OECD Urban Policy Reviews

Enhancing Productivity in UK Core Cities

CONNECTING LOCAL AND REGIONAL GROWTH



OECD

OECD Urban Policy Reviews

Enhancing Productivity in UK Core Cities

CONNECTING LOCAL AND REGIONAL GROWTH

OECD
BETTER POLICIES FOR BETTER LIVES

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note by Turkey
The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Please cite this publication as:
OECD (2020), *Enhancing Productivity in UK Core Cities: Connecting Local and Regional Growth*, OECD Urban Policy Reviews, OECD Publishing, Paris, *https://doi.org/10.1787/9ef55ff7-en*.

ISBN 978-92-64-88921-7 (print)
ISBN 978-92-64-88214-0 (pdf)

OECD Urban Policy Reviews
ISSN 2306-9333 (print)
ISSN 2306-9341 (online)

Photo credits: Cover © Core Cities UK

Corrigenda to publications may be found on line at: *www.oecd.org/about/publishing/corrigenda.htm*.

© OECD 2020

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at *http://www.oecd.org/termsandconditions*.

Foreword

While productivity might seem an abstract concept, it has important consequences on people's daily lives. The amount of output that workers are able to produce within a given time and with a given amount of resources is a critical determinant of the material well-being in a society. As resources are finite, productivity growth is the only way to increase living standards in the long term.

Raising productivity is of particular relevance to Core Cities, eleven large second-tier cities located across the United Kingdom (Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield). Core Cities and the functional urban areas around them account for almost a quarter of the UK economy. Yet their productivity levels are below the UK average and significantly below the levels of similar-sized cities in other OECD countries. At a time when productivity growth in the UK has been weak for more than 10 years, the UK can no longer afford to have such a significant part of its territory perform well below its potential.

This report analyses the reasons behind low productivity levels in Core Cities and provides policy recommendations to help national and local policy makers foster productivity growth. Drastic differences in productivity across places within a country, such as they exist in the UK, cannot be addressed by national policies that apply uniformly across a country. They are often due to specific local circumstances. Thus, helping places redress their productivity levels requires identifying the specific causes and addressing them through targeted place-based policy action.

While Core Cities share some similar challenges, each Core City is unique and no one-size-fits-all solution could be applied across the board. While it is beyond the scope of this report to delve into the specific circumstances in each of the eleven cities, policy makers are encouraged to further tackle the city-specific determinants of productivity and develop targeted strategies.

The relevance of this report goes beyond the UK context. The subnational dimension of productivity is gaining increasing attention in OECD member countries, and the lessons learned from UK Core Cities can be valuable for second-tier cities in other national contexts. More generally, the recommendations from this report contribute to a growing knowledge base that helps struggling places all over the OECD to realise their full potential.

Acknowledgements

This review was produced by the OECD Centre for Entrepreneurship, SMEs, Regions and Cities (CFE) led by Lamia Kamal-Chaoui, Director. It is part of the Programme of Work of the OECD Regional Development Policy Committee.

The report and the underlying policy dialogue between the 11 Core Cities (Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield) and the UK Government were managed by Abel Schumann, Economist, and Soo-Jin Kim, Head of the Urban Policies and Reviews Unit, under the supervision of Rudiger Ahrend, Head of the Economic Analysis, Statistics and Multi-Level Governance Section, and Aziza Akhmouch, Head of the Cities, Urban Policies and Sustainable Development Division in CFE. Chapters 1 and 2 were drafted by Cem Özgüzel and Abel Schumann. Chapter 3 was drafted by Soo-Jin Kim with contributions from Debra Mountford and Isabelle Chatry. Cem Özgüzel provided the econometric analysis for the review. Jonathan Barr provided comments on the draft.

The OECD would like to thank Core Cities UK for its co-operation in the review process. Special thanks go to Chris Murray, Director of Core Cities UK, and Pat Ritchie, Chief Executive of Newcastle City Council. Thanks are also due to all the stakeholders from Core Cities who provided important information and feedback during the review process.

The OECD is grateful to the UK Government, particularly to Keith Thorpe, Principal Policy Adviser, Cities Growth Unit, Department of Housing, Communities and Local Government, Delegate of the UK to the OECD Regional Development Policy Committee and the OECD Working Party on Urban Policy, and to Daniel Hewitt, Social Affairs Policy Advisor, Permanent Delegation of the UK to the OECD, for their co-ordination role throughout the project. The OECD would also like to thank all other members of the UK Civil Service, who provided valuable comments on the draft.

Thanks are due to Eleonore Morena for editing and formatting the manuscript and to Pilar Philip who prepared the final publication.

Table of contents

Foreword 3

Acknowledgements 4

Executive summary 9

Assessment and recommendations 12

1 A snapshot of socioeconomic conditions in UK Core Cities 23
- Introduction 24
- Core Cities constitute almost one-quarter of the UK economy 25
- The economic structure of Core Cities 29
- Education and skills utilisation are essential pieces in the productivity puzzle 35
- Innovation is a key determinant of productivity and long-term growth 40
- Transportation infrastructure is a bottleneck for productivity 43
- Inequality and segregation of income needs to be addressed 51
- References 57
- Notes 61

2 Productivity in Core Cities 63
- The UK productivity puzzle 64
- Understanding the factors that drive productivity in cities 71
- Productivity in Core Cities: An econometric analysis 74
- Generating stronger agglomeration economies would yield significant productivity gains 78
- Further evidence on the role of sectoral composition, infrastructure and connectivity for productivity 82
- Local and regional planning matters for productivity 84
- References 87
- Notes 91

3 Making the governance of UK Core Cities work for people, places and productivity 93
- Introduction 94
- Core Cities encapsulate the opportunities and challenges of the process of devolution adopted in the UK 94
- While Core Cities play a key role in productivity, they face limitations within their current powers 117
- Ways forward to help make devolution more effective in boosting productivity in Core Cities 125
- References 128
- Notes 131

Tables

Table 1.1. A statistical snapshot of Core Cities 28
Table 1.2. Roads are used heavily for both transportation and freight 46
Table 3.1. English Core Cities, combined authorities, City Deals, Devolution Deals and LEPs 100
Table 3.2. Breakdown of responsibilities across subnational government levels in OECD countries: A general scheme 113

Figures

Figure 1.1. GVA per capita: Core Cities are not catching up to the UK average 25
Figure 1.2. GDP per capita of second-tier cities are higher in other countries 26
Figure 1.3. Core Cities' and London's share of the UK economy 28
Figure 1.4. Employment (left panel) and unemployment (right panel) rates 29
Figure 1.5 Sectoral composition in Core Cities 30
Figure 1.6. Knowledge-intensive business services increase productivity 32
Figure 1.7. The number of businesses with more than 5 employees is growing moderately 33
Figure 1.8. Export value per job is lower than the UK average 34
Figure 1.9. Services exports matter for labour productivity 35
Figure 1.10. The UK has a high share of adults with tertiary education 36
Figure 1.11. Core Cities face different challenges in terms of skills 37
Figure 1.12. Core City students are performing below the average 37
Figure 1.13. Improvement in average education 38
Figure 1.14. Skills supply and demand 40
Figure 1.15. UK spends below OECD average on R&D 41
Figure 1.16. Core Cities can innovate more 41
Figure 1.17. The number of broadband connections is high in the UK 42
Figure 1.18. Broadband access and productivity 43
Figure 1.19. Transport investment started picking up in recent years 44
Figure 1.20. The share of transport infrastructure investment by region 45
Figure 1.21. Public transport spending per capita in London is much higher than in other regions 46
Figure 1.22. The UK has the worst road congestion in the EU 47
Figure 1.23. Congestion is high in Core Cities 47
Figure 1.24. Modal share in Core Cities and international peers 48
Figure 1.25. PM2.5 air pollution in Core Cities 51
Figure 1.26. The UK is one of the most unequal countries in the OECD 52
Figure 1.27. Income levels are higher in the commuting belts around Core Cities 53
Figure 1.28. Core Cities have a high share of deprived neighbourhoods 54
Figure 1.29. Housing costs in Core Cities are high by international standards but moderate by UK standards 55
Figure 2.1. Productivity growth in the UK has slowed down after the financial crisis 64
Figure 2.2. The productivity gap between the UK and other countries has been widening 65
Figure 2.3. The regional productivity gap is increasing 67
Figure 2.4. GVA per worker relative to the country average is low in Core Cities 68
Figure 2.5. Productivity levels in Core Cities are low by international standards 68
Figure 2.6. Core Cities differ in their productivity levels and growth rates 70
Figure 2.7. Cities with higher GVA per worker in 2001 experienced faster subsequent growth 71
Figure 2.8. Agglomeration economies in the UK, 2018 77
Figure 2.9. Agglomeration economies in the UK, 2007 78
Figure 2.10. Further agglomeration gains are possible 79
Figure 2.11. Productivity gains from stronger agglomeration economies 80
Figure 2.12. Productivity effects from workforce characteristics and sector composition 81
Figure 2.13. Composition effects and potential gains from strong agglomeration economies 82
Figure 3.1. Boundaries of combined authorities, LEPs and FUAs 99
Figure 3.2. The structure of subnational government revenue across countries, %, 2016 104
Figure 3.3. Subnational government tax revenues as a share of GDP and public tax revenues in the OECD countries, 2016 105

Figure 3.4. Decentralising or recentralising trends in the OECD over the 1995-2016 period 107
Figure 3.5. The United Kingdom has a high vertical fiscal imbalance among OECD countries, 2016 108
Figure 3.6. Vertical fiscal gap in OECD countries, 2017 109
Figure 3.7. Subnational expenditure as a share of GDP and public expenditure in OECD countries, 2016 110
Figure 3.8. Local government spending by category in the UK, as % of GDP, 2000-17 111
Figure 3.9. Subnational expenditure as a share of total public expenditure by category (%) 112
Figure 3.10. Subnational governments in the UK account for a lower share of public investment than OECD average, 2016 114
Figure 3.11. Local investment as a share of GDP in the UK is two times less than in the OECD on average, 2016 115
Figure 3.12. UK local government expenditure as a % of public expenditure and GDP, 2001-18 115
Figure 3.13. UK local government investment as a % of public investment and GDP, 2001-18 116

Boxes

Box 1.1. The OECD functional urban area definition 27
Box 1.2. Rehabilitation of offenders in Liverpool 53
Box 2.1. Explaining the productivity puzzle 65
Box 2.2. Measuring productivity 69
Box 2.3. What are the agglomeration economies? 73
Box 2.4. The advantages of working with microdata 75
Box 2.5. Empirical strategy 76
Box 2.6. Cardiff Central Square Regeneration 85
Box 2.7. The Glasgow City-Region Regional Partnership 86
Box 3.1. An asymmetric devolution process across the four nations of the UK 94
Box 3.2. Asymmetric decentralisation in OECD countries 103
Box 3.3. Recent reforms in local government taxation in the United Kingdom 106
Box 3.4. The local government grant systems in the United Kingdom 109
Box 3.5. How are responsibilities distributed across subnational government levels in OECD countries? 113
Box 3.6. How Core Cities are working on boosting skills: Select examples 120
Box 3.7. How Core Cities are investing in transport and infrastructure: Select examples 121
Box 3.8. How Core Cities are tackling climate change: Select examples 122
Box 3.9. Anchor institutions, public procurement and social enterprises are playing critical roles in supporting inclusive growth: Select examples 124
Box 3.10. The OECD Productivity-Inclusiveness Nexus – A call to policymakers 127

Follow OECD Publications on:





http://twitter.com/OECD_Pubs

http://www.facebook.com/OECDPublications

http://www.linkedin.com/groups/OECD-Publications-4645871

http://www.youtube.com/oecdilibrary

http://www.oecd.org/oecddirect/

This book has...

StatLinks

A service that delivers Excel® files from the printed page!

Look for the *StatLinks* at the bottom of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the *http://dx.doi.org* prefix, or click on the link from the e-book edition.

Executive summary

Assessment

- **The level of productivity in a group of 11 large second-tier cities in the United Kingdom (Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield, hereafter, Core Cities) is low by national and international standards.** Second-tier cities in most other large OECD countries have productivity levels that are as high as, or higher than, the national average. However, the gross value added (GVA) per worker in Core Cities is just 86% of the UK average in 2016 (latest available data). The gap between Core Cities and second-tier cities in other OECD countries is even larger. GVA per capita in second-tier cities in countries such as Australia, France, Germany, Italy and the Netherlands is approximately 20%-30% higher than in Core Cities.
- **UK Core Cities have the potential for much stronger and more inclusive growth.** Evidence from across the OECD shows that second-tier cities can be engines for growth. Given their size, location and assets, including high-quality universities and excellent digital infrastructure, Core Cities have the potential to play this role in the UK. Moreover, Core Cities have made important progress in several policy areas in recent years, even though they have had to operate within a difficult macroeconomic environment and under very severe budget constraints.
- **Low productivity in Core Cities is mainly due to its workforce and sector composition.** On average, workers in Core Cities are less well educated than in the rest of the UK and active businesses in Core Cities operate in less productive sectors than other businesses in the UK. Often, this is due to the decline of industries such as manufacturing that have not been entirely replaced with highly productive services in Core Cities. If the profile of the workforce and the sector composition in Core Cities were to meet to the current UK average, the productivity of Core Cities relative to the UK average would increase on average by 7.1 percentage points. As Core Cities represent roughly one-quarter of the UK economy this would result in a significant productivity growth effect at the aggregate level.
- **Other factors related to spatial productivity are also inhibiting Core Cities' performance.** UK cities outside of London are not creating agglomeration economies to the degree that they could. In most other OECD countries, productivity increases strongly with city size. With each 10% increase in size, the average productivity of a UK city increases by only 0.09%, compared with cities in countries such as France and Germany where they are 0.3% more productive. If the UK Core Cities performed at a similar level, their productivity relative to the national average would go up by 4.1 percentage points. Again, this would have a sizeable aggregate productivity growth impact.
- **Beyond low productivity, Core Cities face challenges in a range of other policy areas.** Compared to other parts of the UK, employment rates are low, the share of exports is small, innovation activities are below national average, and the share of poorly educated residents is high. Moreover, Core Cities have a high level of social deprivation. Compared to second-tier cities in

other OECD countries, Core Cities have weaker public transport systems and some face high housing costs.

- **To address these challenges and overcome the limitations that cities currently face, further reforms to the UK multi-level governance system are needed**. In the broader context of the four nations (England, Scotland, Wales and Northern Ireland) with three devolved administrations, Core Cities operate in a complex, often overlapping geography of ad hoc deals and partnerships, ranging from City Deals to Growth Deals and Devolution Deals. Despite these deals and recent reforms, local governments – including Core Cities – generally lack control over their finances, have a limited level of fiscal autonomy and face funding uncertainties, which might be further exacerbated by the UK exit from the European Union (EU).

A summary of recommendations

- **Policies in Core Cities need to target the distinctive challenges and opportunities of local contexts.** This place-specific policy approach can provide a more effective response to the many challenges that Core Cities currently face. Developing such place-based policies requires greater co-ordination across levels of government, local jurisdictions and policy sectors to ensure that all actors work towards common goals and align strategies.
- **Expanded vocational and on-the-job training programmes could help improve the skills of workers with low levels of formal qualifications.** Such programmes can provide pathways to high-quality jobs outside of university education. Moreover, they can help workers who failed to acquire necessary labour market skills, or whose skills have become obsolete due to technological change. Training offers should continue to be co-ordinated with local economic development strategies and closely involve employers to ensure that skills provision meets the needs of the local labour markets.
- **Core Cities should implement policies to improve labour force participation rates and reduce the number of individuals that are excluded from the labour market**. Doing so will require a mix of policies, including smoothing school-to-work transitions, lowering childcare costs and improving public transport to increase the accessibility of jobs.
- **Management of public transportation systems in Core Cities can be improved and brought to a level comparable to other highly productive second-tier cities in Europe.** Public transport within city-regions should be regulated by a transport authority that has the power to determine route networks, co-ordinate timetables, set minimum requirements for service provision and establish a unified pricing and ticketing scheme across modes of transport and operators. Public transport and soft transport infrastructure, including cycle paths and footpaths, should be strengthened where gaps exist.
- **Spatial planning at the city-region scale could foster closer links between Core Cities and their surrounding towns and villages.** Effective regional level spatial planning aligns infrastructure across boundaries of local jurisdictions and prevents local jurisdictions from pursuing mutually detrimental policies. This would generate borrowed agglomeration economies and raise productivity levels across the city-region.
- **Core Cities and the UK Government must join forces to find new ways of encouraging housing development.** Core Cities are supportive of housing development, but their ability to act could be strengthened through additional financial and regulatory incentives. This would increase the viability of new housing development and would help Core Cities to encourage further housing construction and renewal of existing older stock through their planning policies**.**
- **To enhance productivity and well-being, Core Cities need to create attractive high quality urban environments** that help to retain high-skilled workers and generate investments. Well-

designed urban spaces with dense, mixed-use neighbourhoods encourage interactions and facilitate innovation. These positive spill-overs and long term effects from attractive urban spaces should be consistently considered in urban regeneration projects. While ambitious urban regeneration projects can be costly in the short term, a regenerated area with attractive public space, high-quality building stock and a diverse mix of uses can yield large returns for a city in the long term.

- **The devolution process must continue and ensure a better match between responsibilities and financial resources.** As already recommended in the 2015 and 2017 UK *OECD Economic Surveys*, the national government should pursue more comprehensive devolution. Fiscal decentralisation needs to go hand-in-hand with administrative decentralisation to ensure there is no unfunded (or underfunded) mandate. In this regard, the 2019 OECD report on *Making Decentralisation Work* provides a comprehensive framework on how to conduct decentralisation reforms and construct partnerships across levels of government.
- **Multi-year budgeting can help Core Cities plan integrated strategies over longer-term time frames.** Longer financial planning horizons, reinforced with appropriate powers to determine funding priorities, and the means to raise revenue, would put Core Cities in a stronger position to address structural weakness in their economies, reduce disparities, and boost local growth. In light of economic uncertainty, increased spending in strategic areas such as transport, skills, and research and development should also continue.

Assessment and recommendations

Assessment

Core Cities is an association of 11 large UK cities: Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield. Altogether, Core Cities and their functional urban areas[1] (FUA) account for 25% of the UK population (16.4 million people), 24% of its employment and 22% of its gross value added (GVA) in 2017.

In the 1970s, Core Cities generated approximately as much economic output as London. However, the deindustrialisation and shift to a service-based economy during the 1980s and 1990s led to an increased gap in terms of economic performance between Core Cities and London. While London compensated the loss of manufacturing by specialising in the finance and insurance sector, Core Cities have struggled to build strong economic specialisations that could compensate for the decline of old industries. Consequently, London, which is home to 18.3% of the UK's population, contributed 28.1% of total gross domestic product (GDP) to the UK economy, while Core Cities generated 22.6% of the UK's GDP in 2016, the latest year for which data is available for Functional Urban Areas.

Despite the challenges that Core Cities currently face, they have the potential for strong and more inclusive future growth. Evidence from across the OECD shows that second-tier cities can be engines for growth. Given their size, location and assets, including high-quality universities and excellent digital infrastructure, Core Cities have the potential to play this role in the UK. Moreover, Core Cities have made important progress in several policy areas in recent years, even though they had to operate within a difficult macroeconomic environment and under very severe budget constraints. With the right policies at local and national levels, and sufficient investment into public transport, housing, skills and other policy areas, Core Cities can become centres of economic activity that pull their regions and the entire UK to higher productivity levels. This report provides strategies at the local and national levels to achieve this objective.

Core Cities display low productivity levels by national and international standards

Productivity in Core Cities is low by national and international standards. While second-tier cities in most other large OECD countries have productivity levels that are as high as, or higher than, the national average, gross value added (GVA) per worker was just 86% of the UK average in 2016. This is the lowest level relative to the national average among second-tier cities in large OECD countries.

The productivity gap between Core Cities and comparable second-tier cities in other countries is even larger than their domestic productivity gap. For example, in 2016 average GVA per worker in second-tier cities was 30.4% higher in Australia, 30.3% higher in Germany, 26.1% higher in the Netherlands, 22.8% higher in France and 17.9% higher in Italy.

The productivity gap with the UK average, and with comparable cities across the OECD, is a sign of significant untapped potential. Core Cities are producing less with the available resources than they could. Given their importance within the overall UK economy, the poor performance of Core Cities has a substantial negative impact on the aggregate economic performance of the country. As productivity growth is the only way to raise living standards in the long term, low productivity also has a strong negative effect on the well-being of its residents.

The workforce and sector composition holds back productivity

To understand the drivers of low productivity, this report has analysed a large dataset with 3.5 million observations of workers in the UK. The data includes information on workplace, occupation, education and wages. It makes it possible to distinguish worker- and workplace-specific determinants of productivity from city-specific determinants of productivity.

To an important degree, low productivity in Core Cities is determined by its workforce and sector composition. On average, workers in Core Cities are less educated than in the rest of the UK and active businesses in Core Cities operate in less productive sectors than other businesses in the UK. If the profile of the workforce and the sector composition in Core Cities were to meet to the UK average, the productivity of Core Cities relative to the UK average would increase on average by 7.1 percentage points.

The potential of agglomeration economies is not fully realised

UK cities outside of London (including Core Cities) are not fully realising the opportunities provided by their size. In most countries, there is a robust positive relationship between city size and productivity once the effects of workforce and sector composition are factored out. This relationship is due to a set of processes called *agglomeration economies*, which make a given worker or firm more productive in larger cities than in smaller cities.

In contrast, the relationship between productivity levels and city size is below its potential in the UK. With each 10% increase in size, the average productivity of a UK city increases by only 0.09%, whereas estimates that use a comparable methodology show that the increase in most other OECD countries is 2-3.5 times stronger. This suggests that Core Cities, as well as other UK cities except for London, are not generating agglomeration economies to the degree that they could. The fact that UK cities are not realising the full potential of their agglomeration economies has the most severe consequences for Core Cities because they are among the largest cities in the country that would usually benefit the most from agglomeration economies.

The magnitude of underutilised potential is substantial. If a UK city that grew by 10% had the same productivity increase as countries like France and Germany (0.3%), average productivity in Core Cities relative to the national average would go up by 4.1 percentage points. Given the weight of Core Cities in the UK economy, such an increase would also have a significant positive effect on aggregate productivity in the UK. The productivity increase in Core Cities alone would raise aggregate productivity by approximately 1%, while further benefits would come from higher productivity in mid-sized cities. In 2018, such an increase would have been equal to raising UK GDP by approximately GBP 20 billion.

Core Cities' clear potential is hampered by a range of socioeconomic challenges

Employment rates are low

Unemployment rates in Core Cities have been above the national average for many years. While the gap increased during the financial crisis, it has declined rapidly since 2012. In 2018, the average unemployment rate in Core Cities was only 1 percentage point higher than the national average, compared to a difference of 3.5 percentage points five years earlier.

However, compared to unemployment rates, the difference in employment rates between Core Cities and the national average is significantly larger. While 75% of the working-age population is in employment across the UK, the corresponding figure for Core Cities is only 69.3%.

Core Cities do not export as much as other parts of the UK

Exports of goods and services per job in most Core Cities are well below the UK average although the total volume of exports from Core Cities is considerable due to their size. Increasing the share of exports provides an opportunity for productivity growth as exporting helps firms to raise productivity levels. In particular, service exports, which generate a high value added, are underexploited given that the economies of large cities typically rely strongly on the service sector. Yet, the UK exit from the EU and the unresolved future trade agreement between the UK and the EU create significant uncertainties for exporting firms.

Core Cities generate relatively few patents

At 1.7%, research and development (R&D) spending as a share of the GDP in the UK is well below the OECD average of 2.4%. It is even further below the levels in R&D intensive countries such as Germany, Korea, or Sweden. While it is difficult to measure innovative activity at the local level, patents per 100 000 inhabitants can provide a measure of it, although it does not capture all dimensions of innovative activity. Most Core Cities register roughly half as many patents as the UK average of 23 patents per 100 000 inhabitants. Exceptions to this pattern are Bristol and Cardiff, which outperform the national average.

The number of businesses has been growing strongly but this may not reflect an increase in entrepreneurial activity

The number of businesses in Core Cities has increased strongly in recent years. However, it is not clear whether this represents an increase in entrepreneurial activity, as most new businesses are zero-employee firms. Thus, the change might have been driven by labour market changes through which stable forms of employment are replaced by precarious self-employment. Looking only at the number of firms with five or more employees, Core Cities experienced moderate growth in the number of businesses that has been roughly in line with the national trend.

Education levels are low compared to the rest of the UK but are improving

Compared to the rest of the country, students in Core Cities perform below average in terms of the share of students achieving at least grade 9-4 (the lowest pass grade) in English and Mathematics at the GCSE exams. Core Cities' average rate is lower than the England average rate and even lower than the average rate in London (59.5% vs. 64% and 69% respectively).

Despite the gap with other parts of the UK, there have been significant increases in education levels over the past 15 years in Core Cities. Core Cities reduced their share of the adult population with no formal education faster than the rest of the UK. In 2018, 9.7% of the population in Core Cities had no formal education, down from 17.8% in 2004. While the overall decrease in Core Cities was 1 percentage point larger than the UK average, some Core Cities performed better, such as Liverpool where the share of the population without formal qualifications dropped by 13 percentage points.

Inequality and deprivation are a challenge for Core Cities

Inequality within Core Cities (measured by the Gini coefficient at 0.39 in 2016) decreased marginally over recent years and is close to the UK level. Yet, it still reflects a very high degree of inequality as the UK has one of the highest levels of income inequality (after taxes and benefits) among all OECD countries. Moreover, even though inequality is similar to the national average, average income levels are lower than the UK average.

Core Cities perform significantly worse on measures of deprivation. The share of deprived neighbourhoods across Core Cities is 36.2%, which is 3.6 times higher than the national average of 10%. The measure also shows a more severe disparity between Core Cities and the towns and villages in the surrounding parts of the functional urban area. The share of deprived neighbourhoods in Core Cities is three times as high as the share of deprived neighbourhoods in the local authorities that form the commuting areas around Core Cities. Income levels in Core Cities are also roughly 6% below the level of surrounding local authorities. Both measures indicate that there is still a significant gap in living standards between Core Cities and surrounding towns and villages.

Given the multiple dimensions of deprivation and their complex interplay, addressing deprivation requires co-ordinated and locally tailored (place-based) policy interventions in several policy areas, including health, education, social care and labour market policy. While policies to address deprivation in Core Cities should be a high priority for national and local governments, it goes beyond the scope of this report.

Housing costs are lower than in other parts of the UK but nevertheless high by international standards

Housing affordability is a challenge in all Core Cities even though housing costs are lower than in other parts of the UK. Housing units in Core Cities cost between 5.4 and 11.1 times the average annual income, which is barely affordable for first-time buyers with below-average incomes. While many factors affect house prices and rents, evidence suggests that a range of issues related to the wider regulatory and financing systems for housing is restricting construction. These include elements of the planning system, market viability and the additional costs and complexities related to brownfield development. Although local authorities in Core Cities are doing more to meet the growing demand for new housing than many other parts of the UK, housing delivery is still not sufficient.

Because of the UK's highly centralised fiscal system, local authorities have fewer fiscal incentives for housing development than local governments in many other OECD countries. Furthermore, there is little co-ordination within the planning system, including for infrastructure delivery, across the metropolitan, regional and national levels. As a consequence, the aggregate housing provision in the UK is lagging behind demand.

In addition, other factors such as imperfect competition in land markets and among developers may hold back housing supply and therefore raise house prices, although more detailed evidence of these factors is required.

Public transport provision and regulation in Core Cities is insufficient

All Core Cities are highly car-dependent and congested. Peak-time congestion in the UK is more severe than in any other European country. This is largely due to an under-provision of public transportation. For example, only 9 cities in the UK operate metro or light rail systems and several large Core Cities in densely populated regions do not have a metro or light rail system. By comparison, more than 60 cities in Germany do have a metro or light rail system.

Moreover, there is evidence that insufficient regulation of public transport at the local and regional levels reduces usage. Since the deregulation of the bus system in the UK in 1986, annual bus ridership outside of London fell from 1.6 billion to 0.9 billion journeys. In contrast, within London, where bus service continued

to be regulated by a strong transport authority, annual ridership increased from 1.2 billion to 2.2 billion journeys in 2017/18.

Congestion and poor accessibility by public transport are a major factor in depressing productivity because they prevent the emergence of agglomeration economies. They reduce the de facto size of local labour markets as workers can reach a smaller number of workplaces. Poor public transport provision also entrenches inequality because it affects low-income households without cars the most. Moreover, it has detrimental health and environmental effects as it increases car use, with consequences for air quality and carbon emissions. Last but not least, congestion also reduces well-being, as long commuting is one of the strongest predictors of low life satisfaction.

Closer integration of Core Cities and their surrounding regions could yield productivity benefits

Helping Core Cities and their surrounding city-regions to grow into economically integrated units can generate mutual benefits. In isolation, Core Cities can be too small to provide the necessary critical mass of customers or suppliers to businesses, to use infrastructure such as an international airport efficiently, or to attract foreign direct investment (FDI). By linking the wider region closer to the city, each city gains additional mass that can help to increase productivity.

The data suggests that such borrowed agglomeration economies already exist in the south east of the UK. Urban areas that are within 90 minutes travel time of London have on average a 3.5% higher productivity than would be expected given the characteristics of their workforce, sector mix and population size. Generating similar positive spill-overs around Core Cities would yield important benefits for surrounding towns and villages, while also fostering productivity within Core Cities.

The specific challenges of Core Cities could be addressed with place-based policies

Core Cities face specific challenges that are different from most other parts of the UK and in particular from the south east of the country. Moreover, there are considerable differences in socioeconomic conditions across Core Cities. Addressing the specific challenges in Core Cities appropriately requires policies that are targeted at their specific circumstances. UK-wide structural policies are important to address these challenges but are not sufficient on their own because they do not differentiate by regions.

Place-based policies can provide the nuance that helps individual cities and regions to complete successful structural transitions. Such policies include targeted infrastructure investments; education policies that consider the existing skill profiles within the workforce and the skill needs of the local labour markets; business support that encourages firms to utilise local expertise and to develop economic ecosystems, and; urban revitalisation programmes that increase the attractiveness of cities. Additionally, place-based policies are an important approach to align different sectoral policies at the local level with each other.

Core Cities have navigated a fast-changing governance landscape, marked by an asymmetric and deal-driven process of devolution

The governance and policy landscape of the last 40 years in the United Kingdom – one of the most centralised countries in the OECD area prior to recent reforms – has seen a vast range of reforms, projects and funding schemes in a context of crisis and budget consolidation measures. Core Cities have therefore had to navigate new rules, limited and decreased funding regimes, particularly in relation to the UK austerity programme, and potentially conflicting priorities over time.

In the broader context of the four nations (England, Scotland, Wales and Northern Ireland) with their own government, elected assembly and local government structures, Core Cities also find themselves in a complex, often overlapping geography of deals and partnerships, ranging from City Deals (with individual

cities), Growth Deals (within Local Enterprise Partnerships) and Devolution Deals (within combined authorities at the city-region level in the case of England, which aim to improve policy co-ordination between cities and their regions, but notably lack the competency for land-use planning). The UK is not the only OECD country that opted for asymmetric decentralisation. Examples of other countries include the Czech Republic, France, Italy and Sweden, to name a few. Asymmetric decentralisation can allow for more targeted responses, explicit place-based policies, experimentation and innovation. However, asymmetric decentralisation can also: generate high co-ordination costs if the system is overly complex; unveil or reinforce disparities across subnational governments in terms of capacity; and lead to unequal treatment of subnational governments and citizens. These are important factors for the UK to consider as it advances the devolution agenda and seeks to rebalance the economy to promote growth across all Core Cities.

Despite recent fiscal measures, Core Cities regions have limited fiscal powers and face funding uncertainties, which can be further exacerbated in the context of Brexit

While the fiscal framework of local councils varies across the four nations of the UK (England, Scotland, Wales and Northern Ireland), local governments – including Core Cities – generally lack control over their finances and have a limited level of fiscal autonomy in terms of revenues, spending and borrowing. In terms of revenues, Core Cities are highly dependent on central/devolved government transfers, which in 2017 accounted for 66.1% of total local government revenues in the UK, compared with 36.8% in the other 35 OECD countries (according to the OECD World Observatory of Subnational Data and Investment). Most local governments in the UK face funding gaps to finance local public services and these gaps have been exacerbated by major cuts in grants. Core Cities also have limited resources coming from taxation or other sources (user charges, fees, income from assets). The shares of UK subnational government tax revenues in GDP (1.6%) and in general government tax revenues (5.8%) are well below OECD averages (7.1% of GDP and 31.9% of public tax revenues). The share of subnational governments (not including the three devolved administrations) in total expenditure in the UK is also lower than the OECD average (24.2% in the UK vs. 40.4% in the OECD).

Slow growth, widening regional disparities, the impact of austerity and uncertainties surrounding the UK exit from the EU make it more critical than ever to strengthen the capacity of UK local governments to finance public services and development adequately. In 2016, the UK Government embarked upon a *Fairer Funding Review* to revise the allocation and redistribution of funding between local authorities from 2021 onwards. The Shared Prosperity Fund announced by the government in 2017 will replace EU Structural Funds and the government has committed to maintaining parity with EU allocations. However, at the time of writing, precise details on the fund have not been released. Further consideration will need to be given over the administration of the fund and its alignment with the range of local growth funding administered through the City Deal partnerships, combined authorities and Local Enterprise Partnerships (LEPs).

Whilst it is too early to assess how effective the negotiated approach to devolution has been, there is consensus amongst stakeholders that existing powers need to be strengthened and fiscal devolution has been limited. In the context of sustained spending cuts, the risk is missed opportunities to enhance productivity. A number of influential collaborative commissions (RSA City Growth Commission [2014], LSE Growth Commission, 2017, UK2070 Commission, 2019), think tanks (Centre for Cities, the Resolution Foundation, the Institute for Public Policy Research) and academia argue for more meaningful devolution that aligns functional devolution with increased fiscal powers.

Both the 2015 and 2017 *OECD Economic Surveys of the United Kingdom* (OECD, 2015[1]; 2017[2]) set out the need for more investment in transport and infrastructure, human capital, research and development, business support and other policy areas. The 2017 survey recommended continuing with devolution to allow for greater tax and spending autonomy, arguing that broadening the local tax base could trigger a virtuous circle of cities becoming more attractive through more investments in infrastructure and skills.

Core Cities' current powers limit their ability to improve their performance

Some Core Cities and national government have come together to form regional or pan-regional partnerships: the Northern Powerhouse incorporating the North East, North West and Yorkshire and Humber regions (Leeds, Liverpool, Manchester, Newcastle and Sheffield); the *Midlands Engine* (including the East and West Midlands, Birmingham and Nottingham); and the *Western Gateway* (Bristol, Cardiff and a number of other linked areas). Each pan-regional structure focuses on addressing barriers to productivity including innovation, investment, skills and transport. While such partnerships have created foundations for future growth, the actual realisation of planned investment, particularly with respect to infrastructure, will be essential to ensure long term impact.

Core Cities are also instrumental in addressing the four Grand Challenges identified in the UK Industrial Strategy released in 2018. The national industrial strategy is underpinned by *Local Industrial Strategies* and *Regional Industrial Strategies* in the devolved administrations that cover Belfast, Cardiff and Glasgow. The West Midlands (Birmingham) and Greater Manchester (Manchester) were the first Core Cities regions to prepare a Local Industrial Strategy. Local and regional industrial strategies present an opportunity to drive innovation and help Core Cities better respond to digitalisation. Key factors of success will include a focus on functional economic scales (rather than administrative local boundaries), clear identification of place-based comparative advantages, shared commitments towards goals, monitoring and evaluation mechanisms to check progress over the short and the long term, and active engagement of public, private and civil society stakeholders.

To address the challenge of low skills in the UK, a range of skills policies, programmes and finance have been decentralised through City Deals, Growth Deals and Devolution Deals. LEPs are also a critical part of this new context, as increased employer engagement will be essential to improve the levels of those with very basic skills. While Core Cities have grappled with the skills challenge for several decades, the adult skills system tends to remain supply-driven, rather than based on how the local economy demands and uses skills.

While devolution has seen transport powers and funding strengthened in Core Cities regions, local governments and local public transport bodies must bid to the Department for Transport for funds, which is then appraised through a structured mechanism. This process is often highly uncertain and risky, as it can incur significant costs for local partners in making the bid, which they will lose if the bid is unsuccessful (estimated cost of around 1.7% of total costs). Currently, the appraisal process does not take into account the need for economic rebalancing or the relative local gains to economic and productivity growth (as opposed to national gains, which as a measure favour the South East).

Core Cities are critical players to tackle climate change in the UK. All Core Cities have adopted individual carbon-neutral targets or are part of regional efforts. Core Cities have released a Climate Emergency Declaration, which calls for a renewed partnership between national and local governments to drive radical, innovative and urgent change. This stance is in line with the OECD's call for joint national-local action to achieve the targets of the Paris Agreement.

Recommendations

Raising productivity in Core Cities to its potential requires policies targeted at the specific circumstances in Core Cities. While some of those circumstances are similar across the entire UK, others are primarily relevant in Core Cities and other large second-tier cities. Furthermore, each city has distinct factors that are unique to it, often due to its history or its location.

Addressing all factors responsible for low productivity requires a comprehensive mix of national and local policies that are co-ordinated across levels of government as well as across territories. In particular, policies to strengthen agglomeration economies and policies to improve the skills of the workforce should

not be seen as substitutes, but as complements that need to be implemented in parallel. Delivering such a policy mix is not possible without adequate governance mechanisms. Therefore, policy reforms need to go hand in hand with governance reforms that enable effective policy design and implementation.

Core Cities' labour markets need investment to upskill low-skilled workers

Life-long learning is an essential element in raising labour productivity. To raise skills of workers with low levels of formal qualifications, vocational training and on-the-job training programmes should be expanded. Such programmes can provide pathways to high-quality jobs outside of university education. Moreover, they can help workers who failed to acquire necessary labour market skills or whose skills have become obsolete due to industrial transitions and technological change. Training offers should continue to be co-ordinated with local economic development strategies to ensure that skills provision meets the needs of the local labour markets.

Employers could be more closely involved in training provision to ensure that training programmes meet the needs of local economic ecosystems. Employer participation in vocational training programmes can ease school-to-work transitions and reduce youth unemployment. The UK government introduced the apprenticeship levy, which was a commitment to an additional three million apprenticeship starts by 2020. One of the key strengths of vocational education is on-the-job training[2] but training provision in the UK has shifted to third-party providers. To counteract this trend, Core Cities should work with local businesses to encourage the greater provision of on-the-job training. To help smaller employers with this task, Core Cities could look at options to provide support services to these firms, which face larger barriers to training participation.

Through the skills devolution agenda in the UK, there is an opportunity to better align labour market and skills development policies at the level of the functioning labour market. Given the complex barriers some people face in finding and sustaining a job, an enhanced role for the Core Cities in coordinating relevant local programmes should be given greater consideration.

Labour force participation should be encouraged

Core Cities should aim at raising labour force participation rates and reduce the number of individuals that are excluded from the labour market. A wide range of policies can contribute to this objective, only some of which can be discussed here. Better public transport can increase labour force participation, allowing workers to access a larger number of jobs. This is particularly relevant for couples whose place of residence is constrained by the workplace of one partner. Smoothing school-to-work transitions for youth with low levels of education can prevent people from dropping out of the labour force at an early age. The abovementioned training programmes are important for people who lack the skills to enter the labour force. Reducing childcare costs, which in the UK are among the highest of all OECD countries, could, in particular, contribute to increasing the labour force participation rate of women, which is approximately 9 percentage point below that of men.

Public transport provision and regulation needs to be strengthened and soft modes of transport should be encouraged

Public transport and soft transport infrastructure in Core Cities should be improved and brought to a level that is comparable to other highly productive medium-sized cities in Europe. Going forward, the national government should continue to invest in transport and infrastructure in Core Cities and other parts of the country as recommended in the *OECD Economic Surveys of the United Kingdom* (OECD, 2015[1]; 2017[2]). In particular, public transport needs to be strengthened as the modal share of public transport and other soft modes of transport in Core Cities lags behind comparable cities across Europe. This is not only

important to raise productivity but it is also a crucial step towards the objective of a carbon-neutral economy. Any major investments into local public transport should be co-ordinated at the city-region scale.

Improving infrastructure significantly will require significant long term investments. Yet, important progress is possible also in the short term, for example by constructing protected bus lanes and cycle lanes on major roads. Such changes are significantly cheaper than the construction of most other public transport infrastructure. Experience in other European cities has shown that cycling as a regular mode of transport quickly increases if good quality cycling infrastructure is provided. Moreover, the resulting reduction in car traffic increases the attractiveness of city centres and reduces air pollution and carbon emissions.

Beyond increased investment into public transport, better regulation of public transport is crucial. While several Core Cities are taking steps to regulate public transport, further measures are necessary. At a minimum, public transport within a city-region should be regulated by a transport authority that has the power to determine route networks, co-ordinate timetables, set minimum requirements for service provision and establish a unified pricing and ticketing scheme across modes of transport and operators.

Core Cities and the UK Government should work together to find new ways of encouraging housing development

Housing supply is one of the most important determinants of house prices and rents. While Core Cities are more supportive of housing development and have lower house prices and rents than many other parts of the UK, they could strengthen this advantage through additional financial and regulatory incentives to improve housing viability, enabling them to further encourage housing construction and renewal of existing older stock through their planning policies.

Insofar as there is evidence that other factors, such as imperfect competition among developers or skills shortages in the construction industry, hold back housing supply, Core Cities should address these issues in co-operation with the UK Government. The UK Government should furthermore work with local authorities to enable them to support additional housing development. This could include increased financial support for local authorities to cover the short and long term costs of housing development, for example, related to infrastructure construction and co-ordination, and public service provision.

Where possible, planning policies for housing development should favour the redevelopment of brownfield land in or close to city centres. Yet, brownfield redevelopment faces several challenges beyond the planning system, many of which are related to high site remediation costs and an associated lack of profitability. While it is important to emphasise the polluter pays principle, financial incentives should be used to encourage brownfield redevelopment when neither the polluter nor the developer can be charged for remediation costs and redevelopment would not occur otherwise.

Spatial planning at the city-region scale should be strengthened

Spatial planning at the scale of the city-region helps to align infrastructure investments and can increase their effectiveness. It can also avoid costly duplication of facilities, co-ordinate urban development across the boundaries of local jurisdictions and avoid that local planning policies impose costly externalities on neighbouring jurisdictions.

Most importantly, planning at the city-region level should cover transport and housing development. City-region spatial plans can set detailed targets for housing construction in each local authority that are adapted to the needs of the local housing markets (which usually covers the entire city-region). Moreover, they can ensure that residential development is concentrated around public transport hubs and aligned with centres of economic activity within the city-region. In the long term, this reduces the demands on the transport system, alleviates congestion, shortens travel times and through these effects, increases productivity.

