currently planned investments. An urban perspective on transport infrastructure planning can help achieve this goal. The scale of investment needs implies that the plans will have to be delivered 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 1.15), 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

Figure 1.15. **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.

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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).

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 1.10). 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).

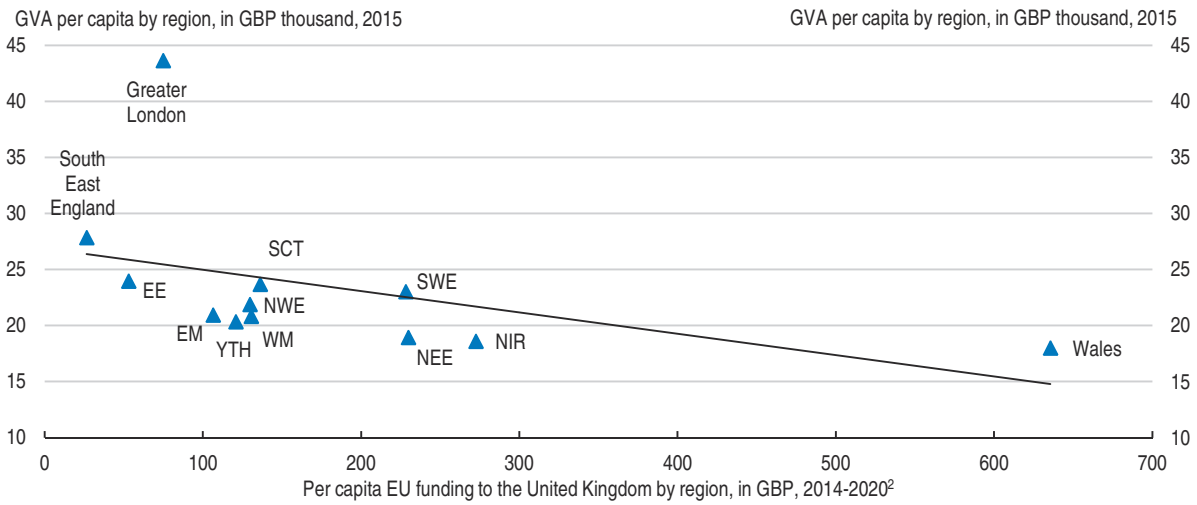
Beyond the focus on specific policy areas, an additional important dimension of the industrial strategy is on regions: it aims to drive growth across the country and to ensure more widespread prosperity throughout the country by continuing devolution to cities outside London. The focus on cities is welcome 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 1.8); *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 1.11). 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 (Chapter 2).

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 1.16). 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 1.16. **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.

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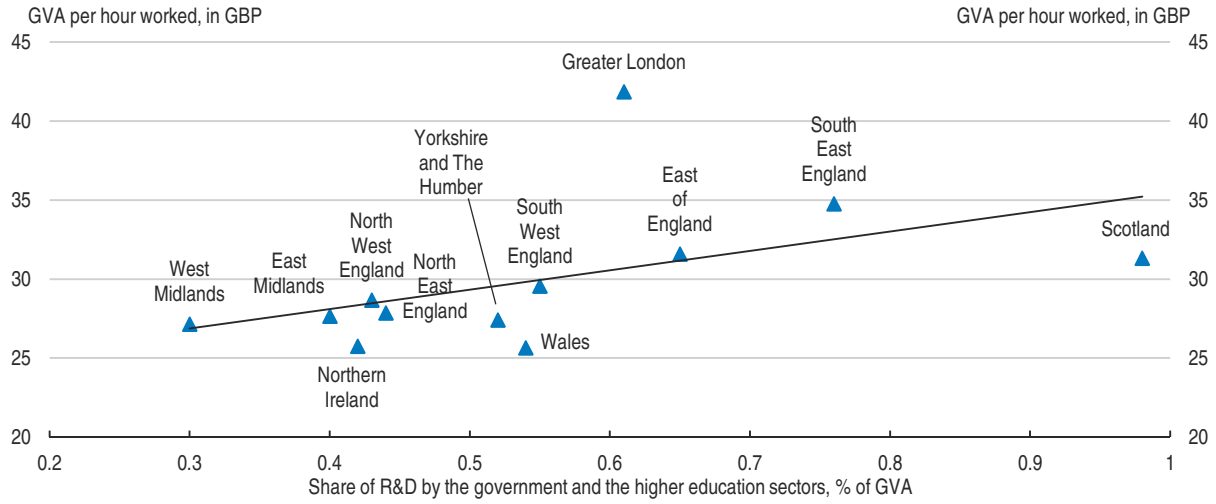
Stepping up innovation and R&D support

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 1.17). 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.

Figure 1.17. **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.

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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 1.11).

Relaxing financial constraints which hold back resource reallocation

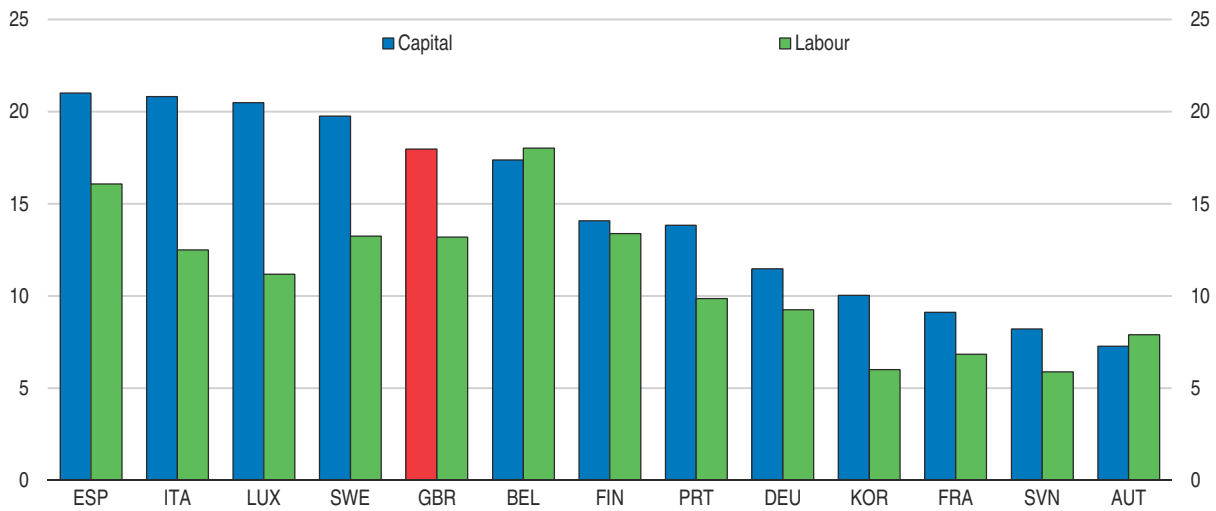
A healthy and dynamic economy requires intensive reallocation of resources from less to more productive firms, and from declining to thriving sectors. This is especially true in the aftermath of a large turbulence, such as the financial crisis. The United Kingdom does

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 1.11). 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 1.18), 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 1.11).

Figure 1.18. **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.

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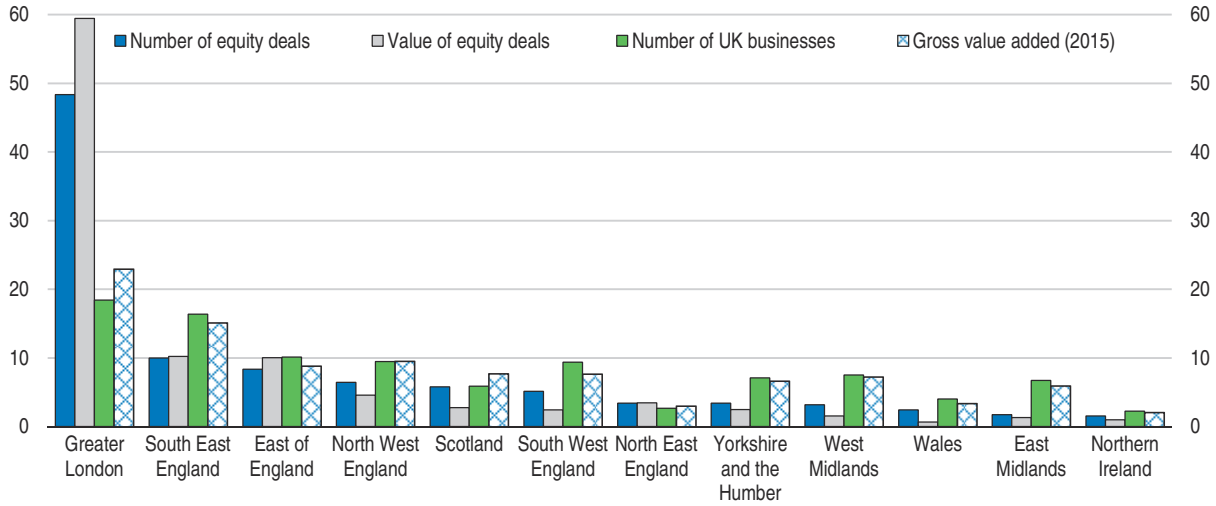
There is a strong concentration of successful, fast-growing start-ups in the South East, which is underpinned by buoyant small business finance both through credit and equity (British Business Bank, 2016). However, the fact that private equity finance is disproportionately concentrated in London can suggest an inadequate supply of or a lack

of interest in such forms of finance outside the capital (Figure 1.19). 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 1.19. **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.

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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).

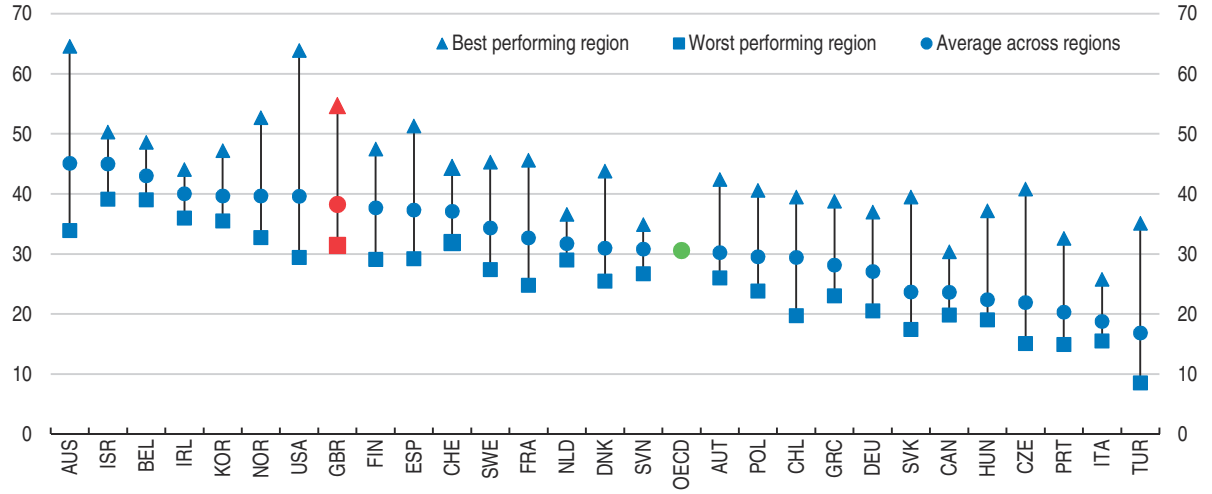
Making lagging regions more attractive for skilled workers

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 1.20). 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.

Figure 1.20. **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.

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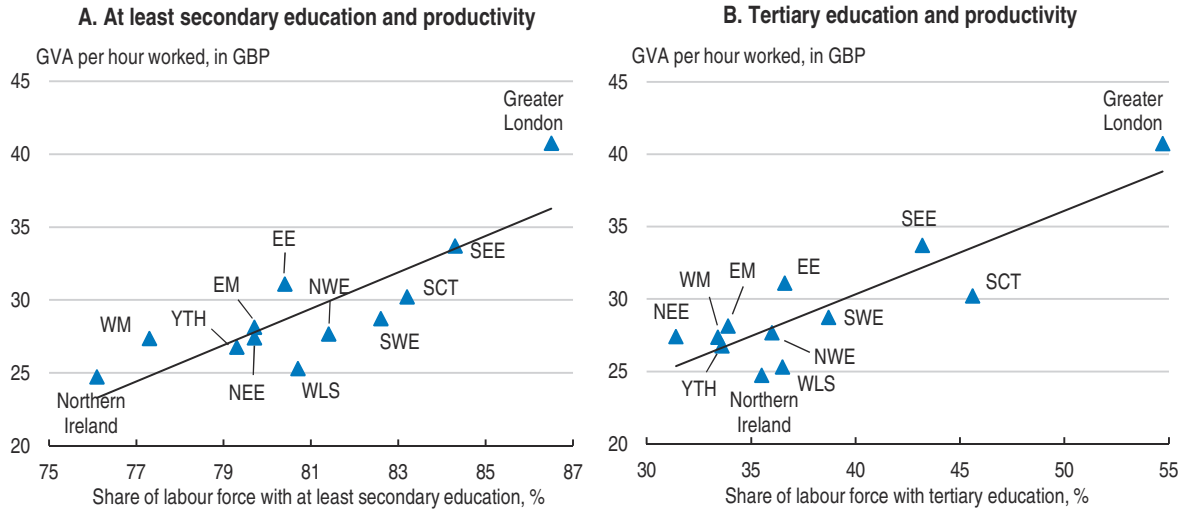
There is a strong positive relationship between productivity and education levels across UK regions (Figure 1.21). The least (Northern Ireland) and most (Greater London) productive regions are respectively those with the lowest and the highest levels of educational attainment. This relationship holds 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).

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

Figure 1.21. **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.

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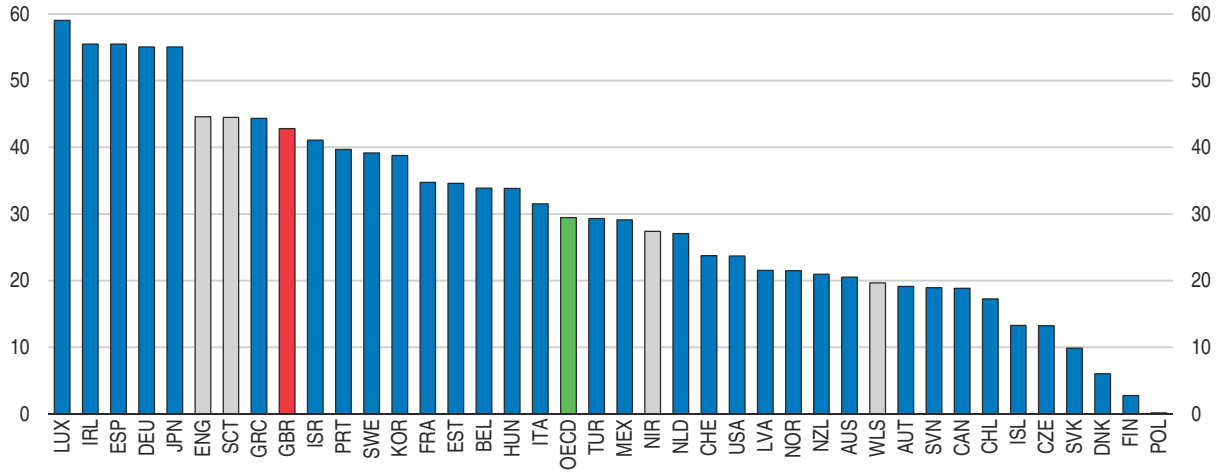
stakeholders – local municipalities, business and trade union representatives – in less developed regions. Importantly, it is not only the geographic differences in sector composition that matter, but also the local and regional availability of desired occupational types within those sectors. Put differently, 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 (Chapter 2). 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 1.22), 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 (Chapter 2). 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 (Chapter 2).

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

Figure 1.22. **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*.