Place-making policies should be used to enhance productivity and well-being

Creating attractive cities is important for productivity and for the well-being of residents. Attractive cities are better in retaining high-skilled workers, which are one of the most important factors contributing to higher productivity. They are also better in generating investments from local, national and international businesses. Attractiveness has many dimensions. For households, it includes factors such as cultural amenities, affordable housing, good schools, safe neighbourhoods and access to green spaces. For firms, a highly educated workforce, good transport connections and access to translational research matters.

Innovation is facilitated by the interactions that take place in dense, mixed-use neighbourhoods and in public spaces where people want to spend time. Thus, policymakers should view such neighbourhoods not just as amenities but also as assets that contribute to productivity growth. Their innovation-enhancing aspect is a positive externality, which implies that the economic benefits from attractive neighbourhoods go well beyond the profits of the businesses located in these areas.

The positive spill-overs and long-term effects from attractive urban spaces should be consistently considered in urban regeneration projects. While ambitious urban regeneration projects can be costly in the short term, a regenerated area with attractive public space, high-quality building stock and a diverse mix of uses can yield large returns for the city in the long term.

Linking Core Cities with surrounding towns and villages can help "borrow" agglomeration economies

Integrating cities with their surrounding regions is a win-win strategy. Towns and villages can reap the productivity benefits of the main city due to so-called "borrowed" agglomeration economies, whereas the main city can also experience productivity gains because of the economic weight that the surrounding region adds to it.

Better (public) transport links between Core Cities and their surrounding regions are an important measure to facilitate the integration between Core Cities and the surrounding regions but not the only one. Other measures, such as collaboration between universities in Core Cities and businesses in the surrounding region, can also strengthen functional integration. Joint business promotion and international marketing strategies can also be effective in creating a more closely connected regional economy and identity.

The devolution process must continue and ensure a better match between responsibilities and financial resources

A stronger partnership between Core Cities, combined authorities and the national government is essential to raise productivity. If properly designed and implemented, devolution can have a range of benefits, ranging from economic aspects (e.g. greater efficiency in the local public sector, contributing in turn to higher productivity) to improved public service delivery and greater democratic accountability (e.g. bringing government closer to citizens).

As already recommended in the 2015 and 2017 *OECD Economic Surveys* (OECD, 2015[1]; 2017[2]), the national government should continue to consider how more comprehensive devolution could enable Core Cities to boost their capacity to invest. Fiscal decentralisation needs to go hand in hand with administrative decentralisation to ensure there is no unfunded (or underfunded) mandate. Enabling local authorities to retain a greater share of business rates is a positive step forward but more comprehensive fiscal decentralisation could strengthen the current programme of functional devolution, help reduce disparities and ensure that responsibilities are adequately resourced. A more systematic and coherent strategy should be established to help bring the revenues and tax powers of Core Cities and combined authorities closer to the OECD average for unitary countries.

Multi-year budgeting can help Core Cities plan over longer time frames

Core Cities would benefit from the ability to plan over longer time frames. Multi-year budgets would enable more strategic policymaking and investment by the Core Cities. Longer financial planning horizons, reinforced with appropriate powers to determine funding priorities and the means to raise revenue, would bring Core Cities to a stronger position to address structural weakness in their economies, reduce disparities and boost local growth. A one-year spending review replaced the usual multi-year approach and increased spending was announced across a number of areas including health, education, social care and policing. Proposals by the national government to increase spending on education and health are important for Core Cities but, in light of economic uncertainty, increased spending in strategic areas such as transport, skills as well as research and development should also continue.

The capacity to plan and implement integrated strategies should be strengthened

Devolution creates a new imperative to reduce policy fragmentation and ensure alignment between various deals and strategies. Many Core Cities and their leaders built up strong economic development capacities between 1990 and 2010, which contributed to making the case for devolution. Narrowing the productivity gap and reducing disparities will require the appropriate capacity to co-ordinate strategic sectors (such as skills, transport and infrastructure, spatial planning, climate change) across the entire public policy system and budget for them over the long term. Both national and local policymakers should continue to ground their decisions in solid evidence, which can be provided by bodies such as the What Works Centre for Local Economic Growth.

Towards greater productivity and inclusiveness in Core Cities

Addressing the productivity-inclusiveness challenge in Core Cities is an important step on the path to higher productivity in the UK. Enhancing productivity in Core Cities is ultimately about embracing a more inclusive type of growth – not only across the national territory but also within cities and city-regions themselves. A new accord between Core Cities and national government needs to be achieved to strengthen the drivers of productivity. Key measures include strengthening local economic ecosystems (for example through targeted training programmes), encouraging labour force participation, improving public transport provision and regulation, reinforcing spatial planning at the city-region scale and better exploiting the potential of place-making policies to create attractive urban spaces. The devolution process needs to continue and ensure a better match between responsibilities and financial resources, enable multi-year budgeting and planning, as well as strengthen the capacity to implement integrated policies.

References

OECD (2017), *OECD Economic Surveys: United Kingdom 2017*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2017-en. [2]

OECD (2015), *OECD Economic Surveys: United Kingdom 2015*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2013-en. [1]

Note

[1] The OECD functional urban area definition is designed to provide an internationally comparable definition of urban areas (see Box 1.1). For this reason, it does not necessarily correspond to local definitions of city-regions, travel-work-areas and similar concepts. For instance, Core Cities' city-regions are home to 20 million people and generate about 26% of GVA, in 2017 (ONS, NISRA).

1 A snapshot of socioeconomic conditions in UK Core Cities

This chapter provides an overview of the socioeconomic conditions in Core Cities and their surrounding regions. It shows that Core Cities face significant challenges in many policy areas, including public transport and social policy. Yet, it also documents important progress made in policy areas such as education and digitisation despite a challenging macroeconomic environment and severe fiscal constraints.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

Core Cities is an association of 11 large United Kingdom (UK) cities: Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield. In total, Core Cities and their functional urban areas[1] (FUA) are home to 16.4 million people (25% of the UK population) and cover approximately 11% of its landmass. From an economic point of view, Core Cities and their FUAs constitute around 24% of the UK's total employment and generate 22% of its gross value added (GVA) in 2017.

In the 1970s, Core Cities' economic output was approximately as high as that of London. However, the deindustrialisation during the 1980s and 1990s led to an increasing decoupling in the economic performance of Core Cities and London. While London compensated the loss of manufacturing by specialising in the finance and insurance sector, Core Cities have struggled to build strong economic specialisations that could compensate for the decline of old industries. As a consequence, London, which is home to 18.3% of the UK's population, contributed 28.1% of total gross domestic product (GDP) to the UK economy, while Core Cities generated 22.6% of the UK's GDP in 2016.

Productivity levels in Core Cities are below the national average as well as below the levels of leading second-tier cities in Europe and the rest of the world. Yet, despite low levels of productivity, there are signs of an increasingly vibrant economy in Core Cities, which is reflected, for example, in strongly increasing start-up rates. Converting this economic vibrancy into productivity growth could yield large benefits. A Core Cities' study found that raising productivity in Core Cities to the national average would contribute an additional GBP 100 billion to the national economy (Core Cities, 2018[1]).

Low productivity levels in the UK and especially in Core Cities are not a new phenomenon; it has concerned Core Cities and national policymakers since the early 2000s. However, the issue has received particular attention since the 2007-08 financial crisis. Productivity levels in the UK since 2008 have been nearly stagnant. As productivity growth is the only mechanism to ensure sustainable economic growth in the long term, a lack of productivity growth is an acute threat to economic prosperity in the UK.

The national environment of low productivity growth has exacerbated the challenge facing Core Cities. Yet, there is no simple solution to increase productivity. It depends on a multitude of factors that are both national and locally driven (OECD, 2015[2]) and is dependent upon effective governance structures (OECD, 2015[3]). Enhancing productivity in cities goes beyond macroeconomic levers; it requires action across a range of policy areas including governance, fiscal autonomy, education and skills, transport and connectivity and inclusive growth.

Core Cities not only have lower levels of productivity than their counterparts across the OECD but also fewer statutory powers and less financial autonomy. Governance is a critical mechanism which provides the foundations on which productivity-enhancing policies can be developed (OECD, 2019[4]). Maintaining momentum on devolution, infrastructure investments and adopting bolder place-based policies through which Core Cities can rebalance their economies, boost local growth and reduce disparities is critically important.

The overall context is challenging, regional disparities have increased, Brexit has created many uncertainties and the UK remains one of the most centralised countries in the OECD. However, enhancing productivity has become a shared priority across levels of government, the private sector and institutions. Addressing the structural challenges that prevent productivity from growing is needed to raise living standards, reduce disparities within the UK and create sustainable growth and investment.

This report identifies the factors that are responsible for low productivity in Core Cities and develops strategies that policymakers can use to encourage productivity growth. It does not aim at providing a comprehensive overview of all aspects related to productivity growth that are relevant from a macroeconomic perspective. Rather, it focuses on issues that are specific to Core Cities and that distinguish them from other parts of the UK and from other second-tier cities throughout the OECD.

Nevertheless, the report touches upon a wide range of issues from various policy fields. While it provides concrete policy recommendations, it cannot discuss all issues exhaustively nor can it delve into issues that are specific to individual Core Cities. Thus, policymakers are encouraged to conduct further research into the issues identified by the report.

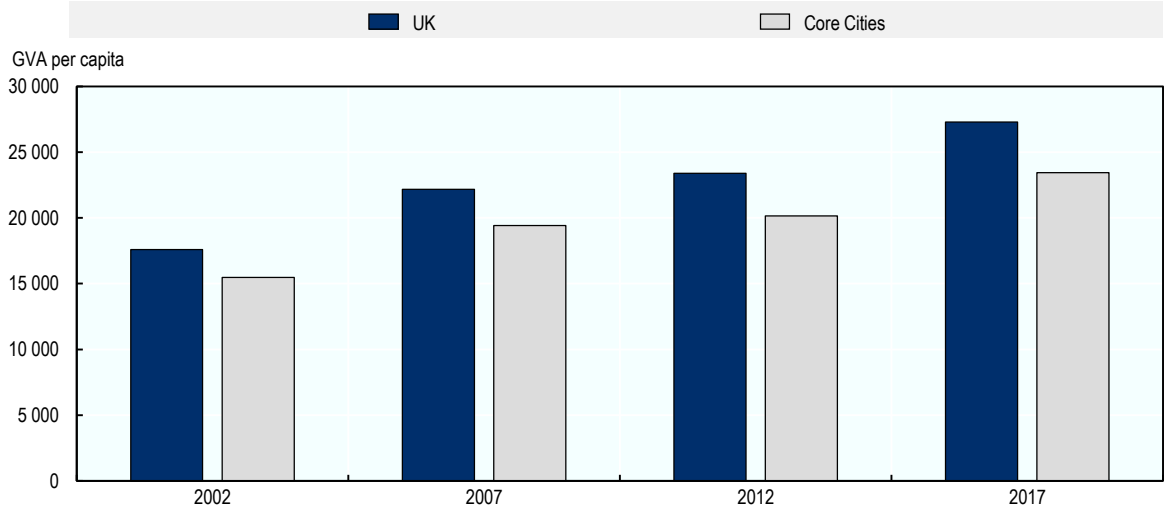
This chapter provides an overview of socioeconomic conditions in Core Cities. It highlights that Core Cities are similar in many dimensions but also points out that important differences between them exist. For the UK government, this has two implications. One the one hand, it shows that a cohesive policy approach to second-tier cities is needed to deal with the common challenges that they face. On the other hand, it also highlights that place-based solutions are important to address the specific circumstances of each city.

Following this chapter, Chapter 2 discusses the determinants of productivity growth in more detail. Based on an analysis of 3.5 million records of workers in Core Cities, it highlights that Core Cities do not achieve their productivity potential to the same degree as second-tier cities in other countries. This fact raises the question of how the national government and local governments can facilitate the emergence of agglomeration economies in the UK as a means to raise productivity levels. Chapter 3 highlights the role of the governance for Core Cities and argues that a set of co-ordinated policies is necessary to create agglomeration economies. It emphasises the importance of continued devolution and close co-operation at the city-region scale.

Core Cities constitute almost one-quarter of the UK economy

In 2017, Core Cities and their functional urban areas had an average gross value added (GVA) per capita of GBP 23 434, which is equivalent to 86% of the national average of GBP 27 298.[2] This gap with the national average has been stable over time. The GVA per capita of Core Cities was around 88% of the UK average in 2002, decreased to 86% in 2012 and has been stable since then (Figure 1.1).

Figure 1.1. GVA per capita: Core Cities are not catching up to the UK average



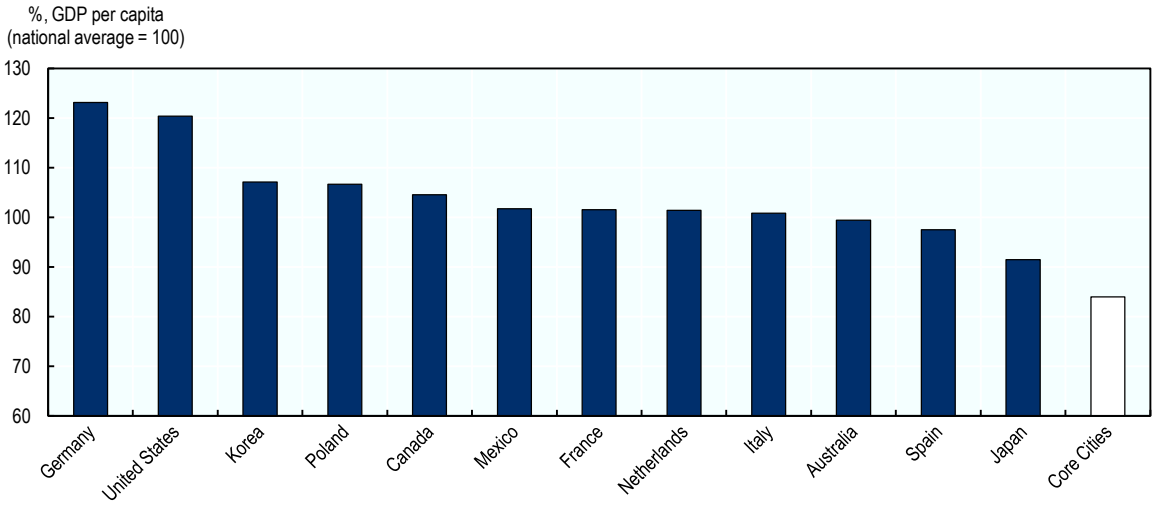
Note: Gross value added (GVA) per capita at current prices in pounds (GBP).
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) data (accessed June 2019).

StatLink https://doi.org/10.1787/888934086147

Second-tier cities in most other OECD countries outperform the national average in terms of GDP per capita and GVA per capita. Figure 1.2 plots the average GDP per capita of second-tier cities as the share of the national average. The figure shows that in 9 out of the 13 OECD countries with at least 10 large second-tier cities, the per capita GDP is higher than the national average. In contrast, Core Cities do not only underperform the national average but the gap is also larger than in any of the three other countries where second-tier cities underperform the national average.

Figure 1.2. GDP per capita of second-tier cities are higher in other countries

Average GDP per capita of second-tier cities relative to the national average



Note: The figure plots the average GDP per capita in second-tier cities relative to the national average. Second-tier cities are defined for this figure as the 10 largest cities outside of the largest city of a country. The figure shows all OECD countries with at least 10 second-tier cities with more than 250 000 inhabitants.
Source: OECD calculations based on OECD (2019[6]), OECD Regional Statistics (database) (accessed September 2019).

StatLink https://doi.org/10.1787/888934086166

Since 2002, GDP growth in Core Cities has been constantly weaker than London and roughly identical to the rest of the UK (excluding London and Core Cities). The accumulation of persistent differences in the growth rates has increased the share of London in the total economy while that of Core Cities has remained stable. While London and Core Cities produced an almost identical share of UK GDP in the early 2000s, a gap has emerged in recent years driven mainly by London's strong performance. For instance, in 2001, Core Cities and London represented 23.5% and 25% of the national GDP (Figure 1.3). Due to the differences in the growth rates, by 2016, the share of Core Cities in the national economy decreased slightly to 22.5%, while the share of London increased to 28%. In other words, as the weight of London in the national economy increased, Core Cities' importance remained unchanged.

Box 1.1. The OECD functional urban area definition

The OECD defines functional urban areas (FUAs) as densely populated urban centres with a surrounding commuting zone whose labour market is highly integrated with the urban centre. Based on gridded population density data, high-density population clusters with more than 50 000 inhabitants are identified. All municipalities that have at least 50% of their inhabitants living in the high-density cluster are considered part of the centre of the FUA. If there are 2 high-density clusters and at least 15% of the working population of 1 high-density cluster commuting into the other, they are considered part of the same FUA. Lastly, the commuting zone is defined as those municipalities from which at least 15% of the working population commute into the municipalities containing the urban centre.

A minimum threshold for the population size of the functional urban areas is set at 50 000 population. The definition is applied to 30 OECD countries. It identifies 1 197 urban areas of different sizes (small urban areas with a population below 200 0000, medium-sized urban areas with a population between 200 000 and 500 000 people, and metropolitan areas with a population higher than 500 000).

This definition overcomes previous limitations for international comparability of urban areas. Traditional definitions based on administrative boundaries are often not comparable across countries because the shape and size of administrative areas vary from country to country. The aim of the OECD approach to FUAs is to create a methodology that can be applied in all countries, thus increasing comparability across countries. The OECD definition may not correspond to national definitions. Therefore, the resulting FUAs may differ from the ones derived from national definitions.

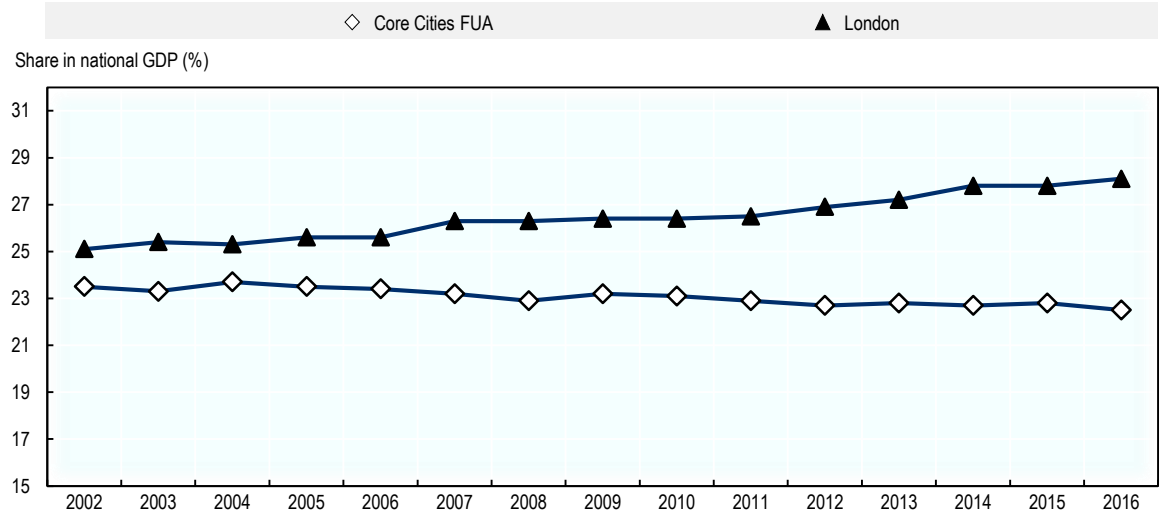
This report uses FUAs as the unit of analysis when possible. FUA level figures are obtained by combining data collected at the local authority unit (LAU) level using the LAU-FUA correspondence (https://www.oecd.org/cfe/regional-policy/list-of-municipalities-in-functional-urban-areas.xls).

When FUA level data is not available, the report also includes analysis using the following geographical units:

- Territorial Level 2 (TL2): Regions within the 35 OECD countries are classified on 2 territorial levels reflecting the administrative organisation of countries. The 398 OECD large (TL2) regions represent the first administrative tier of subnational government. In the UK, there are 12 TL2 regions.
- Territorial Level 3 (TL3): The 2 241 OECD small (TL3) regions represent the second administrative tier and correspond to administrative regions. There are 179 TL3 regions in the UK. These regions are also identical to NUTS3 regions as defined by Eurostat.
- Primary Urban Area (PUA): Cities are measured based on a contiguous built-up area, where buildings are less than 200 metres apart. Thus, a PUA may include more than one local authority. For further details on the definition of PUAs, see Centre for Cities (2015[7]).

Source: Adapted from OECD (2016[8]), "Reader's guide", https://doi.org/10.1787/reg_glance-2016-4-en.

Figure 1.3. Core Cities' and London's share of the UK economy



Note: The share of London and Core Cities in the national economy. Core Cities include their functional urban areas (FUAs).
Source: OECD calculations based on OECD (2019[6]), OECD Regional Statistics (database) (accessed August 2019).

StatLink https://doi.org/10.1787/888934086185

Table 1.1. A statistical snapshot of Core Cities

Most recent data, functional urban areas

	Population (total)	GVA per capita (GBP)	Employment rate	Unemployment rate	Business count (per 10 000 people)	Land area (km²)
Belfast	784 655	29 102	65.9	5.3	307	1 833
Birmingham	2 878 851	23 154	68.9	6.6	334	2 072
Bristol	951 113	31 076	78.9	3.4	387	982
Cardiff	782 678	22 808	72.6	5.1	276	842
Glasgow	1 827 240	22 639	71.2	4.7	265	3 365
Leeds	2 611 570	23 256	73.1	4.1	354	5 113
Liverpool	1 094 029	20 853	70.7	3.5	278	834
Manchester	2 798 799	23 729	74.3	4.6	376	3 117
Newcastle	819 345	23 022	74.3	4.6	296	5 425
Nottingham	675 051	23 201	69.2	4.7	313	902
Sheffield	1 185 285	18 858	73.0	5.2	274	1 258
Core Cities	16 408 616	23 434	72.4	4.8	325	25 743
UK	66 040 295	27 298	75.0	4.3	404	242 495

Note: Figures include Core Cities and the local authorities, which form the functional urban areas. Data on population and gross value added are for the year 2017. Employment, unemployment and business counts are for the year 2018; except Belfast for which it is from 2016.
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data (accessed June 2019); OECD (2019[6]), OECD Regional Statistics (database) (accessed August 2019).

The economic structure of Core Cities

Unemployment levels in Core Cities are low but labour force participation is weak

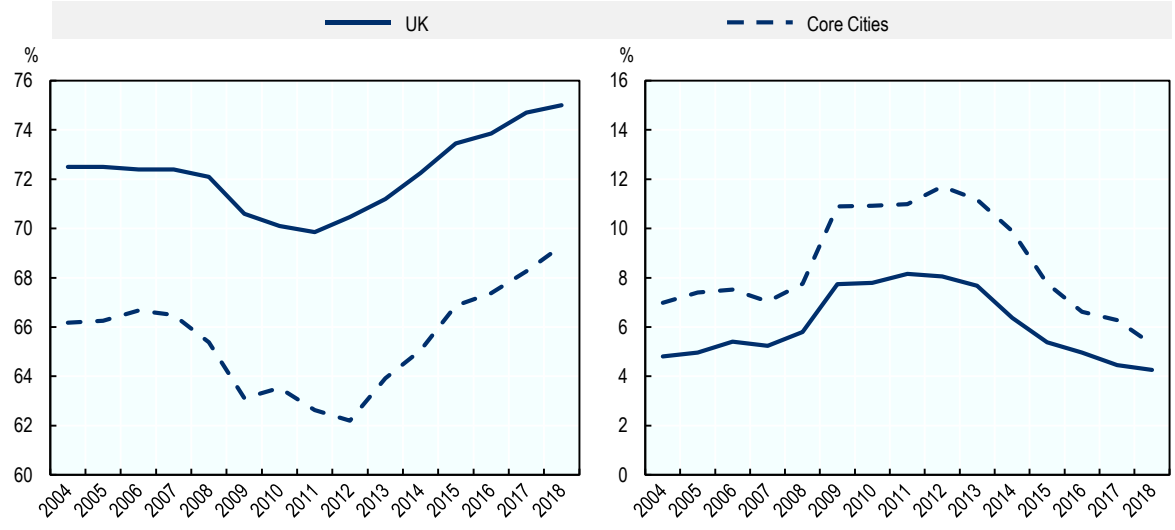
Unemployment rates in Core Cities have been above the national average for many years. However, while the gap increased during the financial crisis, it has been declining strongly since 2012. In 2018, the average unemployment rate was only 1 percentage point higher than the national average, compared to a difference of 3.5 percentage points 5 years earlier (Figure 1.4, right panel).

However, compared to unemployment rates, the difference in employment rates between Core Cities and the national average is significantly larger (Figure 1.4, left panel). The comparably large gap indicates a significantly lower labour force participation rate in Core Cities compared to the rest of the UK. In other words, significantly fewer people are working or actively looking for work. Thus, there is significant untapped potential that could be used if more people were activated for the labour market.

While there are many potential reasons for low labour force participation rates, many of them are related to social issues. Disability caused by factors such as depression, muscular-skeleton disease and other factors is one reason for workers to drop out of the labour force. Long-term unemployment that eventually discourages people from seeking jobs is another factor contributing to low labour force participation. Last but not least, the gender gap in labour force participation also plays a role, as female labour force participation in the UK and in Core Cities is nine percentage points lower than that of men.[3]

One of the reasons for low female labour force participation is exceptionally high childcare costs in the UK. According to OECD data, childcare costs for a couple earning 67% of the average wage are 46% of the total net income, which is the highest share of all OECD countries (OECD, 2019[10]). The high costs of childcare make it unattractive for one partner to seek work as a large share of the earnings would be eaten up by childcare costs.

Figure 1.4. Employment (left panel) and unemployment (right panel) rates



Note: Belfast is included starting from 2009.
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data (accessed June 2019).

Core Cities have a diverse service-based economy

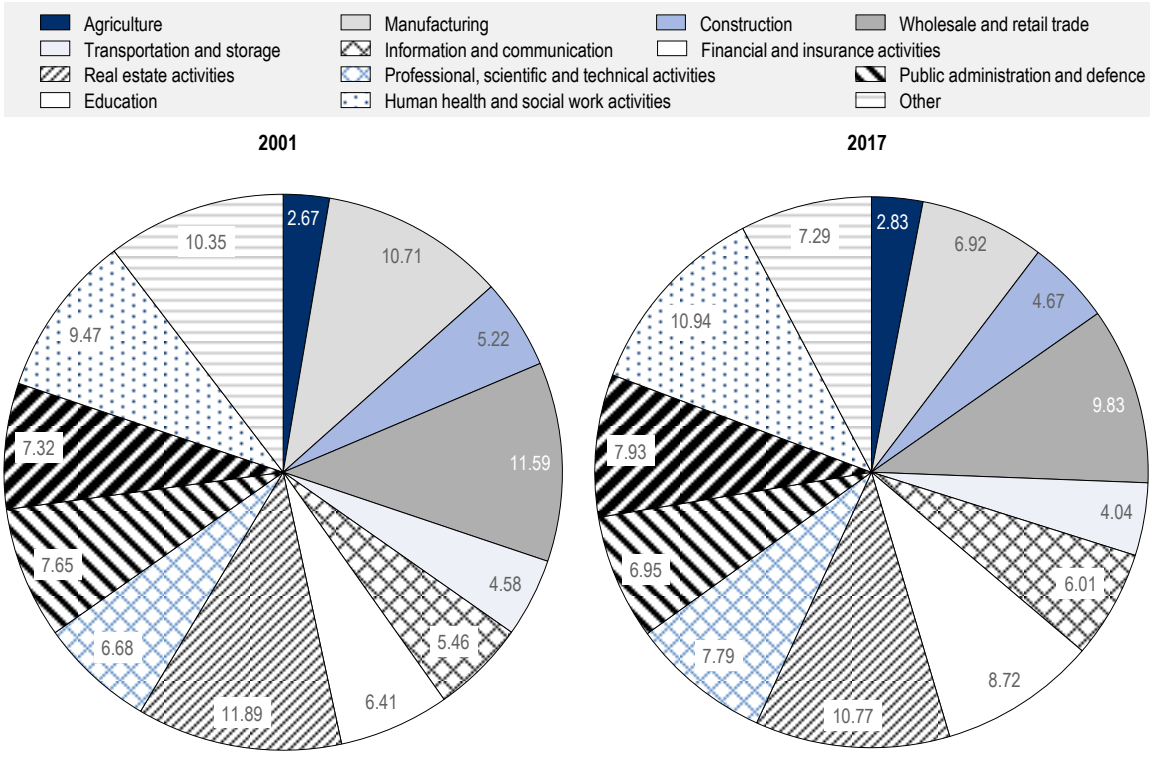
Different sectors in an economy have different productivity levels. Some sectors, such as research and development (R&D), generate higher value added per worker, compared to others such as product assembly add comparatively little value per employed worker. Thus, the sectoral composition of the local economy has strong effects on the productivity level and, hence, the average per capita income.

Core Cities have a diversified service-based economy that is very similar to that of the UK. Since the 1970s, the UK economy has experienced a gradual shift from industry to services, a trend mirrored across all Core Cities. In terms of contribution of each sector to the local gross value added (GVA), real estate activities are the leading contributor representing 11% of the GVA, followed by human health and social work activities and wholesale and retail trade which constitute 10.9% and 9.8% of the GVA respectively (Figure 1.5). Manufacturing, once an important sector in the North, represents only 6.9% of the total GVA in 2017.

Despite following the national average closely, Core Cities have experienced a significant change in the sectoral composition since 2001, reflecting the trends observed in the overall economy. For instance, the manufacturing sector accounted for 10.7% of GVA in 2001, while in 2017 it was around 6.9%. This drop of 3.8 percentage points over 18 years is very similar to the drop of 3.3%, which was observed in the whole of the UK. In reverse, the share of financial and insurance services grew from 6.4% to 8.7%, which is similar to the increase from 5.1% to 7.0% observed in the UK.

Figure 1.5 Sectoral composition in Core Cities

Sectoral composition in terms of GVA in 2001 and 2017, Core Cities and commuting zones



Note: Agriculture includes forestry and fishing, mining and quarrying and electricity, gas and steam supply); Other includes administrative and support services, arts, entertainment and recreation, other service activities), activities of households.
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data (accessed June 2019).

The value of GVA produced by a sector, however, is not the only indicator of its importance in the local economy. The employment generated by a sector, as a share of the total employment in the area, would also give a sense of the importance of the sector in the local economy. In terms of employment, wholesale and retail trade, and human, health and social work activities provide 15% and 14% of the total employment respectively. These sectors are followed by administrative and support services (9.4%), and manufacturing (9.1%). Just as when measured by GVA, the employment shares of most sectors in Core Cities are around the national average.

There are few Core Cities whose economies are highly specialised. The diversity in economic activity in Core Cities has upsides and downsides. On the one hand, diverse economies are more resilient to industry-level shocks compared to the economies that are specialised and reliant on specific sectors (OECD, 2015[2]). Moreover, diverse economies benefit from cross-industry knowledge spill-overs and cross-industry fertilisation, the so-called Jacobsian economies, which is a source of innovation and growth (Combes and Gobillon, 2015[11]). These positive effects are especially beneficial when the diversification involves economic activities that are "related", meaning that they have similar characteristics but are not identical (Xiao, Boschma and Andersson, 2018[12]). Finally, diverse economies have a large set of inputs and factors. Faced with structural changes in the global economy, a diverse local economy has a higher capacity to bring together different sets of inputs and factors required by the new economy, and adapt to change. In other words, a diversified economy is more likely to adapt to change compared to a highly specialised one.

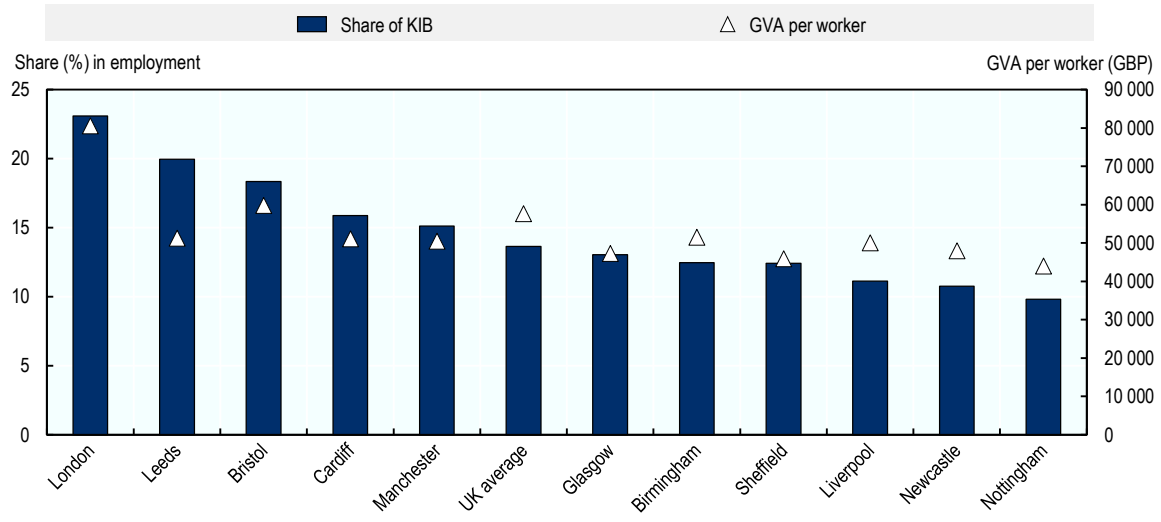
On the other hand, a certain degree of specialisation generates within-industry externalities and creates faster growth through spill-overs (Combes and Gobillon, 2015[11]). It is especially important in smaller cities that do not have the economic mass to support multiple unrelated economic ecosystems. Moreover, Core Cities cannot translate their diversified economic profiles into increased resilience to shocks as the cities struggled to recover from recent recessions (Cambridge Econometrics, 2018[13]).

Despite the long-run debate on whether specialisation or diversity is better for regional growth (Kemeny and Storper, 2015[14]), it is clear that cities that specialise in knowledge-intensive business services (KIBS) have higher average productivity (Figure 1.6). These jobs tend to require higher-skilled workers and benefit more from agglomeration effects that arise from the proximity of people (Jacobs, Koster and van Oort, 2014[15]). As knowledge spill-overs and productivity externalities decline over distance, knowledge-intensive industries tend to cluster close to each other to benefit from agglomeration economies. Once firms in an industry start clustering in a location, its growth can be self-propelling.

All Core Cities have experienced a decline in the share of manufacturing and an increase in its share of knowledge-intensive business services (KIBS), reflecting an industrial shift that is observed in the rest of the UK and other OECD countries. However, individually, Core Cities have different shares of KIBS. While the percentage of KIBS jobs in some cities are significantly above the national average, it is lower in other cities. Given the correlation between the share of KIBS and labour productivity, Core Cities should focus on creating conditions that foster the emergence of clusters in knowledge-intensive services.[4]

Figure 1.6. Knowledge-intensive business services increase productivity

Share of knowledge-intensive business services in total employment and GVA per worker in 2017



Note: The number of knowledge-intensive business service (KIBS) jobs in the city as the percentage of total jobs. Cities are ranked in descending order by the share of their KIBS jobs in the total employment (left axis, bars). The right axis (markers) indicates the gross value added (GVA) per worker in corresponding cities. Cities correspond to the primary urban area based on built-up area and may include more than one local authority. Belfast is not included in the figure due to a lack of available data for Northern Ireland.
Source: OECD calculations based on data from Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

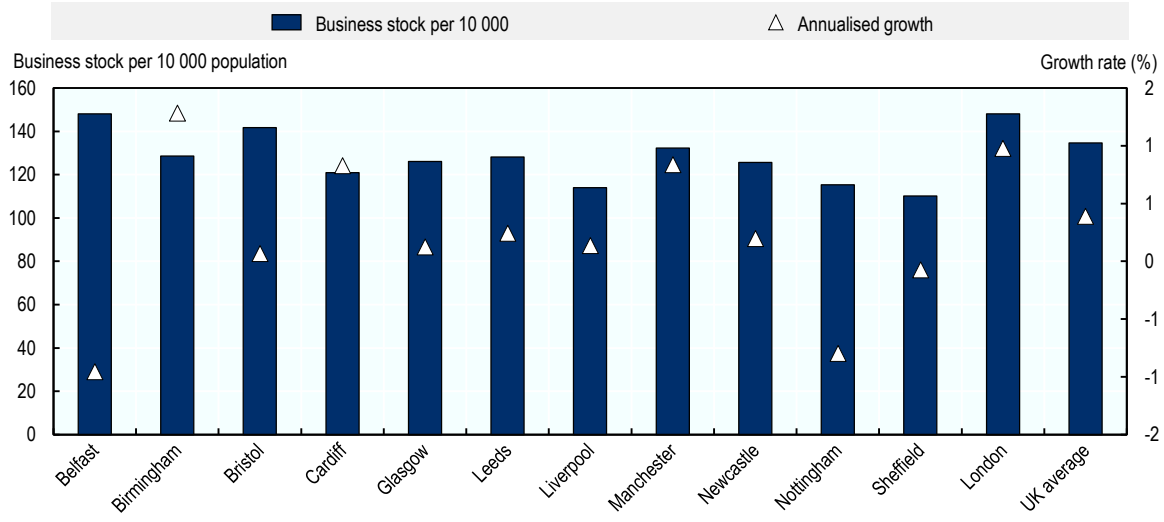
The number of small businesses has been growing but it is unclear whether this represents an increase in entrepreneurial activity

The overall numbers of businesses in a city and the number of new businesses are indicators of the vibrancy of an economy (Sutaria and Hicks, 2004[17]). Core Cities have seen a strong rise in the number of firms but many new firms have zero employees. The owners of these firms are typically the only worker and may not be taking a salary or be counted as an official employee. Although such firms may cover high-skilled occupations such as notaries, doctors or information technology (IT) start-ups firms, they are frequently defined by poor working conditions, low job security and low pay (Apouey and Stabile, 2019[18]). Today, zero employee firms constitute 76% of private sector firms in the UK, making them a significant part of the economy BEIS (2019[19]).

Given the complexity in assessing whether growth in zero employee firms indicates a healthy and dynamic business environment or precarious labour markets, it is preferable to exclude them from the analysis. Figure 1.7 presents the number of businesses with 5 or more employees per 10 000 inhabitants and their annual growth rate for the period 2010-18. No clear trend is visible for Core Cities. While Birmingham, Cardiff and Manchester have seen growth rates above the UK average, other Core Cities performed around or below the national rate of growth.

Figure 1.7. The number of businesses with more than 5 employees is growing moderately

Businesses with 5 or more employees per 10 000 inhabitants (2018) and growth rate between 2010-18



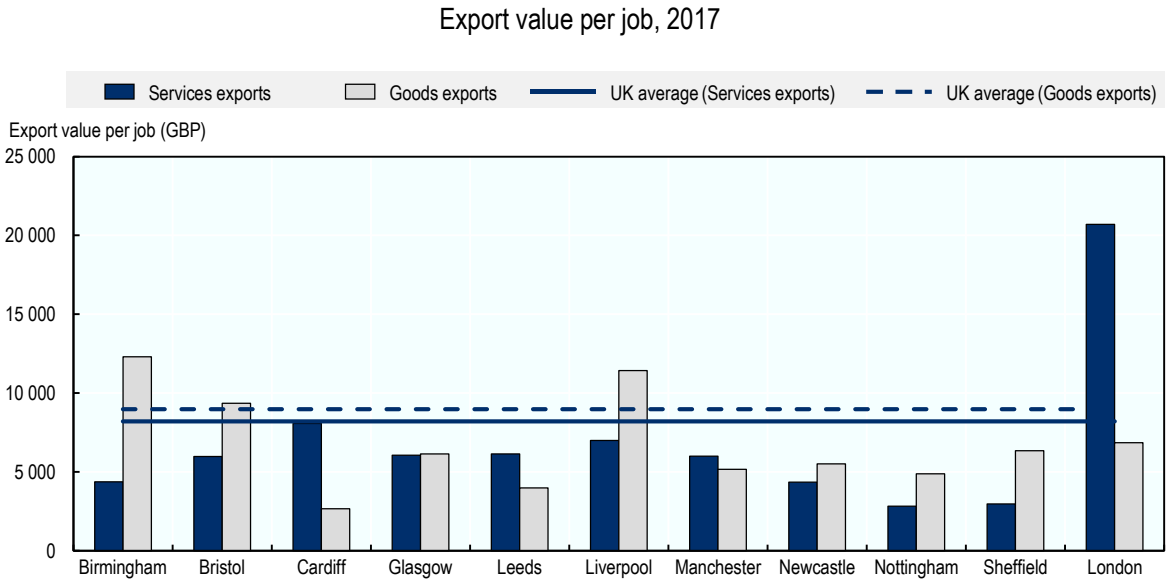
Note: Data refers to functional urban areas (FUAs). The business stock per 10 000 population (left axis) is calculated using firms with more than 4 employees and the working-age population. Growth rate (right axis) is the annual growth rate in business stock per 10 000 population for the period 2010-18.
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) data (accessed November 2019).

Boosting service exports would yield productivity benefits

Unlike businesses that serve local demand, exporters do not serve one particular market and are not tied to a specific location. Exporters are therefore more flexible in their location decisions and base them on a variety of factors including the availability of workers with the right skills, good transport connections, proximity to suppliers and customers, links to research institutions and the availability of cheap land and office space.

All of Core Cities export both services and goods, but the value and composition of their exports vary substantially. Figure 1.8 plots value of exported goods or services per job in 2017. The value of service exports is informative of the economic performance of the location. The figure shows that the exports, especially service exports, have a lower value than the UK average, revealing an important potential for the improvement of productivity. While most Core Cities export significantly more goods than services, Cardiff stands out as having a very high share of service exports relative to goods exports.

Figure 1.8. Export value per job is lower than the UK average



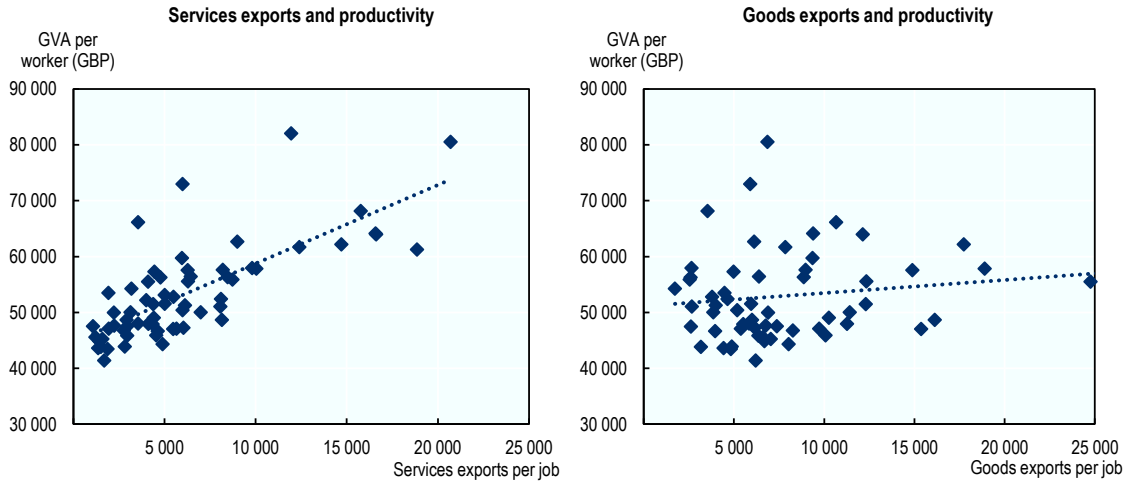
Note: Cities correspond to primary urban areas based on built-up areas and may include more than one local authority. Belfast is not included in the figure due to a lack of available data for Northern Ireland.
Source: OECD calculations based on data from Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

Evidence suggests that exporting benefits productivity growth (OECD, 2018[20]). This positive relationship between exporting and productivity is often attributed to "learning by exporting", and refers to the mechanism whereby firms improve their performance by learning through their interactions with foreign customers and rivals. It explains why increasing regional exports can improve local productivity. However, despite the overall positive relationship between exports and productivity, there are important nuances in how the two are linked.

When analysing the link between exporting activity and productivity at the city level in the UK, a strong positive and statistically significant correlation between services exports per job and worker productivity becomes apparent (Figure 1.9). However, the correlation between goods exports and productivity is much weaker. Of course, such correlations neither prove a causal link between service exports and higher productivity nor the absence of such a causal link between goods exports and productivity. However, they are in line with other evidence that shows such a positive effect of service exports (OECD, 2018[20]). Core Cities should increase service exports, in particular in the service sector, to boost their productivity. High productivity service exports are for example financial and legal services. They might also be related to particular activities within global value chains. In a typical global value chain, the first and last stages tend to be highly productive activities, such as R&D and marketing and after-sales services. In contrast, activities located in the middle of the value chain, such as product assembly typically have much lower levels of productivity. Such labour intensive low-skilled manufacturing brings jobs to cities but offers little potential to improve overall productivity. Moreover, labour intensive low-skilled manufacturing usually only stays in a city while wage levels remain low and is relocated to lower-wage destinations as soon as wage levels rise.

Figure 1.9. Services exports matter for labour productivity

Exports and labour productivity, 2017



Note: Figures plot gross value added (GVA) per worker and value of exports per job in 2017, for 63 British cities for which data is available. Cities correspond to primary urban areas based on built-up areas and may include more than one local authority.
Source: OECD calculations based on data from Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

Local policies to promote exports can cover many dimensions. They include dedicated contact points and training to help small- and medium-sized enterprises (SMEs) develop the necessary administrative and cultural competency to enter foreign markets. They can also include efforts to build a local brand and market the brand in targeted foreign markets. Teaching foreign languages in school is a strategy that is likely to yield benefits in the long term (Foreman-Peck and Zhou, 2015[21]). Last but not least, dedicated policies to attract foreign direct investment (FDI in exporting industries are also likely to increase export shares.

Education and skills utilisation are essential pieces in the productivity puzzle

Human capital is a key factor for the social and economic development of cities and regions. Skills, innovation and knowledge are considered vital sources for economic growth, especially in the long term. More educated workers are more productive, which benefits their employers and explains why they earn higher wages. In addition to benefitting the individual worker through higher wages, more educated employees also generate positive spill-overs for the workers around them, creating wider social benefits (Moretti, 1999[22]). Thus, it is vital to improving the skill levels of the labour force to boost the productivity and the economic performance of regions while generating inclusive and sustainable growth.

Standard measures of educational attainment indicate that on average, Core Cities' population is slightly less educated than the UK population. However, to put these numbers into perspective, it is important to keep in mind that the country has one of the highest shares of university-educated population across OECD countries (OECD, 2017[23]). In 2017, 46% of UK citizens aged 25-64 had completed tertiary education compared with only 37% across OECD countries (Figure 1.10).

There are important differences across the Core Cities (Figure 1.11). For example, Bristol (46%) and Glasgow (42%) have significantly higher shares of people (aged 15-65) with tertiary education compared to the Core Cities average (35.7%) or the UK average (39.2%). On the opposite end of the spectrum, the share of the population without any recognised qualifications in Core Cities (9.7%) is slightly above the national average (8%). In particular, Glasgow has the second-highest share of people without formal

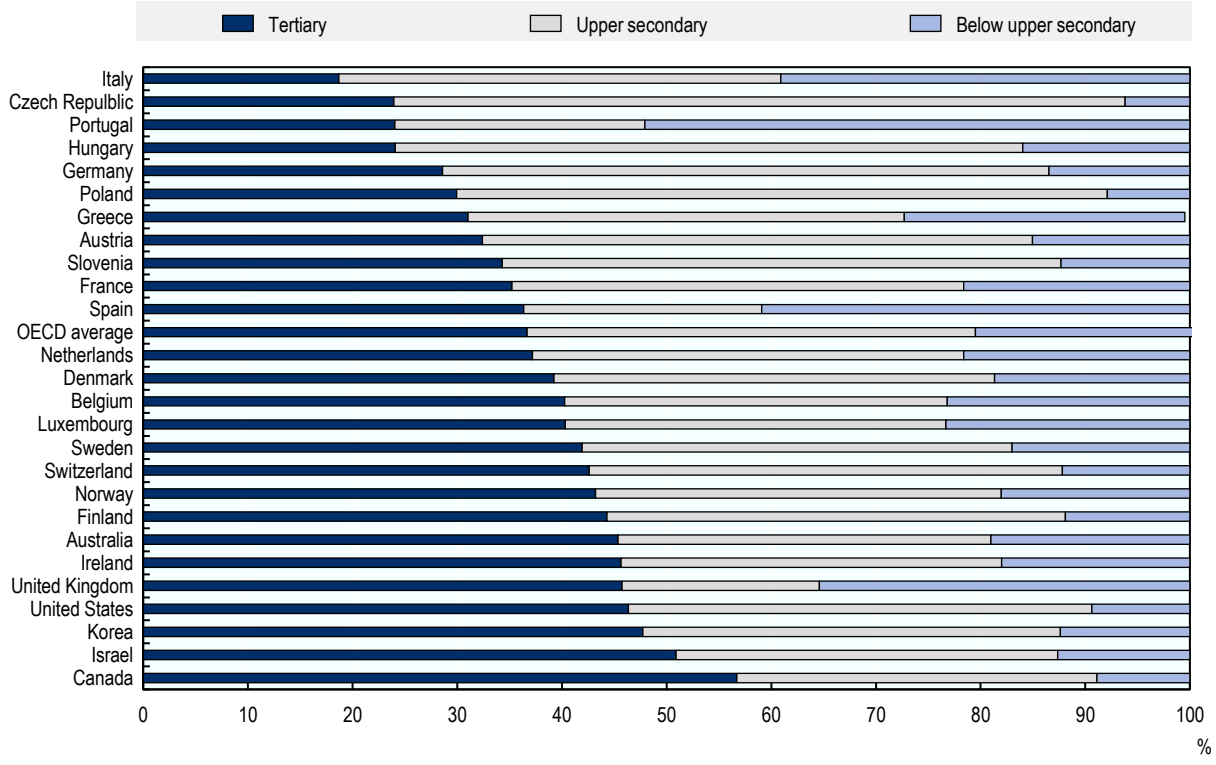
qualifications among Core Cities. This shows that even a city with a high share of university graduates can struggle to ensure that all residents reach adequate education levels. It also highlights the importance of considering the various dimensions of education policy, from early childhood to university education.

Despite the high share of university graduates, international skills assessments place the United Kingdom only in the middle of OECD countries. In 2018, 15-year-old students in England, Scotland and Northern Ireland performed significantly above the OECD average in all 3 tested subjects (mathematics, reading and science) according to the Programme for International Student Assessment (PISA). Student performance improved compared to the 2015 round of the PISA. However, the skills performance of adults lags behind the learning outcome of students. The OECD Survey of Adult Skills (PIAAC) finds that young adults (16-24 year-olds) in England and Northern Ireland have lower literacy and numeracy skills than their peers in almost all other participant countries (OECD, 2017[23]).

Compared to the rest of the country, students in Core Cities perform below average in terms of share of students achieving at least grade 9-4 (the lowest pass grade) in English and Mathematics at the GCSE exams (Figure 1.12). Core Cities' average rate of 59.5% is below the England average of 64%. The difference to London, where 69% of students achieve at least a 9-4 is even higher.

Figure 1.10. The UK has a high share of adults with tertiary education

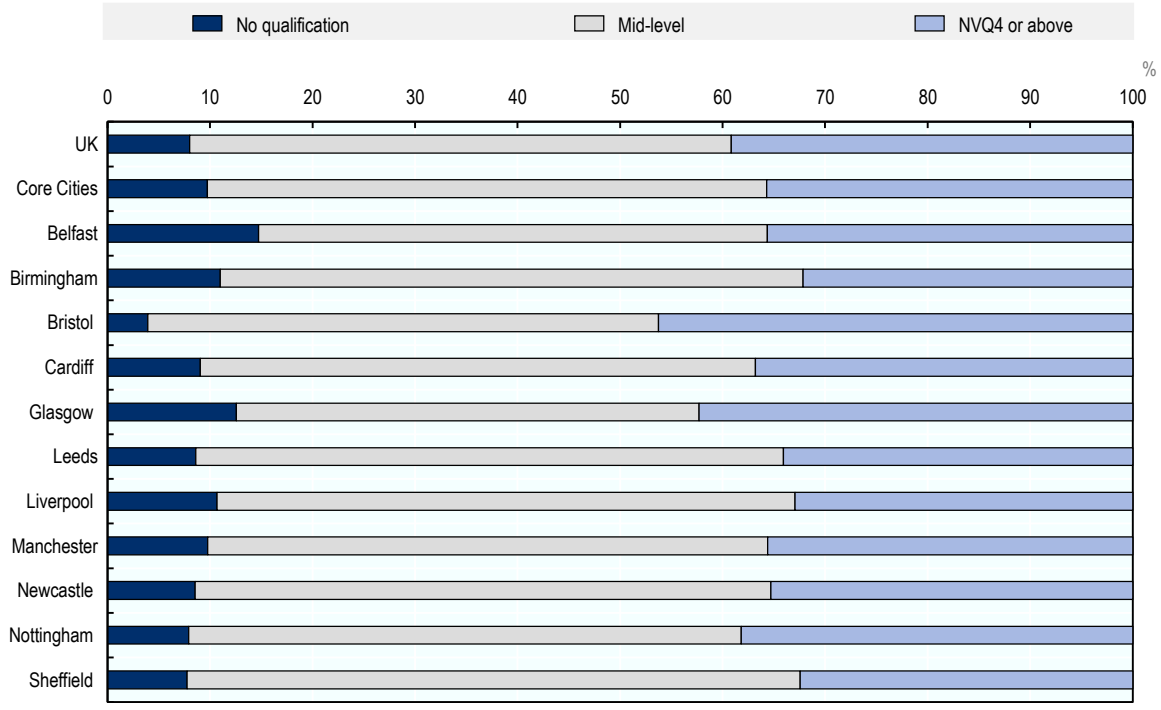
Educational attainment of 25-64 years-olds, 2017



Note: Figure ranks countries in ascending order based on the percentage of adults with tertiary education (i.e. university or higher) as the highest level attained. Data refer to 2017 or the most recent year for which data is available.
Source: OECD calculations based on OECD (2019[24]), OECD Education at a Glance (database) (accessed August 2019).

Figure 1.11. Core Cities face different challenges in terms of skills

Highest educational attainment of the working-age population (15-65 year-olds), 2018

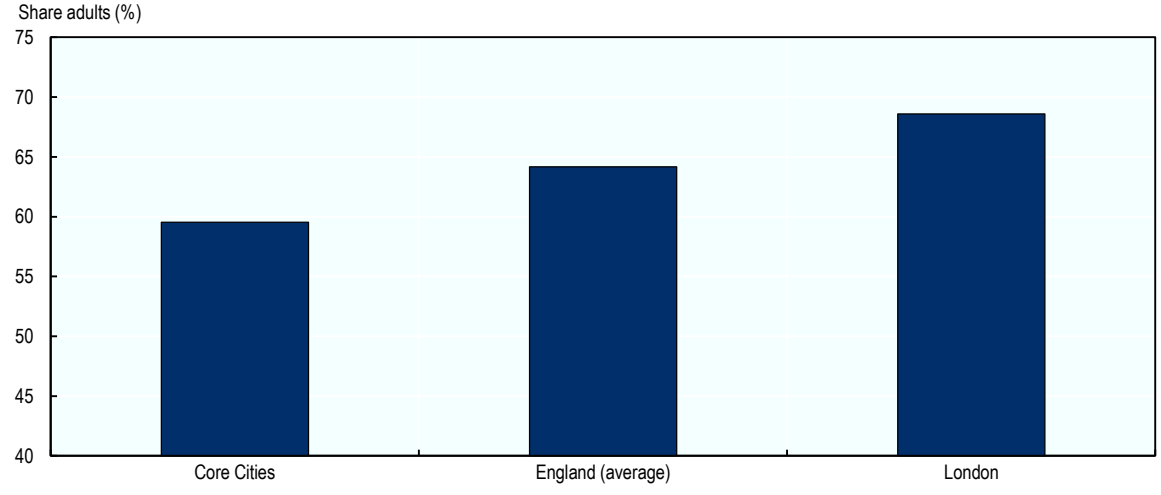


Note: Mid-level qualifications corresponds to the highest level of qualification from Level 1 up to Level 4. See National Official Labour Market Statistics (NOMIS[5]) for details on qualification groupings. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data (accessed June 2019).

StatLink https://doi.org/10.1787/888934086204

Figure 1.12. Core City students are performing below the average

Average share of students achieving 9-4 in English and Mathematics, 2017

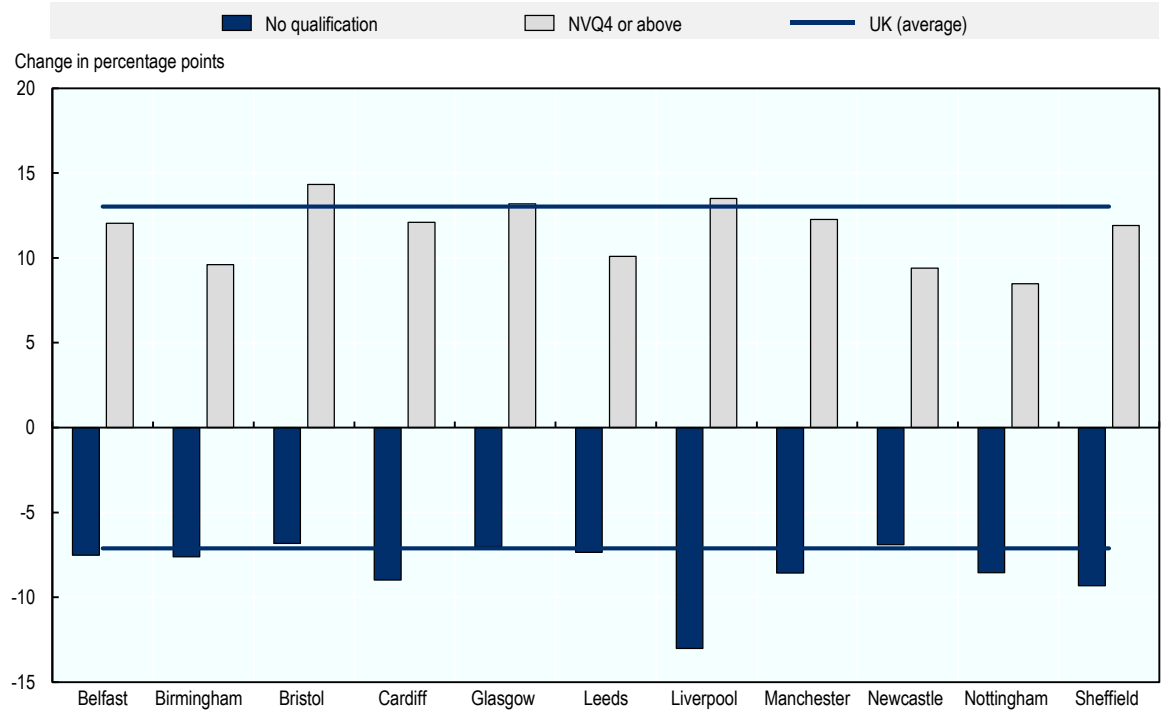


Note: Data for England only. Data refers to academic year ending in 2017. The average for Core Cities includes Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield. Data refer to local authority units (LAUs).
Source: OECD calculations based on Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

Despite the gap in other parts of the UK, there have been significant increases in education levels over the past 15 years. The share of people with no education has decreased significantly since 2004, while the share of people with tertiary education has increased (Figure 1.13). The expansion to tertiary education was brought about by government reforms which raised the tuition fee cap, while simultaneously introducing more generous loans and grants, and scholarships for high-achieving students from low-income households (OECD, 2017[23]). The share of the population with tertiary education increased across Core Cities from 24.2% to 35.7%. This increase is similar to the UK average.

Figure 1.13. Improvement in average education

Change in the share of the population without formal qualifications and population with higher education degree



Note: The figure plots the change in the share of the population without any recognised formal education (No qualification) and the share with tertiary education (NVQ4 or above), between 2004 and 2018. The two lines mark the rate of change during the same period, for the whole of the UK. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data (accessed June 2019).

Core Cities reduced its share of the adult population with no formal education faster than the rest of the UK. In 2018, 9.7% of the population in Core Cities had no formal education, down from 17.8% in 2004. The decrease in Core Cities was one percentage point larger than the UK average. The biggest improvements took place in Liverpool, where the share of the population without formal qualifications dropped by 13 percentage points.

Continuing the efforts to raise education levels among all population groups will be critical to equip workers with the necessary skills to benefit from globalisation and technological change. Job automation is likely to accelerate in the future and even workers in jobs that were until now largely protected from automation might be threatened by it (OECD, 2018[25]). Continuous upskilling is essential to ensure that workers who lose jobs due to automation find good quality employment in other sectors. To ensure equal access to

quality schooling for children in disadvantaged neighbourhoods in the UK, the OECD (2017[23]) emphasises the need to attract more highly qualified to schools in socioeconomically weak neighbourhoods. Moreover, employer interactions during secondary school should be strengthened to ease the transition from school to the labour market and provide better career guidance to students (OECD, 2017[23]).

Skills gaps are an issue for some Core Cities

Skills are a key driver of economic growth but local economies differ in their ability to develop, attract and retain a skilled workforce. Moreover, it is not only the supply of skills that matters but also how businesses demand and use these skills. Thus, understanding whether the local economy as a whole is making good use of the skills of the local workforce through efficient matches in the labour supply and demand is essential.

Some local areas may have a significant mismatch between the skills of the workforce and the available jobs. In those areas, jobs may remain unfilled or the skills of the workforce may be underutilised. In other communities, a low level of unemployment may be hiding challenges related to low-skilled and poorly productive jobs. Such skill mismatches can undermine the prospects for growth and job creation. Preventing them requires comprehensive strategies for economic and skills development, including altering the use of skills and stimulating innovation (Froy, Giguere and Meghnagi, 2012[26]).

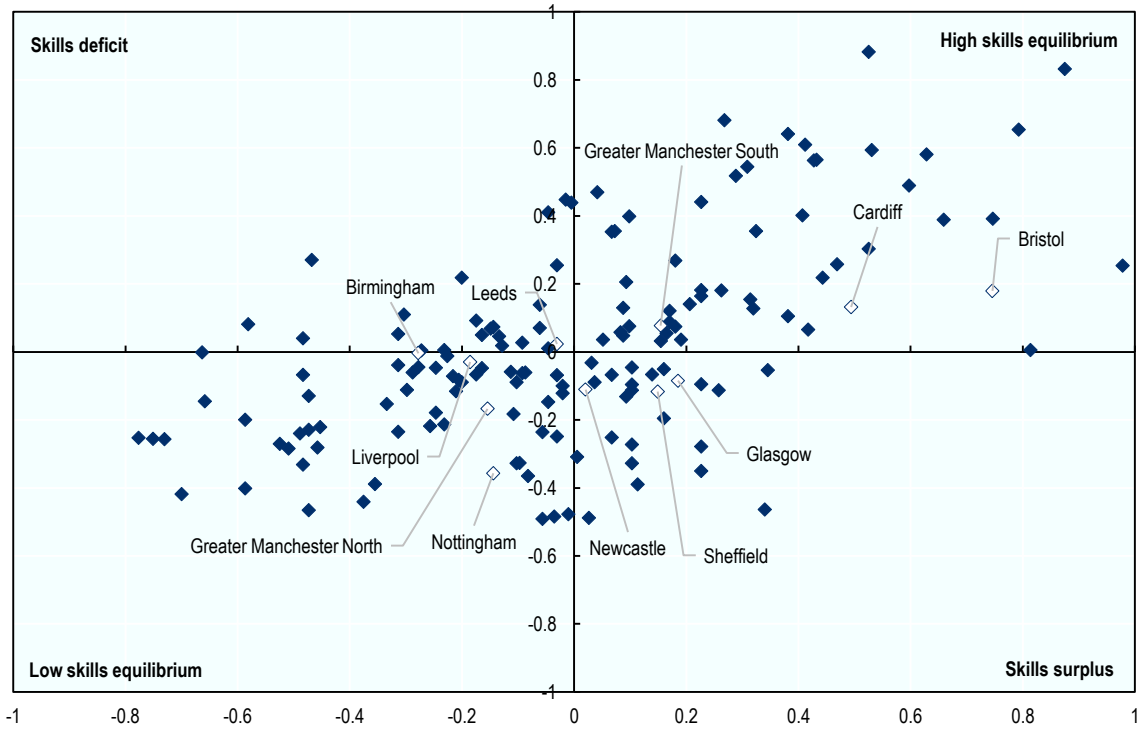
Better understanding the relationship between skills supply and demand in local areas would make it possible to identify the right policy mix to increase competitiveness, reduce unemployment and promote inclusive growth nationally. To aid in these efforts, the OECD has developed a statistical tool to help understand the balance between skills supply and demand within local labour markets (Froy, Giguere and Meghnagi, 2012[26]). According to this methodology, local economies can fall into four different categories: high skills equilibrium, skills deficit, skills surplus or low skills trap.

Supply and demand for skills vary considerably across Core Cities. Figure 1.14 shows supply and demand for skills at the TL3 regional level, which corresponds roughly to city-regions (OECD, 2018[25]). Demand for skills is plotted on the vertical axis, while the supply of skills is plotted on the horizontal axis. Regions in the upper right corner of the figure are in a high-skilled equilibrium, while those in the lower-left corner are in a low-skilled equilibrium. The further to the upper left or lower right a region is located, the larger the skills mismatch. Regions in the upper left face a skills deficit and regions in the lower right of the chart experience a skills surplus. The figure shows that cities such as Bristol and Cardiff have a high supply of skills, which is mostly met by a high demand for skills. Yet, skill supply still exceeds skill demand and there is a risk that skills are underutilised, which could lead to the out-migration of talent, underemployment and attrition of human capital, all of which signal missed opportunities for creating prosperity. In contrast, Birmingham, for example, has an average demand for skills but a below-average supply of skills, thus indicating a skills deficit. Businesses in this city are potentially held back by an insufficient supply of skilled workers.

These results show that Core Cities have a heterogeneous structure in terms of the skills gap. Thus, there is no one-size-fits-all education and skills policy that is appropriate for all Core Cities. Instead, each city must develop a skills policy that is appropriate for its region and have the means to implement it.

Figure 1.14. Skills supply and demand

Skills mismatch in Britain, NUTS-3, 2017



Note: The analysis is carried out at Territorial Level 3 (TL3) regions according to OECD classification. The supply of skills was measured by the percentage of the population with post-secondary education. The demand for skills was approximated using a composite index: percentage of the population employed in medium-high skilled occupations and GVA per worker (weighted at 0.25 and 0.75 respectively). The indices are standardised using the inter-decile method and are compared with the national median. Further explanations of the methodology can be found in Froy, Giguere and Meghnagi (2012[26]). Belfast is not included in the figure due to a lack of available data for Northern Ireland.
Source: OECD calculations based on data from OECD (2018[25]), *Job Creation and Local Economic Development*, 2018.

Innovation is a key determinant of productivity and long-term growth

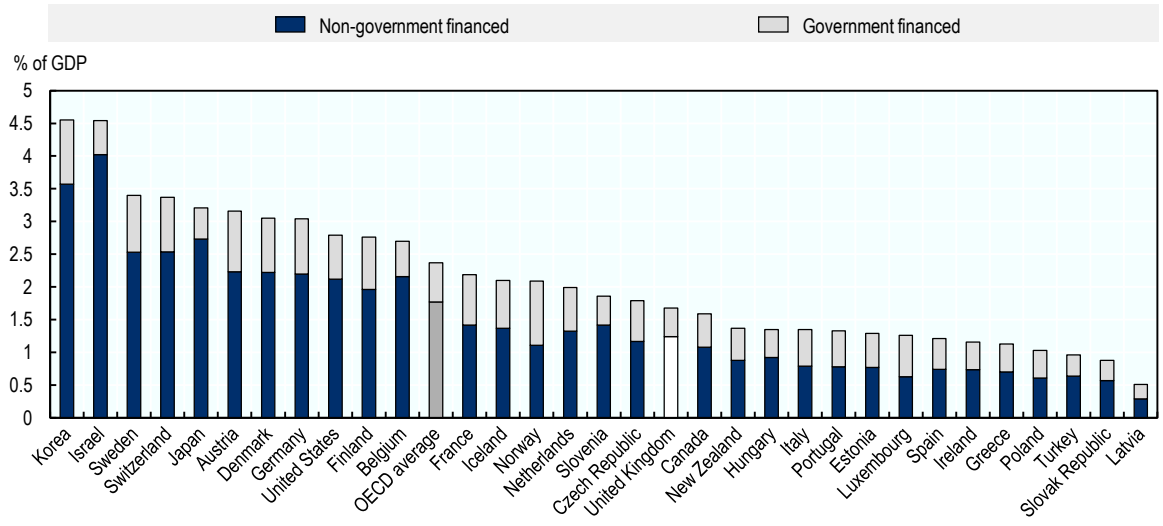
Innovation is the main channel through which productivity is increased in the long term. It allows capital and labour, the two main production factors, to be used in new and better ways, thereby increasing productivity and, through this channel, GDP.

One of the most immediate ways to increase levels of innovation is an investment in R&D. However, the UK performs poorly on this measure compared to other advanced economies. Public and private spending on R&D was equal to 1.7% of GDP compared to an OECD average of 2.4% in 2017 (Figure 1.15). It is even further behind high-income countries such as Germany (3.0%) and the United States (2.8%). Likewise, the UK performs only around average in many other science and innovation indicators (OECD, 2017[27]).

At the local level, the number of patents publications are a measure for innovation efforts. Most Core Cities are below the national average of 18 patents per 100 000 residents. Exceptions are Bristol and Cardiff, as well as Nottingham, which is slightly above the national average and not far from the level of London.

Figure 1.15. UK spends below OECD average on R&D

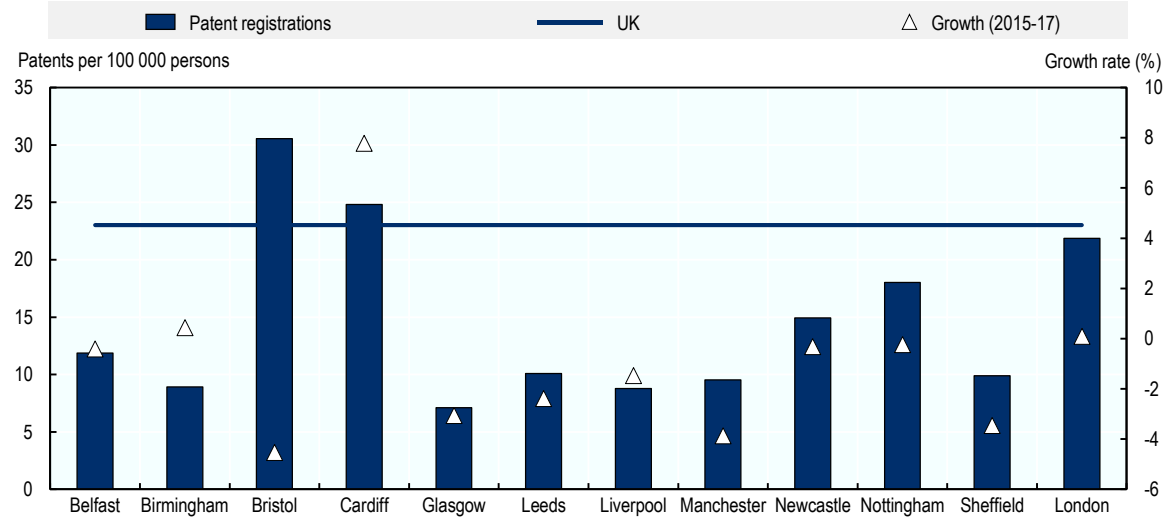
Gross domestic expenditure on R&D by the source of financing, as a percentage of GDP, 2017



Note: Research and development spending by source of financing, as a share of GDP. Data for the UK and OECD aggregate from 2016, all other countries from 2017.
Source: OECD (2019[28]), OECD Science, Technology and R&D Statistics (database) (accessed September 2019).

Figure 1.16. Core Cities can innovate more

Patents registrations (2017) and growth (2015-17)



Note: The left axis (bars) corresponds to several patent applications made for 100 000 population in 2017, while the right axis (triangle markers) plots the growth in patent registrations between 2015 and 2017. Cities correspond to the primary urban area based on built-up areas and may include more than one local authority.
Source: OECD calculations based on Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

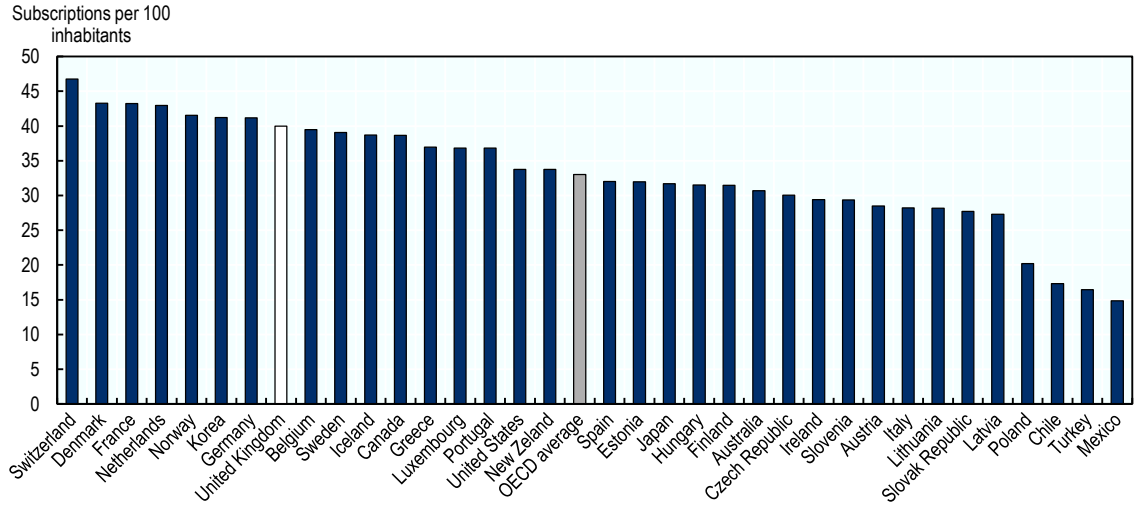
Digital infrastructure development should be supported

Digital infrastructure ensures the flow of communication, data and knowledge across the country. It lays the foundation for innovation in cities, while also helping remote areas to stay connected with the rest of the economy. Thus, it contributes to catching up in productivity and helps to reduce regional disparities (Celbis and de Crombrugghe, 2018[29]). Existing evidence shows that high-speed broadband networks contribute to making firms more productive in the UK and increase economic growth (OECD, 2015[30]).

The UK performs well above other OECD countries in terms of providing access to high-speed Internet to a large share of its population. Moreover, the extent of access to broadband Internet varies very little between regions within the UK, which makes it one of the OECD countries with the smallest geographical difference in terms of broadband access (OECD, 2019[31]). In 2018, more than half of UK premises (51.6%) had access to ultrafast broadband (Figure 1.18, Panel A). All of the Core Cities have widespread access to ultrafast Internet with coverage rates above the national average. While some cities are close to complete coverage, those that are not yet at full coverage are catching up quickly.

Figure 1.17. The number of broadband connections is high in the UK

Total fixed broadband subscriptions per 100 inhabitants, 2018

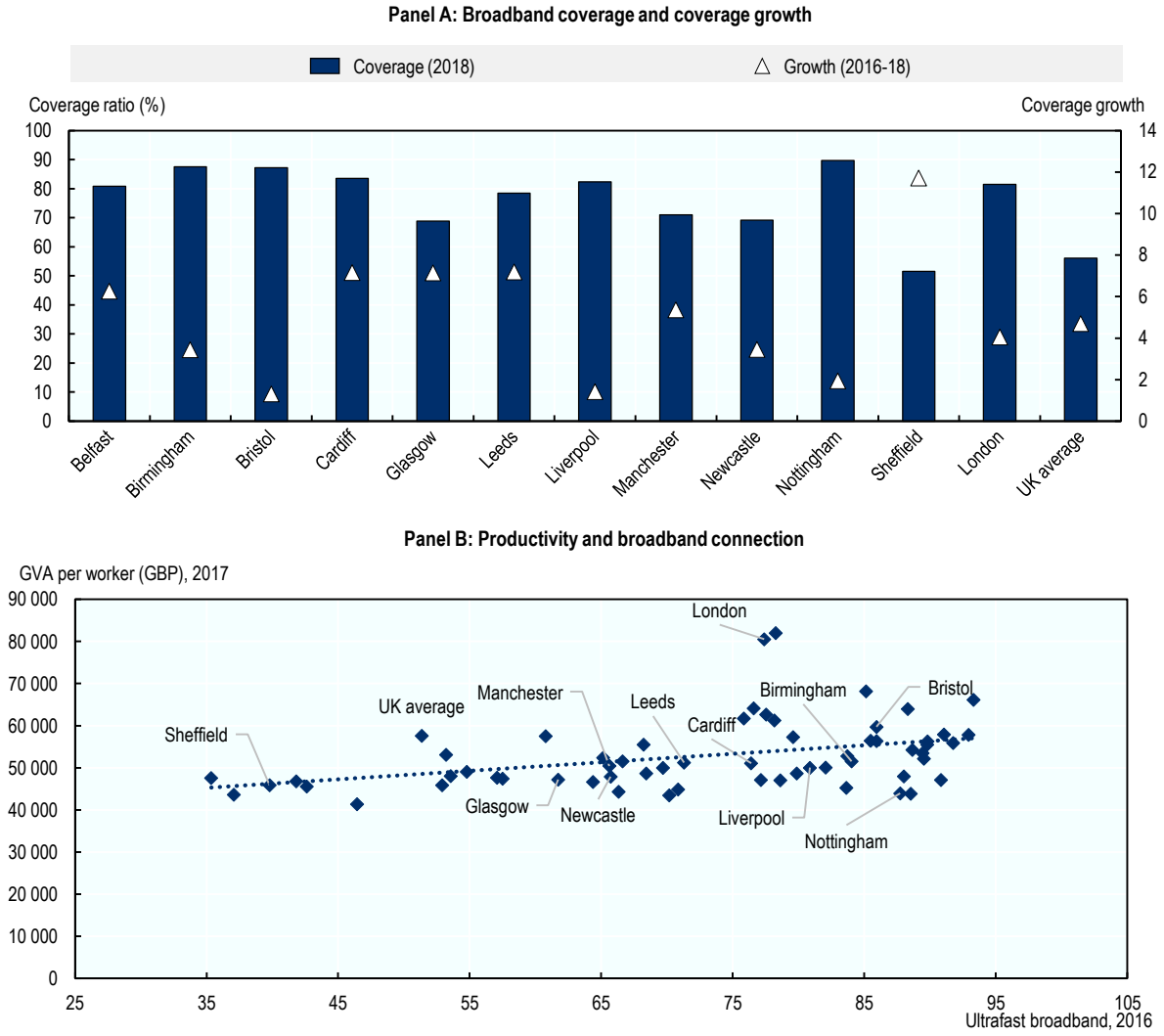


Note: Total fixed broadband subscriptions per 100 inhabitants in 2018. OECD aggregate is the unweighted average of the countries for which data is available.
Source: OECD (2019[32]), OECD Information and Communication Technology Statistics (database) (accessed September 2019).

The positive effects of high-speed broadband on productivity could also be reflected in the positive correlation of these two measures shown in Figure 1.18, Panel B. UK with greater broadband coverage have higher productivity. While such a correlation does not necessarily imply a causal link between the two factors, it is in line with the existing evidence mentioned above.

Given the positive effects on productivity, investments in digital infrastructure should be increased across Core Cities. However, this should occur together with complementary measures to ensure high utilisation of this infrastructure. The provision of information and communication technology (ICT) infrastructure is not enough to unlock the full potential of this technology. Only if factors such as managerial quality, transportation networks and the skill level of the local workforce are at adequate levels will the full benefits of ICT infrastructure materialise (Mack, Anselin and Grubesic, 2011[33]; Shiu and Lam, 2008[34]).

Figure 1.18. Broadband access and productivity



Note: Panel A: Ultrafast broadband is the percentage of premises covered with ultrafast broadband (>100 Mbps) as at the end of the period. The UK average is the unweighted average of all local authority level figures.
Source: Broadband data: Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).GVA per worker: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) data (accessed August 2019).

Transportation infrastructure is a bottleneck for productivity

Infrastructure and accessibility – between and within regions – are important for economic performance. Better connectivity between cities and regions reduces the cost of transportation and travel time between individuals and firms. Beyond facilitating the transport of goods and people, it also helps the diffusion of knowledge and best business practices from the top performers to other firms, which is an important element for boosting productivity (Andrews, Criscuolo and Gal, 2016[35]).

For regions, better access and reduced travel times to large metropolitan areas can be a significant driver of productivity and GDP growth per capita (Ahrend and Schumann, 2014[36]). Given the importance of domestic transportation costs in the overall cost of shipping goods across borders, any improvement in the infrastructure would reduce the domestic transportation costs, improve the integration of regions to take part in global supply chains and boost their exports (Cosar and Demir, 2016[37]). According to Gibbons

et al. (2019[38]), establishments located in areas that saw improved connectivity increased their output per worker and paid higher wages to their employees.

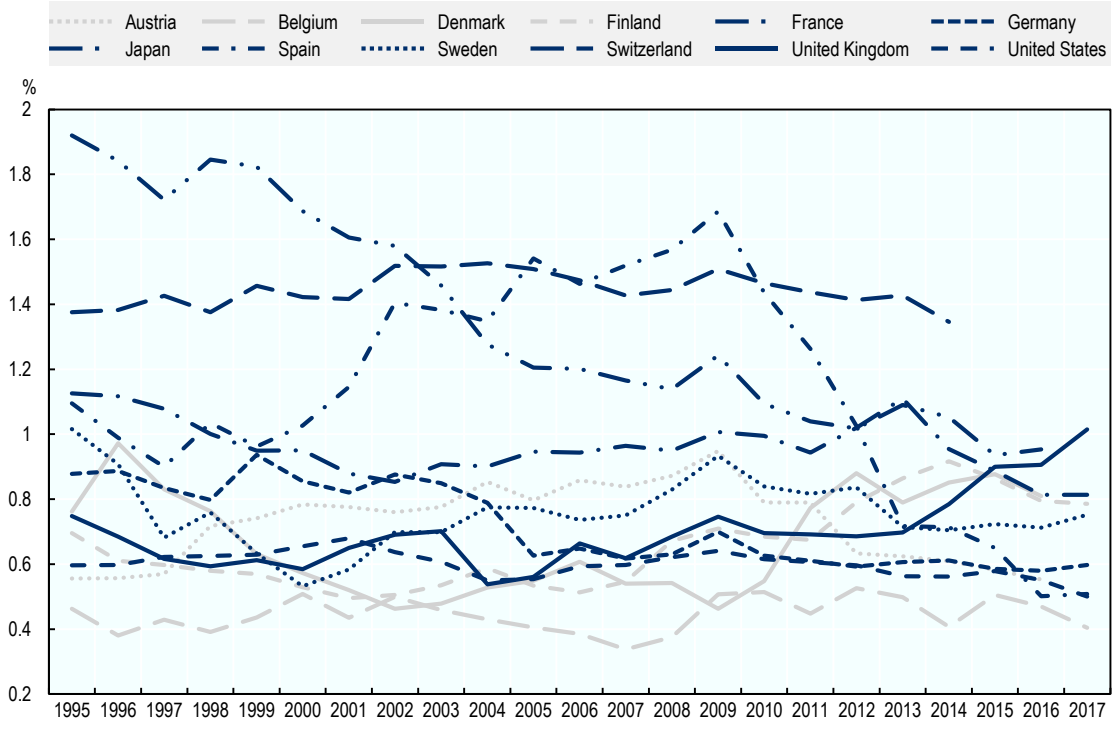
Strengthening transport links across cities can be particularly effective when geographic distances between them are relatively close. For instance, given the high population density and proximity of urban centres in the northern part of England (Liverpool-Manchester-Leeds-Sheffield), better connectivity could substantially increase the number of customers that businesses in these cities reach within a given time.

At the local level, better connectivity can increase the number of jobs workers can reach within a reasonable amount of time while providing firms with a larger pool of workers to tap into. This is, for example, relevant for working couples in specialised professions who may struggle to both find jobs that match their skill profiles within commuting distance of their place of residence. However, it also benefits all other workers who have potential access to a larger number of jobs without having to move. As a consequence, better connectivity reduces labour market imbalances and improves the matching between firms and workers, both of which contribute to productivity growth and increase employment.

As pointed out in the previous Economic Survey of the United Kingdom (OECD, 2013[39]; OECD, 2017[27]) and discussed in other studies (LSE Growth Commission, 2013[40]), insufficient infrastructure investment has become a bottleneck in the development of the UK economy. Total spending on transport investment and maintenance as a percentage of GDP has been low for several decades compared to other advanced economies, although it has started to rise in 2014 (Figure 1.19). Yet, given the low level of investment in the past, it will take a considerable period of higher investment until the level of infrastructure improves markedly.