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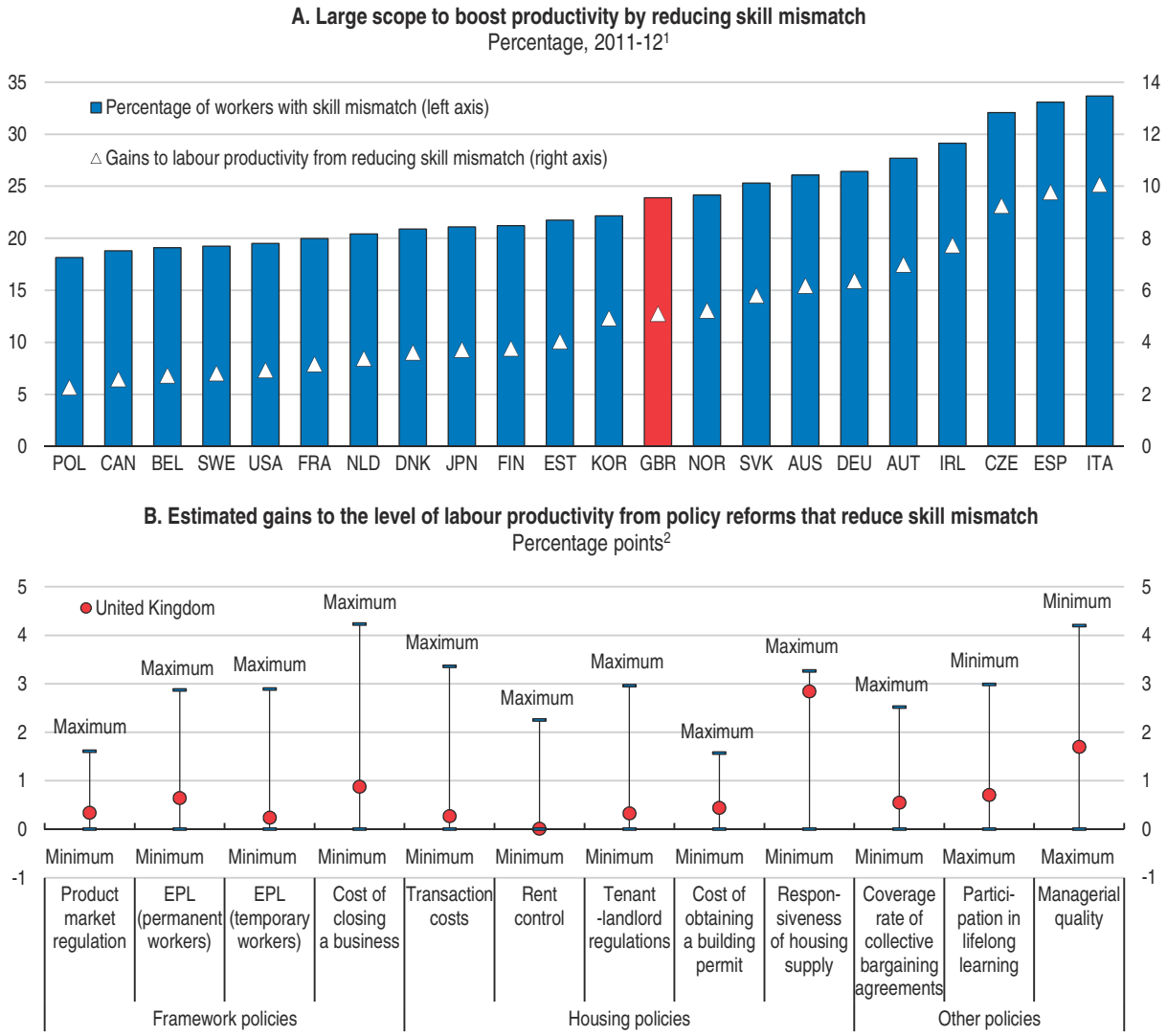
system (see Chapter 2). It is also a welcome step that with more devolution to local levels, the adult education budget will be assigned to mayors. This is in line with the desire of local councils and businesses who specifically would like to gain more autonomy in setting up technical academies and 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 1.23, 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 1.23, 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

Figure 1.23. **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.

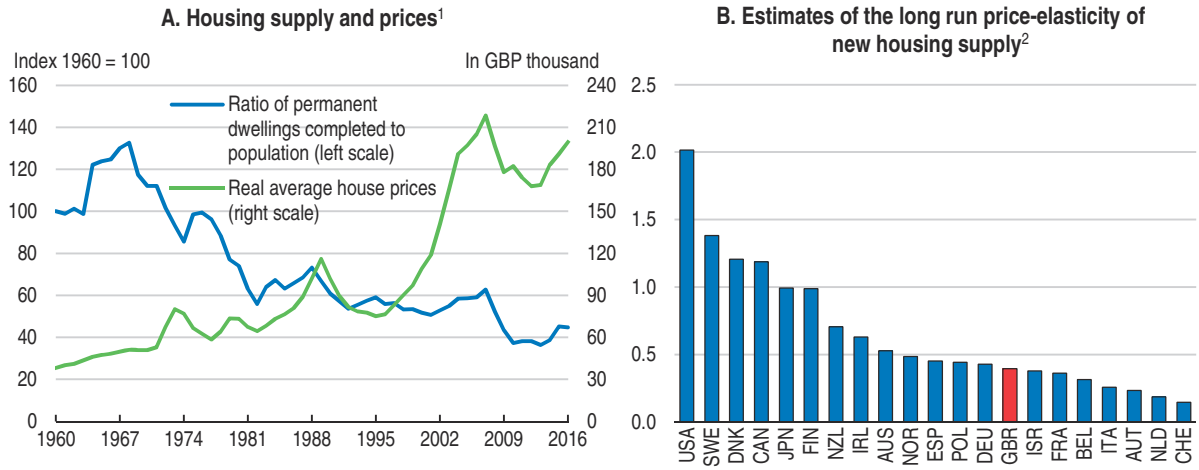
Source: Adalet McGowan, M. and D. Andrews (2015), "Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data", *OECD Economics Department Working Papers*, No. 1209, OECD Publishing, Paris and Adalet McGowan, M. and D. Andrews (2015), "Skill Mismatch and Public Policy in OECD Countries",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

StatLink http://dx.doi.org/10.1787/888933601721

Johansson, 2011 and Figure 1.24). 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

Figure 1.24. **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.

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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 1.7), 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.

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).

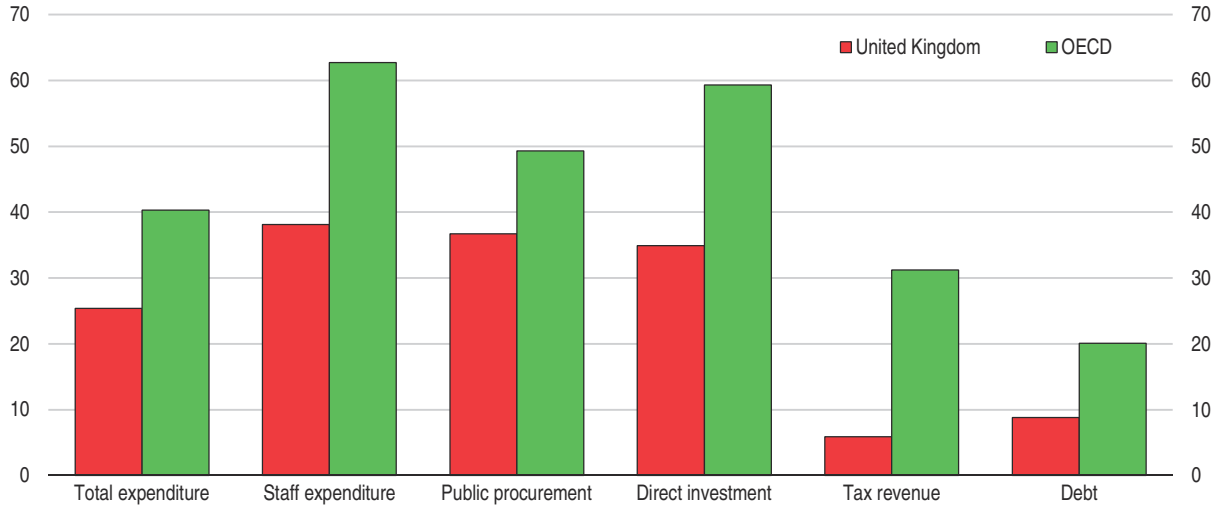
There are further indirect effects of decentralisation on business sector productivity. By fostering education and health care productivity, higher public sector productivity leads to spillovers to business sector productivity through enhanced quality human capital. This is in line with recent experience 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 1.25). The devolved administrations of Wales, Scotland and Northern Ireland have a relatively high degree of autonomy in most areas of government (Box 1.2), but together they represent a relatively small percentage of the total population

Figure 1.25. **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.

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Box 1.2. **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 1.1 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. 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

Box 1.2. **Comparing the extent of devolution across the United Kingdom** *(cont.)*

Table 1.1. **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)

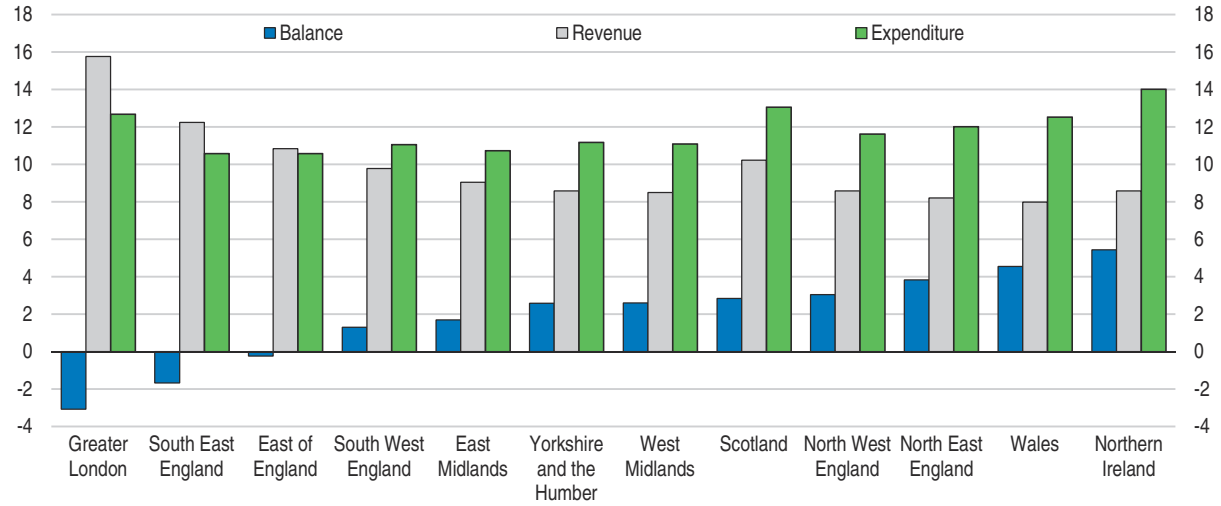
Source: Adapted from Harding and Nevind (2015), devolution agreements and consultations with the UK government.

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).

(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

Figure 1.26. **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.

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than the United Kingdom, along with smaller regional differences in productivity (Blöchliger et al., 2013, 2016).

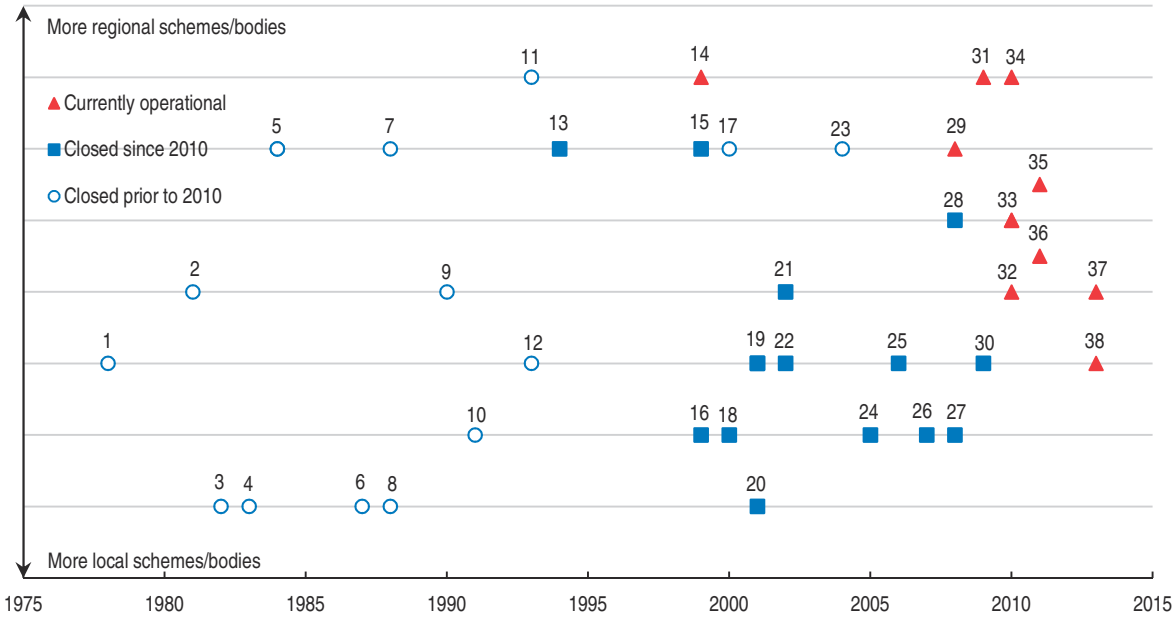
To address regional disparities in economic performance and incomes, there is substantial redistribution across the UK regions going from the more productive southern regions of England to the rest of the country (Figure 1.26; Overman, 2017). As a result, expenditure levels per person in the regions 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.

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 1.27). 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

Figure 1.27. **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 Pilot
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.

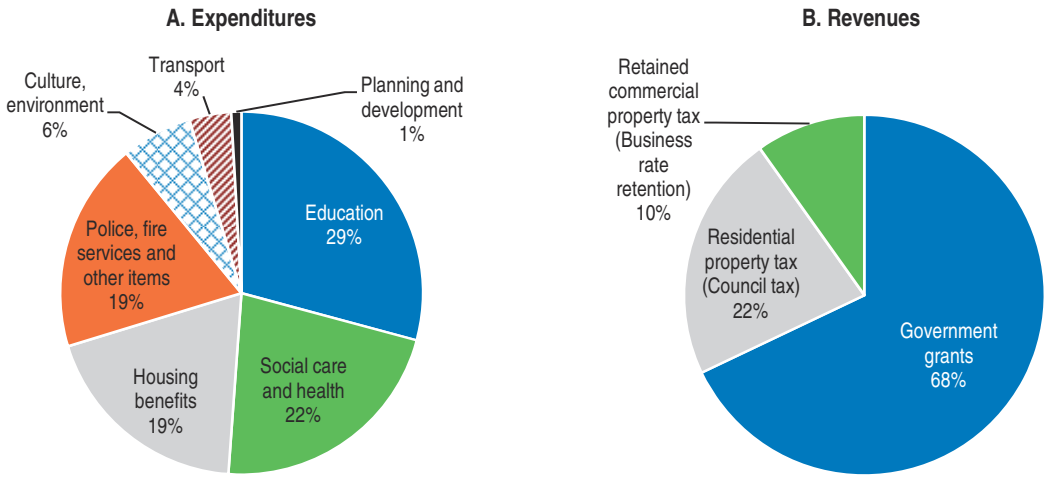
devolution to local levels occurs primarily in England (see below), and to some extent also in the devolved administrations. In parallel, more fiscal autonomy is assigned to local levels since around 2010 (Smith et al., 2016). However, the degree of devolution involved in the majority of deals has been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

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 2.2), 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 1.28). 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 1.2).

Figure 1.28. **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.

StatLink http://dx.doi.org/10.1787/888933601303

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 1.6 and 1.7), 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-à-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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Chapter 2

Improving productivity and job quality of low-skilled workers

More than a quarter of adults in the United Kingdom have low basic skills, which has a negative impact on career prospects, job quality and productivity growth. Furthermore, unlike most other countries, young adults do not have stronger basic skills than the generation approaching retirement. The lack of skills development starts at young ages and continues in secondary education; despite a modest reduction in recent years, the educational attainment gap between disadvantaged and non-disadvantaged students remains high. The low participation in lifelong learning of low-skilled individuals puts them at risk of falling behind in meeting the changing skill demands of the dynamic labour market. Ongoing reforms to the vocational education and training (VET) system and apprenticeship system should have a positive impact on low-skilled productivity, enabling students to gain the necessary basic skills and for workers to find quality jobs. Improving the targeting of active labour market policies, and ensuring that the ongoing increases in the national living wage are delivered in a sustainable way will also play an important role in improving job quality and reducing the high rate of youth neither employed or in education or training. Policy responses to the rise of non-standard work will also be essential in improving the job quality of the low-skilled.

Low skills in the United Kingdom

The share of low-skilled people is comparatively high

This chapter analyses how job quality and productivity of low-skilled workers can be improved. After assessing challenges faced by the low-skilled worker in the United Kingdom, it first looks at how competencies at the bottom of the skill distribution can be strengthened through education and training. It then looks at ways to make low-skilled workers more productive by reducing skill mismatches and improving labour mobility. Finally, it considers the role of labour market institutions in setting proper incentives for the low-skilled to work and for employers to provide jobs of good quality.

The low-skilled are a diverse group and can be defined using different overlapping dimensions, including lower assessed proficiencies, lower educational attainment, or based on occupational or industry classifications. According to the World Indicators of Skills for Employment (WISE) data, which define low-skilled workers as those with a low educational attainment, more than half of low-skilled individuals in the United Kingdom were employed in 2014 and their unemployment rate was slightly above 10% compared to 7% for medium-skilled and around 3% for high-skilled individuals. About a quarter of low-skilled workers are first generation immigrants. Low-skilled workers are relatively concentrated in the Midlands and northern England as opposed to southern England (OECD, 2015a), mimicking the large differences in productivity across regions (Chapter 1).

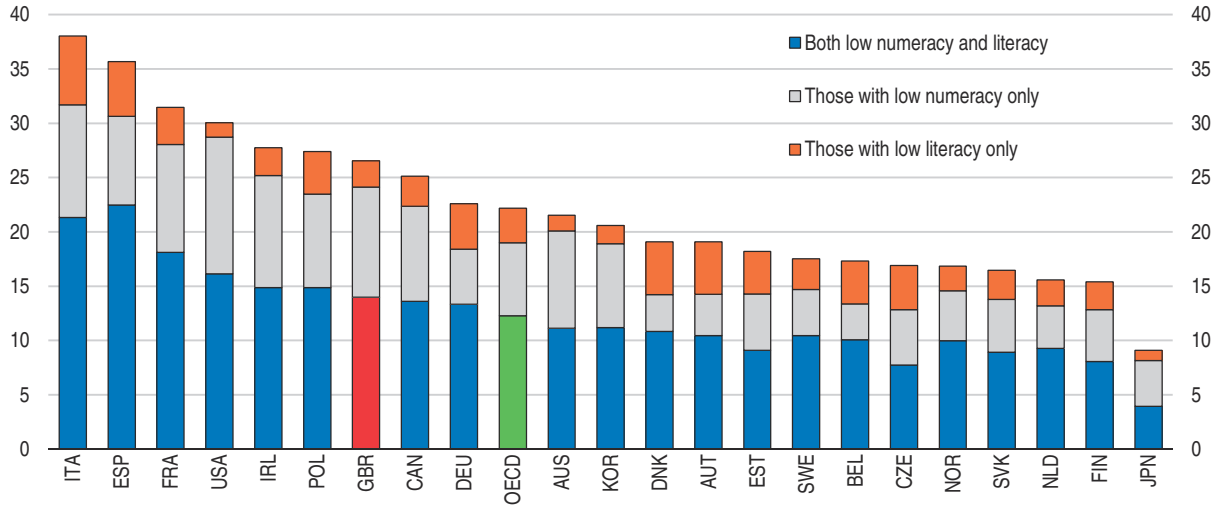
More than a quarter of workers in England and Northern Ireland have low basic numeracy and literary skills as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC), which is more than in most other OECD countries (Figure 2.1, Box 2.1). In England, around 5 million people do weakly in both domains (OECD, 2016a). In particular, the performance for numeracy is low relative to other OECD countries, but even for literacy it is just average. Excluding migrants does not significantly affect the relative UK performance: although migrants in the United Kingdom have weaker literacy and numeracy skills than native-born, their proficiency is comparable to that of migrants in other countries.

The percentage of young people with weak basic skills is particularly high in the United Kingdom. Almost 30% of 16-24 year-olds has weak skills, which is three times higher than in the best performing countries (Figure 2.2). Moreover, while in most countries young adults have stronger basic skills than the generation approaching retirement, this is not the case in the United Kingdom. Contrary to other countries the rising educational attainment during the last decades has thus not resulted in stronger basic skills.

Low-skilled people, based on low literacy skill levels, are about twice as likely to be unemployed than those with higher skill levels (OECD, 2013a), with the unemployed also losing the possibility to maintain and develop their skills on the job. Disability is also more common among low-skilled adults, with around 7% of them reporting to be permanently disabled. Apart from the lack of employment opportunities, a lack of information-processing skills could also be a major obstacle to full participation in modern societies

Figure 2.1. **Over 25% of working aged adults have low basic skills in the United Kingdom**

As a percentage of all adults aged between 16 and 65, 2012[1]



1. Low-skilled are defined as those who are below level 2 on either literacy or numeracy as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Low-skilled adults struggle with basic quantitative reasoning or have difficulty with simple written information. Data for Belgium refers to Flanders. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland. The OECD aggregate is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills.

Source: OECD (2016), "Building Skills for All: A Review of England", *OECD Skills Studies*.

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Box 2.1. **What does it mean to have low skills?**

The OECD Survey of Adult Skills, which is part of the Programme for the International Assessment of Adult Competencies (PIAAC), assesses the proficiency of adults in literacy, numeracy and problem solving in technology rich environments. These skills are "key information-processing competencies" that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life.

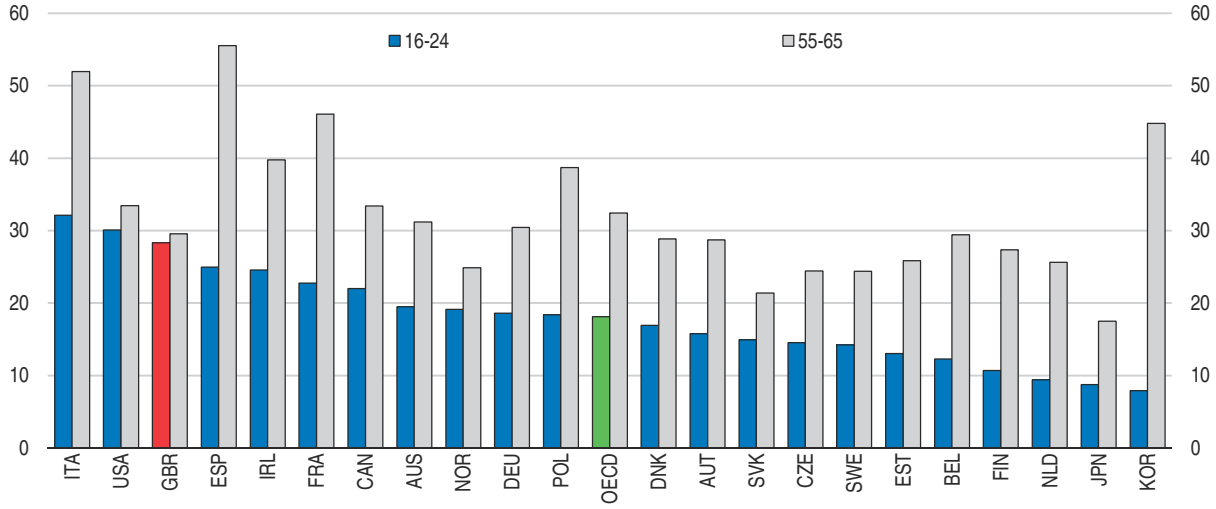
In PIAAC, "low-skilled" people are categorised as those with literacy or numeracy proficiency at level 2 or below (recognising that some will have good occupational skills and others will have strong basic skills in a language other than English). These people struggle with basic quantitative reasoning or have difficulty with simple written information, for example estimating how much petrol is left in the petrol tank from a sight of the gauge, or fully understanding the instructions on a bottle of aspirin. Constructing meaning across larger chunks of text or performing multi-step operations in order to identify and formulate responses is often too challenging, as is understanding numerical information that is embedded in non-familiar contexts.

The third domain surveyed by PIAAC regards skills related to problem solving in technology rich environments. It gauges a person's capacity to use ICT devices and applications to solve the types of problems adults commonly face as ICT users in modern societies. Although these skills are highly relevant at work and in private life, methodological issues related to limited proficiency among the low-skilled in the use of computers make this domain unsuitable to identify adults with low skills and to compare their performance across countries.

Sources: OECD (2016), *Building skills for all: A review of England*, OECD Skills Studies, OECD Publishing, Paris; OECD (2016), *Skills Matter: Further Results from the Survey of Adult Skills*, OECD Skills Studies, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264258051-en*.

Figure 2.2. **Young adults have weak basic skills and perform no better than older cohorts**

Percentage of adults with low skills in different age groups, 2012[1]



1. Low-skilled are defined as those who are below level 2 on either literacy or numeracy as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Low-skilled adults struggle with basic quantitative reasoning or have difficulty with simple written information. Data for Belgium refers to Flanders. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland. The OECD aggregate is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills.

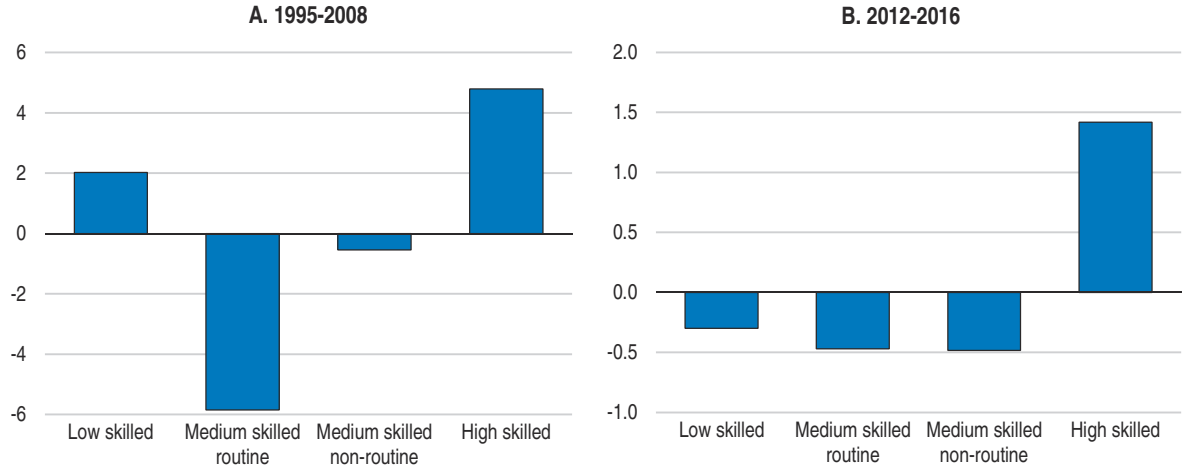
Source: OECD (2016), "Building Skills for All: A Review of England", *OECD Skills Studies*.

StatLink *http://dx.doi.org/10.1787/888933601778*

and could even lead to social and economic exclusion and marginalisation (OECD, 2016b). These difficulties will increase over time in the United Kingdom as the percentage of low-skilled jobs is declining, although not as much as medium-skilled routine jobs (Figure 2.3).

Figure 2.3. **Job polarisation in the United Kingdom**

Change in employment shares by occupation category, percentage points[1]



1. Refers to population aged between 15 and 64. High skilled occupations include managers, professionals, technicians and associate professionals. Medium skilled non-routine occupations include service and sales workers and craft and related trades workers. Medium skilled routine occupations include clerical support workers, skilled agricultural, forestry and fishery workers and plant and machine operators and assemblers. There is a structural break in the data due to change in classification in 2010/11. ISCO-08 classification 1-digit level.

Source: Eurostat (2017), "Employment and unemployment (Labour Force Survey)", *Eurostat Database*, May.

StatLink *http://dx.doi.org/10.1787/888933601797*

The percentage of low-skilled jobs are expected to decline steadily in coming years with some estimates suggesting that only 10% of the job opportunities in the next decade will require low qualifications (CEDEFOP, 2015).

Weak skills hurt productivity and job quality

The skills proficiencies of workers, and how these skills are utilised, play an important role in influencing productivity growth. Workers that possess only low skills tend to have a limited contribution to aggregate productivity growth. In fact, low-skilled workers are estimated to have made a negative contribution to UK productivity growth in the three decades ending in 2007, with most of the growth coming from higher-skilled workers (Mason et al., 2014).

Importantly, individuals who possess low skills, and who have fewer opportunities to improve these skills, are limited in the possibility of achieving upward social and income mobility throughout their lives, as the United Kingdom is one of the weakest performers in intergenerational social mobility with one of the highest levels of intergenerational earnings persistence in the OECD (OECD, 2010). In fact, those born in the 1980s are the first post-world war UK cohort to not start their working careers with higher real incomes than their immediate predecessors (SMC, 2016). Higher-paying and higher-skilled jobs continue to be filled by those from privileged backgrounds: workers from working-class backgrounds currently account for only 4% of doctors and 6% of barristers (SMC, 2016).

Low-skilled individuals who work, often have jobs of low quality, with lower wage and job security than is the case with higher-skilled workers. The United Kingdom ranks as a near average performer in the different aspects of job quality amongst OECD countries (Figure 2.2; OECD, 2016c). Weak real wages over recent years have occurred across the wage distribution, but have made it much harder to make ends meet for an increasing number of workers at the lower end. Estimates on the percentage of employees with incomes below a threshold based on the independently estimated UK Living wage rates, prior to the introduction of the National Living Wage in 2016, increased from 15% to 23% during 2010-15 (Clarke and D'Arcy, 2016). Furthermore, it is estimated that 30% of households now have incomes below the minimum level needed to afford a basic basket of goods and services (Padley et al., 2017).

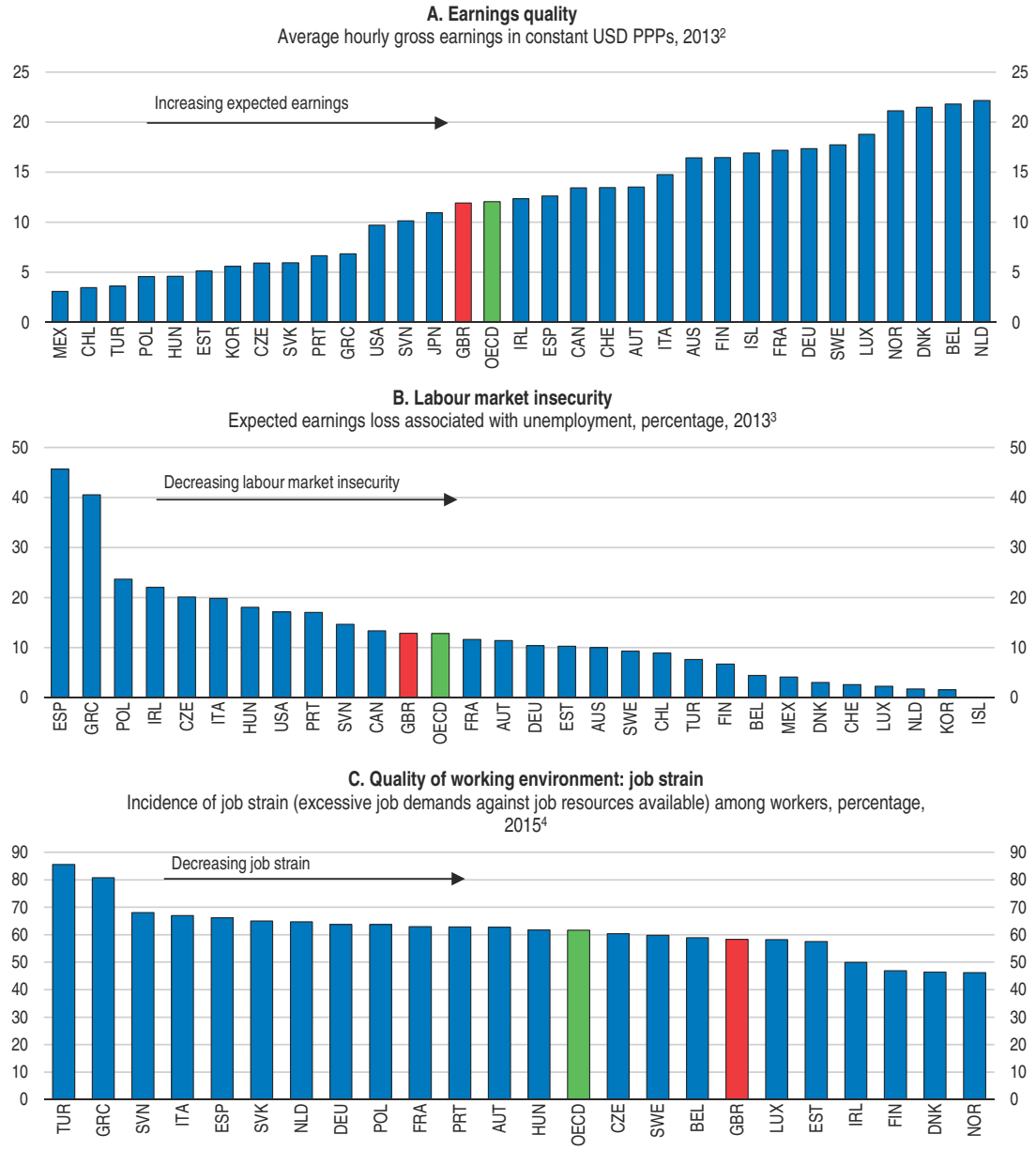
Low-skilled workers also have relatively low earnings compared to their peers in other G7 countries, although only slightly below the OECD average (Figure 2.4). Strengthening skills is thus an important way to reach better jobs and productivity, particularly given that the United Kingdom is one of the countries where the effect of higher skills proficiency on earnings is large (OECD, 2016b).