Figure 1.19. Transport investment started picking up in recent years

Transport investment as a percentage of GDP (selected OECD countries)

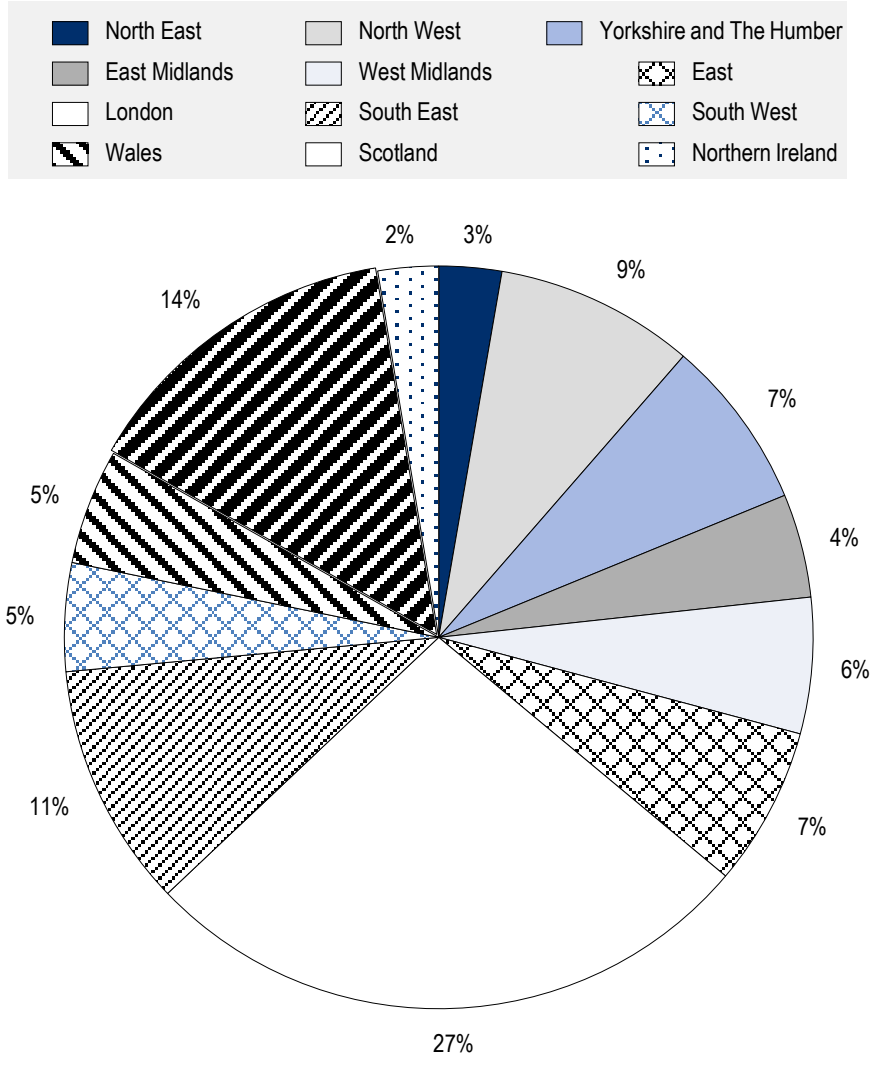


Note: The figure plots the total (both public and private) inland transport infrastructure investment as a percentage of GDP.
Source: OECD (2019[41]), OECD Transport Forum (database) (accessed August 2019).

Yet, transport infrastructure investment is much lower outside of London (Figure 1.20). For instance, nearly 27% of all public sector 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 (Figure 1.21): transport investment spending in London is about GBP 1 019 per resident, compared to Scotland with the second-highest transport spending per capita at close to GBP 667 per resident. Northern Ireland has the lowest capital spending per resident, a little over GBP 297. Some of these differences may stem naturally from different needs across more and less densely populated areas. In particular, transport infrastructure in London is used to some degree by residents commuting into London from outside the city. Thus, the large differences shown in Figure 1.21 would most likely be lower when calculated on a per-user basis instead of a per capita basis.[5] This notwithstanding, increased investment in public transport is imperative to strengthen productivity in Core Cities.

Figure 1.20. The share of transport infrastructure investment by region

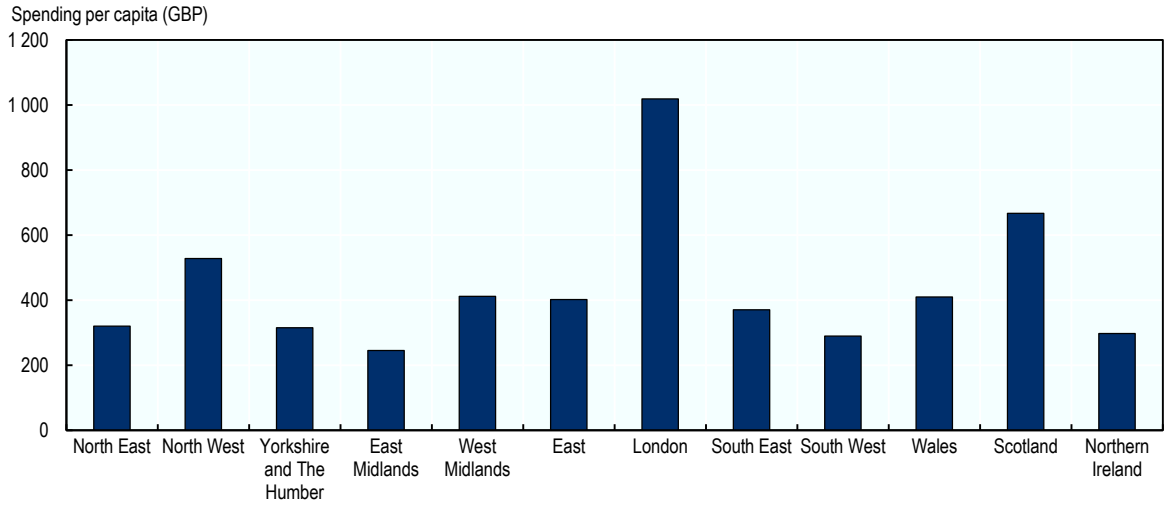
Share of transport infrastructure investment by regions, 2017/18 fiscal year



Note: Data refer to the fiscal year. The figure represents the sum of local and central government expenditure.
Source: OECD calculation based on HM Treasury (2019[42]), *Country and Regional Analysis: 2018*

Figure 1.21. Public transport spending per capita in London is much higher than in other regions

Per capita spending in public transportation services in the 2017/18 fiscal year



Note: Data refer to the fiscal year. The left axis corresponds to spending in GBP per capita in the 2017/18 fiscal year; the right axis corresponds to the growth rate in per capita spending between 2014 and 2018. The figure represents the sum of local and central government expenditure. Data refers to TL2 regions for which data is available.
Source: OECD calculation based HM Treasury (2019[42]), *Country and Regional Analysis: 2018*.

Core Cities rely heavily on road transport

The United Kingdom records a high use of passenger cars. In 2016, car trips represented 85% of the passenger-kilometres travelled, above the EU average (Table 1.2). When it comes to freight, the modal share of road transport is even higher and significantly above the EU average. At the same time, low investment and insufficient funds for road maintenance have increased the concerns about the deteriorating state of the existing infrastructure (OECD, 2013[39]).

Table 1.2. Roads are used heavily for both transportation and freight

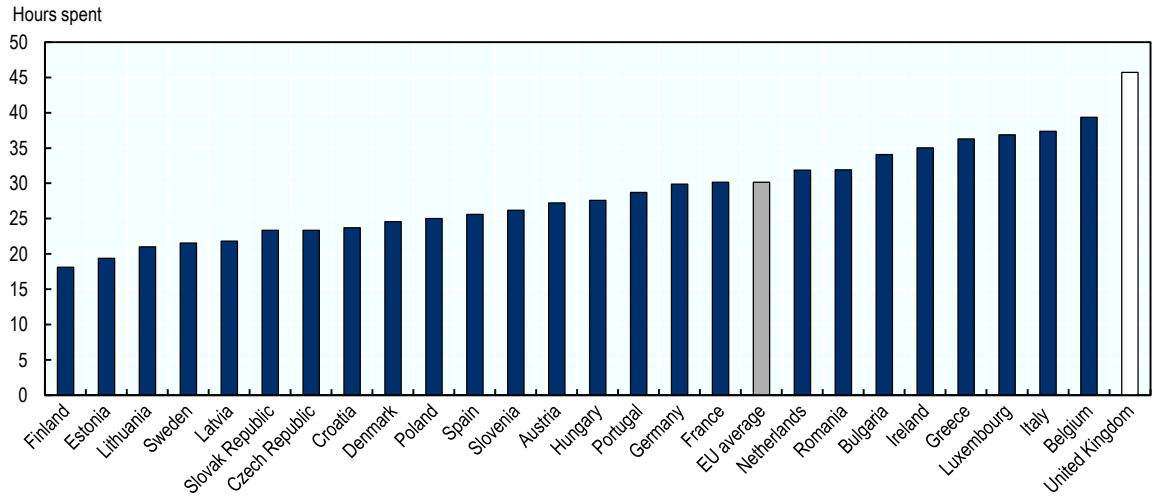
	Passenger transport (% of each mode)				Freight transport (% of each mode)			
	Cars	Buses and coaches	Railways	Tram and metro	Roads	Railways	Inland waterways	Pipeline
UK	85	4.6	8.7	1.7	87.2	8	0.1	4.7
EU-28	81.3	9.3	7.6	1.8	72.8	16.6	5.9	4.6

Note: Table presents modal split (in percentages) for passenger and freight transport in 2016.
Source: European Commission (2019[43]), *Transport in the European Union*, European Commission.

As a consequence of the strong reliance on cars, traffic congestion in the UK is the worst European country in terms of time spent in traffic (Figure 1.22). According to INRIX, a US-based company that collects traffic-related data, drivers in the UK lost an average of 178 hours a year due to congestion, costing UK drivers GBP 7.9 billion in 2018, an average of GBP 1 317 per driver. In addition to cost on private drivers, road congestion also slows freight movement across the UK, which increases the cost of transportation and undermines the potential of connectivity across cities through input-output linkages. The delays due to road congestion increase transport costs for firms and harms their competitiveness. These negative effects of congestion on individuals and firms increase the costs of agglomeration and limit productivity gains.

Figure 1.22. The UK has the worst road congestion in the EU

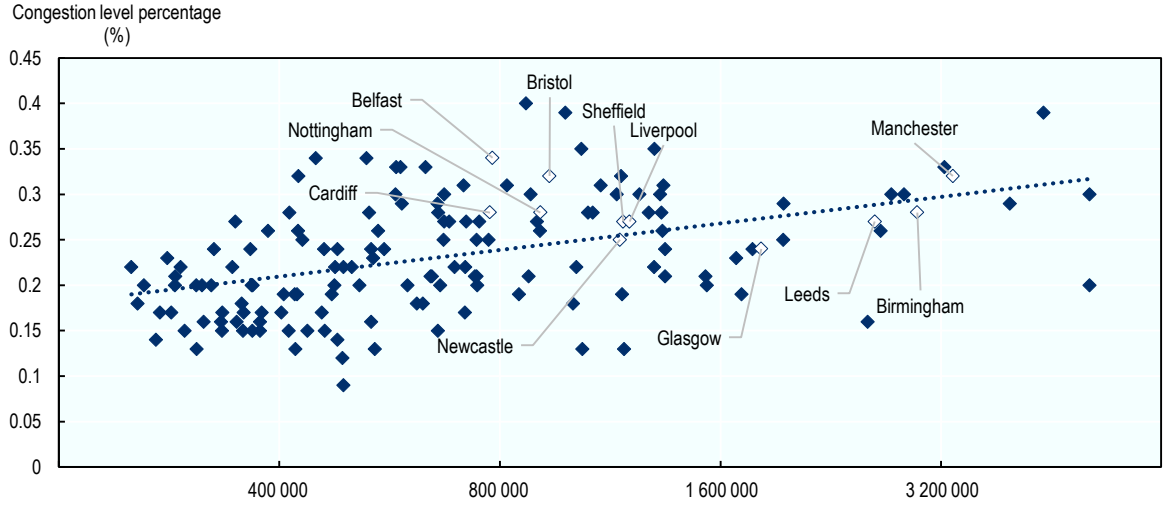
Hours spent in road congestion annually, in 2017



Note: The figure presents hours spent on road congestion by the average driver every year. The indicator assumes two 30-km trips per day (morning peak and evening peak) and 220 working days. It takes into account all major roads in the EU for which data is available.
Source: European Commission (2018[44]), *Road Transport Performance in Europe,* European Commission

Core Cities suffer from congestion relative to their size. Figure 1.23 plots the population size of a city (horizontal axis) and the congestion level percentages which represent the extra travel time experienced by drivers (vertical axis). For example, a congestion level of 32% in of Bristol means that an average trip takes 32% more time than it would in completely uncongested conditions. The figure plots the relationship between the city size and congestion level for 163 European cities in 18 countries. The trend line shows that as the city size increases, congestion levels also increase. Cities that are above the trend line have a higher degree of congestion, while those that are below the trend have a lower degree of congestion.[6]

Figure 1.23. Congestion is high in Core Cities



Note: The figure presents the congestion level percentage (vertical axis) and population size (in log scale, horizontal axis) for 163 European cities in 18 countries, excluding capital cities, for which data is available.
Source: OECD calculations based on (OECD, 2019[6]), OECD Regional Statistics (database) and congestion data from TomTom (2019[45]), Traffic Index 2019 (accessed September 2019).

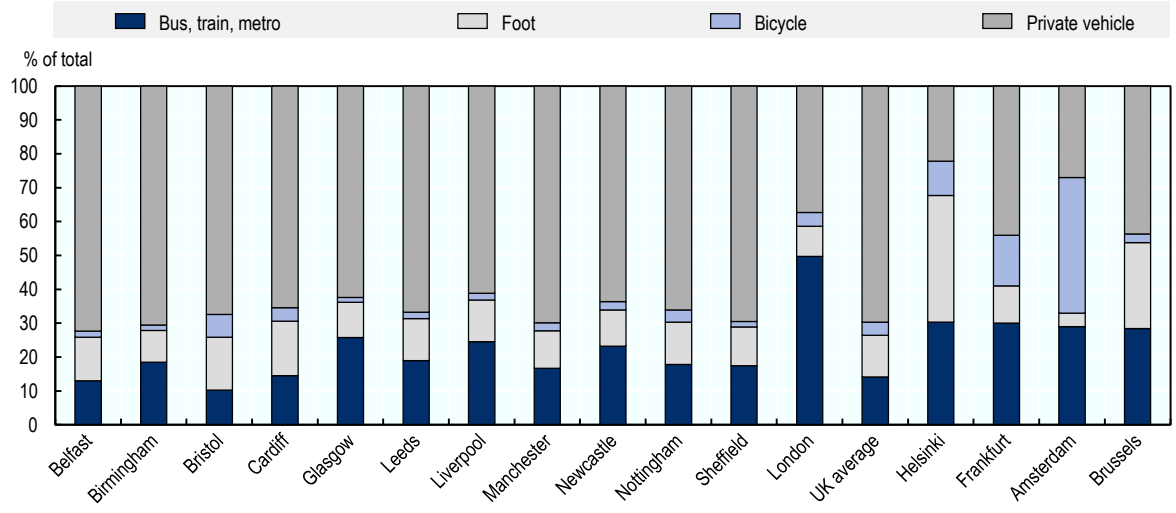
Better public transport is crucial

Urban transportation in Core Cities is highly reliant on private vehicles (i.e. cars) in Core Cities and in the UK (Figure 1.24). On average 61.2% of the commutes in the Core Cities are made in private vehicles, which is almost double the rate of London (33.5%) and much higher than what is observed in other comparable European cities, such as Frankfurt (44%) and Helsinki (22%). The high reliance on private vehicles is mainly due to the low use of public transportation in Core Cities (16.2%). Other soft forms of transportation, such as cycling and walking, also remain limited in the Core Cities (2.5% and 11.2% respectively).

The low mode shares of public transport are one of the reasons for the high levels of congestion documented above. Moreover, the strong reliance on road transport is increasingly problematic as it is a major roadblock in the urgent transition to a low carbon economy. While it is beyond the scope of this report to analyse the determinants of mode shares in detail, it is likely that insufficient investment in public transport is at least partly to blame for the low levels of public transport ridership.

Figure 1.24. Modal share in Core Cities and international peers

Modal share in urban transportation, 2011



Note: The figure presents the share of each transportation mode in urban mobility in 2011. Data for Helsinki is from 2016, for Frankfurt from 2015, for Amsterdam from 2014 and for Brussels from 2010. Core Cities correspond to local authority unit boundaries. Cities outside of the UK correspond to their respective administrative borders.
Source: OECD calculations based on census data provided by National Official Labour Market Statistics (NOMIS[5]) and Northern Ireland Statistics and Research Agency (NISRA[9]) data. Data for Brussels, Helsinki, Frankfurt and Amsterdam come from (EPOMM, 2020[46]) (accessed August 2019).

One indication of low levels of public transport infrastructure can be found in the number of light rail and metro systems that are operated in UK cities. Only nine metropolitan areas in the UK are covered by metro or light rail networks (Department for Transport, 2018[47]). Notably, large Core Cities, such as Leeds with approximately 500 000 inhabitants, do not have a light rail system. In contrast, metro and light rail networks are much more frequent in many other OECD countries. For example, Germany, where light rail systems are particularly common, operates metro or light rail systems in more than 60 cities (Light Rail Transport Association, 2018[48]).

The power of an efficient metro system to transport people can be illustrated by a striking fact. With 1.7 billion annual journeys, the London metro system[7] transported just as many passengers as the entire

UK National Rail Network (Office of Rail and Road Transport, 2018[49]; Transport for London, 2019[50]). Developing public transport systems of comparable quality in Core Cities will be necessary for productivity levels to catch up with its potential.

Moreover, greater efforts should be made to invest in cycling infrastructure, such as protected cycle paths. As shown in Figure 1.24, the share of trips made on bicycles in Core Cities and the UK more generally is well below that of comparable cities in other European countries. Investing in cycling infrastructure is a critical element to increase the cycling mode share and thereby desaturate congested roads (Krizek, Barnes and Thompson, 2009[51]). Likewise, the walkability of Core Cities should be improved, both by securing roads for pedestrians and building footpaths as well as by ensuring a compact urban development that favours walking. Such investment into soft infrastructure usually is considerably cheaper than increasing road capacity but can nevertheless have considerable effects on modal shares and congestion.

While better connectivity will increase overall productivity levels (Duranton and Puga, 2004[52]), the possibility to access jobs outside of one's own neighbourhood is vital in poorer neighbourhoods where employment options within the neighbourhood are limited (Mayer and Trevien, 2017[53]). At the same time, residents in these neighbourhoods are especially likely to lack access to their own car and are therefore reliant on good public transport. More generally, public transport investments are essential elements of inclusive growth strategies, as they generate economic growth while benefitting especially low-income households.

Building the required infrastructure to achieve a significant shift in the modal share from road transport to other forms of transport calls for significant investments. An innovative solution to fund this is the use of land value capture. Land value capture is the process of capturing gains in land values that have been caused by public policies, such as infrastructure investments and rezoning decisions. It ensures that rising land values through public actions benefit the general public instead of creating windfall gains to landowners.

A wide range of well-established land value capture instruments exists, including land value taxes, development fees and betterment levies. However, even though land value capture is appealing based on equity and efficiency considerations, and has potential to raise substantial revenues, few governments use it on a large scale and it is underutilised in the UK (House of Commons Housing, 2018[54]). To tap into this funding source, the national government should expand the possibilities for local authorities to deploy land value capture. Yet, in parallel, Core Cities should explore possibilities to use land value capture within the existing legal framework, as experience has shown that cities often have greater flexibility than expected to employ some land value capture instruments.

Core Cities need the powers to regulate local public transport effectively

Strong and well-functioning metropolitan transport authorities are essential to provide effective public transport in large cities. OECD research has shown that the satisfaction of residents with public transport provision is significantly higher in metropolitan areas where such transport authorities exist than in metropolitan areas where they do not exist (OECD, 2015[2]).

The need for effective regulation at the metropolitan level is reflected in bus ridership statistics in the UK. Since the deregulation of bus services outside of London in 1986, annual bus journeys in metropolitan areas outside of London (including non-Core Cities) have declined from 1.6 billion to 0.9 billion in 2017. While deregulation has caused intense competition on profitable bus routes, it also led to insufficiently co-ordinated route networks and timetables as well as reduced service in areas with weaker demand.

In contrast, bus journeys in London, where bus service has been consistently regulated by a strong transport authority annual ridership increased from 1.2 to 2.2 billion journeys (Department for Transport Statistics, 2019[55]). While this discrepancy is not necessarily entirely due to the differences in the regulatory

regime, the abovementioned evidence strongly suggests that differences in regulation contributed to the decline of bus transport in urban areas outside of London.

Most large cities in OECD countries have public transport authorities with significant regulatory responsibilities and user satisfaction with public transport is significantly higher where they exist compared to where they do not exist (Ahrend, Gamper and Schumann, 2014[56]). While the characteristics of such transport authorities differ in important aspects, international experience shows that three regulatory competencies are important to operate a well-co-ordinated public transport system that is convenient to use (OECD, 2015[3]):

1. Determining the route network.
2. Regulating timetables and establishing minimum requirements for service provision.
3. Establishing a unified pricing and ticketing scheme across modes of transport and operators.

The degree to which public transport in Core Cities is regulated through metropolitan public transport authorities varies. While metropolitan transport authorities have been established in some Core Cities, they are still absent in others (Urban Transport Group, 2018[57]). Moreover, where they exist, their regulatory competencies tend to be weak. In some Core Cities, such as Glasgow, discussions are ongoing about creating or strengthening metropolitan transport authorities.

Sufficiently funded metropolitan public transport authorities with appropriate regulatory competencies should be established in all Core Cities. Given the need to co-ordinate public transport provision across an entire metropolitan area, transport authorities should be placed under the responsibility of combined authorities and should at least cover the entire jurisdiction of the combined authority. Yet, as examples from other OECD countries show, it can be effective to extend the jurisdiction of a metropolitan transport authority beyond the limits of the metropolitan area to connect it to the wider metropolitan region (OECD, 2015[3]). Dedicated transport authorities, moreover, can encourage the development of administrative capacity at the regional level.

Where transport authorities exist, they should also have responsibility for investments in transport infrastructure. The *OECD Principles for Public Investment across Levels of Government* highlight that investment decisions need to take regional and local conditions into account (OECD, 2014[58]). Transport infrastructure investment decision are highly-placed dependent and metropolitan transport authorities are likely to have the required local knowledge. As they operate at a metropolitan scale, they are at the same time more likely to take a regional perspective than local authorities. Moreover, giving metropolitan transport authorities the responsibility for transport infrastructure investments helps to ensure that these decisions are aligned with the policy decisions mentioned above.

Reducing car-based transport is urgent for environmental and public health reasons

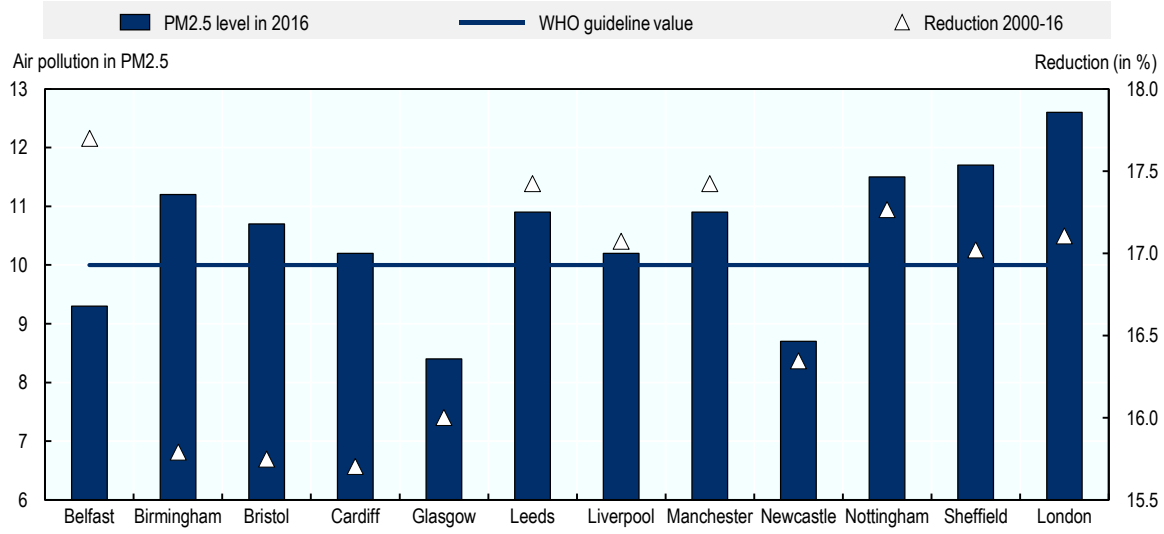
Strengthening public transport and soft modes of transportation is not only a means to increase productivity. It is also a public health measure. Air pollution caused by cars has serious effects on human health and is responsible for an alarming number of premature deaths. In Europe, exposure to air pollutants such as fine particulate matter 2.5 (PM2.5), NOx and ozone is estimated to have caused the death of 238 400 people in 2016 (OECD, 2016[59]). Moreover, air pollution contributes to respiratory, cardiovascular diseases and lung cancer. Road transport is a major contributor to urban air pollution in developed countries. The UK Department for Environment, Food and Rural Affairs and Department for Transport, road transport is responsible for 80% of roadside NOx concentrations, which is a prevalent issue in urban areas in the UK (Department for Environment, Food and Rural Affairs/Department for Transport, 2017[60]).

Despite significant declines in air pollution levels, many Core Cities still exceed the World Health Organization (WHO) threshold of 10µ/m³ average annual PM2.5 concentration (Figure 1.25). While pollution levels are low compared to many other OECD countries, the adverse effects of such air pollution

on health are still serious enough to require urgent action. Moreover, there is also an economic case for greater efforts to reduce air pollution. The global healthcare costs due to air pollution-related illnesses are approximately GBP 20 billion annually, while 1.2 billion working days are lost each year.

Clean Air Zones will be implemented over the coming years in several Core Cities. Vehicles entering these zones will have to pay a fee if they do not meet emission standards. The amount of the fee will depend on the type of vehicle and varies by city. Such policies are effective in reducing car traffic by highly polluting vehicles and should be extended to other Core Cities. However, to be most effective, the introduction of Clean Air Zones needs to take place in parallel with improvements to public transport to provide alternative means of transportation.

Figure 1.25. PM2.5 air pollution in Core Cities



Note: Fine particulate matter (PM) is a mixture of very small particles and liquid droplets released into the air. PM2.5 refers to suspended particulates less than 2.5 microns in diameter that are capable of entering the bloodstream and causing significant health damage. Most fine particulate matters come from fuel combustion, including from vehicles, power plants, factories and households. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on OECD (2019[6]), OECD Regional Statistics (database) (accessed August 2019).

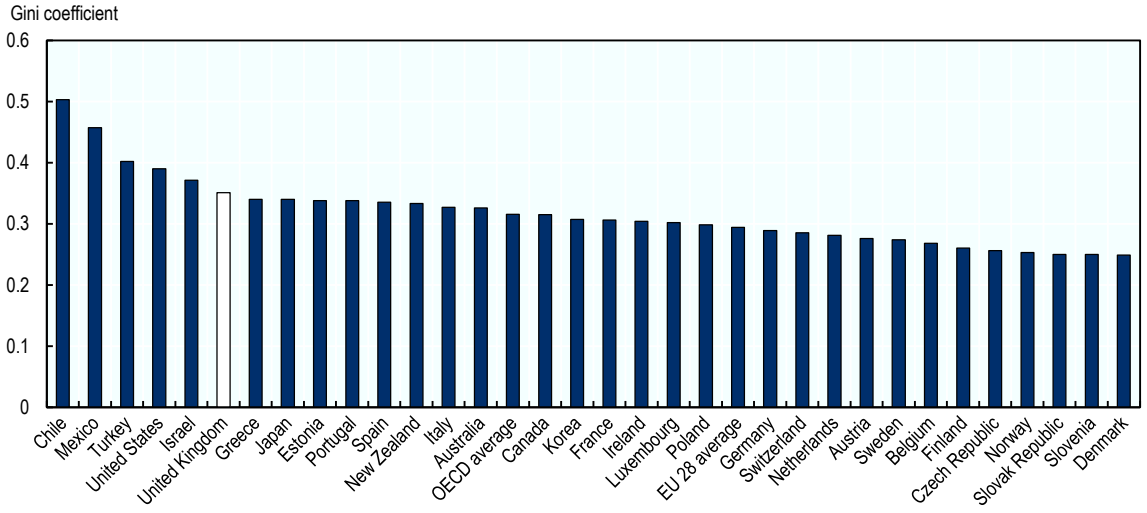
Inequality and segregation of income needs to be addressed

Inequality has been rising in most OECD countries in recent years (Cingano, 2014[61]). The difference between the top earners and the bottom is an indicator of how the economy performs in terms of the distribution of the gains of economic growth. Inequalities in the UK are an important challenge. Despite some marginal improvement in the past years, the UK is still one of the OECD countries with the largest income inequality (Figure 1.26).

Income inequalities within cities are especially problematic if the city suffers from income segregation, geographical concentration of households with a similar income level. When income inequality and income segregation are severe, it generates vicious circles of sustained exposure to disadvantage, which leads to more inequality and disadvantage (Chetty et al., 2014[62]). Such neighbourhood effects have especially important consequences in early childhood. Studies show that children who move to higher-income neighbourhoods will have higher educational attainment, higher incomes and lower rates of single parenthood later in life (Chetty, Hendren and Katz, 2016[63]).

Figure 1.26. The UK is one of the most unequal countries in the OECD

Gini coefficient (after taxes and transfers, 2016)



Note: The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality.
Source: OECD calculations based on OECD (2016[64]), *OECD Factbook 2015-2016*.

All Core Cities have very similar rates of income inequality as measured by the Gini coefficient that is close to the average of cities in the UK and lower than those of London.[8] Yet, given the overall high level of inequality, these rates of income inequality are still high by international standards. Moreover, the UK experienced a strong increase in segregation at the neighbourhood level between 2001 and 2011 (the latest period for which such data is available). The degree of segregation rose particularly strongly in several Core Cities, including in Cardiff, Leeds, Liverpool, Manchester and Sheffield (OECD, 2018[65]). Thus, there is an increasing risk that self-enforcing vicious cycles emerge, in which inequality in combination with segregation leads to perpetuating patterns of inequality.

Income levels in Core Cities also vary between different areas of the same FUA. Income levels in Core Cities are on average 6% lower than the commuting zone within their FUAs (Figure 1.27). With the exception of Cardiff and Nottingham, residents in the suburban commuting zone are richer than residents in city centres. This gap is not unique to Core Cities and it is observed across the UK and also countries such as Austria, Belgium, Estonia, France Germany, the Netherlands and Sweden (OECD, 2018[66]).

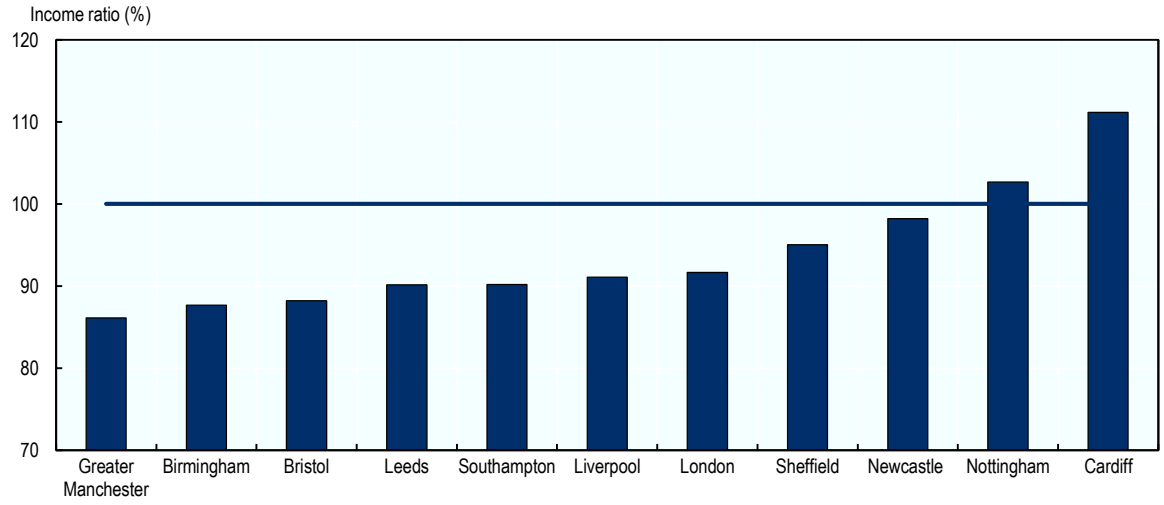
Inequality has many dimensions and there are even more ways to measure it. While the Gini coefficient is a well-defined and widely used concept, it only captures some of the aspects related to inequality. In particular, the Gini coefficient does not provide detailed information on poverty levels and other indicators are better suited to capture it. A particularly broad measure of poverty at the neighbourhood level is the Index of Multiple Deprivation. It combines information on factors such as income, employment, education, health, crime, housing and access to services. Neighbourhoods that fall in the bottom 10% of the ranking are considered to be deprived.

On average, 36.2% of the neighbourhoods that are located in the centre of the Core Cities are part of the 10% most deprived neighbourhoods in the UK. Thus, the share of deprived neighbourhoods within the centres of Core Cities is more than 3.1 times higher than the UK average. The situation is relatively better in commuting zones than in Core Cities. Within these suburban areas, only 12.3% of the neighbourhoods are among the most deprived and towns throughout the UK only have 9% deprived neighbourhoods (ONS,

2019[67]). This shows that despite signs of gentrification in city centres, deprivation is still much more common within large cities than in their surrounding areas.

Figure 1.27. Income levels are higher in the commuting belts around Core Cities

Income difference between Core City and its commuting zone, 2016



Note: The figure plots the percentage difference of income in Core Cities relative to the commuting zone in each functional urban area. Income levels are based on the sum of the gross income of every member of the household plus any income from taxes and benefits. Data for Belfast and Glasgow are not available.
Source: OECD calculations based on National Official Labour Market Statistics (NOMIS[5]) data.

Box 1.2. Rehabilitation of offenders in Liverpool

The rate of reoffending amongst those leaving prison in Liverpool is exceptionally high. Local partners recognised that the cost of this failure was both morally unacceptable, an expensive drain on public funding and a drag on local productivity. Determined to create a radical improvement in outcomes the chief executive of the city council, the chief constable of the police and the governor of the local prison service gathered a group of strategic stakeholders including probation, housing providers, businesses and the local community and voluntary sector to identify ways of reducing reoffending rates in the city.

The vision is to support the capabilities of prisoners to improve their housing, health, employment, social and economic outcomes, reducing reoffending and supporting prisoners' active contribution to lead full and active lives within the communities of Liverpool. Many of the ex-offenders have genuine entrepreneurial skills that if redirected can make a positive contribution to productivity.

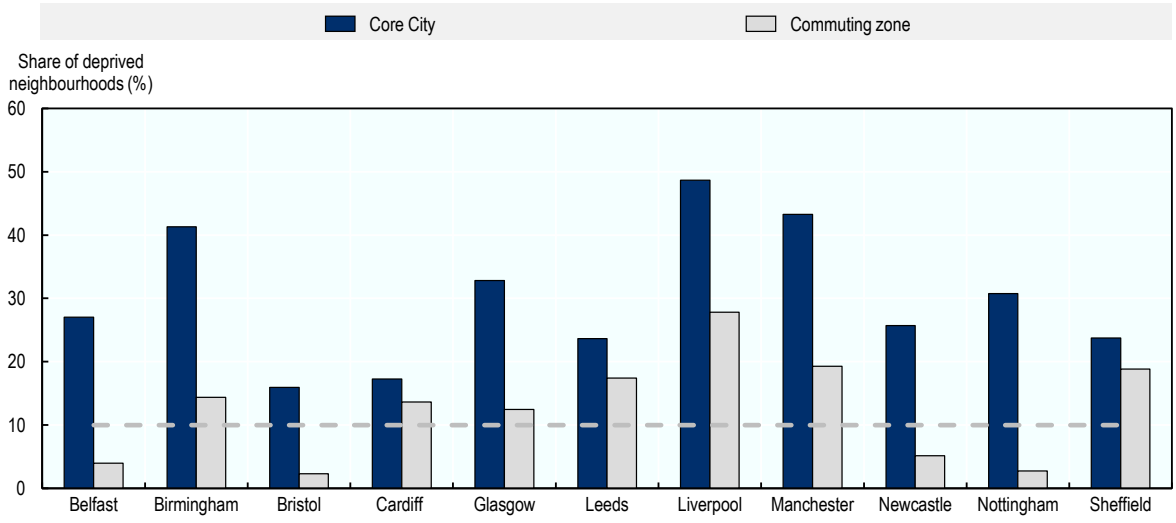
Access to good employment opportunities, within the prison system and upon release, has a positive effect on reducing reoffending and ensuring there is a meaningful and equivalent offer of employment and opportunity will rival the offer of criminality. But to be successful, the initiative must ensure that there is a better and more joined-up response from the support agencies that is tailored to the needs of each individual – from skills, training and employment to housing, benefits and health/well-being. Partners aim to work together at scale to change the system and address the failures that are causing high reoffending rates, creating the flexibility to do things differently. The potential public service savings are immense as are the improved outcomes for the individuals, local productivity and society.

Source: Core Cities.

In terms of deprived neighbourhoods, there are significant variations across Core Cities which require breaking down these figures separately by city (Figure 1.28, Panel A). Among the Core Cities, Liverpool, at 49%, has the highest proportion of highly deprived neighbourhoods, followed by Manchester (43%), Birmingham (41%) and Glasgow (33%). It is important to note, however, that despite having high rates, between 2010 and 2019, Liverpool and Manchester reduced the proportion of highly deprived neighbourhoods significantly by 2.2 and 2.3 percentage points respectively. This improvement is especially important because it occurred against a backdrop of overall stable rates of highly deprived neighbourhoods in Core Cities.

Figure 1.28. Core Cities have a high share of deprived neighbourhoods

2019 or latest available year



Note: Share of deprived neighbourhoods. The dashed line corresponds to the UK average of 10%. Data for England is from 2019, Wales 2016, Scotland and Northern Ireland from 2017
Source: OECD calculations based on statistics provided by the Ministry of Housing, Communities and Local Government, Scottish Government, and Welsh Government (accessed October 2019).

Differences in the geographical extent of a local authority influence the share of deprived neighbourhoods. As some Core Cities have large and relatively prosperous suburban areas within their boundaries, their share of deprived neighbourhoods tends to be lower. For instance, Leeds covers more than 550 km² and has 482 neighbourhoods, of which 114 (24%) are considered deprived (Figure 1.28). In contrast, Liverpool covers a much smaller area of 112 km² and has only 298 neighbourhoods, of which 145 (49%) are deprived.

Housing supply is key for inclusive growth

As the cities grow economically or in population, this increases the demand for housing, creating pressure on the housing market. If the regulatory or geographical conditions allow construction of new housing, the increase in housing demand would be met with additional housing supply. However, if due to geographical constraints or planning regulations the new constructions are limited, increasing demand leads to rising prices (Glaeser, Gyourko and Saiz, 2008[68]). 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 Sánchez and

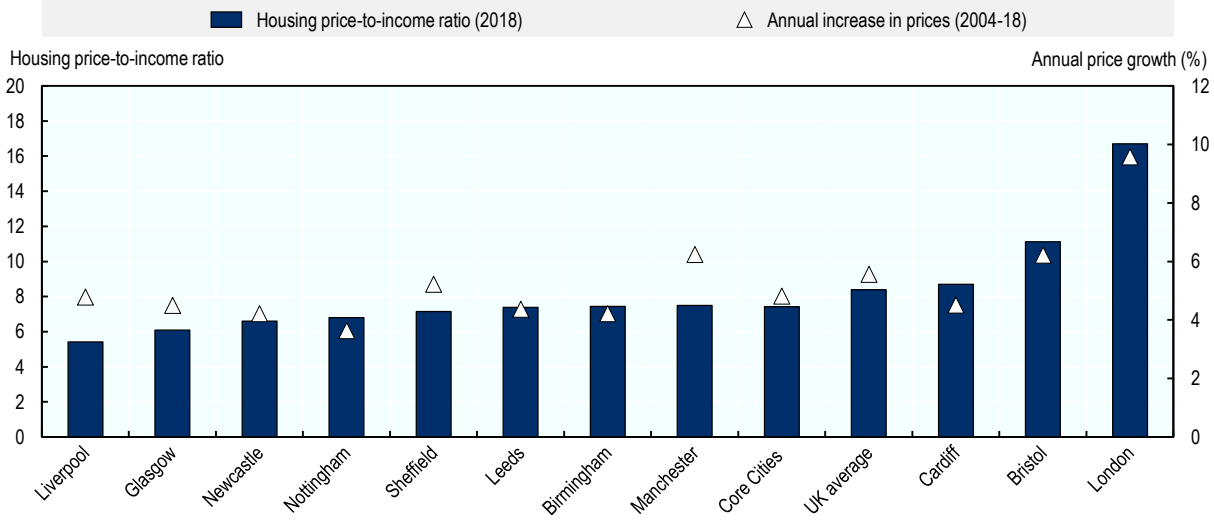
Johansson, 2011[69]). In other words, an increase in housing demand does not lead to strong increases in housing supply and is instead reflected in increasing prices.

Rising housing prices have important distributional consequences. They shift wealth from renters and first-time buyers to owners. Since owners tend to be wealthier, an increase in house prices tends to have regressive distributional effects. Moreover, rising housing also harm firms. Usually, they go hand in hand with higher prices for commercial property and therefore increase the costs that firms face when locating in a particular city. Moreover, rising housing prices also affect the costs of firms indirectly through their effects on wages. If housing costs rise, workers will demand higher wages to be compensated for the increased costs of living.

Housing costs in Core Cities are high by international and historical standards but remain affordable relative to the rest of the UK. The average price-to-income ratio in Core Cities is 7.4 (Figure 1.29) compared to the UK average of 8.4. The ratio shows how many average annual salaries are required to pay for an average home. It is not a perfect measure of affordability because it does take mortgage costs into account, but it allows for basic international comparisons. According to this measure, even Liverpool, the most affordable city, has a price-to-income ratio (5.5) that is above the average of a globally representative sample of cities (4.9) and well above the threshold typically considered to define affordable. With a price-to-income ratio of 11.1, Bristol is facing the greatest affordability challenges.

Figure 1.29. Housing costs in Core Cities are high by international standards but moderate by UK standards

2018



Note: House price-to-income ratio (left axis) is measured as the ratio between average house price and the average annual earnings in the city. The right axis gives the annual growth in the current average house price in each city between 2004 and 2018. Cities correspond to the primary urban area based on built-up areas and may include more than one local authority. The Core City average corresponds to unweighted averages of Core Cities excluding Belfast, for which data is unavailable. The average for Britain is the unweighted average of 63 cities for which data is available.
Source: OECD calculations based on Centre for Cities (2019[16]), Cities Data Tool (database) (accessed August 2019).