Developing the full skill potential

Developing one's skills potential fully is a continuous process that starts at a young age and includes formal education and lifelong learning. Leaving the education system with strong basic skills helps finding a higher quality first job, which in turn has a positive long-run impact on employment outcomes (OECD, 2016a). Nevertheless, 12% of young people in the United Kingdom left formal education while possessing only low-level qualifications in 2013, which is above the EU 2020-benchmark of 10% (CEDEFOP, 2014).

Strengthening basic skills of students requires action throughout the entire education system. Early childhood, primary and secondary education should primarily be focused on

Figure 2.4. **Overall job quality in the United Kingdom is near the OECD average**[1]



1. The OECD aggregate is calculated as an unweighted average of the data shown.
2. 2012 for Australia, France, Italy, Korea, Poland, Mexico, Spain, Sweden and Switzerland. 2011 for Chile. 2010 for Estonia, Luxembourg, the Netherlands, Slovenia and Turkey. "Earnings quality" consists of average earnings and earnings inequality. "Average earnings" is defined as average gross hourly wages per worker in constant 2013 USD PPPs (purchasing power parities). "Earnings inequality" is calculated using the Atkinson index, a weighted average of individual earnings which allows focusing on specific parts of the distribution depending on the inequality aversion parameter (Atkinson, 1970; Foster et al., 2013).
3. 2012 for Australia, Korea, Mexico, the Netherlands, Turkey and the United States. 2011 for Chile. "Labour market insecurity" consists of unemployment risk and unemployment insurance. "Unemployment risk" is defined as the proportion of time that a worker is expected to spend on average in unemployment and calculated by the monthly probability of becoming unemployed multiplied by the average expected duration of unemployment spells in months. "Unemployment insurance" is measured by the coverage of the unemployment insurance and replacement rates of public transfers received by the unemployed.
4. 2010 for Norway and Turkey. "Quality of the working environment" is measured by job strain – discrepancy between job demands and job resources to accomplish tasks. Two types of job demands are considered: i) time pressure and ii) physical health risk factors. Two types of job resources are considered: i) work autonomy and learning opportunities and ii) workplace relationships. "Job strain" refers to those jobs where the workers face one demand but have no resources or fact two demands but have one or no resource.

Source: OECD (2017), "Job quality", *OECD Employment and Labour Market Statistics* (database), May.

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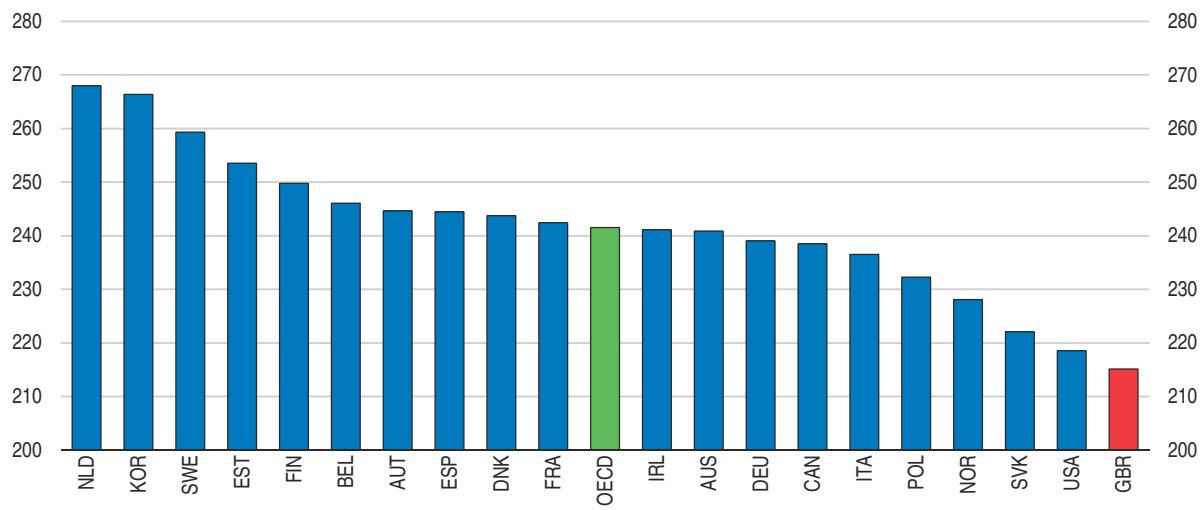
ensuring that all students gain at least the minimum level of basic skills needed to properly function in a modern society. Given the high proportion of individuals with low basic skills, this is an area that needs improvement. Following the completion of formal education and once in the labour market, continuous investment in skills is needed to ensure that workers, especially the low-skilled, are keeping up-to-date with changing technologies and business practices. This will also help to close the productivity gap between the United Kingdom and its peers. Supporting individuals to fully develop their skills would also help to improve social mobility.

Not all children have the same opportunities

Family background has a relatively large effect on basic skills, highlighting the need to increase equity of the education system in order to provide equal chances to all children. Family background is more important for a person's skill level in the United Kingdom, considering that young people whose parents have a low level of educational attainment have significantly weaker basic skills than in all other surveyed countries (Figure 2.5; OECD, 2016a). The education system has a key responsibility in ensuring that all children can fully develop their skill potential, but there is significant scope to increase its equity (see below).

Figure 2.5. **Basic skills of young people are strongly related to parental education**

Mean score point in numeracy for those individuals whose parents have not attained upper secondary education, aged 16-24, 2012[1]



1. Data for Belgium refers to Flanders. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland. The OECD aggregate is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC).

Source: OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*.

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Rising child poverty threatens to increase the number of children whose disadvantaged backgrounds negatively affects their chances. Child poverty fell steadily in the early 2000s, but has been broadly stable since 2010, and the government's child poverty target of fewer than 10% of children living in households with net income below 60% of median income by 2020 is likely to be missed by a large margin (Browne and Hood, 2016; Reed and Portes, 2014). The latest projections even see relative child poverty rising from 29% in 2015-16 to 36% in 2021-22, undoing most of the falls since 1997-98 (Hood and Waters, 2016).

Increasing participation of disadvantaged children in early childhood education and care

Attending early childhood education and care (ECEC) from an early age onwards has been shown to have long-term beneficial effects in the United Kingdom, in particular for children with a less stimulating home-learning environment or whose parents have poor or no qualifications (Melhuish, 2013; Taggart et al., 2015). The positive effects extend beyond higher educational attainments, as risks of anti-social behaviour are also lower.

The quality of childcare is generally quite good in the United Kingdom, and has continued to improve in recent years. As of early 2017, over 90% of childcare facilities in England were judged "good" or "outstanding" in terms of their effectiveness in meeting the needs of children in their foundation years, up from 74% in 2012 (Ofsted, 2017). Furthermore, the assessed quality gap between facilities in the least deprived and most deprived areas has nearly closed. Staff qualifications have also been rising, despite pay remaining close to the National Minimum Wage (Simon et al., 2015). Despite the improvement in assessed quality of ECEC facilities, there has been only a limited reduction in the school readiness gap between children with disadvantaged backgrounds and non-disadvantaged backgrounds in recent years (SMC, 2017).

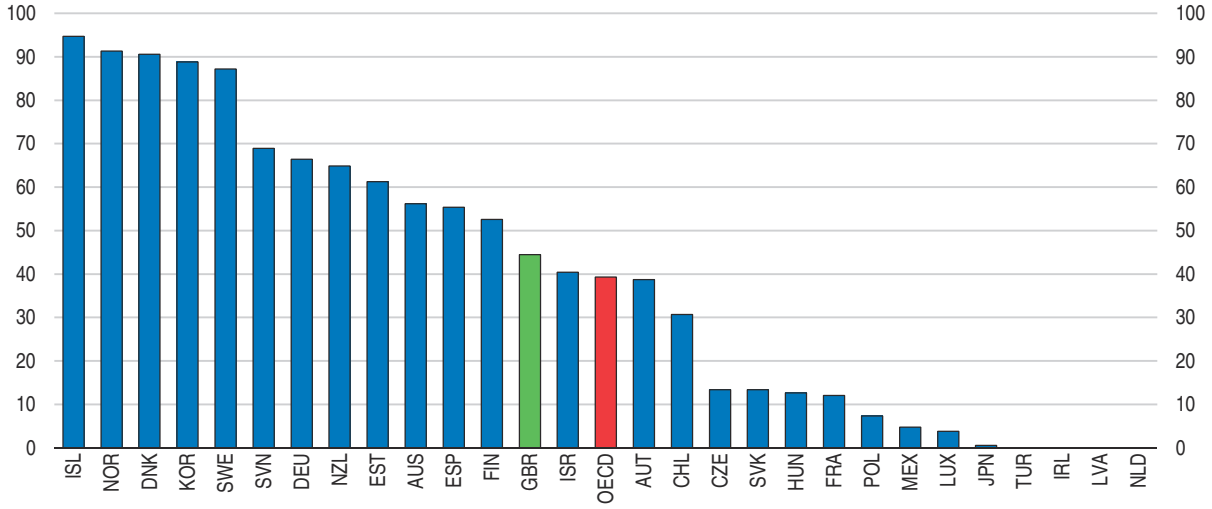
Participation in ECEC is nearly universal for 3- to 5-year-olds, but lower for younger children, although there has been a marked improvement in recent years. As of 2015, over 40% of 2-year-olds is enrolled in formal childcare and pre-schools, slightly higher than the OECD average and nearly twice as high as in the previous year (Figure 2.6). In all constituent countries of the United Kingdom, free part-time ECEC is available from age 3 onwards, with disadvantaged children, or those in disadvantaged areas, already eligible from age 2. The number of hours of free provision in England has doubled from 15 hours per week to 30 in September 2017 for eligible working parents, which should help to raise further the participation rates of young children. Despite the increase in provision of free childcare, and the newly introduced "tax-free" 20% deduction on ECEC costs, out-of-pocket ECEC expenses for working families with children aged 2-3 are likely to remain high (OECD, 2016d).

Having more young children with disadvantaged backgrounds participate in formal ECEC requires better information for parents and an adequate funding structure for childcare staff. Local municipalities are legally required to provide information to help parents find an appropriate place for their child, which is particularly useful for parents with lower literacy and numeracy skills. To address the lower take-up of the two year old benefit, the government should reduce compliance costs and raise awareness in local areas where participation is low.

Education and training could help ECEC institutions and staff to take into account the increasing cultural diversity in ECEC facilities (OECD, 2015b). Children with different mother tongues or low socio-economic backgrounds require specific attention. Mandated staff-to-children ratios are among the most advantageous in the OECD for children of age 2 and below at 1 member of staff for every 4 children, but are average for children aged 3 to 6 at 1 member of staff for every 13 children, although a higher ratio of 1 to 8 is required if no staff member has advanced level qualifications. Higher staff to child ratios would give staff more opportunities for individual and more targeted pedagogy, but is costly. Hence, investing in specific staff education and training, in particular by private providers in disadvantaged areas, would help to equip staff with the skills to work with young children from different backgrounds, which is especially important if they are responsible for large groups. The

Figure 2.6. **Fewer children attend formal early childhood education and care at the age of 2**

Percentage of children at the age of 2 enrolled in formal early childhood and pre-primary education, 2015[1]



1. Enrolment rates at young ages should be interpreted with care, as there are other forms of effective education available below the age of 3. Countries, for which data for either early childhood educational development programmes (ISCED 01) or pre-primary education (ISCED 02) is missing, are excluded.

Source: OECD (2017), *Education at a Glance 2017: OECD Indicators*.

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government could provide additional training incentives for ECEC staff through the new apprenticeship system, by increasing subsidies on targeted training (see below).

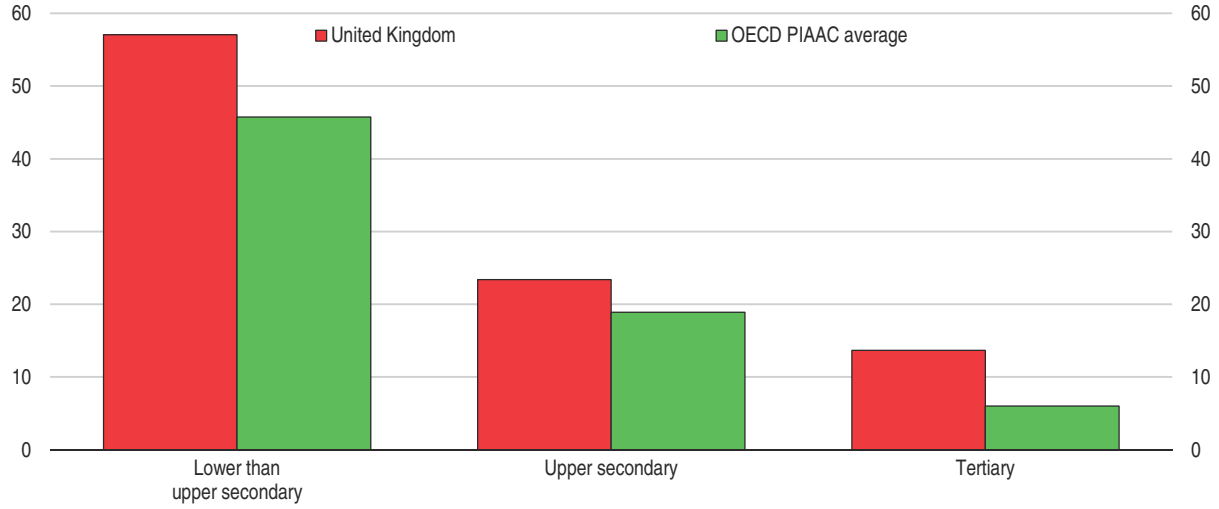
Strengthening the skills acquired in compulsory education

Differences between the educational attainment of disadvantaged and non-disadvantaged students have narrowed considerably within primary education. In the past decade, attainment gaps of 7 year olds have halved in reading and narrowed by one third in writing and maths (SMC, 2017; Ofsted, 2016a). Attainment gaps have also been reduced for 11 year olds, although the reduction has been more modest (DfE, 2016). The introduction of the pupil premium in 2011, which increases funding to individual schools based on the number of disadvantaged students they have, is deemed to have played an important role in narrowing these gaps (SMC, 2017). Unlike in primary schools however, there has been no progress in reducing attainment gaps in secondary education, with the differences in attainment between disadvantaged and advantaged students remaining broadly unchanged for over a decade, despite also benefitting from additional funding through the pupil premium programme (SMC, 2017). Given this lack of progress in improving education outcomes at the secondary level, particularly when compared to the improvement in primary education in recent years, the former will be the focus of this section.

Low skill outcomes throughout the secondary education system call for higher skills standards. For most low-skilled individuals, upper secondary education will be the final stage of formal education, and it is therefore important that students are equipped with a sufficient skill set that will put them on the right path to higher productivity work. In the United Kingdom, despite young people being more likely to continue education after age 16 than their parents, their skills remain weak. This reflects that within every level of qualification, a larger percentage of young people in the United Kingdom have low basic skills than in other countries (Figure 2.7). Furthermore, although the United Kingdom

Figure 2.7. **Low basic skills at every education level are more prevalent than the OECD average**

Percentage of young adults with low basic skills who have left formal education by highest qualification, 16-34 year-olds, 2012[1]



1. Low-skilled are defined as those who are below level 2 on either literacy or numeracy as measured by the Survey of Adult Skills of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). Low-skilled adults struggle with basic quantitative reasoning or have difficulty with simple written information. Lower than upper secondary includes ISCED 1, 2 and 3C short. Upper secondary includes ISCED 3A, 3B, 3C long and 4. Tertiary includes ISCED 5A, 5B and 6. Data for the United Kingdom are calculated as the population weighted average of the figures for England and Northern Ireland. The OECD PIAAC average is calculated as an unweighted average of 22 OECD countries (with the data for England and Northern Ireland combined by population weights) that participated in the first round of the Survey of Adult Skills.

Source: Calculations based on the PIAAC database.

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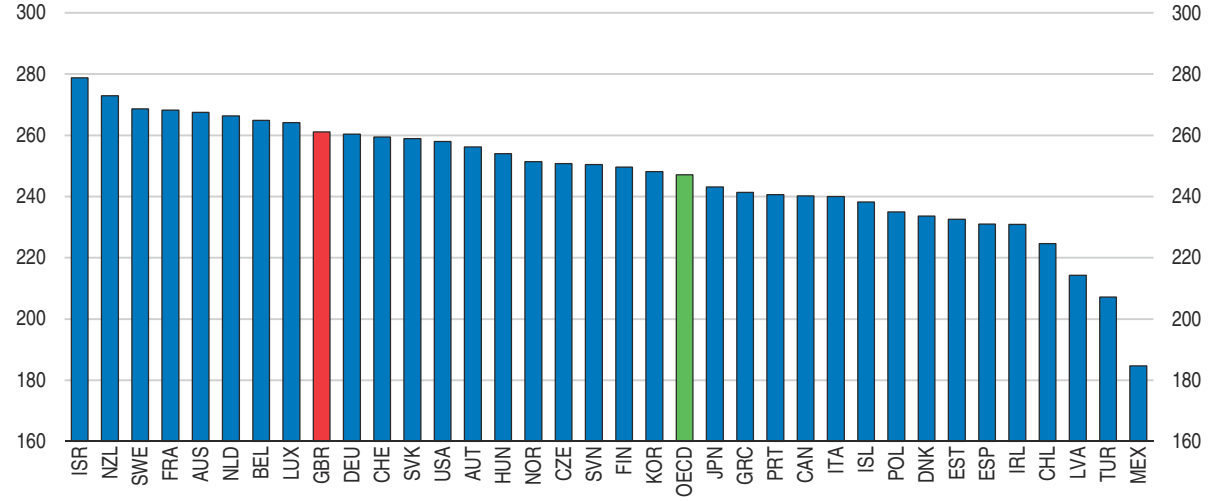
generally has a greater proportion of top-performing students than the OECD average according to the Programme for International Student Assessment (PISA) scores, the gap between the highest and lowest achieving students is high, particularly for science (Jerrim and Shure, 2016; Figure 2.8).

Figure 2.8. **Difference between the highest and lowest achievers in science is above the OECD average**

Difference between the 10th and 90th percentiles of PISA science scores, 2015



Source: OECD (2016), *PISA 2015 Results (Volume I): Excellence and Equity in Education.*

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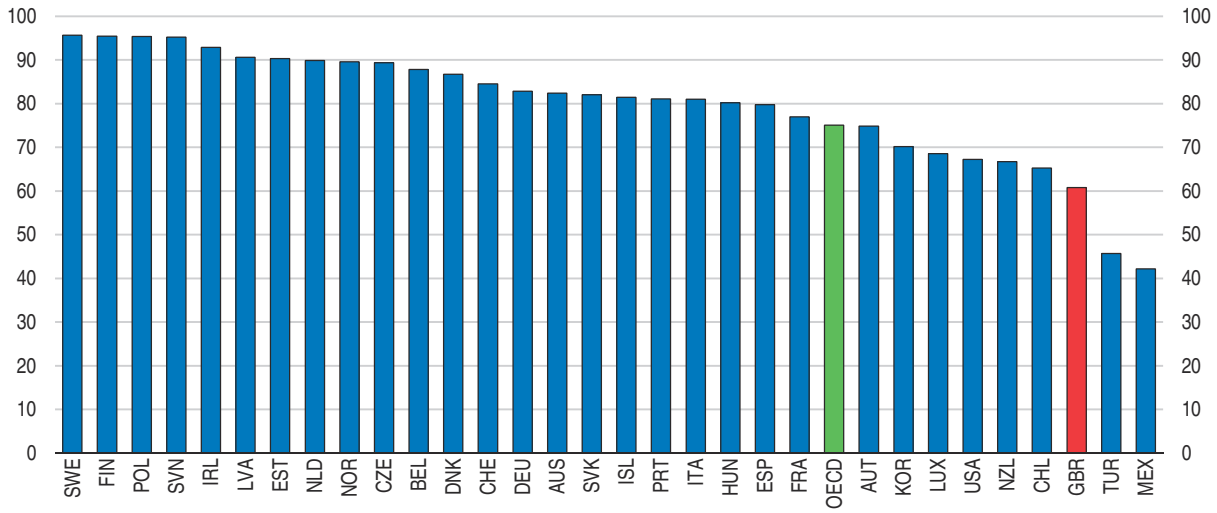
Raising participation in upper secondary education from its low level will also help to increase basic skill levels. Countries with higher participation rates typically have better basic skill levels (OECD, 2016a). Indeed, the United Kingdom is at the low end in both dimensions, as many young people currently in the labour force have weak skills and school participation has been relatively low. Almost all 16-year-olds and 17-year olds attended secondary education in 2015, but participation in secondary and post-secondary education at age 18 was around 60%, which is well below the OECD average (Figure 2.9). The English Education and Skills Act increased the compulsory age to 18 until which individuals must either be in full-time education, undertake vocational training or do an apprenticeship, which may be contributing to an increasing trend in 16 and 17 year old participation (DfE, 2017a).

Figure 2.9. **Many students stop formal education at the age of 18**

Percentage of students enrolled in secondary, post-secondary non-tertiary or tertiary education at the age of 18, 2015



Source: OECD (2017), *Education at a Glance 2017: OECD Indicators*.

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The weak performance of disadvantaged children in secondary education cannot be fully explained by their lower socio-economic background. It also reflects the fact that students from deprived areas are more likely to attend worse schools (Clifton and Cook, 2012). The different types of schools also lead to sorting that reduces educational equity. At age 16, disadvantaged students are less likely to continue at advanced level colleges ("School sixth forms"; DfE, 2015), which typically aim for higher qualifications than alternatives such as Further Education (FE) colleges. Moreover, based on free school meal entitlements, only 3% of students in English grammar schools are coming from disadvantaged backgrounds, compared to 15% of all students (Ofsted, 2016a, Box 2.2).

In England, improving the overall quality of schools needs to be complemented by targeted student-level interventions. Leadership and management of schools in deprived areas should be strengthened, as 23% are categorised as "less than good" in these areas compared to 6% in the most prosperous areas (Ofsted, 2016b). Disadvantaged children often attend schools with large numbers of other disadvantaged students. While this could make the schools better equipped to provide support, in practice it often worsens the educational development of already disadvantaged children, as poorer children living in

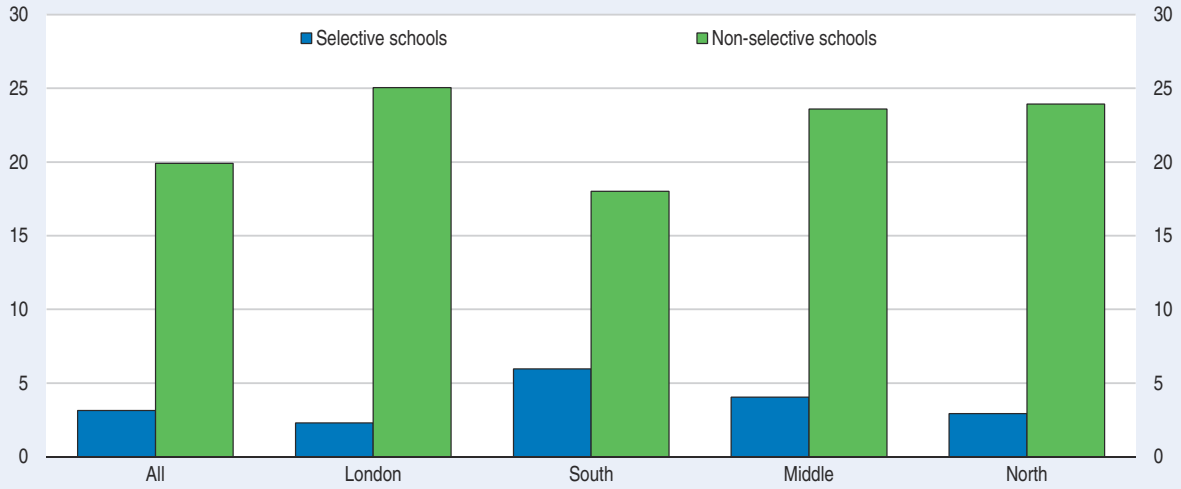
Box 2.2. **Selective schooling in England and social inequality**

The government has indicated its intention to allow for an increase in the number of selective grammar schools operating in England in order to increase the opportunity for more high-performing students to benefit from a more advanced and targeted education at the secondary school level. Selection based on merit is a good idea in theory. However, in practice a student's socio-economic background tends to be a better indicator of whether a pupil is successful at entering into a selective school than their academic achievements (Oakes, 2005). Also, through their recruitment of the highest quality teachers, grammar schools are potentially exacerbating the shortage of good quality teachers in the overall system, diminishing the quality of education in non-grammar schools.

Merit-based selection should act as an enabler to upward social mobility for children from disadvantaged backgrounds, but in England the evidence shows that grammar school selection amplifies existing social inequalities. Students who are eligible for free school meals (FSM) represent a very small share of the student population in grammar schools (Figure 2.10), compared to non-selective schools with the gap between the two varying across the different regions of England. Furthermore, pupils who are educated through independent schools that are generally located in non-deprived areas are 10 times more likely to be accepted into a grammar school than FSM eligible pupils (Sutton Trust 2016). Indeed, there is also evidence that FSM eligible pupils who achieve a relatively high mark at the end of primary school are one third less likely to get into a grammar school than a non-FSM eligible pupil with a similar score (Cribb et al., 2013).

Figure 2.10. **Disadvantaged students make up a small share of grammar school students**

Percentage of students eligible for free school meals by type of secondary school, 2015-16[1]



1. South includes South East and South West regions; Middle includes East Midlands, West Midlands and East of England; and North includes North East, North West and Yorkshire and the Humber.

Source: Department for Education (2016), *Schools Census 2015-16*.

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From an international perspective, using the latest Programme for International Student Assessment (PISA) results, it is more difficult to find a strong link between selective education and inequality in test results, although the evidence does indicate that inequality of results is higher in school systems where selection is done at an earlier age (OECD, 2016).

Source: Oakes (2005); Sutton Trust (2016); Cribb et al. (2013); and OECD (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris.

affluent areas are more likely to enter advanced level courses than disadvantaged children living in poorer areas (Sammons et al., 2015). Furthermore, the gaps between the quality of management in schools in the most and least deprived areas are significantly higher in the North and middle of England compared to the South, largely mimicking gaps in regional productivity discussed in Chapter 1 (SMC, 2017). The reform of the funding system in England should be used to strengthen incentives for schools to combat the compound effect of family disadvantage and living in a poor neighbourhood.

Teacher shortages have become a growing issue at the secondary level, reflecting recruitment and retention issues. Targeted recruitment levels into initial teacher education for the majority of secondary school subjects have been missed for a number of years (HCEC, 2017). Furthermore, estimates on retention show that around a third of teachers who enter into teacher training are no longer working at a state school five years later (DfE, 2017b). Between 2011 and 2014, the proportion of teachers who have left the profession for reasons other than retirement increased from 64% to 75% (NAO, 2016). Retention is also important from the fiscal side, given that the cost of initial teacher training to the central government can be between GBP 15,000 and GBP 25,000 per trainee, an investment that is lost if the teacher subsequently decides to move to another occupation or overseas (Allen et al., 2016).

Schools in deprived areas have more problems to recruit staff and have more often temporary teaching arrangements in place than in more affluent areas (Ofsted, 2016b). Headmasters in deprived areas also indicated that there is insufficient teacher training provision nearby. This development can become increasingly self-enforcing as the best teachers are recruited by the best schools and are provided the best training, with other schools lagging further behind.

Schools that have large numbers of disadvantaged students should be provided with more scope to attract and retain experienced teachers. Bolstering the pupil premium grant, and making a portion of funds contingent on teacher salary and training, would improve the incentives to attract high quality teachers and also improve the quality of teaching in schools with a larger share of disadvantaged pupils. Improving teacher satisfaction will also play a key role in retaining quality teachers. Encouraging a more collaborative working environment, and allowing teachers to be more involved with school decisions could help improve the low retention rates. Teachers who more frequently participate in professional collaboration – like team-teaching, engaging in joint activities across different classes and age groups, participate in collaborative professional learning and are able to observe other teachers' classes and provide feedback – indicate higher levels of both self-efficacy and job satisfaction (OECD, 2014d).

In Wales, better designed funding schemes for disadvantaged students would help schools build up their internal capacity to best respond to students' needs (OECD, 2014b). In addition, recruitment, professional development and career progression policies for teachers, school leaders and support staff can be developed further. Welsh schools need to move towards more personalised learning while still setting high expectations for every child. In Scotland, the *Curriculum for Excellence* implemented in 2011 aims to provide a coherent, more flexible and enriched curriculum for students aged 3 to 18, and despite its name it has a dual emphasis on quality and equity. There is no evidence available yet for a thorough evaluation of the new curriculum.

Additional efforts to help parents create a better home learning environment would help disadvantaged children to be more successful at school. Providing extra-curricular

activities like tutoring and after-school sporting clubs would improve the social and educational development of children from disadvantaged backgrounds, whose parents are unable to provide a reasonable amount of support outside of their formal education (Chanfreau et al., 2016). Targeted education and career guidance for the most disadvantaged students, guidance that might not necessarily be available to them outside of school, would also help improve educational outcomes. Increased engagement by local employers and more information regarding available vocational paths would further improve outcomes (OECD, 2017a).

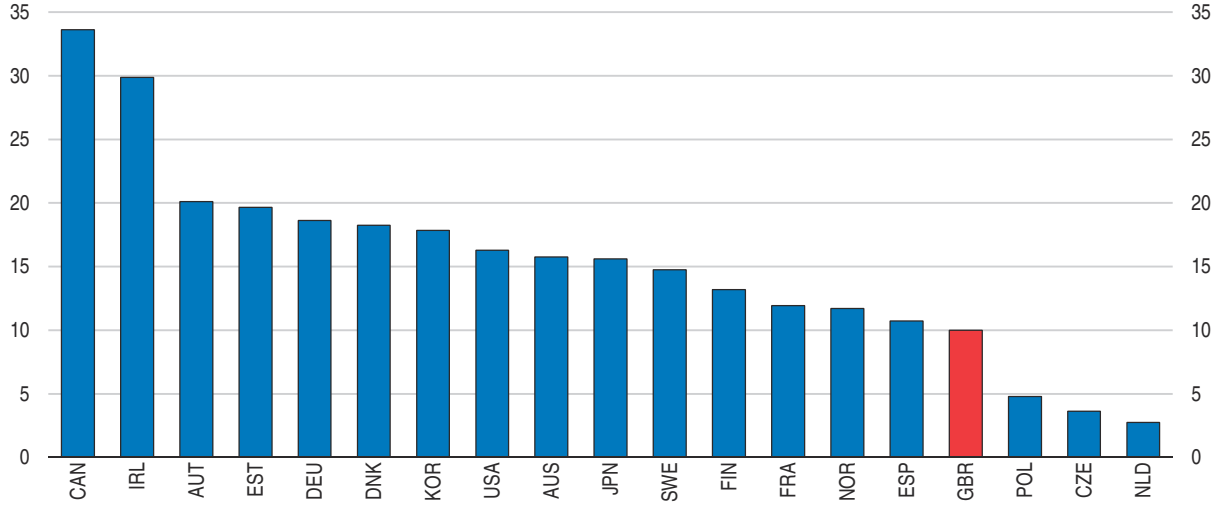
Expanding vocational education while simplifying the system

Routes through vocational education at the post-16 level are varied and complex. In England, awarding organisations develop vocational qualifications adhering to the National Qualifications Framework, while colleges and other training providers buy the right to deliver these qualifications to individuals with their quality monitored by the awarding organisation (Musset and Field, 2013). Over 20 000 courses are provided with qualifications offered by around nearly 160 different awarding organisations.

Despite the large number of courses offered, the provision of post-secondary vocational and education training (VET) is limited in size relative both to other countries (Figure 2.11) and to potential demand, which could potentially lead to a shortage of mid-level skills (Musset and Field, 2014). A simpler and larger VET system would ensure that young adults who are disengaged from general education are able to fully develop their skill potential and reach better quality jobs with higher incomes. By some estimates, the skill premium for a low-skilled upper secondary graduate of pursuing vocational education can be as large as 25%, even after controlling for other factors such as numeracy level, parental education, gender and age (OECD, 2016a).