Restrictive land-use regulations and planning policies in areas with high demand are one of the leading causes of high housing costs (Hilber and Vermeulen, 2016[70]). For example, local authorities have implausibly low targets for the construction of new housing units because they aim at reducing the number of vacant housing units. This can result in a high refusal rate for planning applications and can explain the

weak response of housing supply to growing demand mentioned above (Cheshire, Hilber and Koster, 2018[71]). To prevent the rise in housing prices, local planning policies should accommodate housing development in areas with high demand, while ensuring compact urban development and protecting areas with less demand from over-development. Moreover, measures should be taken to ensure that housing construction starts within a reasonable time frame once planning permission has been granted.

Brownfield redevelopment prevents the fragmentation of the urban fabric

Beyond planning policies, other factors influence urban development and housing supply. It is widely accepted by planners that urban development should take place preferably on brownfield and greyfield sites.[9] Brownfield and greyfield redevelopment closes gaps in the urban fabric that can lead to disconnected and isolated neighbourhoods that are prone to social problems. Moreover, it prevents sprawl and reduces the pressure for development on greenfield land.

However, brownfield sites are often polluted and require costly decontamination before they can be redeveloped. Often, the costs of remediation limit the economic viability of brownfield sites. In cities with weak real estate markets or in peripheral locations, the costs of remediation can easily exceed the returns from redevelopment. While the polluter pays principle stipulates that the businesses that caused environmental damage are responsible for remediation, there are practical limits to the principle. For example, firms that own brownfield sites might go out of business and are unable to pay or ownership of brownfield sites is unclear. Accordingly, a study of 460 contaminated sites across England found that in approximately 40% of the cases, the polluter did not bear the costs of remediation (Environment Agency, 2016[72]).

While greyfield sites do not require remediation by definition, other challenges can still prevent effective redevelopment. Unknown ground conditions, proximity to other buildings and small or irregularly shaped plots can increase construction costs. Moreover, many greyfield (and brownfield) sites are in locations that are difficult to redevelop because they are within neighbourhoods that are undergoing transitions from industrial or commercial use to residential use but still have active businesses in the vicinity.

In order to encourage the redevelopment of brownfield and greyfield sites, the UK provides financial incentives through two channels. Most importantly, there are tax breaks for housing construction on brownfield sites. Of lesser importance are direct subsidies for brownfield redevelopment administered through Local Enterprise Partnerships. While no reliable data exists, uptake of these measures is considered to be low because of their discretionary nature and a complex application procedure (Environmental Industries Commission, 2016[73]).

Planning policy should prefer development on brownfield land while at the same time ensuring that sufficient development takes place to accommodate demand from growing populations and shrinking household sizes. To cover the costs of remediation, local authorities should emphasise the polluter pays principle. However, where it is not possible to charge the polluter for the costs or where other financial obstacles prevent the redevelopment of brownfield and greyfield sites, financial incentives should be used to encourage redevelopment. Incentivising the redevelopment of brownfield and greyfield sites with public funds is justified by the considerable positive externalities that can emerge from such projects. Especially when they are located in strategic locations, such regeneration projects can be decisive factors in the economic revitalisation of much larger neighbourhoods (Maliene, Wignall and Malys, 2012[74]).

References

Ahrend, R., C. Gamper and A. Schumann (2014), "The OECD Metropolitan Governance Survey: A Quantitative Description of Governance Structures in large Urban Agglomerations", *OECD Regional Development Working Papers*, No. 2014/4, OECD Publishing, Paris, https://dx.doi.org/10.1787/5jz43zldh08p-en. [56]

Ahrend, R. and A. Schumann (2014), "Does Regional Economic Growth Depend on Proximity to Urban Centres?", *OECD Regional Development Working Papers*, No. 2014/07, OECD Publishing, Paris, https://doi.org/10.1787/5jz0t7fxh7wc-en. [36]

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, https://doi.org/10.1787/63629cc9-en. [35]

Apouey, B. and M. Stabile (2019), "The effects of self and temporary employment on mental health: The role of the gig economy in the UK", *SSRN Electronic Journal*, http://dx.doi.org/10.2139/ssrn.3395144. [18]

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, Paris, https://doi.org/10.1787/5kgk9qhrnn33-en. [69]

Cambridge Econometrics (2018), *The Economic Performance and Resilience of the UK's Core Cities*. [13]

Celbis, M. and D. de Crombrugghe (2018), "Internet infrastructure and regional convergence: Evidence from Turkey", *Papers in Regional Science*, Vol. 97/2, pp. 387-409, http://dx.doi.org/10.1111/pirs.12244. [29]

Centre for Cities (2019), *Cities Data Tool*. [16]

Centre for Cities (2015), *The Changing Geography of the UK Economy: A Review of the Primary Urban Area Definition*. [7]

Cheshire, P., C. Hilber and H. Koster (2018), "Empty homes, longer commutes: The unintended consequences of more restrictive local planning", *Journal of Public Economics*, Vol. 158, pp. 126-151, http://dx.doi.org/10.1016/j.jpubeco.2017.12.006. [71]

Chetty, R., N. Hendren and L. Katz (2016), "The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment", *American Economic Review*, Vol. 106/4, pp. 855-902, http://dx.doi.org/10.1257/aer.20150572. [63]

Chetty, R. et al. (2014), "Where is the land of opportunity? The geography of intergenerational mobility in the United States", *The Quarterly Journal of Economics*, Vol. 129/4, pp. 1553-1623, http://dx.doi.org/10.1093/qje/qju022. [62]

Cingano, F. (2014), "Trends in Income Inequality and its Impact on Economic Growth", *OECD Social, Employment and Migration Working Papers*, No. 163, OECD Publishing, Paris, https://doi.org/10.1787/5jxrjncwxv6j-en. [61]

Combes, P. and L. Gobillon (2015), *The Empirics of Agglomeration Economies*, Elsevier B.V., http://dx.doi.org/10.1016/B978-0-444-59517-1.00005-2. [11]

Core Cities (2018), *Core Cities UK 2030*. [1]

Cosar, K. and B. Demir (2016), "Domestic road infrastructure and international trade: Evidence from Turkey", *Journal of Development Economics*, Vol. 118, pp. 232-244, http://dx.doi.org/10.1016/j.jdeveco.2015.10.001. [37]

Department for Business, E. (2019), *Business Populations Estimates for the UK and Regions: 2019 Statistical Release*. [19]

Department for Environment, Food and Rural Affairs/Department for Transport (2017), *UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations - Technical Report*, http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/%0Awww.gov.uk/government/publications. [60]

Department for Transport (2018), *Transport Statistics Great Britain 2018*, https://www.gov.uk/government/statistics/transport-statistics-great-britain-2018. [47]

Department for Transport Statistics (2019), *Bus Statistics Table BUS0103*, https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys. [55]

Duranton, G. and D. Puga (2004), "Micro-foundations of urban agglomeration economies", in Henderson, J. and J. Thisse (eds.), *Handbook of Regional and Urban Economics*, Elsevier. [52]

EC (2019), *Transport in the European Union*, European Commission. [43]

Environment Agency (2016), *Dealing with Contaminated Land in England*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/513158/State_of_contaminated_land_report.pdf. [72]

Environmental Industries Commission (2016), *Brownfield First: Making Better Use of Our Land*. [73]

EPOMM (2020), *EPOMM Modal Split Tool*. [46]

European Commission (2018), *Road Transport Performance in Europe*. [44]

Foreman-Peck, J. and P. Zhou (2015), "Firm-level evidence for the language investment effect on SME exporters", *Scottish Journal of Political Economy*, Vol. 62/4, pp. 351-377, http://dx.doi.org/10.1111/sjpe.12072. [21]

Froy, F., S. Giguere and M. Meghnagi (2012), "Skills for Competitiveness: A Synthesis Report", *OECD Local Economic and Employment Development (LEED) Working Papers*, No. 2012/09, OECD Publishing, Paris, https://doi.org/10.1787/5k98xwskmvr6-en. [26]

Gibbons, S. et al. (2019), "New road infrastructure: The effects on firms", *Journal of Urban Economics*, Vol. 110, pp. 35-50, http://dx.doi.org/10.1016/j.jue.2019.01.002. [38]

Glaeser, E., J. Gyourko and A. Saiz (2008), "Housing supply and housing bubbles", *Journal of Urban Economics*, Vol. 64/2, pp. 198-217, http://dx.doi.org/10.1016/j.jue.2008.07.007. [68]

Hilber, C. and W. Vermeulen (2016), "The impact of supply constraints on house prices in England", *Economic Journal*, Vol. 126/591, pp. 358-405, http://dx.doi.org/10.1111/ecoj.12213. [70]

HM Treasury (2019), *Country and Regional Analysis:2018*. [42]

House of Commons Housing (2018), *Land Value Capture Tenth Report of Session 2017-19*, Communities and Local Government Committee. [54]

Jacobs, W., H. Koster and F. van Oort (2014), "Co-agglomeration of knowledge-intensive business services and multinational enterprises", *Journal of Economic Geography*, Vol. 14/2, pp. 443-475, http://dx.doi.org/10.1093/jeg/lbs055. [15]

Kemeny, T. and M. Storper (2015), "Is specialization good for regional economic development?", *Regional Studies*, Vol. 49/6, pp. 1003-1018, http://dx.doi.org/10.1080/00343404.2014.899691. [14]

Krizek, K., G. Barnes and K. Thompson (2009), "Analyzing the effect of bicycle facilities on commute mode share over time", *Journal of Urban Planning and Development*, Vol. 135/2, pp. 66-73, http://dx.doi.org/10.1061/(asce)0733-9488(2009)135:2(66). [51]

Light Rail Transport Association (2018), *World Systems List Index*, http://www.lrta.org/world/worldind.html#index (accessed on 5 September 2019). [48]

LSE Growth Commission (2013), *Investing for Prosperity*. [40]

Mack, E., L. Anselin and T. Grubesic (2011), "The importance of broadband provision to knowledge intensive firm location", *Regional Science Policy and Practice*, Vol. 3/1, pp. 17-35, http://dx.doi.org/10.1111/j.1757-7802.2011.01026.x. [33]

Maliene, V., L. Wignall and N. Malys (2012), "Brownfield regeneration: Waterfront site developments in Liverpool and Cologne", *Journal of Environmental Engineering and Landscape Management*, Vol. 20/1, pp. 5-16, http://dx.doi.org/10.3846/16486897.2012.659030. [74]

Mayer, T. and C. Trevien (2017), "The impact of urban public transportation evidence from the Paris region", *Journal of Urban Economics*, Vol. 102, pp. 1-21, http://dx.doi.org/10.1016/j.jue.2017.07.003. [53]

Moretti, E. (1999), "Estimating the social return to education: Evidence from repeated cross-sectional and longitudinal data"*, University of California Working Paper*. [22]

NISRA (2019), *Northern Ireland Statistics and Research Agency*, https://www.nisra.gov.uk/. [9]

NOMIS (2019), *National Official Labour Market Statistics*, https://www.nomisweb.co.uk/sources. [5]

OECD (2019), *Making Decentralisation Work: A Handbook for Policy-Makers*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/g2g9faa7-en. [4]

OECD (2019), *Net Childcare Costs, Indicator*, OECD, Paris, https://dx.doi.org/10.1787/e328a9ee-en (accessed on 7 November 2019). [10]

OECD (2019), *OECD Education at a Glance (database)*, https://doi.org/10.1787/edu-data-en. [24]

OECD (2019), *OECD Information and Communication Technology (database)*. [32]

OECD (2019), *OECD International Transport Forum*, https://doi.org/10.1787/25202367. [41]

OECD (2019), *OECD Regional Statistics (database)*, https://doi.org/10.1787/region-data-en. [6]

OECD (2019), *OECD Science, Technology and R&D Statistics (database)*, https://doi.org/10.1787/strd-data-en. [28]

OECD (2019), *OECD Skills Outlook 2019: Thriving in a Digital World*, OECD Publishing, Paris, https://dx.doi.org/10.1787/df80bc12-en. [31]

OECD (2018), *Divided Cities: Understanding Intra-urban Inequalities*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264300385-en. [65]

OECD (2018), *Job Creation and Local Economic Development 2018*, OECD Publishing, Paris, https://dx.doi.org/10.1787/e969011e-ja. [25]

OECD (2018), *OECD Regions and Cities at a Glance 2018*, OECD Publishing, Paris, https://doi.org/10.1787/reg_cit_glance-2018-en. [66]

OECD (2018), *Productivity and Jobs in a Globalised World: (How) Can All Regions Benefit?*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264293137-en. [20]

OECD (2017), *Getting Skills Right: United Kingdom*, Getting Skills Right, OECD Publishing, Paris, https://doi.org/10.1787/9789264280489-en. [23]

OECD (2017), *OECD Economic Surveys: United Kingdom 2017*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2017-en. [27]

OECD (2016), *OECD Factbook 2015-2016: Economic, Environmental and Social Statistics*, OECD Publishing, Paris, https://dx.doi.org/10.1787/factbook-2015-en. [64]

OECD (2016), "Reader's guide", in *OECD Regions at a Glance 2016*, OECD Publishing, Paris, https://doi.org/10.1787/reg_glance-2016-4-en. [8]

OECD (2016), *The Economic Consequences of Outdoor Air Pollution*, OECD Publishing, Paris, https://doi.org/10.1787/9789264257474-en. [59]

OECD (2015), "Development of High-speed Networks and the Role of Municipal Networks", *OECD Science, Technology and Industry Policy Papers*, No. 26, OECD Publishing, Paris, https://doi.org/10.1787/5jrqdl7rvns3-en. [30]

OECD (2015), *Governing the City*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264226500-en. [3]

OECD (2015), *The Metropolitan Century: Understanding Urbanisation and its Consequences*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264228733-en. [2]

OECD (2014), *OECD Principles of Public Investment across Levels of Government*, OECD, Paris, https://www.oecd.org/effective-public-investment-toolkit/theprinciples.htm. [58]

OECD (2013), *OECD Economic Surveys: United Kingdom 2013*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2013-en. [39]

Office of Rail and Road Transport (2018), *Rail Statistics Table TSGB0601*. [49]

ONS (2019), *Understanding Towns in England and Wales: An Introduction*, Office for National Statistics. [67]

Shiu, A. and P. Lam (2008), "Causal relationship between telecommunications and economic growth in China and its regions", *Regional Studies*, Vol. 42/5, pp. 705-718, http://dx.doi.org/10.1080/00343400701543314. [34]

Sutaria, V. and D. Hicks (2004), "New firm formation: Dynamics and determinants", *The Annals of Regional Science*, Vol. 38/2, pp. 241-262, http://dx.doi.org/10.1007/s00168-004-0194-9. [17]

TomTom (2019), *Traffic Index 2019*, https://www.tomtom.com/en_gb/traffic-index/. [45]

Transport for London (2019), *Annual Report and Statement of Accounts 2018/19*. [50]

Urban Transport Group (2018), *UK Transport Governance - An Introduction*, http://www.urbantransportgroup.org/system/files/general-docs/Transport%20governance%20intro_April%202018.pdf. [57]

Xiao, J., R. Boschma and M. Andersson (2018), "Industrial diversification in Europe: The differentiated role of relatedness", *Economic Geography*, Vol. 94/5, pp. 514-549, http://dx.doi.org/10.1080/00130095.2018.1444989. [12]

Notes

[1] The OECD functional urban area definition is designed to provide an internationally comparable definition of urban areas (see Box 1.1). For this reason, it does not necessarily correspond to local definitions of city-regions, travel-work-areas and similar concepts. For instance, Core Cities' city-regions are home to 20 million people and generate about 26% of GVA, in 2017 (ONS, NISRA).

[2] GVA and GDP are two closely related measures of economic activity. Whereas GVA is net of taxes and subsidies, these are included in GDP. Due to varying data availability, this report uses both measures. While GVA and GDP are the most widely available clearly defined measures of economic activity, they have the drawback that they do not cover important aspects of economic activity, including unpaid social activities, such as childcare, as well as the informal economy.

[3] In 2018, male and female employment rates in Core Cities are around 75% and 67% respectively. Both rates are about 5 percentage points lower than the UK average, which is 80% for men and 71% for women.

[4] No information is available for Belfast for this and several other outcomes mentioned throughout the report, as the corresponding data is not available for Northern Ireland. To facilitate the comparison of Belfast with other Core Cities, enhancing data availability for Norther Ireland would be beneficial.

[5] The number of public transport users is highly dependent on the quality of public transport and thus on public transport investment. It is therefore not an appropriate indicator to determine whether public transport investment is adequate.

[6] Note that the differences between the exceptionally high congestion levels for the UK as a whole in Figure 1.22 and the moderately high congestion levels for Core Cities in Figure 1.23 are likely due to the fact that Figure 1.22 is a measure of congestion during peak hours while Figure 1.23 is a measure of congestion across all trips throughout the day.

[7] Including the London Underground, London Overground and Docklands Light Rail

[8] In terms of inequality, OECD analysis using data from Centre for Cities show that Core Cities as a whole has a Gini Coefficient of 0.39, which is at the national average. Despite marginal improvements in the last few years, inequalities remain an issue in Core Cities and the rest of the UK.

[9] Greyfield sites are abandoned or disused plots of land that, unlike brownfield sites, do not require substantial remediation activities to return them to productive use.

2 Productivity in Core Cities

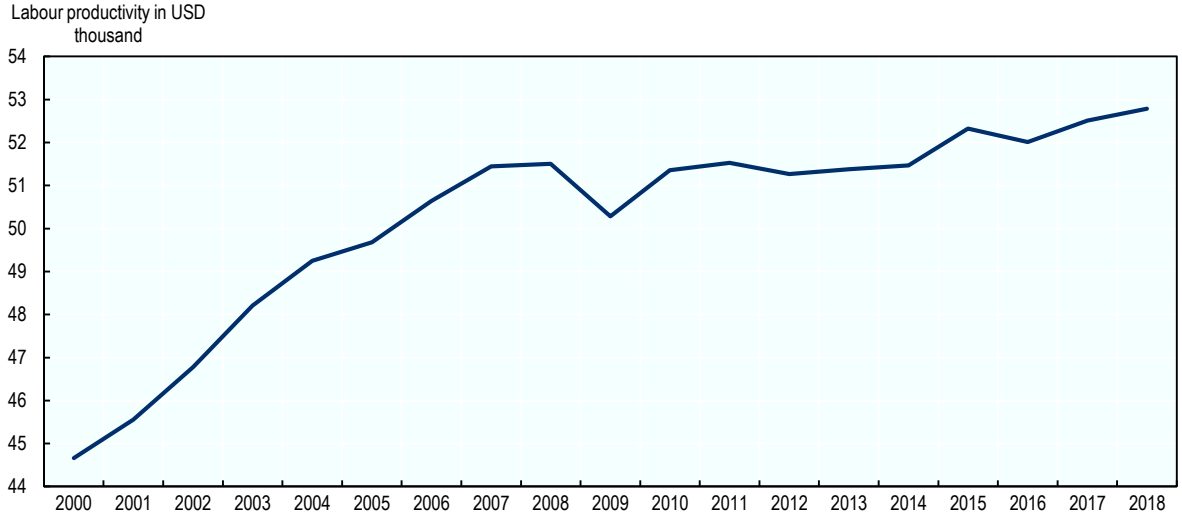
This chapter shows that productivity levels in Core Cities are low compared to the UK average and to other second-tier cities in OECD countries. Based on an analysis of more than 3.5 million records of workers, it identifies the factors responsible for lagging productivity. It finds that productivity would increase by 7.1 percentage points if the profile of the workforce and the sector composition were to adjust to the current UK average. If Core Cities were to generate agglomeration economies according to their potential, productivity would increase by another 4.1 percentage points.

The UK productivity puzzle

The level of labour productivity is one of the most important determinants of long-term economic growth as it measures the output that an economy is capable of producing with its existing resources. It reflects an economy's ability to produce more output by better combining inputs, developing new ideas and improving business models. Because there is only a finite number of workers in an economy, increasing labour productivity is the only possibility to increase output and living standards in the long term. Likewise, the large differences in per capita income across the world are largely the consequence of differences in labour productivity.

Thus, it is of little surprise that the recent productivity slowdown in the United Kingdom (UK) has sparked widespread interest. Since the onset of the 2007-08 financial crisis, labour productivity growth in the United Kingdom has been exceptionally weak. In 2018, the productivity level was just 2.5% higher than in 2008 and remained well below the level implied by a simple continuation of its pre-crisis trend. The weak performance has been called the "productivity puzzle" and has caught the interest of both academics and policymakers.

Figure 2.1. Productivity growth in the UK has slowed down after the financial crisis



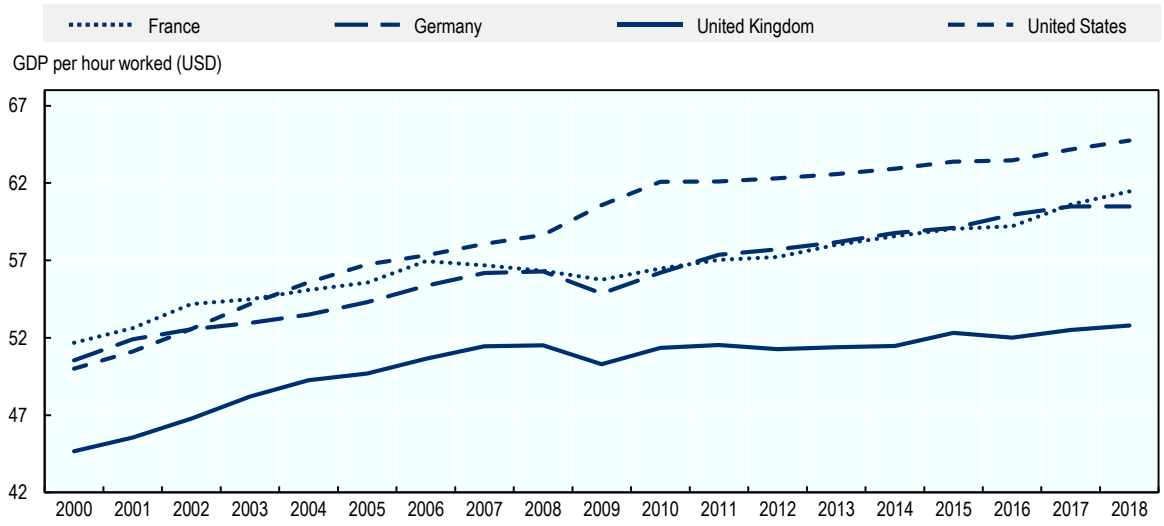
Source: OECD calculations based on OECD (2019[1]), OECD Productivity Statistics (database) (accessed August 2019).

While productivity growth has slowed down across OECD countries, the decline in growth was particularly severe in the UK. As a consequence, differences in productivity levels between the UK and comparable economies has widened in recent years. Whereas productivity levels in France and Germany were approximately 9% higher than in the UK in 2008, this gap has increased to 15%-16% in 2018. Compared to the United States, the difference has been growing from 14% to 23% (Figure 2.2).

No consensus exists regarding the causes of the productivity slowdown. Explanations range from a decline in productivity-enhancing investment to an increasing dispersion in productivity levels between high-productivity firms and low-productivity firms. Some researchers even argue that the measurement error is to blame for indicators that show declining productivity (Box 2.1). According to this view, the benefits of new technologies, such as the Internet, cannot fully be measured and are therefore not adequately reflected in productivity statistics. However, only a small minority of researchers attributes the UK productivity puzzle entirely to measurement error.

Figure 2.2. The productivity gap between the UK and other countries has been widening

Productivity levels



Note: Labour productivity refers to real gross domestic product (GDP) in USD constant prices and purchasing power parities (PPP) per total hours worked.
Source: OECD calculations based on OECD (2019[1]), OECD Productivity Statistics (database) (accessed August 2019).

Box 2.1. Explaining the productivity puzzle

The weak productivity performance in the UK since the crisis has been extensively debated and analysed over recent years. Although many explanations have been put forth in the literature, the three main arguments can be summarised as follows:

1. **Drop in investments**: An important explanation is related to a decrease in investment. During the crisis, overall demand decreased, which reduced the real wages paid to the workers. The decrease in the labour costs and the increase in the costs of capital incited firms to reduce their capital investments (i.e. machinery, real estate, software) and increase the number of employed workers. The substitution of capital with labour in the production reduced the capital-labour ratio, thus generating a decrease in the productivity per worker (Pessoa and Van Reenen, 2014[2]). According to Bartnett et al. (2014[3]), the reduced investment in physical and intangible capital can explain one-third of the productivity gap in the UK.
2. **Dispersion in firm-level productivity**: There are substantial differences in the productivity levels across the firms in the UK. While a small group of firms are performing better than most other firms in Europe (i.e. the productivity frontier), most firms have low levels of productivity and growth (i.e. the laggards) (Haldane, 2018[4]). During the crisis, the distribution of productivity across firms widened as the lagging firms dropped further behind (Andrews, Criscuolo and Gal, 2016[5]). One of the explanations put forth is the breakdown of the so-called innovation "diffusion machine" (OECD, 2015[6]). According to this argument, top firms (or those at the productivity "frontier") have continued to innovate and increase their productivity. The productive knowledge generated in these firms, however, has stopped diffusing to other less productive firms generating productivity differences within countries and industries.

3. **Mismeasurement**: One important explanation put forth is the difficulty in the measurement of productivity in the current economic structure. Proponents of this explanation argue that official statistics seem to underestimate economic activity (Feldstein, 2016[7]; Baily and Montalbano, 2016[8]). In the UK, estimates suggest that productivity growth could be up to 0.5 percentage points per year higher than indicated by official statistics, because of a failure to capture productivity growth in the digital economy (Haldane, 2018[4]). However, the bulk of the evidence suggests that even if there is some mismeasurement, it could only explain a small part of the productivity puzzle (Barnett et al., 2014[3]).

Low levels of productivity in the UK are sometimes attributed to its high employment rate. According to this line of reasoning, a higher rate of employment implies that more workers with low levels of productivity are employed instead of being unemployment. This drags down the average productivity levels. While such an effect can occur in principle, its quantitative magnitude is too small to play an important role in explaining productivity differences between the UK and other countries. Moreover, the productivity gap exists also relative to countries that have higher employment rates, such as Germany.

Source: Pessoa, J. and J. Van Reenen (2014[2]), "The UK Productivity and Jobs Puzzle: Does the Answer Lie in Wage Flexibility?", http://dx.doi.org/10.1111/ecoj.12146; Barnett, A. et al. (2014), "The UK Productivity Puzzle", Bank of England Quarterly Bulletin 2014; Andrews, D., C. Criscuolo and P. Gal (2016[5]), "The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy", https://doi.org/10.1787/63629cc9-en; OECD (2015[6]), *The Future of Productivity*, https://doi.org/10.1787/9789264248533-en; Feldstein, M. (2016[7]), "Remarks at the Brookings Institution conference on productivity", https://www.brookings.edu/wp-content/uploads/2016/08/feldstein-remarks.pdf; Baily, M. and N. Montalbano (2016[8]), *Why Is US Productivity Growth So Slow? Possible Explanations and Policy Responses*, https://www.brookings.edu/research/why-is-us-productivity-growth-so-slow-possible-explanations-and-policy-responses/ (accessed on 14 September 2019); Haldane, A. (2018[4]), "The UK's productivity problem: Hub no spokes", https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane.

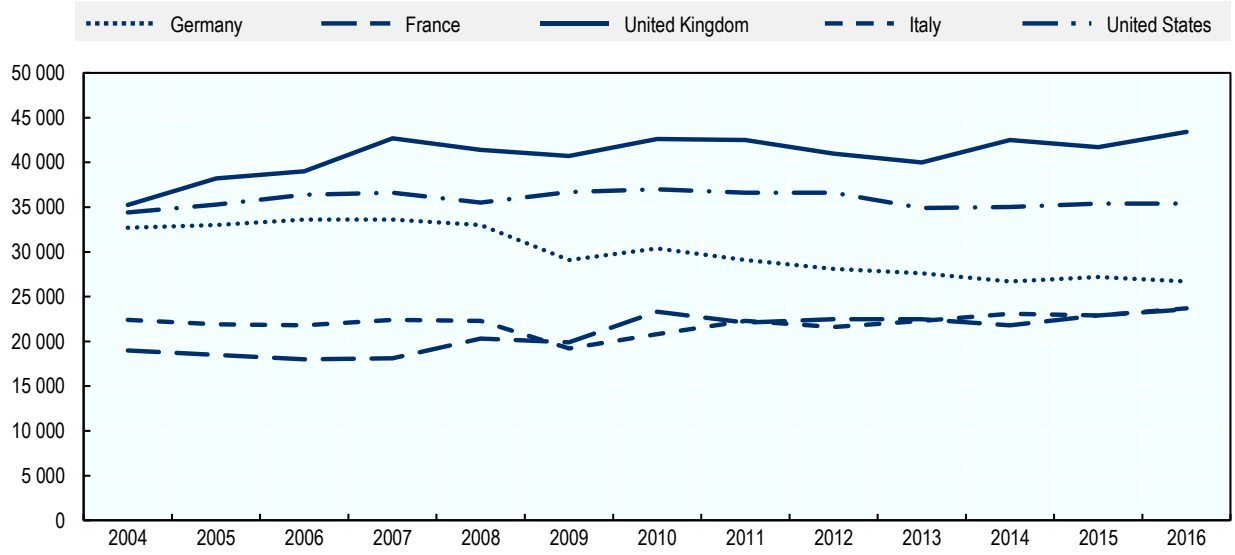
Weak average productivity outside of London holds back the aggregate productivity in the UK

Large productivity differences across the regions in the UK are another unusual element in the productivity puzzle. Although regional productivity gaps exist across the OECD countries, the levels of disparity between the most and the least productive regions are one of the highest among the OECD countries (OECD, 2017[9]; UK2070 Commission, 2019[10]). However, these regional differences in productivity are essentially driven by London, with the second-best performing region being above but close to the UK average. Most UK regions have below-average productivity performance. These regional disparities have been increasing since the early 2000s and have further steepened since the global financial crisis (Figure 2.3) (OECD, 2015[11]; 2017[9]). This widening of the productivity gap was also observed in one-third of OECD countries where growth in the aftermath of the financial crisis has been concentrated in a single, already highly productive regions (OECD, 2019[12]). Still, considering the UK context, continued divergence is surprising as the financial crisis could have been expected to affect in particular London-based firms in the financial sector.

Core Cities play a major role within the UK economy and they are important economic hubs for their surrounding regions. However, their productivity performance shows that they do not play this role to the extent that they could. Productivity levels in Core Cities are at or below the UK average, which is unsatisfactory for two reasons.[1] First, their performance at or below the national average is worse than those of large cities in other countries, which tend to outperform their national averages. While second-tier cities in most other large OECD countries have productivity levels that are as high as or higher than the national average, GVA per worker in Core Cities is just 87% the UK average. This is the worst performance of second-tier cities among all OECD countries with at least 10 second-tier cities above 250 inhabitants (Figure 2.4).

Figure 2.3. The regional productivity gap is increasing

The gap in labour productivity between the top and bottom 20% of TL2 regions, real gross value added (GVA) per worker, in constant USD PPP

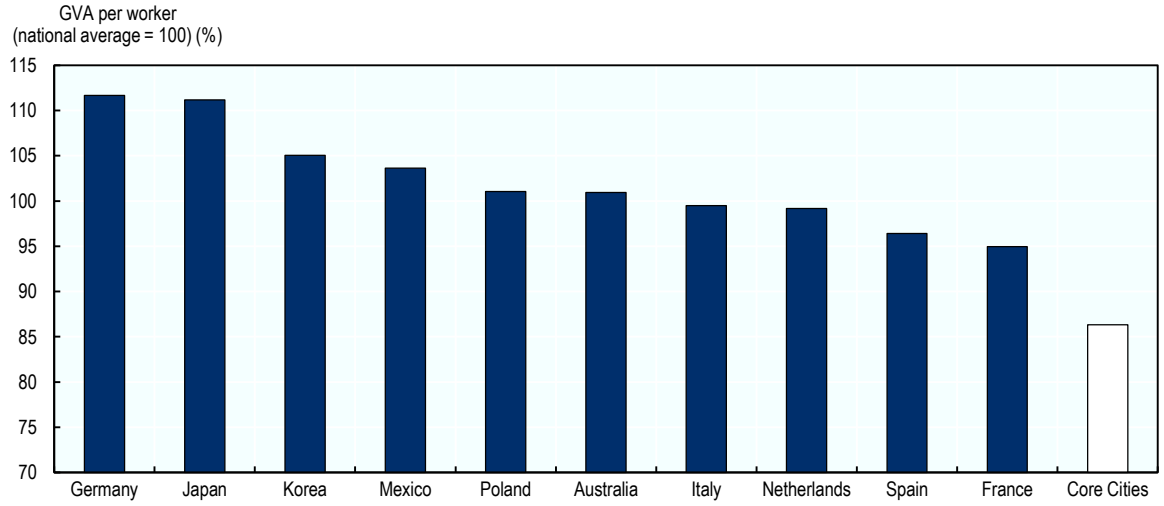


Note: Gross value added (GVA) per worker is expressed at constant prices (the year 2010) in USD purchasing power parities (PPPs). The labour productivity gap between the top and the bottom 20% of TL2 regions is calculated based on the unweighted average of the respective regions.
Source: OECD calculations based on OECD (2019[13]), OECD Regional Statistics (database) (accessed August 2019).

Second, in an international context, the performance around the national average is made worse by the fact that the UK is performing well below comparable countries in terms of productivity growth and productivity levels. Therefore, the productivity gap between Core Cities and comparable second-tier cities in other countries is even larger than their productivity gap relative to the UK average. Average GVA per worker in Core Cities is USD 69 370 (in PPP). In contrast, the average GVA per worker is 30.4% higher in Australia (USD 90 447), 30.3% higher in Germany (USD 90 418), 26.1% higher in the Netherlands (USD 87 454), 22.8% higher in France (USD 85 172) and 17.9% higher in Italy (USD 81 802). Taken together, this implies that Core Cities are not contributing to the UK economy as much as they could.

Figure 2.4. GVA per worker relative to the country average is low in Core Cities

GVA per worker in second-tier cities relative to the national average, 2016

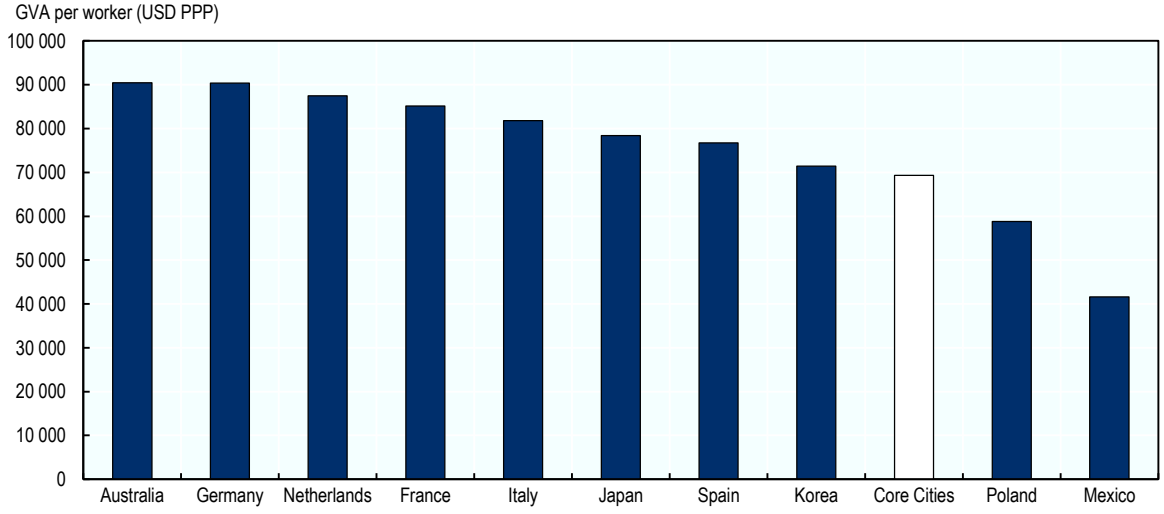


Note: Average GVA per worker in the 10 largest functional urban areas (FUAs) outside of the largest FUA of a country relative to the national average. Only countries with 11 or more FUAs with more than 250 000 inhabitants are shown.
Source: OECD calculations based on OECD (2019[13]), OECD Regional Statistics (database) (accessed August 2019).

StatLink https://doi.org/10.1787/888934086223

Figure 2.5. Productivity levels in Core Cities are low by international standards

GVA per worker of second-tier cities, 2016



Note: Figure plots the average labour productivity (measured by GVA per worker in USD PPP) in second-tier cities relative to average productivity across Core Cities. Largest cities outside of the capital, for which data is available, are considered as second-tier cities. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on OECD (2019[13]), OECD Regional Statistics (database) (accessed August 2019).

StatLink https://doi.org/10.1787/888934086242

Box 2.2. Measuring productivity

How to measure productivity?

Productivity is the efficiency with which firms convert inputs (labour, capital and raw materials) into outputs. When productivity increases, it allows increasing the output faster than the inputs. Although there are a number of ways to measure productivity, the two most commonly used productivity measures are labour productivity and total factor productivity (TFP) (Australian Government Productivity Commission, 2015[14]):

1. **Labour productivity**: Measures the growth in output per unit of labour used or wages.
   a. *Output per worker*: One way of measuring productivity is dividing the total output by the number of workers involved in the production. Total value added or volume of production can also be used alternatively, depending on the data at hand.
   b. *Nominal wages*: Standard microeconomic theory suggests a clear relationship between wage growth and productivity growth in the short run (Borjas, 2012[15]). Typically, it is assumed that the firm's capital stock is constant in the short run. When a firm's output increases, given that capital stock is fixed, the marginal productivity of labour increases. If productivity per unit of labour input (or per worker) increases, while wages remain constant, this will increase labour demand because a further extension of production will increase profits. Given a fixed labour supply, the increased labour demand would result in higher pay, until a new profit-maximising equilibrium is reached at which wages again equal marginal productivity. Thus, a worker's wage is equivalent to the marginal product of his/her labour, thus productivity.

      Due to the difficulties of allocating GVA to the local level, local labour productivity estimates based on individual wages are considered more reliable than estimates based on GVA per worker. While this report uses primarily estimates based on nominal wages, estimates based on GVA per worker are used for international comparisons. Both measures show the same picture but deviate slightly from each other. These discrepancies are due to the abovementioned methodological differences and do not affect the general conclusions of the analysis.
2. **Total factor productivity** (TFP): Productivity can also be measured at the firm level as value-added output (real gross output less intermediate inputs). Using firm-level data on output, labour and capital, one can recover the role of TFP, the sum of factors that contribute to the production net of labour and capital inputs.

Measuring agglomeration economies: Wages vs. TFP

Both nominal wages and TFP can be used to measure productivity gains associated with agglomeration economies. However, the use of TFP for estimating agglomeration is problematic for multiple reasons. First, most of the firm-level data rely on surveys that are limited by the sample size, which is especially problematic for small size firms that are in most cases underrepresented. Second, the correct estimation of TFP requires precise data on certain variables such as value-added and intermediate inputs, which are, in many cases, unavailable (Gal, 2013[16]). Third, output, labour and other inputs that are used for TFP estimation are simultaneously determined by the firm, which causes a reverse causality issue that can potentially bias the estimated coefficient obtained from ordinary least squares (OLS).

With these caveats in mind, it is possible to use TFP to estimate agglomeration economies, although the economic interpretation of the elasticities obtained on the impact of local characteristics is slightly nuanced compared to those obtained when using wages. Following the standard established in the

academic literature, this report uses wages as a measure of productivity as it provides a more precise estimation even for small geographical units and allows for controlling for individual sorting.

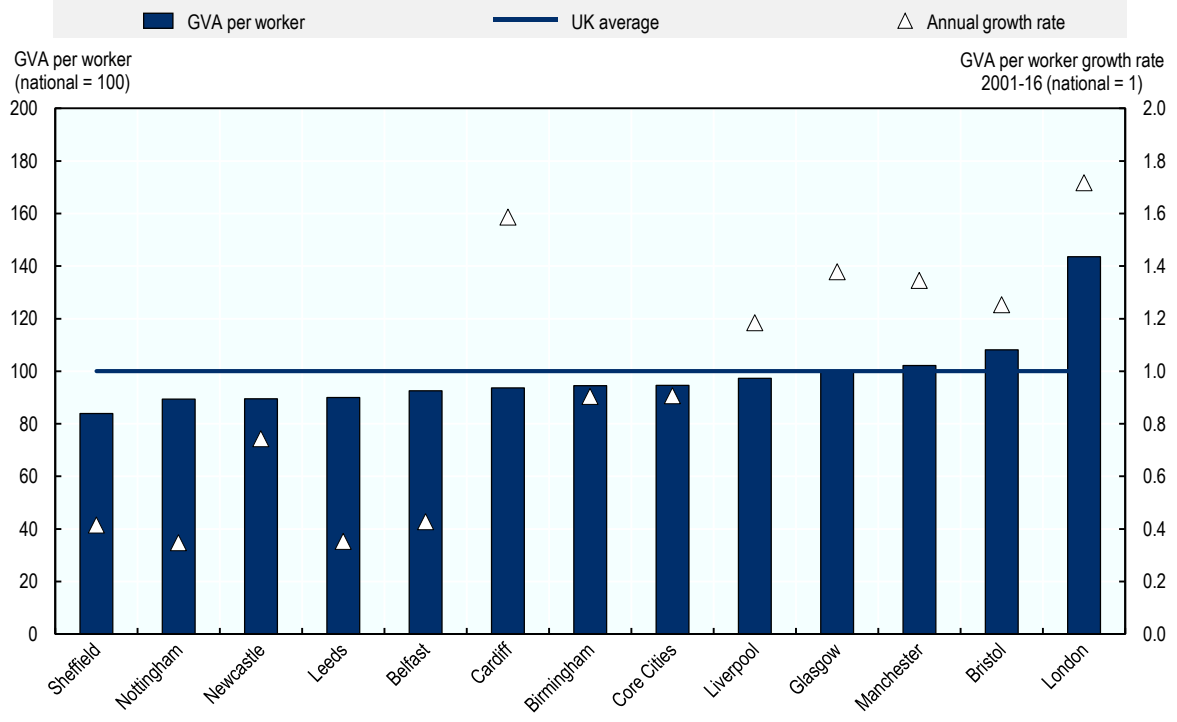
Source: (Australian Government Productivity Commission (2015[14]), "What is productivity and how is it measured?", *PC Insight* 05/2015; Borjas, G. (2012[15]), *Labor Economics*, Higher Education, McGraw-Hill; Gal, P. (2013[16]), "Measuring Total Factor Productivity at the Firm Level using OECD-ORBIS", https://doi.org/10.1787/5k46dsb25ls6-en.