Figure 2.11. **Provision of post-secondary vocational education and training is limited**

Percentage of adults aged 20-45 who have short-cycle professional vocational education and training as their highest qualification, 2012[1]



1. Data for the United Kingdom are calculated as the population weighted average of England and Northern Ireland.

Source: OECD (2014), "Skills Beyond School: Synthesis Report", *OECD Reviews of Vocational Education and Training*.

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The authorities have announced plans to transform post-16 education following recommendations from the in-depth *Sainsbury Panel Report* on technical education. Through simplifying reforms to the current system, the existing thousands of vocational qualifications will be replaced by 15 "routes", with standards being set by employers and only one provider being licensed to offer qualifications in each of the routes, with a single institute in charge of approving apprenticeships. Although these streamlining reforms are welcome and closely follow earlier recommendations (OECD, 2015c), previous efforts to reform the VET system over the past two decades have been numerous and the results have been mixed, and in many cases have only added to the complexity of the system instead of simplifying it (SMC, 2017).

Employers have limited involvement in the VET system compared to other countries, but the new proposal aims to increase co-operation. Past initiatives in the United Kingdom to improve the skill set of the labour force have been strongly targeted at the public sector (OECD, 2013b), but a closer involvement of employers in the design and offering of VET programmes will help to ensure that these programmes fit regional needs. The new plans for the VET system are a welcome step in this direction as they emphasise closer co-operation with local employers, in particular small and medium enterprises, and better utilise the Local Enterprise Partnerships between local authorities and businesses. After a period of significant changes to policy, the current stability in the institutional architecture should be conducive to more engagement of local employers.

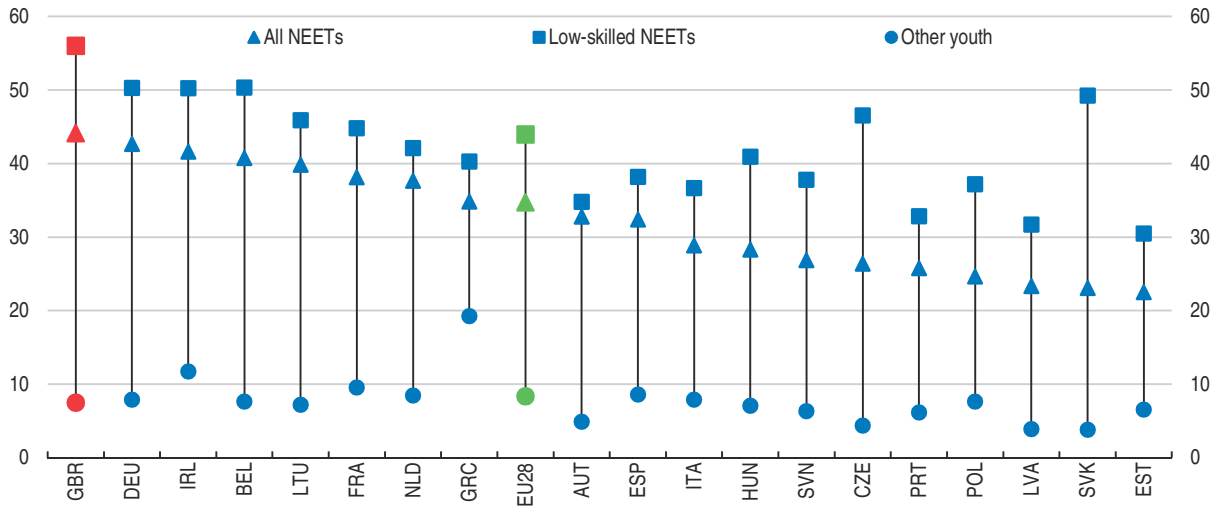
Limiting the variety of VET programmes does not need to reduce the flexibility of the system. Colleges already have the freedom to innovate and respond flexibly to the needs of individuals, employers and local communities, but constraints related to funding streams can be an obstacle to meet local employer needs and addressing emerging skills deficiencies (OECD, 2015a). Furthermore, courses and training often depend on national drivers such as funding schemes. With fewer programmes on offer, the (local) job prospects of each programme can be better gauged, which improves career guidance for students. In addition, it provides more insight in how close the local VET programmes that are offered meet the needs of local employers. Funding should increase in line with the expansion of VET programmes, and provide the right incentives for businesses and students. The new plans for VET are receiving significant additional funding to accommodate a large increase in the number of students.

Safeguarding access to adult learning for low-skilled workers

For a large group of low-skilled workers, in particular school drop-outs, attending adult education is the most efficient way of strengthening skills, increasing social mobility and improving their productivity. However, low-skilled workers generally have very low participation in lifelong learning programmes which limits their opportunities to achieve these goals (OECD, 2013a). Of the many students that stop formal education before age 18, some have managed to find work, although often of low quality, but many remain jobless and struggle in the labour market to obtain the basic skills they need to gain employment. Nearly 15% of the 15-29 year-olds is not in employment, education or training (NEET), which is around the OECD average, and almost 40% of these have not finished upper secondary schooling. Even more than in other countries, many people in this group have cumulative disadvantages, which increases their vulnerability. For example, some 45% of NEETs live in a jobless household, compared to 7% of other youth, and the probability of living in a jobless household rises to around 55% for low-skilled NEETs (Figure 2.12; OECD, 2016c).

Figure 2.12. **NEETs, and in particular those with low skills, are likely to live in jobless households**

Percentage of indicated group living in jobless households, persons aged 15-29, 2014[1]



1. NEETs: Youth not in employment, education or training. The EU28 aggregate refers to the European Union.
Source: OECD (2016), *OECD Employment Outlook 2016*.

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The low participation in lifelong learning by low-skilled workers occurs despite financial incentives via existing policies to undertake these types of skills investment in the United Kingdom. The estimated marginal effective tax rates associated with lifelong learning and job-related training are low from an international perspective, and the United Kingdom has some of the lowest required post-training wage increases needed to recoup the costs associated with these types of skills investment (OECD, 2017b).

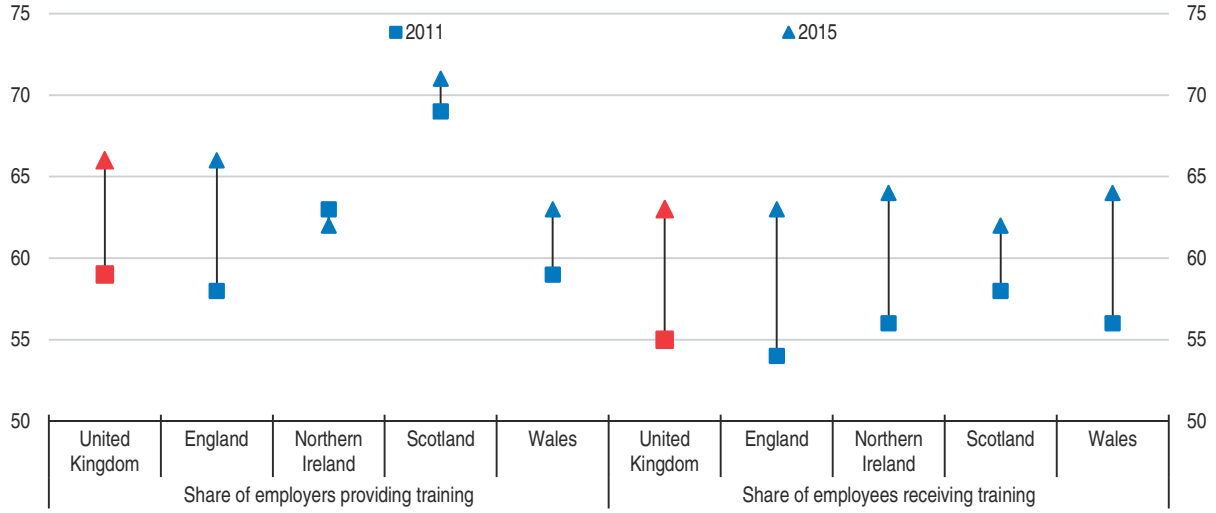
Despite the need to address learning opportunities for low-skilled NEET individuals, the budget for adult learning has fallen significantly in recent years, putting the provision of this type of education under pressure. Spending on core adult skills, including classroom and workplace based learning and adult apprenticeships for people aged 19 and over, fell by about 35% in nominal terms between 2009/10 and 2015/16 (AoC, 2015), and by close to 40% when accounting for inflation (Fullfact, 2015).

The central government is in the process of transferring control of the Adult Education Budget to local governments, with the budget powers set to be devolved to London by 2019-20 (Skills Funding Agency, 2016; HM Treasury, 2016). Devolving responsibilities should help to align local programmes to economic priorities and productivity challenges, although increased employer engagement will be crucial to improve the skills levels of those with very basic skills.

Some two-thirds of UK employers had arranged or funded formal training for any of their staff during a year, including training on or off the individual's immediate work position, and some 63% of staff participated (Figure 2.13; UKCES, 2016). The incidence of training has increased in recent years, in particular due to more off-the-job training provided in England. In general, employees in larger companies are more likely to receive training and the differences are important: some 70% of staff in firms with more than 250 employees participated in training compared to nearly 45% of staff in firms with fewer than five employees.

Figure 2.13. **Training of employees has risen in recent years, in particular in England**

Training provision by employers over the last 12 months, as a percentage of all employers/employees[1]



1. The population of the UK Commission's Employer Skills Survey comprises business establishments (as opposed to enterprises) in the United Kingdom with at least two staff (including both employees and working proprietors). Sole traders and establishments with just one employee (and no working proprietors) are excluded.

Source: UKCES (2012), "Employer Skills Survey 2011: UK Results", UK Commission for Employment and Skills, *Evidence Report* 45, July; and UKCES (2016), "Employer Skills Survey 2015: UK Results", UK Commission for Employment and Skills, *Evidence Report* 97, May.

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The government has introduced recent changes to the apprenticeship system in order to stimulate the take-up of apprenticeships and to improve the technical skills of both low- and higher-skilled individuals. Along with the new system, the government has recently announced a very ambitious target of 3 million new apprenticeships by 2020, and also a minimum number of new apprenticeships per year by every public employer, proportional to the size of the workforce (Amin-Smith et al., 2017). New apprenticeships in the private sector will be partly funded by a new Apprenticeship Levy on large employers. These large employers can use the funds they have paid in England to spend on apprenticeship training, while the majority of apprenticeship costs of small and medium-sized enterprises (SMEs) will be covered by the government.

The targeting of smaller business in the new system is particularly important for improving the productivity of low-skilled workers, given that SMEs tend to have lower skilled workforces than larger firms in both manufacturing and services industries (OECD, 2017c). The changes to the apprenticeship system should increase the number of apprenticeships, specifically through the targets for public employers and the desire of large employers to recoup the costs of the levy. Going forward, it will be important that the government monitors the high quality of apprenticeships being offered by providers and ensures that the new apprenticeships being undertaken by public employers meet their technical needs. Close monitoring is needed even more so as there are risks that employers could simply re-brand existing training in order to benefit from the new scheme, substituting existing on-the-job with off-the-job training programmes.

Subsidised training initiatives that promote an individual's choice in participating in lifelong learning and other training would improve the opportunities for lower-earning individuals to better meet ever-changing skill demands. A well-structured system would allow the co-payment of individuals, public authorities and employers to cover the costs of

targeted training and lifelong learning programmes. The amount of financing and training courses made available could be targeted to address local skills needs. In order to target low-skilled workers, and to limit the overall costs of the scheme, participation could be restricted to workers who earn below a maximum amount of taxable earnings, or who have lower than post-secondary educational attainment. The recent *Taylor Review of Modern Working Practices* (DfBEIS, 2017) also recommends introducing such a scheme that could focus on individuals in receipt of Universal Credit payments. Similar training programmes have been introduced in other countries and have proven to be effective in improving the participation in training and lifelong learning of low-skilled individuals (CEDEFOP, 2009; Leckie et al., 2010).

Improving skills utilisation by reducing mismatches and improving job quality

The best way for strengthening one's skills is having a job. After initial education ends, the vast majority of learning is typically done while in employment even in informal ways (Borghans, 2007). Increasing job market perspectives for low-skilled workers (see below) is thus crucial in developing their skills. For that purpose, the first priority is that labour policies facilitate return to work.

A second priority is to make sure that existing skills are utilised adequately. A misalignment between the skills that workers possess and those that are used in their work can constrain innovation, limit the adoption of new technologies and ultimately restrict productivity improvements (Wright and Sissons, 2012). Management practices, work organisation, and labour market institutions play key roles in limiting the mismatch between the skill proficiency of workers and their skill utilisation at work (OECD, 2016c).

A third priority is avoiding the negative impact that poor job quality can have on the decision and the ability to upgrade one's skills. The job quality of low-skilled work has been deteriorating in the United Kingdom. Global economic integration increases the risk of worker displacement, as lower skilled individuals are not suitably equipped to benefit from the increasing rates of technological advancement and knowledge diffusion (OECD, 2017c).

Encouraging employment participation

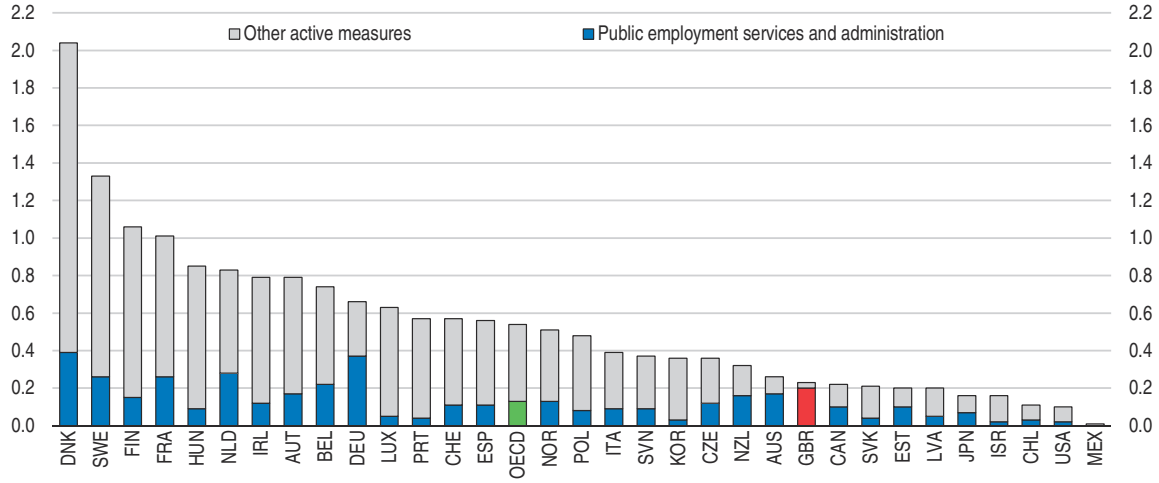
Activating the low-skilled unemployed, particularly NEET

Active labour market policies play an important role in reducing unemployment and increasing the employment prospects of low-skilled individuals in particular (Escudero, 2015). Currently, the United Kingdom has one of the lowest levels of expenditure on active labour market policies (ALMP) in the OECD, with the distribution of funds highly skewed towards support provided by Jobcentre Plus, with relatively low expenditure on more targeted activation strategies (Figure 2.14). Increasing such spending could also improve productivity, with higher levels of ALMP associated with higher levels of multi-factor productivity across OECD countries (Égert, 2017).

The UK unemployment rate is currently at its lowest level in almost 40 years and the low level of ALMP expenditure may reflect in part the effectiveness of existing policies: lower unemployment due to previously jobless individuals re-entering the workforce would lead to lower expenditures. However, there is scope to bolster the assessment of existing policies and benefit delivery. The introduction of a more formal profiling procedure of individual job-seeker characteristics, in addition to the current interviewer assessment-based measure, would help in improving the matching efficiency and better targeting support. The assessment of the performance of individual Jobcentre Plus offices,

Figure 2.14. **Spending on active labour market programmes is low**

Public expenditure as a percentage of GDP, 2014[1]



1. Active labour market programmes include all social expenditure (other than education) which is aimed at the improvement of the beneficiaries' prospect of finding gainful employment or to otherwise increase their earnings capacity. Public employment services and administration includes placement and related services as well as benefit administration expenditure. Other active measures include Training, employment incentives, sheltered and supported employment and rehabilitation, direct job creation and start-up incentives. 2011 for the United Kingdom.