Productivity levels have been diverging across Core Cities

While Core Cities as a group have GVA per worker levels at or just below the national average, there are important differences among them. Figure 2.6 compares Core Cities with the national average. GVA per worker levels across Core Cities range from 84% of the national average in Sheffield to 108% of the national average in Bristol. For comparison, GVA per worker in London is 144% of the national average.

Figure 2.6. Core Cities differ in their productivity levels and growth rates

Relative GVA per worker levels in 2016 and growth rate 2001-16



Note: Left axis is the GVA per worker of each Core City relative to the national average in 2016. Right axis is the annual growth rate in GVA per worker between 2001 and 2016, relative to national average growth in GVA per worker. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on OECD (2019[13]), OECD Regional Statistics (database) (accessed August 2019).

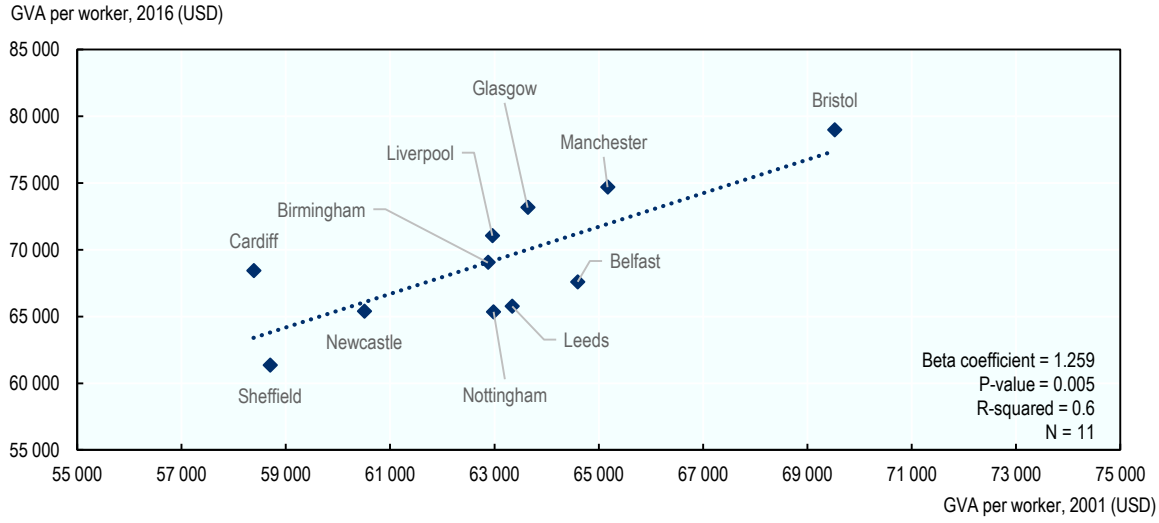
Not surprisingly, cities with a higher GVA per worker in 2016 also had higher growth rates in GVA per worker during the period 2001-16 (Figure 2.6, right axis). These higher growth rates are one of the reasons why cities on the right-hand side of the chart have higher productivity levels. However, there is also evidence that cities with higher levels of GVA per worker in 2001 had higher growth rates subsequently. This nuance is important because the latter result indicates that there has been a divergence in productivity

levels across Core Cities. It implies that between 2001 and 2016 the relatively more productive cities further increased their productivity advantage relative to the less productive cities.

Evidence for diverging growth rates can be found in Figure 2.7. It plots GVA per worker in Core Cities in 2001 and 2016 and shows an estimated regression line between the GVA per worker in those two years. If GVA per worker was growing at the same rate in all cities, the slope of the regression line would be 1. However, the estimated slope is 1.12, which indicates that cities with higher GVA per worker levels in 2001 grew faster subsequently.

Figure 2.7. Cities with higher GVA per worker in 2001 experienced faster subsequent growth

GVA per worker in 2001 and 2016, in USD PPP, 2010 prices



Note: Figure plots the annual GVA per worker in 2001 and 2016. Left-axis labour productivity (in USD) measured as GDP per worker in 2016, right-axis labour productivity growth between 2001 and 2016. Data refers to functional urban areas (FUAs).
Source: OECD calculations based on OECD (2019[13]), OECD Regional Statistics (database) (accessed August 2019).

Understanding the factors that drive productivity in cities

Cities are drivers of productivity growth

Cities play an important role in determining a country's productivity. Across the OECD, metropolitan areas – urban agglomerations with more than half a million inhabitants – are home to over half of the population of OECD member countries and account for an even larger share of total GDP (OECD, 2015[17]). Thus, any change in productivity in cities will have important effects on aggregate productivity levels in a country.

Cities also matter for productivity growth for reasons beyond their sheer size. Urban areas are engines of innovation where new ideas are developed and tried out. This role of cities as innovation hubs is reflected in productivity levels in cities, which are usually significantly above the country average. Moreover, as new innovations eventually spread out from cities to the rest of the country, innovative activity in cities also benefits productivity in towns and rural areas.

Yet, it is not guaranteed that cities can play their role as drivers of productivity. Whether they are able to do so depends on a variety of circumstances. Among other factors, cities need high levels of human capital level in the workforce, the right sectoral composition of the economy, appropriate levels of infrastructure, effective public administrations, close links between businesses, schools and universities, and the right

governance arrangements to align all actors in the policy areas. Moreover, cities are affected by a large number of national policies and regulations that are not targeted at cities specifically, but that have important consequences on the functioning of cities. This includes labour market regulations, fiscal policies (including tax and investment policies), environmental regulations and education policies.

To better understand the reasons for the observed pattern of low productivity in Core Cities, it is necessary to distinguish different factors that determine productivity. Three key factors can be identified; first, the skill level of the local workforce and the sectoral composition of the local economy, second, agglomeration economies; and third, place-specific factors related to local policy choices as well as natural characteristics, such as local geography. These factors are interconnected and have a complex structure, which makes it difficult but not impossible to identify each individual contribution.

Skills and industry composition matter for productivity

Skill levels of the workforce are among the most important determinants of a city's productivity. Human capital not only has strong direct effects on a worker's productivity. It also has positive spill-over effects on co-workers and others in his or her proximity.

Individual characteristics, such as age, education or experience, alone explain 57% of the variations in productivity across UK cities. The fact that individual characteristics matter for wages and productivity is now well documented for the UK (D'Costa and Overman, 2014[18]; Gibbons, Overman and Pelkonen, 2014[19]) and other developed countries such as France (Combes, Duranton and Gobillon, 2008[20]) or the US (Baum-Snow and Pavan, 2012[21]). Training, retaining and attracting skills in cities is an essential policy tool for boosting productivity levels in cities.

Skill composition in a city also matters for the industry structure of the local economy. Within the national economies, industries are unevenly distributed across regions and cities. Given that each industry requires workers with different skill sets, the demand for skills and types of jobs available in the local economy will also vary between locations. As a consequence, the average productivity in a city will vary depending on the type of skills demanded by the local industries. Industry composition matters because emerging evidence suggests that productivity growth in the UK has been concentrated in a few sectors (Riley, Rincon-Aznar and Samek, 2018[22]). Despite this evidence, further analysis is needed to get a comprehensive understanding of the influence of sector composition on productivity.

Larger and denser cities have a higher share of skill-intensive industries. If high-skilled workers are more likely to move into larger cities, then the share of skilled workers and thus the average productivity in these locations will be higher compared to smaller or less dense areas. Moreover, high-skilled workers may prefer living in larger cities as they offer more cultural amenities. If high-skilled workers value such amenities more than other skill groups, they would be more likely to live in large cities, thus increasing productivity in these areas.

Agglomeration economies

Another determinant of the productivity differences across cities is the agglomeration economies, the productivity gains that arise due to interactions between workers or firms that take place locally. Economist Alfred Marshall (1890[23]) was among the first to emphasise that the agglomeration of people and firms can increase productivity. In basic terms, agglomeration economies imply that a given worker in a given job will be more productive if he or she does the job in a large city rather than in a rural area.[2] Thus, agglomeration economies are distinct from the productivity gains described above that occur because cities are home to higher-skilled workers and more productive industries.

Since the work by Marshall, considerable effort has been spent on identifying the mechanisms through which agglomeration economies emerge. While not all aspects related to the emergence of agglomeration economies are fully understood, three main mechanisms have been identified (see Box 2.3 for details).

First, infrastructure and other inputs in the production process are more effectively shared among many users in cities than in rural areas. Second, because of the larger number of firms and workers in cities, workers are able to find jobs that are a better match for the skills that they possess. Third, innovations are generated and spread around at a faster pace in cities than in rural areas.

Local institutions, infrastructure and geography

Cities still have important differences in terms of productivity levels once the effects of skill levels, sectoral composition and agglomeration economies have been taken into account. These differences are due to several factors, some of which are man-made and some of which are due to natural endowments and geography. Natural advantages include access to a shore, temperate climate and strategic locations along trade routes can all contribute to higher productivity in a city.

There is an even broader range of man-made factors. They include infrastructures such as airports, highways and fast Internet connections. Effective urban planning that ensures compact and mixed-use developments to encourage the spread of ideas, but does not prevent urban growth also plays a role. The quality of local institutions, including whether public administrations that process requests from firms and residents quickly and efficiently matters strongly, too. Institutional quality can also determine, for example, whether the public sector, universities and businesses co-operate well. Even the quality of strategic industries can play a major role. For example, a well-functioning local banking industry catering to local firms can provide a major advantage to highly productive firms in a city that is trying to scale up its operations.

The list above is by no means an exhaustive list of factors that influence productivity at the city level. Moreover, the way these policies affect productivity is complex and might work through some of the channels above. For example, better co-operation between businesses and universities can have direct effects of productivity levels in a city and it might also have indirect effects because it attracts a larger number of high-skilled workers to a city.

Box 2.3. What are the agglomeration economies?

The mechanisms that create agglomeration economies can be broadly split into three groups: sharing, matching and learning. The discussion below follows Duranton and Puga's contribution to the *Handbook of Regional and Urban Economics* (2004[24]) and builds on a long history of research, with early discussion of the concept of agglomeration benefits ranging back to the 19th-century economist Alfred Marshall and his "Principles of Economics" (Duranton and Puga, 2004[24]; Marshall, 2009[25]).

- *Sharing*: Sharing of facilities or inputs by a large number of firms is one way of creating a critical mass for certain goods or facilities that require many beneficiaries to be efficient. For example, branching a river to provide a constant stream of fresh water for an industrial site involves large fixed costs that are only worth paying if there are enough firms benefitting from this investment. A similar argument applies to the provision of specialised goods and services. Such specialisation creates productivity gains but also requires a large enough demand to sustain the business model.
- *Matching*: Larger labour markets result in better matches between employers and employees. A better match means that the person who is hired for a job is better suited for his or her position and hence more productive. Most people tend to look for jobs primarily within their city. In larger cities, they have more choice between different potential employers and are more likely to find a matching one.

- *Learning*: Another cause that is often considered to be relevant is the so-called technology spill-overs. Businesses tend to learn from other nearby located businesses about the latest production methods. In larger cities, more businesses that are similar to each other exist. Therefore, there are more opportunities for them, e.g. enforced by labour market mobility, to learn about the most efficient production methods and to adapt accordingly.

In addition to these main mechanisms, another argument for the emergence of agglomeration economies is related to increased innovation that occurs when existing ideas and concepts are combined into new products and processes. While innovation can happen anywhere, it occurs predominantly in highly urbanised areas (Carlino and Kerr, 2015[26]). Lastly, cites might also be more productive because a larger number of businesses can increase the level of competition within a city. Fiercer competition ensures that unproductive businesses leave the market, which increases the average level of productivity within a city and raises its GDP.

Source: OECD (2015[17]), *The Metropolitan Century: Understanding Urbanisation and its Consequences* https://dx.doi.org/10.1787/9789264228733-en; Duranton, G. and D. Puga (2004[24]), "Micro-foundations of urban agglomeration economies", in: Henderson, J.V. and J.F. Thisse (eds.), *Handbook of Regional and Urban Economics,* Vol. 4, Ch. 48, pp. 2063-2177; Marshall, A. (2009[25]), *Principles of Economics: Unabridged Eight Edition,* Cosimo, Inc; Carlino, G. and W. Kerr (2015[26]), *Agglomeration and Innovation*, http://dx.doi.org/10.1016/B978-0-444-59517-1.00006-4.

Productivity in Core Cities: An econometric analysis

Economists are especially interested in separating the influence of the workforce and firm composition from other factors. The idea behind this approach is to distinguish between factors that are mobile and can move from one city to another (i.e. firms and workers) and factors that are immobile and thus inherently associated to a particular city. From a policy perspective, such a distinction is important, too. While cities can increase their productivity levels by attracting highly productive firms and workers from other cities, policies to do so lead to a zero-sum competition between them. Thus, greater emphasis should be placed on policies that lead to an aggregate growth of productivity, such as strengthening education systems, improving local economic development policies, investing in infrastructure and making public administrations more efficient.

This section describes the results of an econometric analysis of more than 3.5 million individual records of workers over a span of 17 years. It provides the following insights:

- First, it shows levels of productivity in cities that are due to their inherent characteristics. For example, the average productivity in banking, finance and business services industry in the UK is three times more productive than wholesale and retail trade or six times more productive than accommodation and food service activities. If there are two cities, similar in every sense except that for historical reasons one is specialised in financial services while the other in wholesale and retail, their average productivity levels would be different due to structural differences between these industries. The econometric analysis in this section can account for these differences and can provide insights on how city-specific characteristics drive productivity once these differences in productivity are factored out.
- Second, the resulting estimates for all cities can be used to determine the magnitude of agglomeration economies in the UK. In other words, they provide insights into whether cities inherently become more productive as they grow in size. As discussed below in more detail, such a positive relation between city size and productivity exists in the UK but it is much weaker than in most other developed countries. Most economists would expect agglomeration economies to occur naturally in well-functioning cities. This raises the question of which factors

prevent their emergence in the UK and how policy can address these factors. Third, estimates can also be used to analyse the influence of other factors, such as infrastructure provision, market access as well as any other city-specific characteristics or policies for which sufficient data at the city level exist.

Box 2.4. The advantages of working with microdata

The analysis in this chapter aims to quantify productivity levels across UK cities net of the effects of skill levels and sectoral composition in a city. For this purpose, the analysis covers 3.5 million observations of worker records and applies a two-step estimation approach (see Box 2.5). The use of such microdata has multiple advantages for identifying the sources of productivity differences compared to using aggregate data.

First, microdata allows quantifying the productivity levels that are net of compositional issues within industries and firms. As discussed above, differences in productivity across locations are driven by differences in the skill and occupational composition of the workers and the industrial structure of the local economy. Even within an industry, there are differences due to spatial divisions of production and labour. A company could locate its managers and professionals in large cities, such as London, whereas the workers undertaking routine production or delivering routine services are more prevalent in smaller cities. Although the same firm within the same industry would be operating in both locations, the value added of each plant and their average productivities will be different.

Moreover, individual workers have unobservable characteristics, such as their level of ambition. It cannot be ruled out that more ambitious workers move more frequently to some cities than to others. In such a case, workers in these cities might be on average more productive even though the inherent characteristics of these cities are not different from other cities. By using individual-level microdata, econometric analysis can account of this effect and net it out of city-specific productivity estimates.

Second, the use of microdata can address issues related to the measurement of productivity. Not all workers work the same number of hours. Workers can be working full-time or part-time jobs. Given that workers located in large cities are less likely to hold part-time jobs than workers who are located in smaller areas, the average productivity should be estimated while accounting for the differences in the hours worked. Again, if part-time work is more common in some cities than in others, this could distort productivity measurements that can be avoided by using microdata.

The remaining productivity differences across cities that captured once the factors above have been netted out can be driven by agglomeration economies but also by multiple other factors that affect the efficient functioning of a city. For example, an efficient urban infrastructure would reduce the cost of congestion and allow workers to find jobs that match their skills better (Puga, 2010[27]). The role of local governance and governmental fragmentation can also matter for productivity. For instance, Ahrend et al. (2017[28]) show that cities with a fragmented governance structure suffer from inefficiencies and are less productive. Similarly, workers in polluted cities are more likely to become ill and take sick leave more often, which also reduces productivity.

Source: Puga, D. (2010[27]), "The magnitude and causes of agglomeration economies", *Journal of Regional Science*, Vol. 50/1, pp. 203-219.; Ahrend, R. et al. (2017[28]), "What makes cities more productive? Evidence from five OECD countries on the role of urban governance", *Journal of Regional Science*, Vol. 57/3, pp. 385-410.

Box 2.5. Empirical strategy

The analysis in this chapter uses individual-level microdata and applies a two-step estimation approach that has been used by other studies in the literature to estimate agglomeration economies (Ahrend et al., 2017[28]; Combes et al., 2019[29]; Combes, Duranton and Gobillon, 2008[20]; De la Roca and Puga, 2017[30]).

In the first step, the OECD functional urban area definition of cities is matched with large-scale survey-based microdata from the UK. The resulting data set is then used to estimate productivity differentials – net of individual skill and other individual-level observables (e.g. gender, age, occupation, full-time…) and industry composition – across cities using an OLS regression of the natural logarithm of wages on individual-level characteristics and a set of fixed effects.

$$y_{iat} = \beta X_{iat} + \gamma_{at} d_{iat} + \gamma_s + \gamma_i + \varepsilon_{iat}$$

y_{iat} denotes the natural logarithm of wages for individual i in city a at time t, X a vector of individual observable characteristics, d a vector of dummy variables that take the value 1 if the individual resides in the city a at time t. γ_s is a sector fixed-effect that absorbs structural productivity differences between industries, γ_i is individual fixed effect which allows controlling for the "sorting bias" where individuals with higher unobservable abilities (e.g. higher levels of motivation) sort into larger cities. ε denotes the error term.

The city-year fixed effects ($\widehat{\gamma_{at}}$) obtained in the first step capture productivity differential across cities, net of (observable and unobservable) skill differences and the industry structure of the local economy. The estimated productivity differentials ($\widehat{\gamma_{at}}$) are used as the dependent variable in the second step, in which they are regressed on time-varying city characteristics (Qat) such as population, the share of university graduates, the Herfindahl Index (two-digit SIC2003) and the various industrial shares. Additional year fixed effects γ_t control for national business cycles and country-specific inflation (the first step estimates nominal productivity differentials).

$$\widehat{\gamma_{at}} = \beta Q_{at} + \gamma_t + \varepsilon_{at}$$

The standard errors in the OLS estimation are clustered at the city level to allow for heteroscedasticity and arbitrary autocorrelation over time (for each city) in the error term.

Data

The estimation of the first step is based on data from the UK Annual Survey of Hours and Earnings (ASHE) for 2000-18. The ASHE is the largest labour market survey and includes information on approximately 160 000 employees per year. It is a random sample of around 1% of the National Insurance pool, as it tracks employees whose national insurance ends with a specific pair of digits. ASHE provides detailed information on an individual's earnings, hours worked, occupation, industry, whether the job is in the private or public sector, the worker's age and gender. Information on education is not available via ASHE and thus it is imputed using the UK Quarterly Labour Force Survey for 2000-17. Specifically, an individual's years of schooling in ASHE are simulated using estimates of the coefficients of the best linear predictor of education from the Labour Force Survey over the same period. The final sample used in the estimation includes 3.5 million individual-year observations working across 96 FUAs.

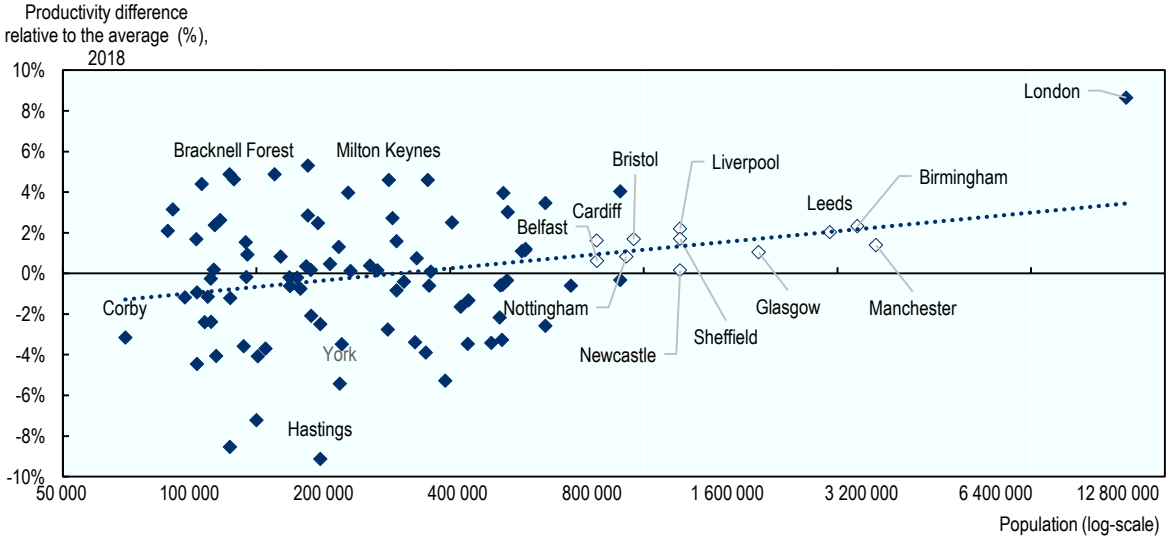
Source: Ahrend, R. et al. (2017[28]), "What makes cities more productive? Evidence from five OECD countries on the role of urban governance", *Journal of Regional Science*, Vol. 57/3, pp. 385-410; Combes, P. et al. (2019[29]), "Unequal migration and urbanisation gains in China", http://dx.doi.org/10.1016/j.jdeveco.2019.01.009; Combes, P., G. Duranton and L. Gobillon (2008[20]), "Spatial wage disparities: Sorting matters!", http://dx.doi.org/10.1016/j.jue.2007.04.004; De la Roca, J. and D. Puga (2017[30]), "Learning by working in big cities", http://dx.doi.org/10.1093/restud/rdw031.

Core Cities generate agglomeration economies below their potential

Figure 2.8 plots the relationship between city size on the horizontal axis and productivity levels relative to the national average net of the effects of the workforce and sectoral composition for 2018.[3] An important pattern in Figure 2.8 is the absence of any strong relationship between city size and productivity. The line depicting the estimated relationship has a slope of just 0.009 in 2018. Thus, there is very little evidence of agglomeration economies occurring in the UK. Compared to other OECD countries, this estimated relationship between city size and productivity is similar to 0.01 for Italy (Mion and Naticchioni, 2009[31]), but lower than 0.021 found for the Netherlands (Groot and de Groot, 2014[32]), 0.025 found for Spain (De la Roca and Puga, 2017[30]), or 0.03 for France (Combes, Duranton and Gobillon, 2008[20]) and Germany (Hirsch et al., 2019[33]).

Figure 2.8. Agglomeration economies in the UK, 2018

Productivity differences (net of the workforce and sectoral composition, 2018) and city size (2018)



Note: Hollow diamonds denote Core Cities, solid diamond denote other UK cities. The horizontal axis plots city population (log scale). The vertical axis plots productivity differences from the national average net of workforce and sector effects. The analysis is conducted at the functional urban area level. Estimates for Belfast come from econometric analysis using aggregate data, for details see endnote 3.
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata. Estimates for Belfast are based on aggregate data from National Official Labour Market Statistics (NOMIS[34]) and Northern Ireland Statistics and Research Agency (NISRA[35]) data (accessed August 2019).

It is important to stress that a considerable degree of uncertainty concerning the exact magnitude of agglomeration economies still exists despite the large number of studies on the topic. Largely, this is due to an ongoing academic debate on best methodological choices for estimating agglomeration economies. For example, estimates that are based on TFP measures of productivity (see Box 4.2) tend to produce larger agglomeration economies estimates than those based on wages (Melo, Graham and Noland, 2009[36]). Yet, despite these uncertainties, the abovementioned picture of not fully realised agglomeration economies in the UK is robust. All studies cited above use the same methodology as the analysis in this report, which ensures that differences in point estimates across countries are not driven by methodological differences. Moreover, the standard deviations of the point estimates are generally small (0.0021 in case of the UK). Thus, differences across countries are not due to statistical noise, either.

One possible explanation for the weak relationship between city size and productivity could be the high productivity levels of small cities in the South East which are close to London (shown on the top left side

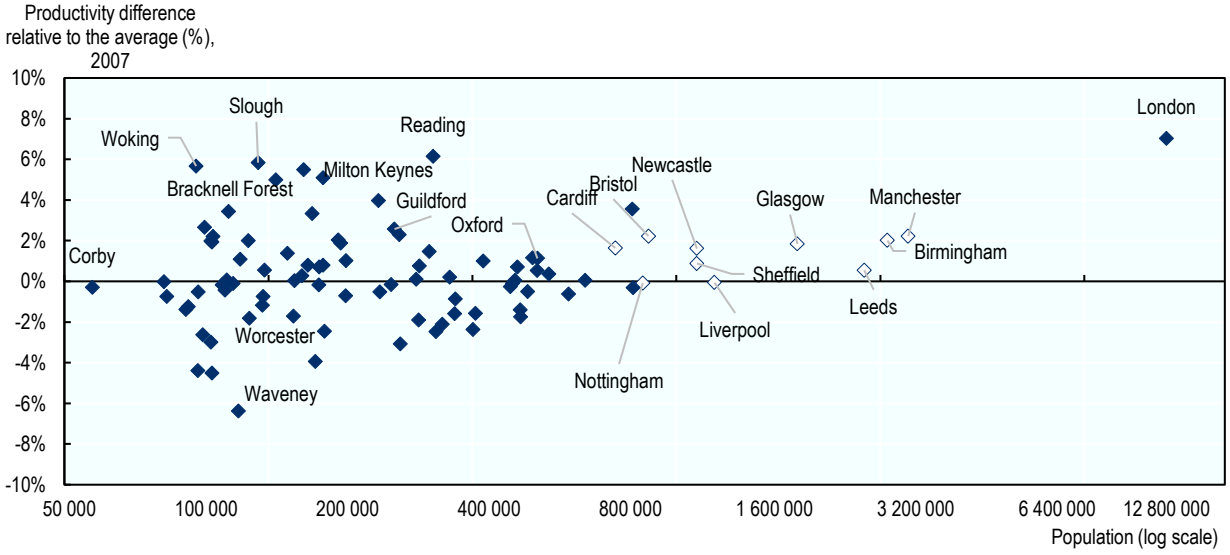
of Figure 2.8). Indeed, these cities benefit from their proximity to London, which generates positive productivity spill-overs (see the section on linking cities and regions for more details). However, if London and all the cities that are within 120 minutes driving distance from the centre of London are excluded,[4] the estimated coefficient changes only very slightly from 0.009 to 0.01, a difference that is statistically insignificant.

Another notable pattern in Figure 2.8 is close proximity of Core Cities' productivity to the national average once workforce and sector effects have been taken into account. This implies that a large part of the variation in productivity across Core Cities can be explained by their sector and workforce composition. In contrast, many smaller cities deviate strongly from their predicted productivity, given their population size. Those cities that are located below the trend line are less productive than expected given the estimated relationship, while those above the trend line are more productive.

Compared to 2007 shown in Figure 2.9, Core Cities are clustered even closer around the trend line, while smaller cities, as well as London, are slightly more dispersed. Yet, the overall picture remains remarkably stable. In particular, the estimated magnitude of agglomeration economies, which is represented by the slope of the trend line in both figures barely changed over the years and continues to remain exceptionally low.

Figure 2.9. Agglomeration economies in the UK, 2007

Productivity differences (net of the workforce and sectoral composition, 2007) and city size (2007)



Note: Hollow diamonds denote Core Cities, solid diamond denote other UK cities. The horizontal axis plots city population (log scale). The vertical axis plots productivity differences from the national average net of workforce and sector effects. The analysis is conducted at the functional urban area level. Belfast is excluded due to data availability.
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata.

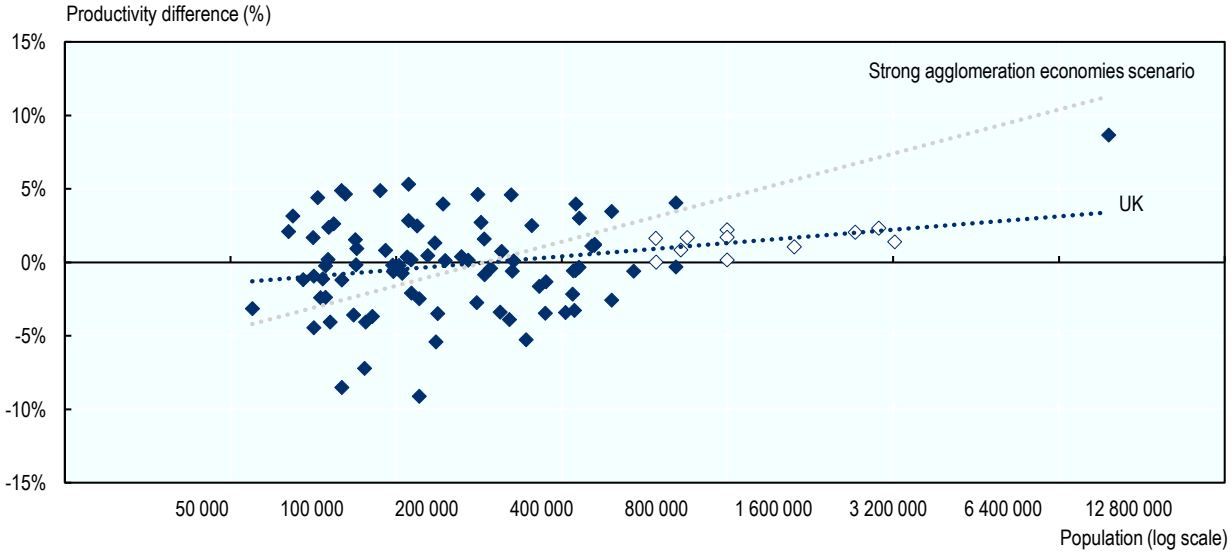
Generating stronger agglomeration economies would yield significant productivity gains

The weak relationship between city size and productivity is one of the explanations behind the low levels of productivity in the UK. If large cities would use their potential to generate agglomeration economies, the productivity gains could be substantial. This can be illustrated by a hypothetical thought experiment, under which the relationship between city size and productivity gains in the UK is 0.03 or roughly 3 times stronger

than it is today. This magnitude of agglomeration economies would be identical to the agglomeration economies observed in France and Germany. It would imply that a city, which is 10% larger than another has a productivity gain of 0.3% instead of 0.09%. While this does not sound much, Figure 2.10 shows that it can make a significant difference.

All Core Cities fall significantly below the productivity levels predicted according to the strong agglomeration economies scenario.[5] If they moved up in the figure to the steeper line that represents the counterfactual scenario of strong agglomeration economies, their average productivity level would increase by 4.1 percentage points relative to the national average. Such productivity growth would raise output in Core Cities by GBP 19.8 billion per year. Given their importance for the UK economy, it would also increase aggregate productivity levels in the UK by close to 1% or nearly as much as the entire UK productivity growth between 2008 and 2016. Figure 2.11 shows the productivity gains of each Core City if it were to catch up to the strong agglomeration economies scenario.

Figure 2.10. Further agglomeration gains are possible



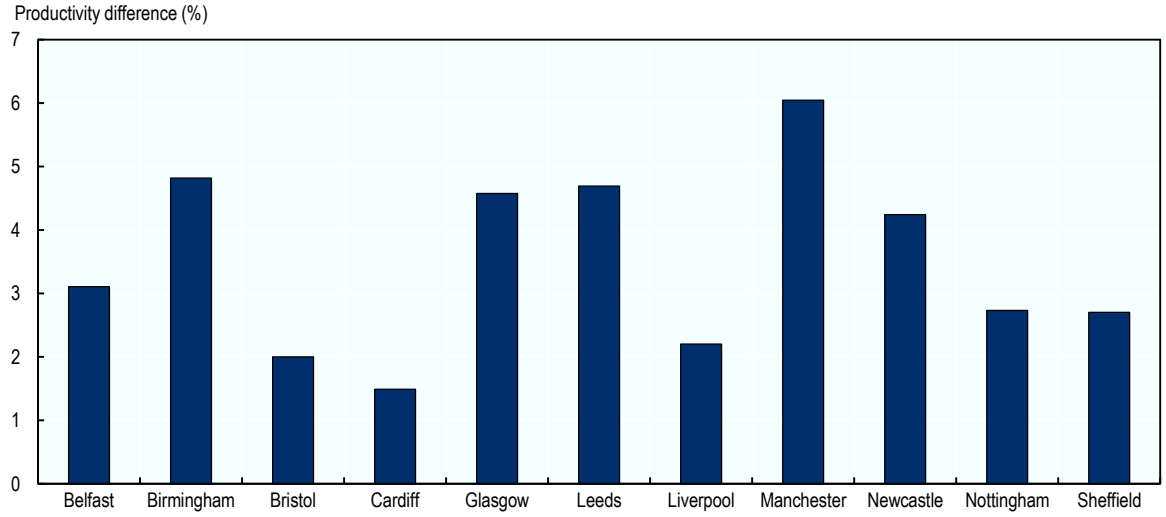
Note: Hollow diamonds denote Core Cities, solid diamond denote other UK cities. The horizontal axis plots city population (log scale). The vertical axis plots productivity differences from the national average net of workforce and sector effects. The trend line for the strong agglomeration economies scenario uses elasticities estimated by Combes, Duranton and Gobillon (2008[20]) for France and Hirsch et al. (2019[33]) for Germany. The analysis is conducted at the functional urban area level. Estimates for Belfast come from econometric analysis using aggregate data, for details see endnote 3. The analysis is conducted at the functional urban area level.
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata. Estimates for Belfast are based on aggregate data from National Official Labour Market Statistics (NOMIS[34]) and Northern Ireland Statistics and Research Agency (NISRA[35]) data (accessed August 2019).

Of course, such a thought exercise is an illustration of the potential productivity gains but should not be taken literally. Productivity distributions across cities are the outcome of decades of economic transformations and policy choices and cannot easily be replicated across countries. Moreover, given the size of Core Cities, any change in productivity levels of this magnitude would also have important macroeconomic consequences that cannot be taken into account in this thought exercise. From a purely mechanical point of view, such a movement would change the predicted relationship between city size and productivity itself, so that the estimated slope of the relationship between size and productivity would change.

Raising productivity in large cities in the UK to levels seen in other high-income countries could be achieved through two sets of policies. First, the factors that lead to the emergence of agglomeration economies could be strengthened. For example, in order to maximise the quality of matches between employers and employees, it is important that workers can reach as many potential workplaces as possible from their place of residence. Likewise, innovation diffusion to small firms can be strengthened by creating specialised on-the-job training programmes that teach the latest production technologies. Given the large number of potential participants, large cities are best suited to offer such programmes. Last but not least, it is important to upgrade existing infrastructure, such as telecommunication networks, rail lines and airports, to ensure that it benefits local economies to its full potential.

Figure 2.11. Productivity gains from stronger agglomeration economies

Productivity gains if Core Cities were catching up to a strong agglomeration economies scenario



Note: This chart reflects the differences between actual productivity levels in Core Cities (net of workforce and sectoral composition) and their expected productivity levels in a counterfactual scenario in which the UK generates agglomeration economies to the degree that France and Germany do (see Figure 2.10 for details).
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata. Estimates for Belfast are based on aggregate data from National Official Labour Market Statistics (NOMIS[34]) and Northern Ireland Statistics and Research Agency (NISRA[35]) data (accessed August 2019).

Second, agglomeration dis-economies can be reduced by mitigating factors that reduce productivity in large cities. Such factors include congestion, which leads to workers wasting time in traffic and pollution, which affects health levels, reduces workplace performance and increases time spent on sick leave. It also includes high real estate prices, which can lead businesses to locate in suboptimal locations to save rents. Such suboptimal firm locations can make it more difficult to access customers and to connect to universities. It can also limit the possibility for employees to meet with employees of other firms. Such random encounters are considered an important factor in the spread of innovations from one firm to another.

Comparing the impact of workforce and sector composition to the underutilised potential of agglomeration economies

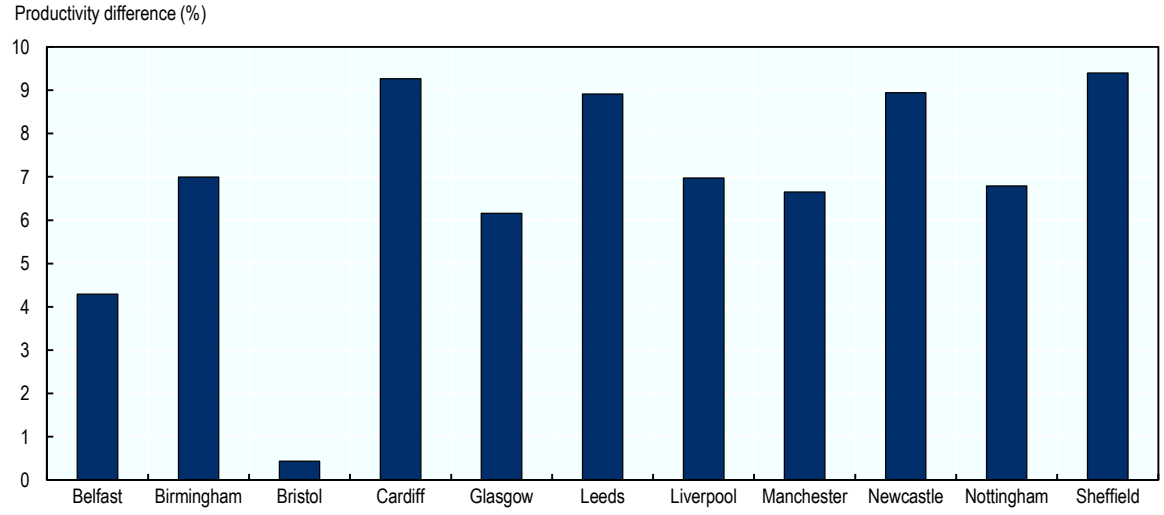
The analysis above allows shedding light on how much workforce and sector composition affects productivity. Figure 2.12 shows the productivity gains for each Core City if workforce and sector composition were to catch up to the national average. The figure shows that in some cities, workforce and

sector composition are primarily responsible for low productivity, while agglomeration economies play a more prominent role in other cities.

For example, Birmingham could increase its productivity by approximately seven percentage points if its workforce and sector composition were to adjust to the national average. In contrast, the productivity gain from catching up to the strong agglomeration economies scenario would benefit from five percentage points (Figure 2.11). In contrast, the picture for Bristol is the reverse. As its current workforce and industry composition is about as favourable as the national average, catching up to it would yield productivity gains of less than 0.5 percentage points. In contrast, the gains from generating more agglomeration economies and catching up to the strong agglomeration economies scenario would yield a productivity gain of two percentage points. Figure 2.13 provides the average productivity for all Core Cities. The bar on the left-hand side shows the potential gains from having a workforce and sector composition in line with the rest of the UK. The bar on the right-hand side shows the average gains from generating agglomeration economies to the same degree as French and German cities do.

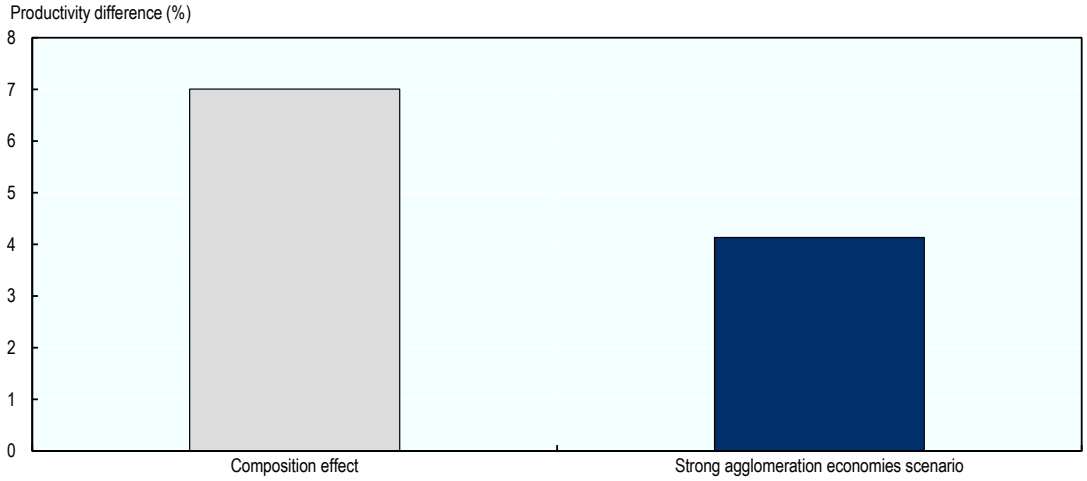
Figure 2.12. Productivity effects from workforce characteristics and sector composition

Productivity gains if workforce characteristics and sector composition in Core Cities were to adjust to the national average



Note: The composition effect reflects the productivity gain that a city would realise if its workforce and sector composition adjusts to the national average. Estimates for Belfast come from econometric analysis using aggregate data. For details endnote 3.
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata. Estimates for Belfast are based on aggregate data from National Official Labour Market Statistics (NOMIS[34]) and Northern Ireland Statistics and Research Agency (NISRA[35]) data (accessed August 2019).

Figure 2.13. Composition effects and potential gains from strong agglomeration economies



Note: The figure presents gains associated with composition effects and potential gains from strong agglomeration economies for Core Cities. They are calculated as the weighted average across all Core Cities. Estimates for Belfast come from econometric analysis using aggregate data, for details see endnote 3.
Source: OECD calculations based on the UK Annual Survey of Hours and Earnings (ASHE) microdata. Estimates for Belfast are based on aggregate data from National Official Labour Market Statistics (NOMIS[34]) and Northern Ireland Statistics and Research Agency (NISRA[35]) data (accessed August 2019).

Importantly, Figure 2.13 should not be seen as an argument in favour of one set of policies or another. Policies to strengthen the skills of the workforce and policies to foster agglomeration economies do not conflict with each other and should be pursued in parallel. Moreover, there are positive spill-overs from one policy area to another. As discussed in the following section, increasing the education level of the workforce fosters the emergence of agglomeration economies, while cities that are able to generate positive agglomeration economies are likely to attract more skilled workers.

More generally, the same argument applies also to policies across levels of government. Productivity levels in cities are determined by structural factors that affect the entire country as well as by place-specific factors that affect individual cities. Thus, structural policies across the UK should be seen as complementary to place-based policies that aim at improving productivity in individual cities. Instead of prioritising one over the other, the UK Government should pursue both in a co-ordinated fashion.

Further evidence on the role of sectoral composition, infrastructure and connectivity for productivity

The section above made the argument that stronger agglomeration economies can not only contribute to increased productivity levels in Core Cities but also have significant effects on aggregate productivity in the entire UK. From a policy perspective, the important question is how to foster the emergence of agglomeration economies. This section will present tentative empirical evidence on these questions. The subsequent chapter contains a discussion of local economic development policies and subnational governance that provides concrete guidance based on the empirical results in this chapter.