Source: OECD (2017), "Labour market programmes: expenditure and participants", *OECD Employment and Labour Market Statistics* (database), July.

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taking local labour market conditions into consideration, would also raise the effectiveness of existing policies. Furthermore, increased decentralisation of delivery and planning decisions to individual JobCentre Plus offices and individual training providers would help to ensure that any increase in expenditures is targeted to meet local needs (OECD, 2014c).

Targeting youth should be a priority in assessing ALMP effectiveness, given the high level of NEET youth in the United Kingdom. Long spells of joblessness can also be particularly damaging for youth who tend to be more negatively affected through lower life-time earnings, lower well-being, a higher propensity to disengage from labour market activities and poorer mental health throughout the remainder of their lives (Bell and Branchflower, 2011 and Strandh et al., 2014). Enhanced monitoring and counselling services through Jobcentre Plus would limit the disengagement of NEET youth and improve the school to work transition, as job search assistance is considered to be one of the most effective policies for jobless youths (Caliendo and Schmidl, 2015). Career guidance programmes could also be expanded to provide information to individuals who already have work but are looking to transition to a different career or who face possible redundancies, facilitating changes in career paths to better meet evolving skill demands (OECD, 2017a).

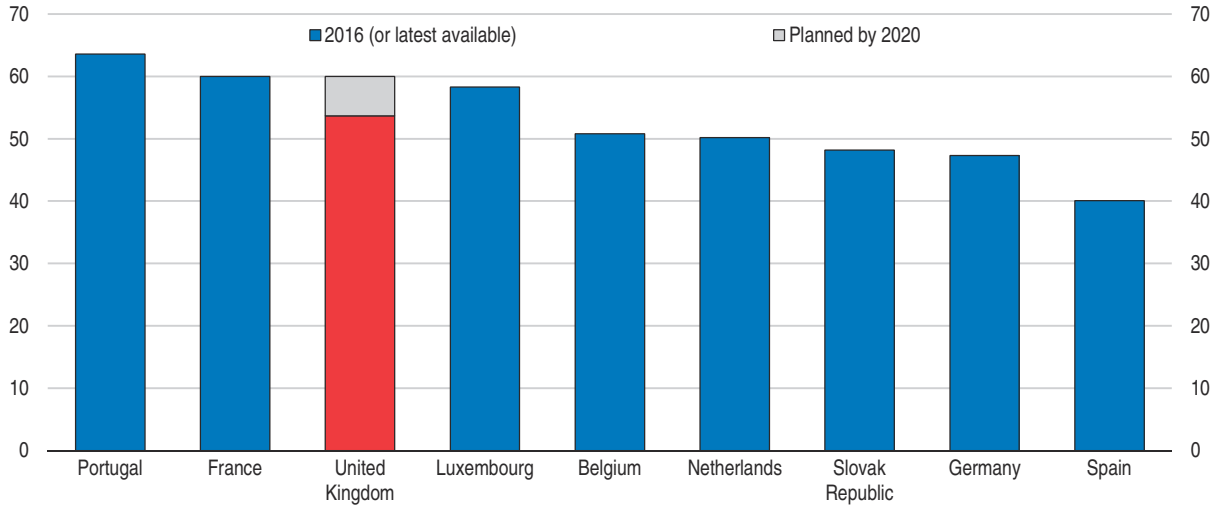
The government's ongoing rollout of Universal Credit is a welcome step in simplifying the benefits system. The earnings-based tapering of benefits allows for a more seamless transition into the labour force, sparing new entrants a sharp reduction in benefits once they find paid work. The real-time earnings information of current and recent benefit recipients, collected in order to effectively implement the tapering of benefit payments, provides scope for a better assessment of the employment outcomes of individuals. These data will also provide a better assessment of the system's overall effectiveness compared to the earlier system when information on the end of a claimant's benefits was recorded with no ongoing assessment of employment outcomes.

Avoiding that too high minimum wages hinder the low-skilled

The UK authorities are currently in the process of increasing the National Minimum Wage, for those under the age of 25, and the newly introduced National Living Wage, for those 25 years and older. The impact on UK labour costs will be sizeable with recent estimates suggesting that approximately 12% of all employees will earn at or slightly below the National Living Wage by 2020 (Low Pay Commission, 2017). The government's stated goal of raising the National Living Wage to 60% of the median wage rate will result in the United Kingdom having one of the highest expected relative minimum wage rates across European OECD countries (Figure 2.15).

Figure 2.15. **Planned minimum wage will be high relative to other European OECD countries**

Monthly minimum wage as a percentage of median monthly earnings[1]



1. Data cover the industry, construction and services (except activities of households as employers and extra-territorial organisations and bodies) sectors. Data refer to 2015 for the Netherlands, Portugal and the Slovak Republic. Data refer to 2014 for Belgium, France and Spain.

Source: Eurostat (2017), "Minimum wages", *Eurostat Database*, July.

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On the positive side, raising the statutory minimum wage provides incentives for firms to improve the skills use of existing workers which can help outweigh the possible negative impact on the employment prospects of new labour market entrants. Hirsch, Kaufman and Zelenska (2015) found that improving the skills utilisation of existing employees was an important adjustment by firms in response to rising labour costs associated with a gradual increase in the minimum wage. Improving the skills utilisation of employees will have an understandably positive impact on productivity growth while also having a positive impact on job satisfaction (OECD, 2016c).

However, the risks of negative side effects are not negligible. Apart from the likely small but negative employment impact, businesses may have the incentive to change the status of their workers from employees to self-employed contractors, in order to avoid the higher labour costs. This could lead to increased casualisation of the labour force, and less job and income security for low-skilled, low paid individuals.

The negative impact of rising labour costs could be particularly strong on the hiring of new workers, especially young workers with limited experience and low-skilled workers. The employment impact of minimum wage increases on low-skilled and younger workers

has consistently been found to be negative (Clemens and Wither, 2014; Neumark et al., 2014; Neumark and Wascher, 2007), although there is some evidence that the impact could be small (Allegretto et al., 2011; Dube et al., 2010). UK research shows that the overall employment impact of past minimum wage increases has been negligible, but with the impact on some low-skilled occupations being larger (Leonard et al., 2014). Close monitoring of the effects on low-skilled employment, which forms an essential part of the Low Pay Commission's remit, will be important, especially given the magnitude of the increase to already 15% and further planned increases to 60% of the median wage. The impact on smaller businesses and in sectors that employ a large proportion of low-skilled workers should also be monitored given that they tend to have a much larger percentage of employees who earn at or near the minimum wage (ONS, 2017).

The Low Pay Commission should maintain the flexibility in recommending the rate of the increase in the minimum wage rate. The 2020 target is subject to sustained economic growth and the Commission is asked to consider the pace of increases taking into account the state of the economy, the impact on employment and unemployment levels, and relevant policy changes. This flexibility should be used to respond to possible shocks associated with Brexit by delaying the 2020 target to a later date.

Reducing skill mismatches

Skills mismatches, whether they involve workers with less than sufficient skills for their work tasks or workers who possess a vaster skillset than needed for the current job, have a detrimental impact on labour productivity and economic well-being. Importantly, differences in skill mismatches across countries are related to differences in labour market and product market policy settings, suggesting that public policy plays an important role in reducing skill mismatches (Adalet McGowan and Andrews, 2015).

Skill mismatches are not negligible

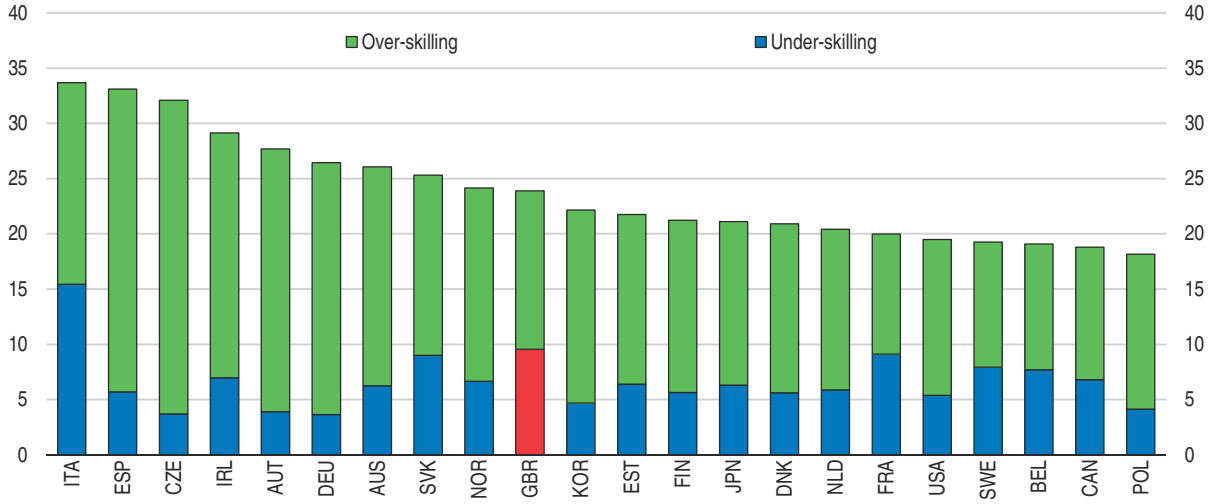
The level of skills mismatch in the United Kingdom, based on calculations using PIAAC data, is above the OECD average although lower than in most of the larger European countries, with just under a quarter of workers either under-skilled or over-skilled in their current job (Adalet McGowan and Andrews, 2015). However, the share of UK workers who are under-skilled is one of the highest in the OECD, second only to Italy (Figure 2.16).

UK over-qualification rates, represented by the share of highly educated workers who are employed in occupations requiring a lower education or set of skills, have been on an upward trend over the past decade, increasing from around 13% of all employed individuals in 2006 to over 16% by the end of 2015 (ONS, 2016a). However, the share of workers who are under-educated for their current positions has been trending downwards over the same time period, although it has been broadly unchanged in recent years (Figure 2.17, Panel A). The combined trends have left the share of mismatched workers in the United Kingdom at their highest level since early 2005. Labour mismatch since the crisis has become more prevalent for part-time workers than those on full-time contracts. Compared to other countries, educational mismatches in the United Kingdom are quite high: both migrant and native workers have high over-qualification rates that are above the OECD average, while the gap between the two is below the OECD average (OECD, 2015d).

A mismatch of workers' skill-levels and their jobs can lead to increased job dissatisfaction, particularly for those workers who are over-educated, leading to a higher tendency to engage in counter-productive behaviour and making them more likely to look for alternative

Figure 2.16. **Skill mismatch, particularly under-skilling, is high in the United Kingdom**

Percentage of workers with skill mismatch by type, 2011-12



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.

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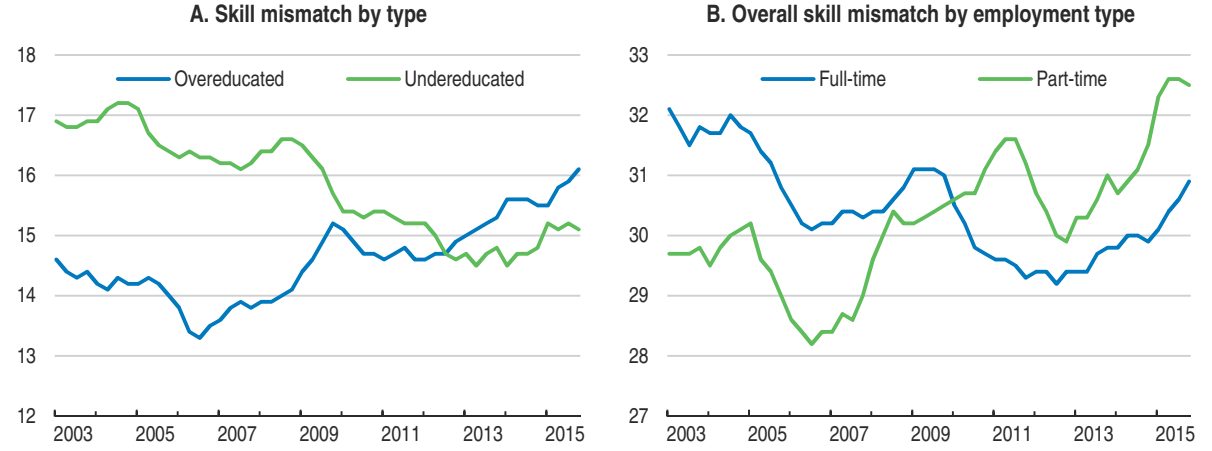
Figure 2.17. **UK skill mismatch shifted towards overeducated and part-time employment**

As a percentage of those in employment, 4 quarter rolling averages[1]



1. Data refer to the population aged between 16 and 64.

Source: ONS (2016), "Analysis of the UK labour market – estimates of skills mismatch using measures of over and under education: 2015", Office for National Statistics, March.

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employment (Luksyte et al., 2011; Maynard and Parfyonova, 2013). High rates of over-educated individuals in lower-skilled occupations could also make it more difficult for lower-skilled workers to compete, particularly those that are young and relatively inexperienced.

Recent estimates suggest that there is a higher share of overqualified workers in occupations that require lower skills. In occupations that require at least a level 2 GCSE or equivalent, around 40% of employees on average have a higher education than is necessary for the job, which compares to almost 25% of employees that were over-educated in occupations that require the higher advanced level GCE (DfBIS, 2016). The same study also suggests that skills mismatches in England are in large part related to the actions of

employers, who are not willing to invest in further skill development and more likely to implement short-term work-arounds to address gaps, including: requesting existing workers or ex-employees to take on more tasks; using short-term agency workers or; outsourcing work (DfBIS, 2016). The increasing use of temporary contracts, particularly zero hour contracts, could also be a reflection of these short-term employer work-arounds.

Policies to reduce skill mismatches

Making labour more mobile by limiting restrictions that workers face in moving to jobs where their skills are better utilised, as well as lowering the adjustment costs of employers will limit the skill mismatch. Increased labour mobility would help in addressing skills mismatches for workers across the skills spectrum without the detrimental impact on total employment. Increased labour mobility would impact low-skilled workers in particular, who face a higher probability of joblessness but with an offsetting rise in the probability of being hired to a new position (Cournède, Denk and Garda, 2016).

Regional mobility is also a particular problem for low-skilled workers who have a lower propensity than higher-skilled workers to relocate to regions with a higher demand for their skills (Bauernschuster et al., 2014). Differences between expected incomes between regions can be much narrower for low-skilled employees, reflecting lower productivity, than is the case for high-skilled workers (Moretti, 2011), which will lead to a much narrower job search for those with low-skills (Amior, 2015). When local labour market conditions deteriorate relative to other regions, lower-skilled workers are also less likely to relocate to more prosperous areas as they tend to be more generously compensated through social transfers and to benefit from falling rental costs (Notowidigdo, 2011). Improving both intra- and inter-regional transport infrastructure would better allow low-skilled workers to expand their targeted job searching areas, and reduce commuting times which could act as a barrier to working afar (see also Chapter 1).

Where lack of information on labour market prospects in different regions acts as a potential barrier for low-skilled individuals to re-locate, this could be better addressed through the formal education system. The reformed post-16 educational system, where students enter into academic or technical streams (see above), provides an opportunity to address local skills shortages by not only attracting technical stream graduates from local schools but also to provide information for potential workers in other regions, limiting the perceived risks associated with re-location. Information regarding local skills and training needs, provided by local businesses and councils, should be consolidated to provide students information on the UK-wide opportunities available for someone with their technical education, and not just in their local area.

Higher housing costs, particularly related to strict land-use rules, act as an important barrier for lower-skilled individuals to relocate to more prosperous higher-income areas (Ganong and Shoag, 2016). This is a particular issue for the skills development of children from lower-income families, as improving the performance of UK primary schools in affluent areas is associated with rising house prices (Hussain, 2016), which leads to more inequality of opportunity in obtaining a better education. Chapter 1 examines in more detail the role that housing constraints play in holding back productivity.

Improving the quality of non-standard work

As in other OECD countries, the United Kingdom is experiencing an increasing share of the workforce entering into non-standard work, exemplified by the rising percentage of

workers who are self-employed or on flexible and temporary contracts that have no minimum number of work hours provisions (zero-hours contracts). The limited job security associated with non-standard work has led to an increase in precariously employed workers and to increased risks of labour market dualism (OECD, 2015e).

The limited job security that characterises non-standard work impacts the low skilled disproportionately, given they represent a higher share of workers employed on a non-standard basis. Furthermore, rising shares of part-time and temporary employment have increased earnings inequality in OECD countries by nearly 20%, reflecting a greater negative impact on the productivity and wages of low-skilled than compared to higher-skilled employment (OECD, 2011).