Productivity and human capital

Human capital levels are one of the most important determinants of productivity. More educated people are more productive and are paid higher wages to account for this increased productivity. Yet, the

education levels of cities' workforce affect productivity through a second channel. More educated workers also have positive effects on the productivity of their co-workers, an effect that economists call a positive externality (Moretti, 1999[37]).

The econometric analysis discussed allows identifying this effect. It shows that a 10-percentage-point increase in the share of university graduates is associated with a 1.7% increase in productivity of the overall workforce, an effect that is statistically significant. It is important to note that this number captures only the positive spill-overs associated with having an educated workforce. It does not capture the individual gains that are associated with being educated. In other words, this productivity gain reflects the positive effects that a highly educated worker has on its co-workers and not the effects of education on the worker who received the education.

Connectivity of cities

Having better accessibility to other cities and regions is an important determinant of a city's productivity. A city that is better connected to the rest of the country can provide better market access to firms and allows them to export at a lower cost (Krugman, 1980[38]). Likewise, it also reduces the local prices of imports, which increases efficiency and consumer welfare (Krugman and Venables, 2006[39]). As both factors boost productivity and thus give a competitive advantage, it also renders a place more attractive to investments. Moreover, better road access allows better and faster transportation of people which also improves their quality of life.

Empirically, the analysis shows that a 10-percentage-point increase in the road accessibility performance of a city increases the average productivity by 1.2%. Road accessibility is measured as the share of people that can be reached within a 90-minute drive from the city relative to the number of people living in the area that is potentially accessible (EC, 2018[40]). Cities that have better road infrastructure or good connections to motorway networks provide access to large population concentrations allowing higher accessibility. While the econometric analysis used road accessibility for data availability reasons, it is likely that accessibility by other modes of transport has equally important effects (Department for Transport, 2018[41]).

Industrial specialisation and diversity

Specialisation and diversification are two opposing factors that can potentially create agglomeration economies. Productivity gains from specialisation emerge because the workforce's skills better match the needs of the industry and because innovations spread faster across firms within the same industry than across firms in different industries. In contrast to other benefits from agglomeration, the gains from specialisation are specific to the specialised industry (Özgüzel, 2019[42]). Many studies find that specialisation has a statistically significant, positive effect on productivity within the specialised industry, although that effect tends to be highly geographically localised (Combes and Gobillon, 2015[43]).

The idea that increasing diversity leads to productivity gains was proposed by journalist and sociologist Jane Jacobs (Jacobs, 1969[44]). Jacobs argued that the interactions of people in different occupations and industries facilitate a creative process that generates new ideas and innovation in cities (Glaeser et al., 1992[45]). The intuition of Jacobs was formalised by Duranton and Puga (2001[46]) and has been used to test whether industrial diversity in cities could drive productivity.

Empirically, it is not possible to identify statistically significant effects of either specialisation or diversification in UK cities. A potential explanation for this finding is that the benefits of specialisation and diversification are roughly identical and therefore cancel each other out. A productivity gain from increasing specialisation might lead to a productivity loss from decreasing diversification and vice versa.

Local and regional planning matters for productivity

The importance of place-making

Making cities attractive places to live and work is an important approach to making them more productive. Attractive cities are better in retaining skilled workers, which are one of the most important factors influencing productivity levels. They also generate investments from local, national and international businesses.

While competition across cities to attract skilled workers and capital might seem a zero-sum game and therefore a waste of resources from a public policy perspective, this is not the case for several reasons. First, and most importantly, public investment in the attractiveness of cities benefits residents independently from its economic impact because it increases quality of life. Second, attractive cities not only attract private investments that would have otherwise gone to other cities but they also generate additional investments that would not have been made otherwise. This is especially important given that low investment rates have been identified as one of the factors responsible for the weak productivity growth in the UK.

Many of the characteristics that are typically associated with attractive urban areas are also factors that facilitate the emergence of agglomeration economies. For example, walkable neighbourhoods with relatively high densities that combine a variety of uses are generally considered attractive places to live and real estate in these areas tends to be more valuable than in other parts of a city (Cortright, 2009[47]). At the same time, these are also neighbourhood characteristics that are known to foster the emergence of agglomeration economies through Jacobs' externalities.[6]

Especially innovation in the creative sector is facilitated by the interactions that take place in dense, mixed-use neighbourhoods. Consequently, creative industries locate predominantly in attractive inner-urban spaces. In contrast, science industries, in which unstructured interactions of people in different professions play a less important role, are more frequently found in suburbs (Spencer, 2015[48]). For these industries, the more versatile built-environment and lower costs in more suburban location outweigh the benefits of being located in central urban areas.

From a policy perspective, this leads to a twofold conclusion. First, cities should consider investments in the attractiveness of their urban areas not only as a contribution to the quality of life of its residents but also as an economic development strategy. In particular, brownfield redevelopment and urban regeneration projects should factor in the economic spill-overs from creating attractive neighbourhoods that are dense, aesthetically appealing and feature a variety of uses. In the short term, it is often costlier to preserve and regenerate the existing building stock and intersperse it with new development. Yet, a regenerated area with an attractive building stock and a diverse mix of uses can yield large returns in the long term.

Second, cities should ensure that sufficient space for the development of research-intensive science industries is made available in less central neighbourhoods. Although such neighbourhoods often have a more functional character, it can still pay off to ensure that they are high-quality urban spaces that combine a variety of uses, are walkable and well-connected to public transport. As abovementioned, such characteristics are attractive for a highly skilled workforce and consequentially attract investments. Moreover, a strong shift of innovative activities from suburban to inner-urban environments has been taking place in the last two decades (Florida, Adler and Mellander, 2016[49]). As this trend is likely to continue, cities can ensure their future attractiveness for innovative activities by ensuring that commercial developments in these areas meet the growing need for neighbourhoods with urban characteristics.

Box 2.6. Cardiff Central Square Regeneration

The city's Central Square regeneration scheme is Cardiff's flagship economic development project. It seeks to address a perceived lack of agglomeration within the city by developing a cluster of knowledge-based business activity in and around the Central Square area. Anchored by the BBC Wales headquarter, the project has also provided for a high-quality environment for a range of commercial and higher education activity. In particular, the co-location of the Cardiff University School of Journalism next to the BBC Headquarters will support the development of the city's creative sector, identified as a priority in Cardiff's economic strategy.

Further effects are also driven by the location, with Cardiff Central Station at its heart. The station is both the focus of the rail routes that serve the city-region, as well as the sole interchange between these and the Great Western Mainline. Both the mainline and local services are subject to substantial upgrading, including electrification that will provide for a significant improvement in services, and hence greater reach and economic impact from the Central Square project.

Provision is made for the future expansion of the project south of the railway line, allowing for further agglomeration of activity within similar easy reach to the city-regions public transport infrastructure. In total, the scheme has the potential to provide for 30 000 jobs and leverage GBP 2 billion of investment over the next 10 to 15 years.

Source: Core Cities.

Linking Core Cities with surrounding regions

Agglomeration economies emerge because people learn from each other, innovate together, share infrastructure and specialise in a field of work. For this to happen, people must live and work in close proximity to each other. However, places further away from a large city can also benefit from the agglomeration economies it generates. While it is difficult to quantify the magnitude of these effects over greater distances precisely, recent research emphasises the importance of "borrowed agglomeration economies" (Meijers and Burger, 2016[50]).

The concept of "borrowed agglomeration economies" was developed by Alonso (2019a[51]) to describe the idea that smaller towns and cities can benefit from the positive agglomeration economies of larger neighbours. For example, businesses in a small town close to a large city benefit from the infrastructure of the larger city, such as airports and good public transport networks. If the town is close enough to the city to belong to the same local labour market, they can recruit from the same large pool of specialised workers. Moreover, businesses in such a town have easy access to specialised suppliers and a diverse customer base in the large city. Thus, it is not surprising that towns close to a large city can benefit from some of the agglomeration economies of the large city.

Borrowed agglomeration economies can most likely be observed in the UK, too. For example, urban areas that are within 90-minutes travel time to London have on average a 3.5% higher productivity than would be expected given the characteristics of their workforce, their sector mix and their population size. Yet, the emergence of borrowed agglomeration is not guaranteed, nor is the geographical distance over which they can occur fixed. Whether and over which distance borrowed agglomeration economies emerge depends on policy decisions in a variety of policy fields.

Most immediately, adequate transport connections are important. For example, good public transport connections on high-quality trains allow employees to work while travelling to customers, thus raising worker productivity immediately and also increasing the potential customer base. Likewise, a good public

transport network increases the size of the local labour market, thereby improving the quality of matches between employers and employees and raising productivity through this channel.

Yet, it is not only infrastructure that matters for linking cities and regions. Effective spatial planning at the regional scale is similarly important. For example, good spatial planning can ensure that facilities of regional importance and major business districts are located in places that are easily accessible for the entire region. It also avoids costly duplication of facilities, co-ordinates economic development policies across the boundaries of local jurisdictions and can foster the emergence of regional specialisations.

Other policies can also help to generate borrowed agglomeration economies. For example, universities are crucial actors in developing regional innovation ecosystems. They connect public and private actors, provide a skilled workforce to the region, and work directly with businesses to create innovations. In recent years, their importance for regional development has increased but there are important differences in how universities are engaged in regional co-operations (Reichert, 2019[52]). Policymakers can facilitate the regional role that universities play through a variety of measures, ranging from specialised course offers in satellite locations to dedicated outreach programmes to small- and medium-sized enterprises (SMEs) within the region. By strengthening the innovative potential throughout the region, such policies contribute to raising productivity throughout the region.

Box 2.7. The Glasgow City-Region Regional Partnership

The Glasgow City-Region Regional Partnership builds on the strengths of the City Region City Deal partners to collaborate beyond the delivery of the City Deal Programme and brings together key players from the public and private sector to establish a partnership that reflects local economic circumstances, shared policy priorities and existing governance arrangements. The partnership comprises local, national and Scottish government, government agencies, the private sector and academia, united around a common purpose for inclusive economic growth and responsible for overseeing the delivery of a Regional Economic Strategy.

The development of Regional Partnerships was a key policy that emerged from the Scottish Government's Enterprise and Skills Review. The overall purpose of the Regional Partnership is: to actively promote collaboration and partnership working between the eight member authorities, Scottish and UK Governments, their agencies, private sector and academia to deliver shared economic priorities; to maximise economic growth across all of the city-region geography ensuring that inclusive growth measures are incorporated into all activity; and to enable new ways of working to maximise outcomes. After 12 months, the Regional Partnership has matured to the level whereby it is co-producing a refreshed Regional Economic Strategy to incorporate spatial planning, investment priorities and actions across all of the partners to address shared priorities. The terms of reference for the partnership allow for other partners, for example, public health, to be co-opted as required.

Source: Core Cities.

While policies to link cities with regions are usually framed as benefitting regions, they are equally important for large cities. By global standards, Core Cities are comparatively small, just like most other European first- and second-tier cities. This is partly due to the early urbanisation in Europe, which favoured the emergence of many mid-sized cities and partly due to policy choices made subsequently.

In isolation, the size of Core Cities can be too small to provide the necessary critical mass of customers or suppliers to businesses, to use infrastructure such as an international airport efficiently, or to attract foreign

direct investment (FDI). By linking the wider region closer to the city, the city gains additional mass that can help to increase productivity.

There are various approaches to link cities closer to their surrounding regions. For examples, most large cities in Germany have formed metropolitan associations that are responsible for varying policy areas but often cover issues such as regional spatial planning and business promotion (Ahrend, Gamper and Schumann, 2014[53]). These metropolitan associations are sometimes enshrined in state law, while in other instances they are entirely voluntary co-operations between the involved local governments. Likewise, Rotterdam and The Hague in the Netherlands have formed a new metropolitan authority that is among other issues responsible for public transport provision and business promotion. The main motivation behind the creation of the metropolitan authority was the realisation that closer co-operation is in the mutual interest of both cities (OECD, 2016[54]).

References

Ahrend, R. et al. (2017), "What makes cities more productive? Evidence From five OECD countries on the role of urban governance", *Journal of Regional Science*, Vol. 57/3, pp. 385-410, http://dx.doi.org/10.1111/jors.12334. [28]

Ahrend, R., C. Gamper and A. Schumann (2014), "The OECD Metropolitan Governance Survey: A Quantitative Description of Governance Structures in large Urban Agglomerations", *OECD Regional Development Working Papers*, No. 2014/4, OECD Publishing, Paris, https://dx.doi.org/10.1787/5jz43zldh08p-en. [53]

Alonso, W. (1973), "Urban zero population growth", *Daedalus*, Vol. 102/4, pp. 191-206. [55]

Alonso, W. (1973), "Urban Zero Population Growth", *Daedalus*, Vol. 102/4, pp. 191-206. [59]

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, https://doi.org/10.1787/63629cc9-en. [5]

Australian Government Productivity Commission (2015), "What is productivity and how is it measured?", *PC Insight* 05/2015. [14]

Baily, M. and N. Montalbano (2016), *Why Is US Productivity Growth So Slow? Possible Explanations and Policy Responses*, https://www.brookings.edu/research/why-is-us-productivity-growth-so-slow-possible-explanations-and-policy-responses/ (accessed on 14 September 2019). [8]

Barnett, A. et al. (2014), *The UK Productivity Puzzle*, Bank of England Quarterly Bulletin 2014 Q2. [3]

Baum-Snow, N. and R. Pavan (2012), "Understanding the city size wage gap", *Review of Economic Studies*, Vol. 79/1, pp. 88-127, http://dx.doi.org/10.1093/restud/rdr022. [21]

Borjas, G. (2012), *Labor Economics*, Higher Education, McGraw-Hill. [15]

Carlino, G. and W. Kerr (2015), *Agglomeration and Innovation*, Elsevier B.V., http://dx.doi.org/10.1016/B978-0-444-59517-1.00006-4. [26]

Combes, P. et al. (2019), "Unequal migration and urbanisation gains in China", *Journal of Development Economics*, http://dx.doi.org/10.1016/j.jdeveco.2019.01.009. [29]

Combes, P., G. Duranton and L. Gobillon (2008), "Spatial wage disparities: Sorting matters!", *Journal of Urban Economics*, Vol. 63/2, pp. 723-742, http://dx.doi.org/10.1016/j.jue.2007.04.004. [20]

Combes, P. and L. Gobillon (2015), *The Empirics of Agglomeration Economies*, Elsevier B.V., http://dx.doi.org/10.1016/B978-0-444-59517-1.00005-2. [43]

Cortright, J. (2009), *How Walkability Raises Home Values in U.S. Cities*, CEOs for Cities. [47]

D'Costa, S. and H. Overman (2014), "The urban wage growth premium: Sorting or learning?", *Regional Science and Urban Economics*, Vol. 48, pp. 168-179, http://dx.doi.org/10.1016/j.regsciurbeco.2014.06.006. [18]

De la Roca, J. and D. Puga (2017), "Learning by working in big cities", *Review of Economic Studies*, Vol. 84/1, pp. 106-142, http://dx.doi.org/10.1093/restud/rdw031. [30]

Department for Transport (2018), *Transport Statistics Great Britain 2018*. [41]

Diodato, D., F. Neffke and N. O'Clery (2018), "Why do industries coagglomerate? How Marshallian externalities differ by industry and have evolved over time", *Journal of Urban Economics*, Vol. 106, pp. 1-26, http://dx.doi.org/10.1016/J.JUE.2018.05.002. [56]

Duranton, G. and D. Puga (2004), "Micro-foundations of urban agglomeration economies", in Henderson, J. and J. Thisse (eds.), *Handbook of Regional and Urban Economics*, Elsevier. [24]

Duranton, G. and D. Puga (2001), "Nursery cities: Urban diversity, process innovation, and the life cycle of products", *American Economic Review*, Vol. 91/5, pp. 1454-1477, http://dx.doi.org/10.1257/aer.91.5.1454. [46]

EC (2018), *Road Transport Performance in Europe*, European Commission. [40]

Feldstein, M. (2016), "Remarks at the Brookings Institution conference on productivity", *Slow Growth in Productivity: Causes, Consequences, and Policies*, https://www.brookings.edu/wp-content/uploads/2016/08/feldstein-remarks.pdf. [7]

Florida, R., P. Adler and C. Mellander (2016), "The city as innovation machine", *Regional Studies*, Vol. 51/1, pp. 86-96, http://dx.doi.org/10.1080/00343404.2016.1255324. [57]

Florida, R., P. Adler and C. Mellander (2016), "The city as innovation machine", *Regional Studies*, Vol. 51/1, pp. 86-96, http://dx.doi.org/10.1080/00343404.2016.1255324. [60]

Florida, R., P. Adler and C. Mellander (2016), "The city as innovation machine", *Regional Studies*, Vol. 51/1, pp. 86-96, http://dx.doi.org/10.1080/00343404.2016.1255324. [49]

Gal, P. (2013), "Measuring Total Factor Productivity at the Firm Level using OECD-ORBIS", *OECD Economics Department Working Papers*, No. 1049, OECD Publishing, Paris, https://doi.org/10.1787/5k46dsb25ls6-en. [16]

Gibbons, S., H. Overman and P. Pelkonen (2014), "Area disparities in Britain: Understanding the contribution of people vs. place through variance decompositions", *Oxford Bulletin of Economics and Statistics*, Vol. 76/5, pp. 745-763, http://dx.doi.org/10.1111/obes.12043. [19]

Glaeser, E. et al. (1992), "Growth in cities", *Journal of Political Economy*, Vol. 100/6, pp. 1126-1152, http://dx.doi.org/10.1086/261856. [45]

Groot, S. and H. de Groot (2014), "Regional wage differences in the Netherlands: Micro evidence on agglomeration externalities", *Journal of Regional Science*, Vol. 54/3, pp. 503-523, http://dx.doi.org/10.1111/jors.12070. [32]

Haldane, A. (2018), "The UK's productivity problem: Hub no spokes", *Bank of England* 06, pp. 1-40, https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane. [4]

Hirsch, B. et al. (2019), "The urban wage premium in imperfect labour markets", *CEP Discussion Papers* dp1608. [33]

Jacobs, J. (1969), *The Economy of Cities*, Vintage Books, New York, http://dx.doi.org/10.1057/9780230275010. [44]

Krugman, P. (1980), "Scale economies, product differentiation, and the pattern of trade", *American Economic Review*, Vol. 70/5, pp. 950-959, http://dx.doi.org/10.1016/0022-1996(79)90017-5. [38]

Krugman, P. and A. Venables (2006), "Globalization and the inequality of nations", *The Quarterly Journal of Economics*, Vol. 110/4, pp. 857-880, http://dx.doi.org/10.2307/2946642. [39]

Marshall, A. (2009), *Principles of Economics: Unabridged Eight Edition*, Cosimo, Inc. [25]

Marshall, A. (1890), *Principles of Economics*, Macmillan, London. [23]

Meijers, E. and M. Burger (2016), "Stretching the concept of 'borrowed size'", *Urban Studies*, Vol. 54/1, pp. 269-291, http://dx.doi.org/10.1177/0042098015597642. [50]

Melo, P., D. Graham and R. Noland (2009), "A meta-analysis of estimates of urban agglomeration economies", *Regional Science and Urban Economies*, Vol. 39/3, pp. 332-342. [36]

Mion, G. and P. Naticchioni (2009), "The spatial sorting and matching of skills and firms", *Canadian Journal of Economics*, Vol. 42/1, pp. 28-55, http://dx.doi.org/10.1111/j.1540-5982.2008.01498.x. [31]

Moretti, E. (1999), "Estimating the social return to education: Evidence from repeated cross-sectional and longitudinal data", *University of California Working Paper*. [37]

NISRA (2019), *Northern Ireland Statistics and Research Agency*, https://www.nisra.gov.uk/. [35]

NOMIS (2019), *National Official Labour Market Statistics*, https://www.nomisweb.co.uk/sources. [34]

OECD (2019), *OECD Productivity Statistics (database)*, https://doi.org/10.1787/pdtvy-data-en. [1]

OECD (2019), *OECD Regional Outlook 2019: Leveraging Megatrends for Cities and Rural Areas*, OECD Publishing, Paris, https://doi.org/10.1787/9789264312838-en. [12]

OECD (2019), *OECD Regional Statistics (database)*. [13]

OECD (2017), *OECD Economic Surveys: United Kingdom 2017*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2017-en. [9]

OECD (2016), *OECD Territorial Reviews: The Metropolitan Region of Rotterdam-The Hague, Netherlands*, OECD Territorial Reviews, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264249387-en. [54]

OECD (2015), *OECD Economic Surveys: United Kingdom 2015*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2013-en. [11]

OECD (2015), *The Future of Productivity*, OECD Publishing, Paris, https://doi.org/10.1787/9789264248533-en. [6]

OECD (2015), *The Metropolitan Century: Understanding Urbanisation and its Consequences*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264228733-en. [17]

OECD (2019a), *Making Decentralisation Work: A Handbook for Policy-Makers*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/g2g9faa7-en. [51]

Özgüzel, C. (2019), "Agglomeration effects in a developing economy: Evidence from Turkey", *ERF Working Papers*. [42]

Pessoa, J. and J. Van Reenen (2014), "The UK productivity and jobs puzzle: Does the answer lie in wage flexibility?", *Economic Journal*, Vol. 124/576, pp. 433-452, http://dx.doi.org/10.1111/ecoj.12146. [2]

Puga, D. (2010), "The magnitude and causes of agglomeration economies", *Journal of Regional Science*, Vol. 50/1, pp. 203-219. [27]

Reichert, S. (2019), "The role of universities in regional innovation ecosystems", European University Association. [58]

Reichert, S. (2019), *The Role of Universities in Regional Innovation Ecosystems*, European University Association. [52]

Riley, R., A. Rincon-Aznar and L. Samek (2018), "Below the aggregate: A sectoral account of the UK productivity puzzle", *ESCoE Discussion*, Vol. 06. [22]

Spencer, G. (2015), "Knowledge neighbourhoods: Urban form and evolutionary economic geography", *Regional Studies*, Vol. 49/5, pp. 883-898, http://dx.doi.org/10.1080/00343404.2015.1019846. [48]

UK2070 Commission (2019), *Fairer and Stronger: Rebalancing the UK Economy*. [10]

Notes

[1] There are significant differences in estimated productivity levels depending on whether estimates are based on GVA per worker or on real hourly wages. Measures based on GVA per worker generally report larger differences than measures based on average real hourly wages. In line with the established consensus among urban economists, measures based on average real hourly wages obtained from microdata are preferred when they are available.

[2] While all workers benefit from agglomeration economies, recent evidence suggests that the productivity of high-skilled workers benefits more strongly than the productivity of low-skilled workers (Diodato, Neffke and O'Clery, 2018[56]).

[3] Due to access restrictions to the relevant microdata for Northern Ireland, estimates for Belfast were obtained using aggregate hourly wage data obtained from ONS and NISRA. In a first step, residuals from a regression of aggregate wage levels on workforce characteristics and industry composition were obtained for all UK cities. In a second step, the residuals were rescaled to match their variance to the variance of the city-level fixed effects of the first-stage microdata regression (see Box 2.4). The estimate for Belfast is based on the rescaled residual for Belfast.

[4] Driving times are obtained using Google Maps, by taking the average of the range of predicted driving times for a Monday at 1pm.

[5] It is noteworthy that London, the UK's most productive city, falls below the trend line for the strong agglomeration economies scenario. This suggests that London's productivity level, adjusted for the sectoral composition and the skill profile of its workforce, could be higher than it is. While this might seem surprising, the possibility of London underperforming, too, is not implausible given the fact that labour productivity in Paris is 15% higher than London.

[6] The term Jacobs' externalities describes the productivity-enhancing innovative processes that emerge from interaction of people in different professions.

3 Making the governance of UK Core Cities work for people, places and productivity

This chapter focuses on the role of governance in building the framework conditions that are necessary to enhance productivity in Core Cities. First, it provides an overview of the current governance of Core Cities against a backdrop of asymmetric devolution in the UK. Second, it discusses the capacity of Core Cities to achieve policy goals that are critical for productivity, notably in terms of skills, transport and climate action. Finally, it proposes ways forward to make governance work for people, places and productivity in the Core Cities.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

Core Cities are home to more than 25% of the population and generate around 22% of gross value added (GVA) in the United Kingdom (UK). Getting their governance right is, therefore, a critical step towards enhancing national productivity. This chapter focuses on the role of governance in building the framework conditions that are necessary to enhance productivity in Core Cities. First, it provides an overview of the current governance of Core Cities against a backdrop of asymmetric devolution in the UK. Second, it discusses the capacity of Core Cities to achieve policy goals that are critical for productivity, notably in terms of skills, transport and climate action. Finally, it proposes ways forward to make governance work for people, places and productivity in the Core Cities.

Core Cities encapsulate the opportunities and challenges of the process of devolution adopted in the UK

Core Cities have navigated a fast-changing governance landscape

The governance and policy landscape of the last 40 years in the United Kingdom – one of the most centralised countries in the OECD area prior to recent reforms – has seen a vast range of reforms, projects and funding schemes in a context of crisis and budget consolidation measures. Core Cities have therefore had to navigate new rules, limited and decreased funding regimes, particularly in relation to the UK austerity programme, and potentially conflicting priorities over time. In a 2019 submission to the UK2070 Commission, Martin et al. have highlighted that since 1971:

> *… [subnational] governance arrangements and policies have been subject to frequent restructuring. Moreover, the territorial focus of subnational economic development policy has changed frequently from regionalism to localism, back to regionalism, then localism and most recently to city-regionalism (Martin et al., 2019[1]).*

A major step began with the creation of the "devolved nations" in Scotland, Wales and Northern Ireland. Referendums were held in Scotland and Wales in 1997; in Northern Ireland, devolution was a key element of the Belfast (Good Friday) Agreement and was supported in a referendum in 1998. As a result of this asymmetric devolution process, the three devolved nations obtained their government and their own elected assembly: the Scottish Parliament, the National Assembly for Wales and the Northern Ireland Assembly (Box 3.1). In England, there was initially a plan to devolve some political powers to four elected regional assemblies but the plan was abandoned following the rejection at the first referendum held in one of the proposed regions (North East of England) in 2004. The asymmetric devolution process also means that local government structures, powers and relative resources differ across the four nations.

Box 3.1. An asymmetric devolution process across the four nations of the UK

Asymmetric devolution: "Reserved" powers and "devolved" powers

Administrative devolution entered a new phase when Scotland, Wales and Northern Ireland obtained their own elected assembly and government in 1999. As each devolution act was arranged independently, the powers of the three devolved bodies vary in nature and scope. Devolution in the UK is therefore characterised by "asymmetry" that continues to evolve. This is due to the underlying history and respective political influences of the four nations of the UK.

The central distinction within the devolution space is between "reserved" and "devolved" powers:

- "Reserved" powers are those that remain at the level of the UK Parliament (mainly: the constitution, defence and national security, foreign policy, immigration and citizenship, and tax policy).
- "Devolved" powers are those which have been passed from the UK Parliament to one of the devolved legislatures. In Northern Ireland, the term "transferred" is used instead of "devolved". The Northern Ireland Assembly can, in principle, also legislate in respect of "reserved" matters, subject to various consents but has not yet done so to any significant degree. "Excepted" matters are those retained by the UK Parliament indefinitely and apply solely to Northern Ireland.

Varying degrees of "devolved" powers were given to the **Northern Irish** and **Welsh** Assemblies, and the **Scottish** Parliament. Key areas where powers are fully or almost devolved to the devolved nations include: education, housing, communities and local government, environment, food and rural affairs, health and social care, culture and sport, justice and policing (except Wales). Areas that are partially devolved include transport, business, energy (Northern Ireland only), and social security and employment (Scotland only). On fiscal devolution, the devolved nations have varying degrees of powers, for example, local property taxes are fully/almost devolved and income tax is partially devolved in Scotland and Wales. Some policy areas are devolved to one devolved legislature but reserved elsewhere (e.g. policing is devolved in Northern Ireland and Scotland, but reserved in Wales).

The devolved institutions in Scotland and Wales have taken on greater powers over time, whereas devolution in Northern Ireland was suspended several times over the course of the 20th century.

- **Scotland** has full legislative powers over a wide range of matters, i.e. all issues except those reserved to the UK Parliament. The Scotland Act 2012 devolved further tax and borrowing powers to the Scottish Parliament. Following the 2014 referendum, the UK Parliament passed the Scotland Act 2016, which set out amendments to the Scotland Act 1998 and devolved further powers to Scotland, in areas such as taxation, welfare and elections to the Scottish Parliament.
- The National Assembly for **Wales** has a more limited range of legislative powers than the Scottish Parliament, i.e. mainly on secondary legislation. However, a referendum held in March 2010 enhanced its primary law-making powers. The National Assembly can now legislate without having to consult the UK Parliament in devolved areas. The Wales Act 2014 and the Wales Act 2017 devolved taxation and borrowing powers to the Welsh Government and the National Assembly for Wales.
- There are significant complexities that are specific to **Northern Ireland**. Devolution was restored in 2007. The Northern Ireland Assembly is directly elected for a four-year term and appoints the Northern Ireland Executive, led by a First Minister and deputy First Minister.

Local government structures in the four nations

Local governments are governed by the three devolved nations and by the UK Government in the case of England. The system of local government is therefore also asymmetric: the organisation, responsibilities and finances, as well as territorial and decentralisation reforms, differ from one nation to another.

In **England**, **Scotland** and **Wales**, local governments are responsible for social care and provide some aspect of transport, housing and education. They are also in charge of a range of

neighbourhood services including libraries, leisure and cultural services, consumer protection, environmental health services, planning, economic development, emergency planning and waste collection.

- In **England**, the current structure results from continuous territorial reforms. The two-level system still in place in some rural areas is disappearing and counties are gradually being replaced by "unitary authorities". However, the structure remains complex, with county councils, the Greater London Authority, and 8 combined authorities at the upper-tier and over 300 unitary and district councils at the lower tier. Some councils share powers with a combined authority in areas such as economic development, education and skills, planning and public health. In addition, the local government system in London comprises 32 London Boroughs and 1 sui generis authority, the City of London Corporation.
- In **Scotland**, the current structure of local government is based on 32 council areas, as well as around 1 200 community councils, which are voluntary organisations set up by statute by the local authority and run by local residents to act on behalf of their area. Local Community Planning Partnerships, formal alliances between local authorities and other public bodies, are required by Scottish Government to produce plans to tackle local challenges and improve local outcomes, with a particular focus on reducing inequalities, by working with local communities and businesses. The development of Regional Partnerships in Scotland emerged from the Scottish Government's *Enterprise and Skills Review* in 2017. The approach is explicitly pragmatic and non-prescriptive; however, it identifies key requirements for regional partnerships – encouraging the development of regional economic partnership arrangements, which are self-assembled around the bespoke requirements of particular regions, and establishing inclusive growth as a priority. Regional Partnerships build on the strengths of City Deal partners to collaborate beyond the delivery of the City Deal Programme. They bring together key players from the public and private sector to establish a partnership that reflects local economic circumstances, shared policy priorities and existing governance arrangements.
- In **Wales**, there are 22 "principal" local government areas at the municipal level, each of which has a locally elected council. Municipalities are further divided into 735 community areas for which there may be a community council.
    - The Well-being of Future Generations (Wales) Act 2015 provides for the statutory establishment of partnerships within local authority areas known as public services boards, which involve representation from public sector partners including local authorities, Local health boards, police, fire and rescue authorities, Natural Resources Wales, probation services, Welsh Government and the third sector. They must undertake well-being assessments and produce a well-being plan during each municipal term.
    - There are no formal city-regional governments in Wales. Joint committees have however been established at a subnational level in Wales, bringing together local authority representatives, to manage funding and decision-making relating to City Deals and Growth Deals with the UK Government, which includes the additional involvement of the Welsh Government.
    - The Local Government and Elections (Wales) Bill, published in November 2019, proposes the establishment of Corporate Joint Committees (CJCs) that will be "bodies corporate" formed from the membership of principal councils, established in statute and able to directly employ staff, hold assets and manage funding. They will exercise the functions vested in them. They are a new form of governance body, comprised of the democratic leadership of local authorities in its area, rather than committees in the traditional sense.

The bill will require local authorities to establish CJCs for four areas where there are already regional mechanisms in place – transport, strategic planning, economic development and improving education. This provides an opportunity to develop a new model of regional government in Wales.

- Local government in **Northern Ireland** is more limited. Northern Ireland carried out an important local government reform that reduced the number of district councils from 26 to 11, effective as of April 2015. Councils provide some neighbourhood services such as waste collection and street cleaning. However, they are not responsible for education, libraries or social care.

Note: Further information on devolved and reserved matters across the UK parliaments can be found at https://www.parliament.uk/about/how/role/devolved/.
Source: Author's elaboration, drawing partly on OECD/UCLG (2019[2]), *2019 Report of the World Observatory on Subnational Government Finance and Investment – Country Profiles*.

Core Cities were at the forefront of the devolution debate, making the case for greater autonomy as a means to contribute to national growth. Local leadership across Core Cities adopted a bottom-up approach to develop more collaborative governance agendas, leverage discretionary funding to reshape the economy and change the nature of the conversation with national government (OECD, 2013[3]; 2015[4]). The economic performance of the Core Cities was lagging behind that of second-tier cities across Europe and it was widely accepted that, without increased powers and resources, the cities would struggle to catch up with their counterparts (ODPM, 2006[5]).

By the end of the 2000s, devolution was underway and a new governance and delivery framework was taking shape (HM Government, 2011[6]; Heseltine, 2012[7]). By 2010, this had evolved into an explicit localism agenda and new calls for greater autonomy and increased powers for local areas to drive locally relevant outcomes and growth (HM Government, 2011[6]; Heseltine, 2012[7]; Liverpool JMU, 2012[8]; RSA, 2014[9]). In 2011, the UK Government committed to the devolution of decision-making powers from central government control to individuals and communities through the Localism Act 2011. The act decentralised new responsibilities (housing, social protection, health) and resources (localisation of Council Tax, business rates retention as of 2013, grants reform) to Core Cities. During its passage through parliament, the Core Cities lobbied for the Core Cities Amendment to allow for bespoke arrangements relevant to the needs and potential of each of the Core Cities (HM Government, 2011[6]).

This was followed by the Cities and Local Government Devolution Act 2016, which allowed for greater devolution of powers to combined authorities (which have housing, transport, planning and policing powers) and introduced directly elected mayors in England. The concept of pooling strategic competencies at the scale of combined authorities is aligned with the overall trend of metropolitan governance reforms that gained traction across OECD countries since the 1990s, and particularly against the backdrop of the 2008 financial crisis, as a way to achieve economies of scale and improve policy co-ordination.

Core Cities have grappled with an asymmetric and deal-driven process

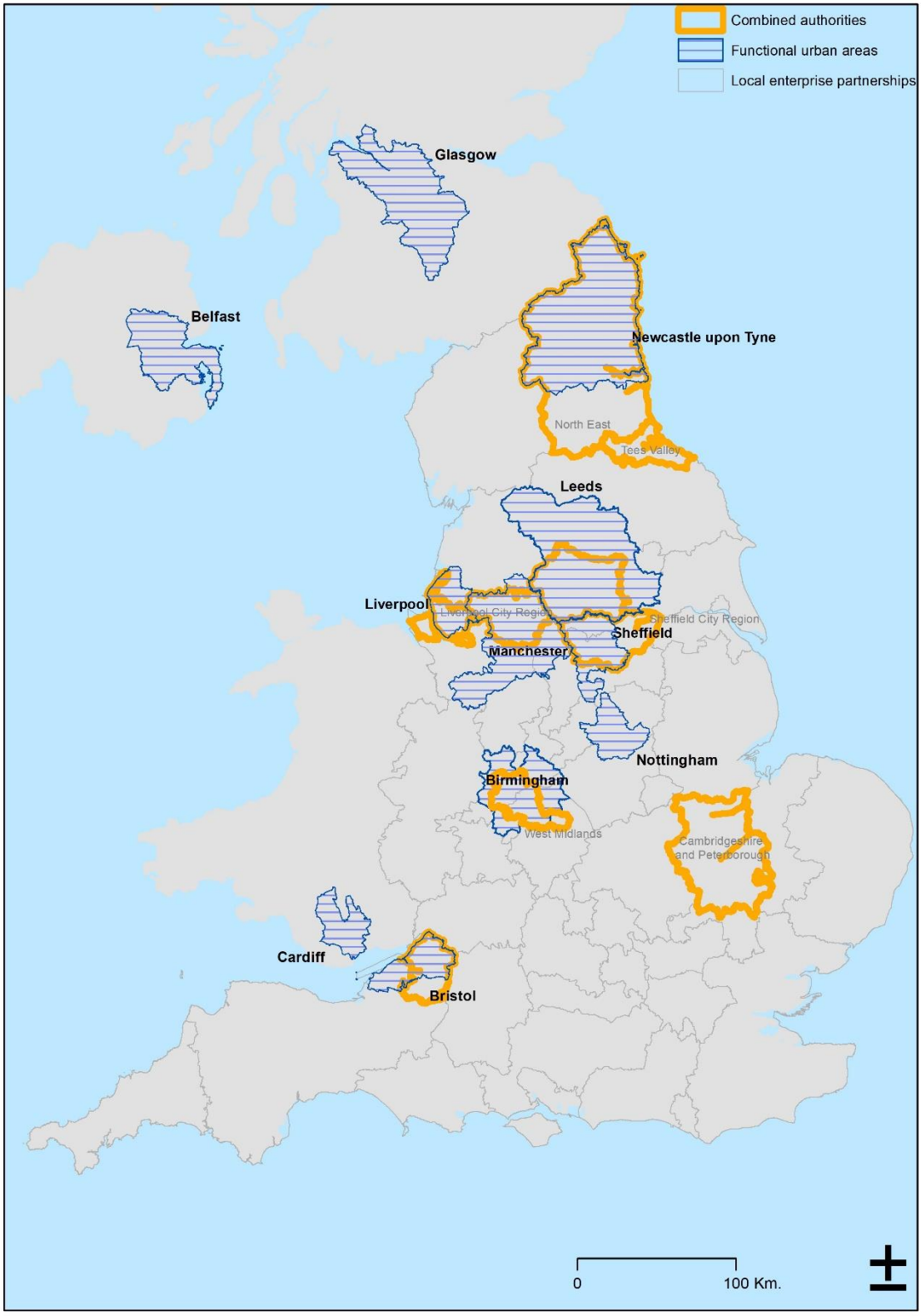
The asymmetric approach adopted in the UK has created some geographical misalignment, which may not be optimal over the longer term (Lupton et al., 2018[10]). Core Cities find themselves in a complex, often overlapping geography of deals and partnerships (Figure 3.1):

- **City Deals** concern individual cities and the geography is determined by the city and the scope of the proposal. City Deals aim to build on existing economic assets to unlock the potential of drivers of long-term growth in cities. They require collaboration across participating local authorities, which helps create more robust local leadership platforms and build some degree of resilience into the

local development system (OECD, 2015[4]). This approach allows Core Cities to develop investment portfolios, which can be used to stimulate growth and investment across other parts of the city-region. They align with subsequent Devolution Deals and Growth Deals and serve to inform investment priorities of the combined authorities (see below). City Deals have been replicated in other OECD countries. For example, Australia adopted the City Deal approach in 2019, and 9 deals have been agreed to date, to be operational over 10-20 years. The Netherlands introduced City Deals in 2015 but, unlike the UK model, they do not rely on central funding and they can operate over shorter periods. Dutch City Deals are vehicles for co-operation, which allow stakeholders to pool resources to work together outside of standard operating procedures.

- **Devolution Deals** with **combined authorities** can cover different geographies, which do not consistently align with City Deals. The Cities and Local Government Devolution Act 2016 allows for the creation of mayoral combined authorities in England.[1] All combined authorities that exist around Core Cities except Leeds are currently mayoral combined authorities (Bristol, Birmingham, Liverpool, Manchester, Newcastle and Sheffield). While combined authorities can have different structures, they are grounded in full collaboration between participating local authorities, pooling of powers and resources, which has meant ceding up powers from the local authorities to draw resources and powers down from central government to the combined authority. In the decades preceding devolution, Core Cities engaged in multi-agency and sector partnerships to deliver a range of local growth initiatives, which created a platform from which new governance arrangements could emerge.
- In addition, **Local Enterprise Partnerships (LEPs)**, which were established to enable local growth following the demise of regional development agencies (RDAs), do not consistently align with either City Deal or combined authority geographies, and more than one LEP can operate across a given area (Lupton et al., 2018[10]). LEPs are strategic partnerships between business and local authorities to help shape local economic priorities and to lead economic growth in local areas. While LEPs were initially established with no public funding, a landmark review *No Stone Unturned* (Heseltine, 2012[7]) in 2012 recommended that LEPs be resourced by the national government. In 2014, the government announced a series of **Growth Deals** with each of the 39 LEPs, through which it allocated GBP 6.3 billion. This budget allocation increased to GBP 7.3 billion in 2015 and GBP 9.1 billion in 2017. Growth Deals represent the most significant source of funding to LEPs, with GBP 12 billion over the 2015-21 period. LEPs also have a strategic direction for GBP 5.3 billion of European Union (EU) structural and investment funding until 2020. There are currently 38 LEPs, which operate over different and sometimes overlapping geographies with different funding allocations. In 2018, 20 LEPs had overlapping boundaries, which the government recognised may weaken their impact and accountability and committed to addressing the issue (National Audit Office, 2019[11]). Some LEPs rely on local authorities for staff and expertise at a time when local authorities have been cutting expenditure in economic development as a means of absorbing funding cuts. In England, local authority spending on economic development decreased from GBP 1.01 million in 2010/11 to 0.36 million in 2017/8.[2] The economic development ecosystem is, therefore, weakened as expertise and resources are stretched.

Figure 3.1. Boundaries of combined authorities, LEPs and FUAs



Note: This map shows the boundaries of combined authorities, Local Economic Partnerships and functional urban areas (see Box 1.1 for the OECD definition).