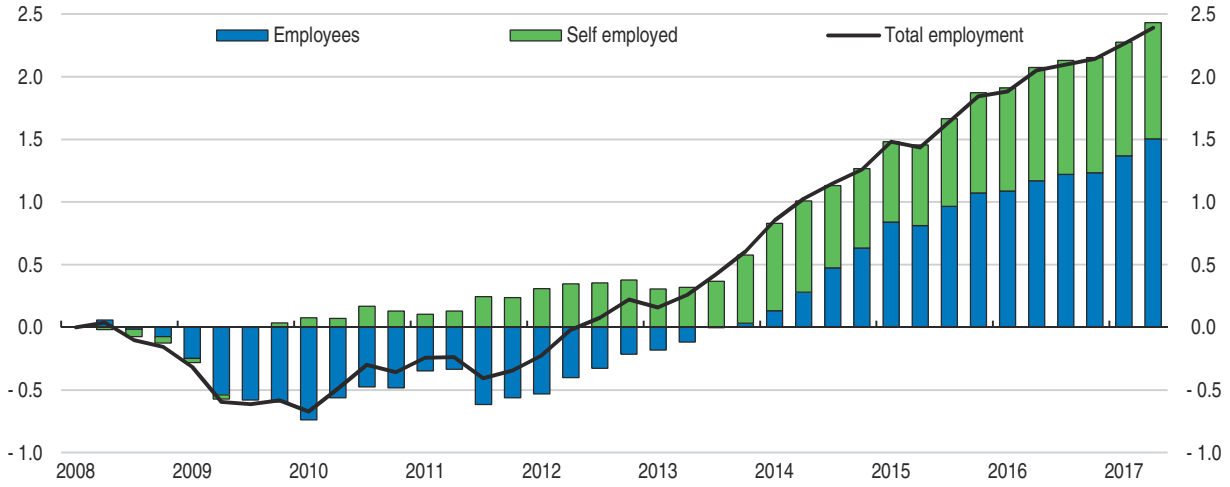
These non-standard work contracts play a key role in keeping the labour participation of those who want more flexibility in their working arrangements, and would have otherwise been out of the labour force. However, non-standard workers are generally paid less than their full-time counterparts, are precariously employed and have limited scope to transition to full-time permanent employment (OECD, 2015e). The pay gap with permanent employees, who have comparable jobs, differs across the different types of non-standard employment. According to recent UK estimates (Gardiner, 2016), after controlling for a number of personal and job characteristics, the pay gap for zero-hours contract workers and permanent agency workers was respectively about 6.5% and 2.5%. Importantly, the pay gap is larger for lower-skilled low-earning individuals; the gap widens to 9.5% for those at the bottom quintile of zero-hours contract workers and almost 4.0% for those in the bottom quintile permanent agency workers.

There is little incentive to further invest in improving the skills of existing workers, given the generally short-term and temporary nature of a large share of job placements. Furthermore, workers on temporary contracts may find it difficult to invest in their skills themselves, as the low relative pay and "on-call" nature of the work might mean that they do not have the resources or the time to commit into further training and education. There is evidence that temporary jobs often do not provide opportunities to develop skills further and that temporary contract workers use fewer skills than permanent workers (OECD, 2014d). Low-skilled workers run the risk of only finding low quality and low-paid temporary work, without being able to invest in the skills that would allow them to improve their productivity and earn higher incomes.

Self-employed workers make up the largest share of non-standard employment in the United Kingdom, with a large share of employment growth since the crisis accounted for by own account workers (Figure 2.18). The rising trend in self-employment in part reflects an increasing number of older workers re-entering the labour force after retiring from permanent employment (ONS, 2016b). Although a portion of self-employed are higher skilled individuals who want more flexibility and perhaps motivated by tax incentives, a share of self-employed are low-skilled individuals who cannot find permanent work and rely on low attachment, low security, task-based jobs. Given the self-employed status of these workers, they do not fall under minimum wage rules and tend to earn less than permanent employees doing similar tasks, further impacting job quality. Furthermore, the loss of economies of scale and scope that can be associated with organised businesses could lead to lower aggregate productivity. Indeed, there is some evidence that increased self-employment has a negative impact on aggregate productivity growth (Baldwin and Chowhan, 2003), although this could be outweighed by the positive benefits associated with increased specialisation in

Figure 2.18. **Self-employment has been an important contributor to employment growth**

Contributions to cumulative changes in total employment since Q1 2008, in millions[1]



1. Data refer to those aged 16 and above. Total employment also includes unpaid family workers and government supported training and employment programmes.

Source: ONS (2017), "UK labour market: September 2017", Office for National Statistics.

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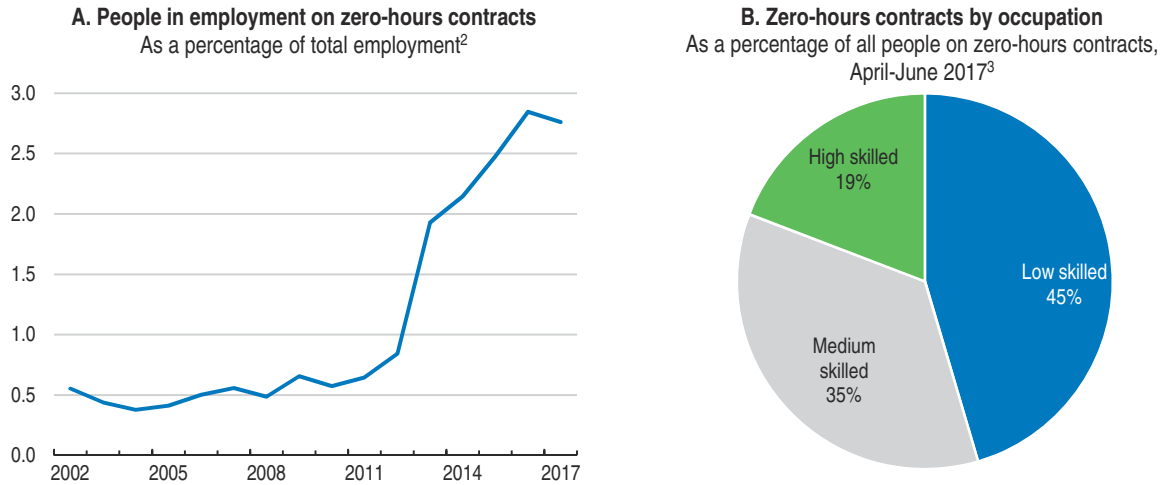
tasks that self-employed individuals perform (McKinsey, 2016). Regardless, the average earnings of a self-employed worker have been persistently lower than those of an employee in the United Kingdom, implying lower productivity of the former.

Tax incentives play an important role in the ongoing rise in self-employment in the United Kingdom. Self-employed workers face a significantly lower labour tax wedge relative to employees, in a large part reflecting the lower National Insurance contributions paid by the former. The government should aim to reduce this gap to improve equity across different types of employment and sustain the financing of the social insurance system. To limit the avoidance of minimum wage rules by employers, the government should also introduce a narrower classification of self-employment to ensure that only truly independent entrepreneurs are classified as such. Possible criteria could include the provision of services to multiple clients or the ability to exercise a large degree of autonomy in their work, like independently setting their prices and the ways in which services are provided.

Despite the largest share of non-standard workers being accounted for by self-employed individuals, zero-hours contract usage is rising in importance. These types of contracts, which do not guarantee hours in advance, have prompted legislative changes in other countries to regulate their usage, and were one of the major issues addressed in the *Taylor Review of Modern Working Practices* (Box 2.3). Although the percentage of UK workers who state that they are employed under zero-hours contracts is still low, at nearly 3% of total employment on average in 2016, this represents a sharp rise from a 1% share in 2012, which to some extent may be explained by increased awareness about these contracts (Figure 2.19, Panel A). Zero-hours contracts provide a degree of flexibility for both businesses – with no obligation to provide a minimum number of work hours, or provide full benefits – and employees – with no obligation to remain attached to the employer. However, these contracts are primarily used in low-paying, low-skilled sectors, and usually given to younger workers who have limited bargaining power: more than a third of workers on zero-hours contracts are under the age of 24 (in part reflecting a concentration among those in full-time

education) and almost half of all zero-hours contracts are in low-skilled occupations (Figure 2.19, Panel B). There is less incentive for training participation by the worker and training provision by the employer given the lower attachment and temporary nature of the contract, hindering the productivity of low-skilled workers.

Figure 2.19. **Zero-hours contracts are on the rise, mostly affecting the low skilled**[1]



1. Zero-hours contracts refer to labour contracts which do not guarantee any hours in a given week.
2. Last data point for 2017 refers to April to June 2017.
3. High skilled occupations include managers, professional and associate professional and technical occupations. Medium-skilled occupations include administrative and secretarial occupations, skilled trades and caring, leisure and other services. Low-skilled occupations include sales and customer services, plant and machine operatives and elementary occupations.

Source: ONS (2017), "UK labour market: August 2017", Office for National Statistics.

StatLink http://dx.doi.org/10.1787/888933602025

Box 2.3. **Policies to address the prevalence of non-guaranteed work contracts**

The recent rise of contracts with no guaranteed hours in some OECD countries has led to recent legislative changes and was one of the major motivations for the commissioning of the ***Taylor Review of Modern Working Practices*** in the United Kingdom (DfBEIS, 2017). The Taylor Review recommends different types of compensation for workers on flexible contracts, and updated legislation to better allow for conversion to more permanent employment. The proposed recommendations aim to address the one-sided flexibility that benefits the employer at the expense of the worker. Ireland and New Zealand have recently introduced reforms to address this problem, whereas a system for compensating casual workers in Australia for their lack of entitlements has been in place for some time. Below is a brief description of some the Taylor Review recommendations related to zero-hours contracts in the United Kingdom, and also descriptions of how these contracts are regulated in Ireland, New Zealand and Australia.

- **The Taylor Review of Modern Working Practices** – Some of the key recommendations to address the one-sided flexibility of zero-hours contracts include: Workers should be entitled to receive "rolled-up" annual leave pay; workers should be entitled to a conversion to a fixed contract after a period of one year in regular employment; and workers on a minimum wage who are required to work more than the guaranteed number of hours would earn a top-up on the wage for those excess hours.
- **Ireland** – Legislation was introduced earlier in this year to crackdown on the usage of zero-hours contracts and "if and when" contracts, the latter being more prevalent in Ireland

Box 2.3. **Policies to address the prevalence of non-guaranteed work contracts** *(cont.)*

and more comparable to UK zero-hours contracts; existing labour laws codify zero-hours contracts specifically as being one-sided, in that the worker has the obligation to be available for work (O'Sullivan et al., 2015). Changes to the legislation will effectively ban the usage of non-guaranteed work contracts except in cases of genuinely casual work, emergency coverage work, or short-term relief work. Also, if a worker is called into work but then not provided with the agreed upon number of hours, the worker is entitled to 3 times the minimum wage for hours that were not provided.

- **New Zealand** – following legislation introduced in early 2016, employers are now prohibited from requiring employees to be available to work for more than the previously agreed upon hours and they cannot cancel work at the last-minute without providing reasonable compensation. The number of agreed upon hours must be clearly stated in the employment agreement. However, the worker and employer are allowed to mutually agree upon a contract that has no guaranteed hours, although the employer must provide an "indicative" number of usual hours if this is the case.
- **Australia** – in the absence of leave entitlements, workers on casual contracts receive a top-up or "casual loading" of 20-25% of their wage, which is specified in the industry and occupation specific "award" for the position in which they work. Workers also earn "penalty" rates which represent an additional wage top-up associated with work outside of regular working hours (including overtime, weekends and holidays) and also specific to the industry/occupation award for the position. A recently announced proposal seeks to entitle workers to ask for a conversion to a permanent contract after 12 months under a casual contract.

Source: DfBEIS (2017), "Good Work: the Taylor review of modern working practices", Department for Business, Energy & Industrial Strategy, July; and O'Sullivan, M. et al. (2015), "A Study on the Prevalence of Zero Hours Contracts among Irish Employees", Kemmy Business School, University of Limerick.

The flexibility of these contracts is desirable from a business standpoint, allowing for easier workforce adjustment in response to economic shocks. These contracts can also be attractive for workers who prefer increased flexibility over higher job security, including university students looking for work that can fit outside of their study schedule, or semi-retired workers who want to remain working but reduce their work-hours. However, lower-skilled and lower income workers do not necessarily benefit from the flexibility of non-guaranteed contracts and are limited in their ability to refuse work or negotiate for more hours for fear of job loss (DfBEIS, 2017).

Although the lack of guaranteed work leads to lower job security for all workers under these contracts, they are particularly detrimental to low-income workers who are limited in their ability to smooth consumption reflecting lower levels of financial saving. Any changes to the existing structure of the system for non-guaranteed work contracts should be targeted at improving the job and income security of low-skilled workers whilst limiting the disruption to workers who enjoy the flexibility of these contracts. Non-guaranteed work contracts can play an important role in genuinely short-term casual work or in seasonal jobs, where the variability of the hours provided might not necessarily be in the full control of the employer. In these short-term situations, however, workers are unlikely to receive paid sick and annual leave that they are entitled to (DfBEIS, 2017).

The government's banning of exclusivity clauses in zero-hours contracts in 2015 was a welcome change in addressing the challenges that some workers faced in looking for

alternative employment if they were not receiving the desired work hours at their current employer. However, further steps can be taken to improve the fairness of zero-hours contracts and improving the job security of low-skilled individuals who are being hired, while also maintaining the flexibility of these contracts when used in temporary short-term-work. After a period of 3 months, workers should be entitled to receive enhanced employment rights related specifically to job security, including a minimum notice period for dismissal and some form of redundancy payment if they are dismissed. The latter entitlement is more beneficial than the similar rights available to permanent employees (who are not eligible for statutory redundancy pay until after 2 years of employment) and thus provides an incentive to convert zero-hours contract workers who are regularly employed by a business to a more permanent contract. The three month period is chosen to allow for zero-hours contracts to still be flexibly used for work that is temporary or short-term in nature.

To improve job security and incentives of low-skilled workers on zero-hours contracts, the government should review the regulatory, tax and benefit underpinnings of this non-standard form of employment. Workers and employers have incentives to limit the number of hours worked so that they fall below the primary and secondary earnings threshold (GBP 157 per week for 2017-18) at which National Insurance contributions start to be paid. Those earning below the primary or secondary thresholds may still be eligible for contributory benefits as their earnings are above the Lower Earnings Limit t (GBP 113 per week for 2017-18) or because they are entitled to National Insurance credits. People on zero-hours contracts work 22 hours on average per week in their main job (ONS, 2017), which at the minimum wage of GBP 7.50 per hour is just above the primary threshold, suggesting tax disincentives to work longer hours.

Apart from tax-related incentives, many disincentives to work additional hours stemming from welfare are being reduced or removed through the introduction of Universal Credit. Universal Credit is gradually replacing the complex system of six legacy benefits where in some cases it is not in a claimant's financial interest to work additional hours. Further, the constant withdrawal rate under Universal Credit will avoid a cliff-edge reduction in benefits at a given level of earnings, meaning it should always pay more for a claimant to work more. Overall, the authorities should continue to review the interplay of taxes and welfare benefits on the incentives for individuals to work extra hours.

Recommendations to improve productivity and job quality of low-skilled workers

Developing the full skill potential

Key recommendations:

- Raise training and other incentives to recruit and retain teachers in disadvantaged areas and/or regions with high teacher shortages.
- Introduce individually targeted programmes for low-wage and low-skilled workers to improve lifelong learning opportunities.
- Prioritise funding to training and skills development of childcare staff.

Other recommendation:

- Monitor the quality of apprenticeships introduced in the new system; ensure that those undertaken by public employers match their skill needs.

Recommendations to improve productivity and job quality of low-skilled workers *(cont.)*

Reducing skill mismatches and improving job quality

Key recommendations:

- Use existing flexibility in reaching the National Living Wage 2020 target in case of negative economic shocks.
- Increase financing and continue to promote the effectiveness of active labour market policies for youth who are neither in employment nor in education or training.
- Grant workers on zero-hours contracts enhanced job security rights after three months.
- Keep under review the interplay of taxes and welfare benefits to raise incentives to work more hours.
- Introduce tighter criteria to restrict self-employment to truly independent entrepreneurs.

Other recommendation:

- Provide consolidated UK-wide information on skill shortages to technical students under the new post-16 education system, incentivising relocation to areas where their skills are in demand.

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