Table 3.1. English Core Cities, combined authorities, City Deals, Devolution Deals and LEPs

	City Deals		Devolution Deals		
Core City	**City Deal partners**	**Highlights from City Deal**	**Combined authority/ City-region**	**Devolution Deal**	**Local Enterprise Partnership**
Birmingham	**Birmingham**, Bromsgrove, Cannock Chase, East Staffordshire, Lichfield, Redditch, Solihull, Tamworth, Wyre Forest	Skills for Growth Compact Housing and mixed-use development on public land. Build on Birmingham's leading position in life sciences. Green deal programme.	Greater Birmingham/ West Midlands **Local Industrial Strategy Trailblazer**	Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall, Wolverhampton	Greater Birmingham and Solihull Black Country Coventry and Warwickshire
Bristol	Bath and North East Somerset, **City of Bristo**l, North Somerset, South Gloucestershire	Economic Development Fund. 100% retention of business rates. 10-year Transport Fund. Bus Rapid Transit network. People and Skills Programme. City Growth Hub.	Bristol/ West of England	Bath and North East Somerset, City of Bristol, South Gloucestershire	West of England North Somerset is part of the LEP but not the combined authority
Leeds	Barnsley, Bradford, Calderdale, Craven, Harrogate, Kirklees, **Leeds,** Selby, Wakefield, York	Accelerate output growth to an average 2.6% per year to 2030. Create 60 000 new jobs by 2016. Reduction in city-region carbon emissions.	Leeds/ West Yorkshire	Bradford, Calderdale, Kirklees, Leeds, Wakefield	Leeds City-Region
Liverpool	Halton, Knowsley, **Liverpool,** Sefton, St. Helens, Wirral	Low carbon red tape pilot. River Mersey cleanest river in an urban setting by 2045. Transport investment fund. Single investment pot of public and private funding Mayoral Development Corporation. Skills/Apprenticeships.	Liverpool	No change	Liverpool City-Region (LEP and combined authority aligned
Manchester	Bolton, Bury, **Manchester**, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, Wigan	Earn back tax revenues from infrastructure investment. Investment Framework, Housing Investment Fund. Skills/Apprenticeship Hub. Low Carbon Hub. Health and Social Care.	Greater Manchester **Local Industrial Strategy Trailblazer**	No change	Greater Manchester (LEP and combined authority aligned)
Nottingham	**Nottingham**	Venture Capital Fund. Generation Y Fund. Technology Grant Fund, "21st-century infrastructure" through transport, digital connectivity and a Green Deal.	Nottingham	Yet to be agreed	Derby, Derbyshire, Nottingham, Nottinghamshire
Newcastle	**Newcastle upon Tyne**, Gateshead	Accelerated Development Zone (ADZ) for Newcastle and Gateshead. Secure private sector investment in the marine and offshore sector. Super-connected broadband infrastructure. Low carbon Pioneer City.	Newcastle/ North of Tyne	Newcastle, North Tyneside and Northumberland	North East
Sheffield	Barnsley, Bassetlaw, Bolsover,	GBP 700 million Sheffield City-Region Investment Fund (SCRIF).	Sheffield	Barnsley, Doncaster, Rotherham,	Sheffield City-Region

	City Deals		Devolution Deals		
Core City	**City Deal partners**	**Highlights from City Deal**	**Combined authority/ City-region**	**Devolution Deal**	**Local Enterprise Partnership**
	Chesterfield, Derbyshire Dales, Doncaster, North East Derbyshire, Rotherham, **Sheffield**	GBP 72 million three-year plan to train 2 000 employees and 4 000 apprenticeships. 10-year Transport Fund allocated to the City-Region by Government in July 2013. Advanced Manufacturing and Nuclear Research Centres.		Sheffield	
The Devolved Administrations of Northern Ireland, Wales and Scotland work with the Core Cities of Belfast, Cardiff and Glasgow.					
Belfast	Antrim and Newtownabbey, Ards and North Down, **Belfast,** Lisburn and Castlereagh, Mid and East Antrim and Newry, Mourne and Down, working in partnership with Queen's University Belfast and Ulster University, Belfast Metropolitan College and Northern Regional College, South Eastern Regional College and the Southern Regional College.	Funding for the City Deal will come from the UK Government (GBP 350 million), the NI Executive (GBP 350 million), the 6 councils GBP 100 million) and Queens and Ulster Universities (GBP 50 million). The deal is organised around four pillars: innovation and digital, tourism led regeneration, infrastructure and employability and skills. The deal aims to create 20 000 "new and better" jobs over its lifetime and will operate alongside a 10-year programme of inclusive growth.	Growth Framework. 2015 Review of Public Administration – Consolidation of 26 councils to 11. Extended powers over planning, economic development and tourism. Regional Development Strategy 2035 – spatial strategy to strengthen Belfast as regional economic driver and Londonderry as principal North West city. Belfast Region City Deal.		
Cardiff	Blaenau Gwent; Bridgend; Caerphilly; **Cardiff;** Merthyr Tydfil; Monmouthshire; Newport; Rhondda Cynon Taf; Torfaen; and Vale of Glamorgan	GBP 1.2 billion, the programme aims to deliver up to 25 000 new jobs and leverage an additional GBP 4 billion of private sector investment. UK and Welsh Government are contributing GBP 500 million to the Capital City-Region Investment Fund respectively, while the 10 local authorities will contribute a minimum of GBP 120 million over the 20-year duration of the fund. GBP 734 million of the investment will fund the proposed Metro network for South East Wales. GBP 38 million for the world's first cluster for compound semiconductors.	Growth Framework. 2015 Well-Being of Future Generations Act Cardiff Capital Region GBP 1.2 billion City Deal. Swansea Bay City Deal. Enterprise Zones.		
Glasgow	East Dunbartonshire, East Renfrewshire, **Glasgow**, Inverclyde, North Lanarkshire, Renfrewshire, South Lanarkshire,	GBP 1.3 billion, UK and Scottish Governments will each give the city-region GBP 500 million in grant funding, and the local authorities will borrow a further GBP 130 million. GBP 9 million – Working	Growth Framework. 2011 Agenda for Cities. 2014 National Planning Framework. Scottish Cities Alliance: partnership of 7 cities and Scottish Government to attract investment, supported by a GBP 7 million Cities Investment Fund. Contributing GBP 500 million contribution to the GBP 1.13 billion Glasgow City-Region City Deal Infrastructure Investment Fund over 20 years.		

	City Deals		Devolution Deals		
Core City	City Deal partners	Highlights from City Deal	Combined authority/ City-region	Devolution Deal	Local Enterprise Partnership
	West Dunbartonshire	Matters scheme for individuals who are on health-related benefits will work with 4 000 people, assisting at least 600 into sustained work. GBP 15 million Youth Gateway – integrated employment programme (aged 16-24) will work with 15 000 people over the next 3 years, helping 5 000 into sustained work. GBP 0.6 million In Work Progression pilot. GBP 16 million Imaging Centre of Excellence. GBP 4 million MediCity. GBP 4 million Centre for Business Incubation and Development.	Five other City Deals. Regional Growth Deals. Community wealth building (Glasgow Procurement Collaboration Group). 2017 legislation to support the establishment of the Scottish National Investment Bank. Inclusive Growth.		

The United Kingdom is not the only OECD country that opted for asymmetric decentralisation (Box 3.2). Decentralisation occurs in an asymmetric way when governments at the same subnational level are given different political, administrative or fiscal powers (OECD, 2019[12]). While asymmetric arrangements happened mostly at a regional level between the 1950s and the 1970s, the present trend seems to apply asymmetric decentralisation to large cities and specific local governments. There can be political, economic or administrative motives for asymmetric decentralisation (Bird and Ebel, 2006[13]). The advantages of asymmetric decentralisation are that it allows for tailored frameworks and explicit place-based policies. By allowing for experimentation, it can lead to greater innovation and more targeted local responses (OECD, 2019[12]). For example, this has been the case in Sweden, where reforms began in the 1990s with the counties leading a new agenda of bottom-up regionalisation as a gradual and experimental process (a laboratory of regionalisation). The success of the "experiment" meant that in 2019, reforms were formalised and extended to cover all counties (OECD, 2019[14]). In France, 23 metropolises have been granted greater powers and responsibilities. In Italy, 14 metropolitan cities have been established to administer large urban areas. In the Czech Republic, a selected number of municipalities perform central government delegated functions on behalf of smaller surrounding municipalities. However, asymmetric decentralisation can create a number of challenges, including high co-ordination costs if the system is overly complex; the potential for disparities in capacity; and it can lead to unequal treatment of subnational governments and citizens. These are important factors for the United Kingdom to consider as it advances the devolution agenda and seeks to rebalance the economy to promote growth across all Core Cities.

Box 3.2. Asymmetric decentralisation in OECD countries

Asymmetric decentralisation occurs if governments at the same subnational government level have different political, administrative or fiscal powers. It is based on the belief that a "one size fits all" approach is not necessarily the most appropriate way to organise decentralisation policies and multi-level governance systems.

Political asymmetric decentralisation refers to situations where some regions or subnational governments have been given political self-rule that deviates from the norm or average assignment. *Administrative asymmetry* means that the allocation of responsibilities differs for the same category of subnational governments. It often aims at taking the different capacities of subnational governments into account. *Asymmetric fiscal arrangements* consist of a wide variety of measures, including special spending responsibilities, revenue bases or taxation rights, differential treatment in the transfer system, and differentiated fiscal rules, including borrowing rules.

Motives for symmetric decentralisation are diverse: political, social and economic. There may be historical, cultural and/or ethnic reasons for the special treatment of some regions or subnational governments. The aim can be to safeguard the unity of a nation-state. It may also be motivated by economic reasons, to take into account the diversity of local government in terms of scale and capacities within countries and to address efficiency considerations.

Asymmetric decentralisation is often applied at three different scales: regional (state/region/province), metropolitan and local. At the regional level, asymmetry is often a basic characteristic of the federal or quasi-federal countries (Canada, Spain), but not all federal countries are asymmetric (Austria, Germany, Switzerland, the United States). In unitary states, symmetry is often one of the basic principles of the state, motivated by equity and integration of different parts of the country. However, some unitary states have strong elements of asymmetry, in particular, to recognise a different status to territories having strong history and identity (Italy, which has 15 regions with ordinary status and 5 with a special status) as well as peripheral territories such as outermost regions, islands, outlying regions (France with Corsica and the outermost regions, Portugal with Azores and Madeira, Finland with Åland Island). Asymmetric decentralisation is increasing in unitary countries, based on new motives, notably metropolitan governance (France, Italy, Japan, Korea, Turkey, etc.) or asymmetric administrative decentralisation, to give more responsibilities to cities or regions with greater capacities, including capital cities (the Czech Republic, Hungary, Norway, etc.).

Asymmetric decentralisation can, however, be risky if it is too complex and lacks transparency and clarity. It can risk blurring accountability lines and raising co-ordination costs of multi-level governance. It can increase disparities, inequalities and heterogeneity in service provision across regions and cities, contrary to the aim of reaching national goals for universal service levels and quality standards. In fine, it can question national unity.

To make the most of asymmetric decentralisation arrangements, it is thus necessary to set up effective vertical and horizontal co-ordination mechanisms and equalisation systems. Asymmetric decentralisation approaches should be based on dialogue, transparency and agreements between all main stakeholders, and be part of a broader strategy of territorial development. In addition, the way asymmetric responsibilities are allocated should be explicit, mutually understood and clear for all actors.

Source: OECD (2019[12]), *Making Decentralisation Work: A Handbook for Policy-Makers*, https://dx.doi.org/10.1787/g2g9faa7-en; Allain-Dupré, D., I. Chatry and A. Moisio (2019[15]), "Asymmetric Decentralisation: Policy Implications in Colombia", https://www.oecd.org/countries/colombia/Asymmetric_decentralisation_Colombia.pdf.

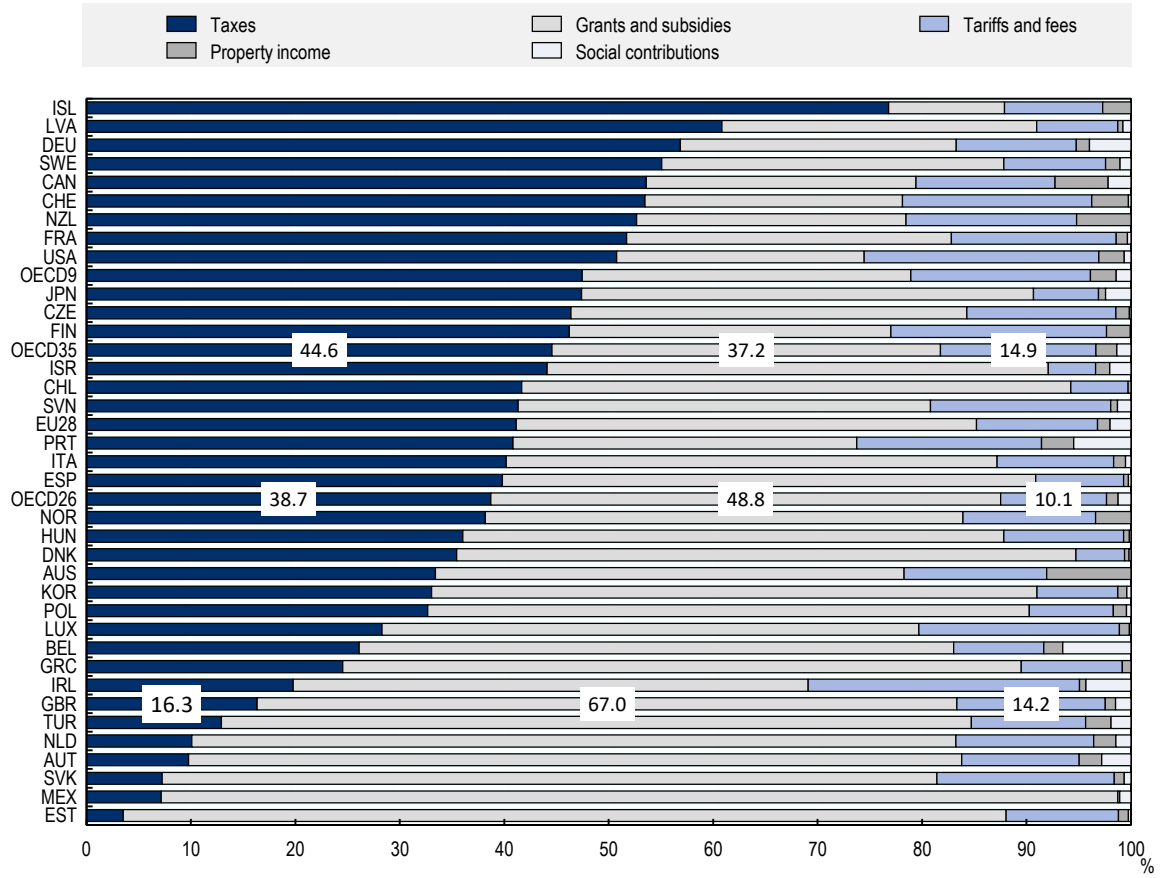
Despite recent fiscal measures, Core Cities have limited fiscal powers

While the fiscal framework of local councils varies across the four nations of the UK (England, Scotland, Wales and Northern Ireland), local governments generally lack control over their finances and have a limited level of fiscal autonomy in terms of revenues, spending and borrowing.

Revenues

In terms of revenues, local governments are highly dependent on central/devolved government transfers and have limited resources coming from taxation or other sources (user charges, fees, income from assets). Recent reforms, especially in England, have reinforced local taxation autonomy but, despite these new measures, most local governments face funding gaps to finance local public services. Such gaps have been exacerbated by major cuts in grants. In the UK, the share of grants and subsidies in total subnational government revenues[3] (67%) is significantly higher than in the OECD, where it amounted to 37% in the OECD35 and 49% in the OECD unitary countries (OECD26) in 2016 (Figure 3.2). In contrast, the share of tax revenues in total subnational government revenues is significantly smaller: 16% in the UK vs. 45% in the OECD35 and 39% in the OECD26 (OECD, 2019[12]).

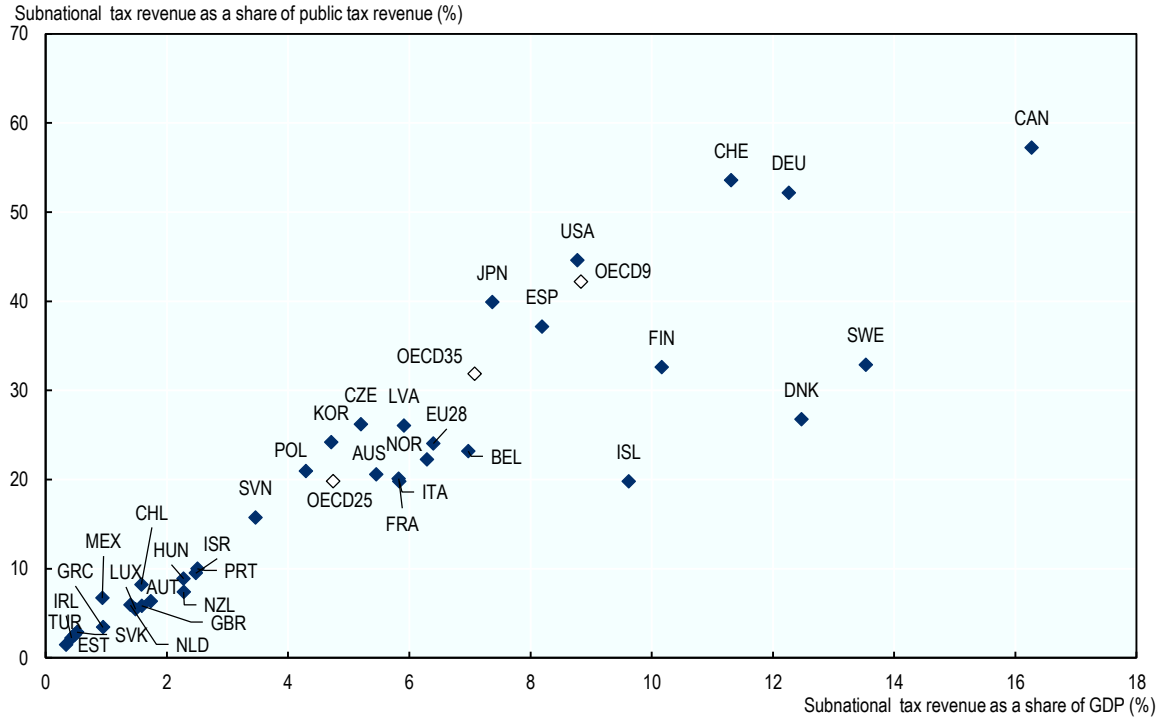
Figure 3.2. The structure of subnational government revenue across countries, %, 2016



Note: Tax revenues in this figure exclude revenues from social security contributions, which are included in the OECD definition of taxes. OECD26 and OECD9 respectively refer to unitary countries and federal countries. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: Based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

In addition, as of 2016, the shares of UK subnational government tax revenues in gross domestic product (GDP) (1.6%) and in general government tax revenues (5.8%) are well below the OECD averages (7.1% of GDP and 31.9% of public tax revenues) and below the OECD average for unitary countries (4.7% and 19.8% respectively) (Figure 3.3) (OECD, 2018[16]). It is important to note that tax revenues reported in OECD countries encompass both shared taxes and own-source taxes, which makes it more difficult to assess the actual level of tax autonomy. In many OECD countries, tax revenues partly come from national taxes such as personal income tax, corporate income tax or VAT, which are then shared between central and subnational governments according to distribution criteria. In general, subnational governments have very limited power on shared taxes, whereas they have some leeway over rates and/or bases of own-source taxes.

Figure 3.3. Subnational government tax revenues as a share of GDP and public tax revenues in the OECD countries, 2016



Note: Tax revenues in this figure exclude revenues from social security contributions, which are included in the OECD definition of taxes. Please see Section A2 of the OECD Interpretative Guide for further information. OECD26 and OECD9 respectively refer to unitary countries and federal countries. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: Based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

Finally, not only are tax revenues limited but they are also concentrated on a very limited number of taxes, which constitutes an additional constraint. In England, Scotland and Wales, local governments are mainly funded through two property taxes: one raised on households (Council Tax) and the other on businesses (business rates). In Northern Ireland, these taxes are called domestic and non-domestic district rates. Altogether, these property taxes accounted for 1.6% of GDP, 16.2% of total subnational revenue and 99% of local government tax revenues in the UK.

The tax autonomy of local governments over these taxes is restricted, despite recent reforms. Recently, local government taxing power has been reinforced, in particular in England through the Localisation of Local Council Tax Support (LCTS), the Business Rates Retention Schemes (BRRS) and some additional measures, in particular in favour of combined authorities (Box 3.3). However, subnational government

control over these two taxes remains constrained and current fiscal measures are considered to inadequately serve the needs of UK Core Cities (Centre for Cities, 2017[17]; Metro Dynamics, 2016[18]). For example, although English local councils are free to alter the rate of Council Tax, they must hold a local referendum if they wish to raise it above a cap set by the UK Government. Tax bases and mandatory exemptions and discounts are also determined by the UK Government. Council Tax has not been re-evaluated since 1992, and even though local authorities are allowed to raise tax levels to fund social care, demands on adult social care in the Core Cities are such that it is failing to alleviate funding challenges (Local Government Association, 2019[19]). As far as business rates are concerned, councils have some control over business rates policy and revenues in their areas. For example, they may grant discretionary reliefs to some taxpayers, reducing their business rates bills by up to 100%. But in practice, this power has been little used: discretionary reliefs amounted to just 0.4% of the gross business rates yield in 2017-18, compared with 9.3% for mandatory business rates reliefs imposed by the UK government. Likewise, councils have the possibility to levy a "business rate supplement" to finance economic development but this power has only been used once (to help fund the development of Crossrail in London), in particular, because such an increase must be approved by taxpayers (Amin-Smith, Harris and Phillips, 2019[20]). As a result, business rates neither allow local authorities the flexibility to design taxation in ways to meet local needs, nor do they create a level playing field. In 2015-16, a third of all business rates were raised in only 23 local authorities. While 7 of these local authorities were Core Cities[4], 11 were in London (Centre for Cities, 2017[17]). Business rates were just over GBP 23 billion, half of which was retained by local councils and the rest remitted to the national government.

Box 3.3. Recent reforms in local government taxation in the United Kingdom

In England, Scotland and Wales, local councils are funded by Council Tax and business rates, which are both two recurrent property taxes on households and businesses. In Scotland, local authorities also receive the General Revenue Grant from the Scottish Government. Council Tax is a property tax paid by the resident, based on his or her situation, income level and the market value of the property. Business rates are levied on non-residential properties. Local governments in England and Wales receive a share of these business rates. The receipts of business rates are pooled and then redistributed by the UK government in England or the devolved nations on a per capita basis. In Scotland, although all business rates collected by local authorities are retained by them, any increase or decrease is offset by a decrease or increase in the General Revenue Grant.

Until 2013, the structure of local funding in England, Scotland, Wales and Northern Ireland was relatively similar but has become more divergent ever since then.

In **England**, the Local Government Finance Act 2012 introduced major changes in the English system. Local government taxing power increased in 2013 through the Localisation of the Council Tax Support Scheme (LCTS), the Business Rates Retention Scheme (BRRS) and some measures targeted at combined authorities:

- The 2012 financial reform abolished the National Council Tax Benefit Scheme and introduced a Local Council Tax Support Scheme (LCTS). Local councils in England were then responsible for designing their own tax support schemes for the active population – though they are obliged to provide a centrally determined (and largely protected) level of support for pensioners. Thereby, in 2016, 152 local authorities with responsibilities for providing social care services could, for the first time, raise additional funding through the Council Tax precept.
- When the BRRS was introduced in 2013-14, the proportion of the real-terms change in business rates revenues kept by the councils was up to 50%. However, since April 2017, the government has been piloting 100% retention of real-terms changes in business rates revenues in a number of areas of England and 100% business rates retention pilots in Devolution Deal areas will continue in 2020/21.

- Mayors of combined authorities have the ability to levy a GBP 0.02p supplement to fund new infrastructure projects, subject to agreement from the business representatives of Local Enterprise Partnerships.

In **Scotland**, Council Tax support is delivered by local authorities but through a national scheme (Council Tax Reduction Scheme). The Scottish Government has made changes to the Council Tax Multiplier. In the 2019/20 budget, the Scottish Government made commitments to consulting on the introduction of a transient visitor levy and agreeing on the introduction of a workplace parking levy. There is also a commitment to devolving Non-Domestic Rates (business rates) and Empty Property Relief to local authorities.

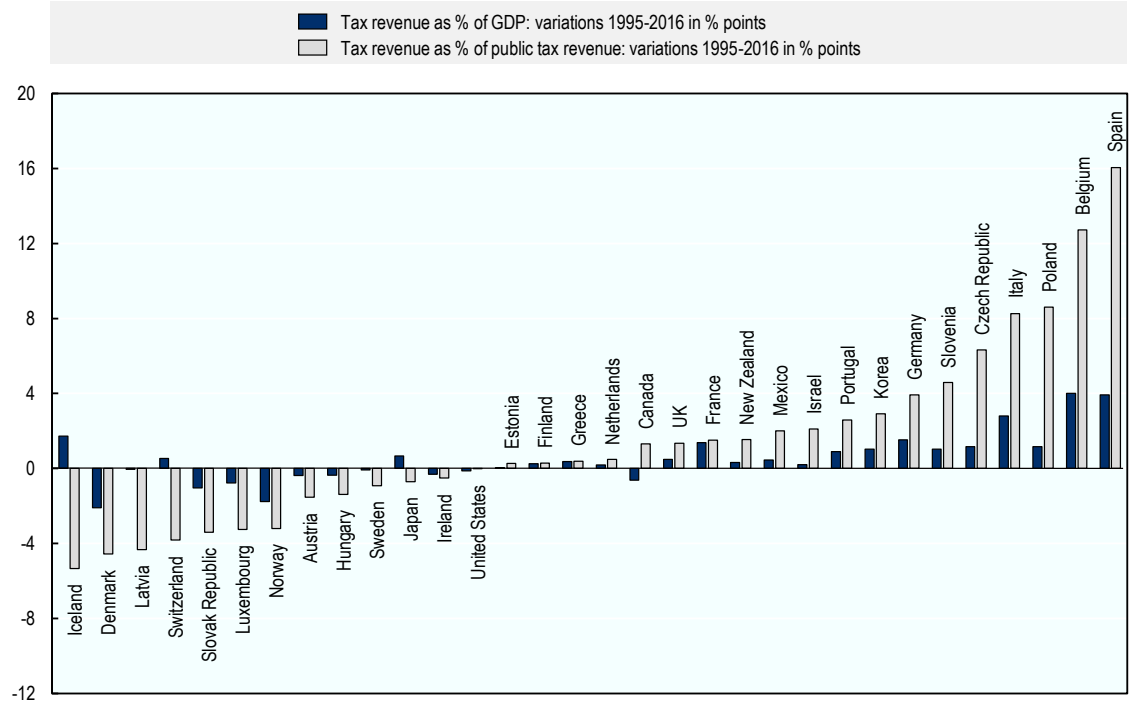
In **Northern Ireland**, councils are legally required to set domestic and non-domestic district rates. Due to the creation of new councils in 2015, a District Rate Subsidy has been introduced for a four-year period for those ratepayers most affected by significant rises in their rates bill.

Source: (OECD/UCLG, 2019[2]; Amin-Smith, Harris and Phillips, 2019[20]). OECD/UCLG (2019[2]), *2019 Report of the World Observatory on Subnational Government Finance and Investment – Country Profiles*; Amin-Smith, N., T. Harris and D. Phillips (2019[20]), *Taking Control: Which Taxes Could be Devolved to English Local Government?*, Institute for Fiscal Studies.

This fiscal devolution has led to a modest increase in fiscal autonomy in the UK but has not been as ambitious as fiscal reforms conducted in Belgium, the Czech Republic, Italy, Poland or Spain over the last 20 years (Figure 3.4).

Figure 3.4. Decentralising or recentralising trends in the OECD over the 1995-2016 period

Changes in subnational government tax revenue as a % of GDP and as a % of public tax revenue between 1995 and 2016

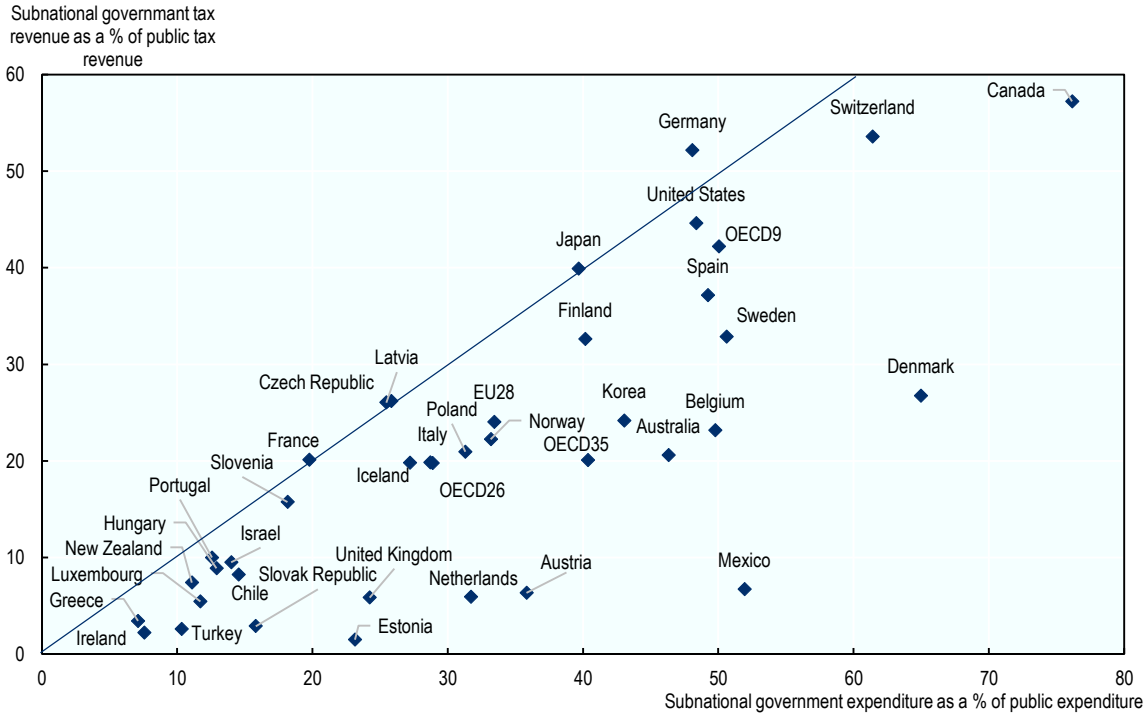


Note: Mexico: 2003-16; Iceland 1998-2016; Japan: 2005-16. No data for Australia, Chile and Turkey due to lack of time-series. OECD30 average is unweighted and does not include Australia, Chile, Iceland, Japan, Mexico and Turkey. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).

Source: OECD (2019[12]), *Making Decentralisation Work: A Handbook for Policy-Makers*, https://dx.doi.org/10.1787/g2g9faa7-en.; OECD calculations based on OECD National Accounts. Data accessed on 9 October 2018.

Many OECD countries face challenges when it comes to aligning responsibilities and revenues, as subnational expenditure generally exceeds subnational own-source revenues (tax and non-tax revenues such as user charges, fees and revenues from assets), indicating a *vertical fiscal gap* that is filled by transfers and subsidies. To assess the level of vertical fiscal imbalances, it is possible to use a proxy by comparing the share of subnational tax revenues in public tax revenues and the share of subnational expenditure in total public expenditure (OECD, 2019[12]).

Figure 3.5. The United Kingdom has a high vertical fiscal imbalance among OECD countries, 2016

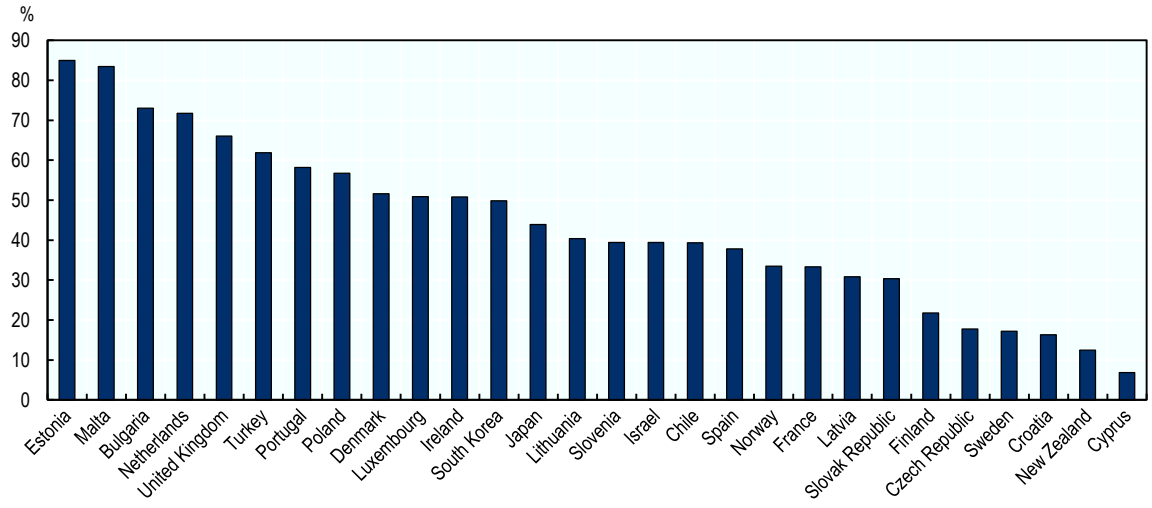


Note: Australia and Chile: estimates from International Monetary Fund (IMF) Government Finance Statistics. 2015 data for Mexico, New Zealand. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: OECD based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

At the municipal level, it is also possible to compare the vertical fiscal gap across OECD countries, measured in Figure 3.6 as transfers received by municipalities as a share of municipal total revenues. There are considerable differences between countries in terms of the vertical fiscal gap at the municipal level. In Estonia and Malta, over 80% of municipal sector spending is financed with central government transfers and in Bulgaria, the Netherlands and the United Kingdom, the share is above 65%. The situation is completely different for example in the Czech Republic, New Zealand and Sweden, where less than 20% of municipal spending is financed with central government transfers.

Besides tax revenues, the system of grants is particularly complex and comprises a large share of ring-fenced, silo-based and short-term grants (Metro Dynamics, 2016[18]), especially in England (Box 3.4). This limits the ability of local governments to manage these transfers and constrains their spending and investment decisions. In addition, local governments have suffered from significant cuts in grants, in the context of austerity measures.

Figure 3.6. Vertical fiscal gap in OECD countries, 2017



Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.
Source: OECD (forthcoming[21]), "Uncovering the unknown: Spending indicators on municipal decision-making authority", CFE/RDPC(2019)19, OECD, Paris.

Box 3.4. The local government grant systems in the United Kingdom

At the local level, grants and subsidies are by far the main source of revenues for local governments. They differ a lot – and increasingly – across England, Scotland, Wales and Northern Ireland. There are more or less flexibility and autonomy to manage grants depending on the nations.

In **England**, the main grants (excluding the housing grant) are referred to collectively as Aggregate External Finance (AEF). AEF includes the Revenue Support Grant (distribution of RSG recently changed; it is now based on the main resources available to councils) and certain specific grants (distributed by individual government departments, such as the Dedicated Schools Grant, the Pupil Premium Grant, the Local Council Tax Support Grant and the Public Health Grant). From 2011/12, a new "un-ringfenced" general grant called the Local Services Support Grant was set up to group previous earmarked grants. From 2013/14, the Business Rates Retention Scheme replaced the Formula Grant, which was used to redistribute business rates.

In **Scotland**, the Scottish Government provides a block grant to councils that makes up approximately 86% of their revenue. The grant is broken down into three constituent parts: the General Revenue Grant (previously known as Revenue Support Grant), the Non-Domestic Rates Income and Specific Grants to be used for specific services such as the Pupil Equity Fund, early learning and childcare, and criminal justice support. This arrangement was updated in 2011 and gave councils greater control over their budgets. However, while in Scotland the devolved government ended ringfencing of local budgets (agreed with local authorities in 2007), the Scottish Government subsequently provided additional

grants that were conditional on certain indicators (e.g. class sizes). Ringfencing is therefore gradually creeping back as national policy priorities are introduced to local government.

In **Wales**, the Revenue Support Grant – non-earmarked – is allocated to councils by the Welsh Government according to a population-based formula. In addition, earmarked transfers are allocated from the Welsh Government for particular objectives (e.g. sustainable transport and education).

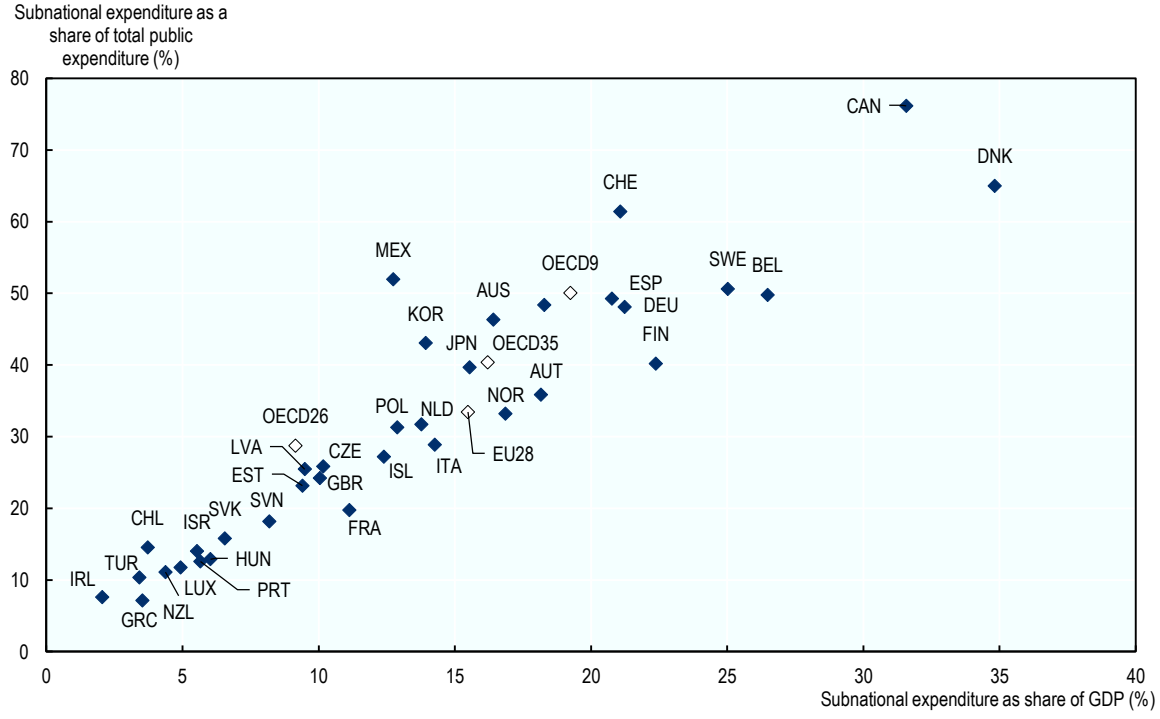
In **Northern Ireland**, transfers to councils include the "De-rating" Grant (compensating for the loss of income from de-rated properties), the Rates Support Grant (for councils with greater expenditure needs than revenues), and the Transferred Functions Grant, which supports the functions that were transferred as part of local government reform to district councils.

Source: OECD/UCLG (2019[2]), *2019 Report of the World Observatory on Subnational Government Finance and Investment – Country Profiles*.

Spending

Subnational government expenditure in the United Kingdom (without expenditure from the 3 devolved administrations) represents 10% of GDP and 24.2% of public expenditure, which is lower than the OECD on average (16.2% of GDP and 40.4% of public expenditure). They are, however, more in line with the average of OECD unitary countries (9.2% of GDP and 28.7% of public expenditure).

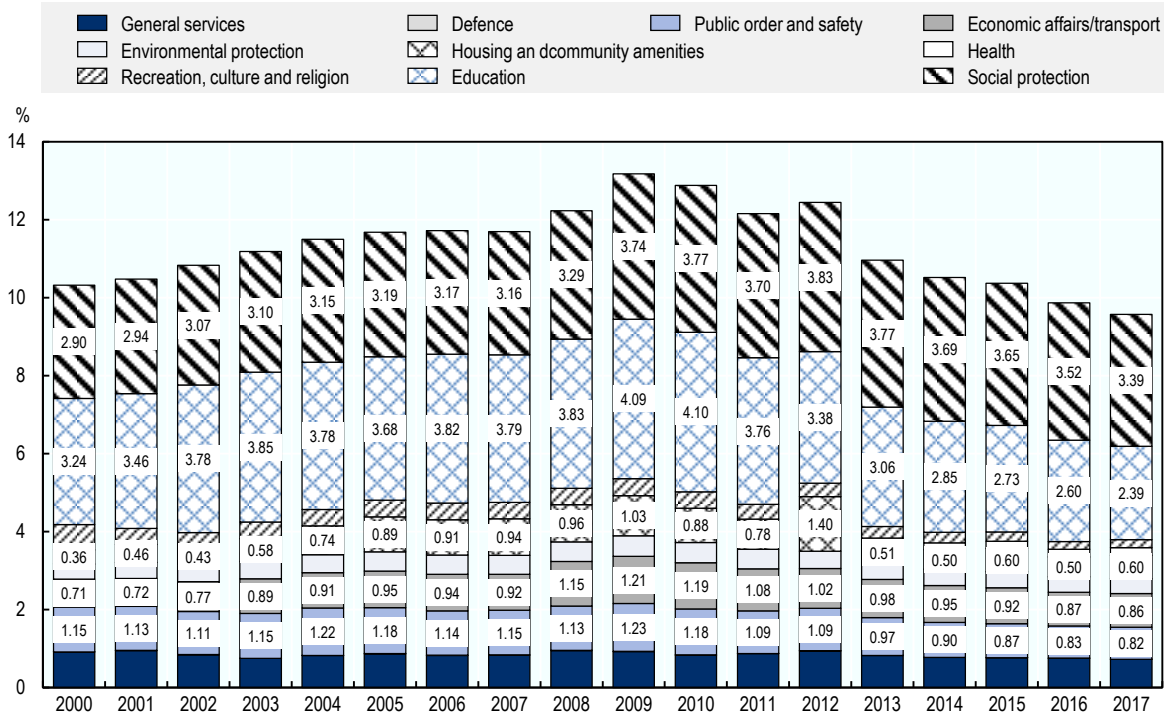
Figure 3.7. Subnational expenditure as a share of GDP and public expenditure in OECD countries, 2016



Note: 2015 data for New Zealand, Mexico and Turkey. IMF data for Australia and Chile. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: Based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

Local government spending in the UK is dominated by 2 spending areas, which together account for more than 60% of total local government expenditure in 2016: social protection and education. The share of social protection expenditure in local expenditure is particularly high in the UK compared to the OECD average (36% vs. 14%). Adult social care registered the highest increase among local spending items since 2015. The share of education expenditure is on par with OECD levels (24.6% vs. 4.8%). Social protection and education also account by far for the largest shares of GDP, at 3.4% of GDP and 2.4% of GDP in 2017 respectively (whereas the next largest items, economic affairs and transport, account for only 0.9% of GDP, and public order and safety for 0.8% of GDP). The share of social protection and particularly education has decreased since the crisis. Lower education spending is a consequence of the ongoing change in the status of local authority schools to centrally-funded academies. Spending related to economic affairs and transport has also decreased in relation to GDP, as well as those of housing and community amenities.

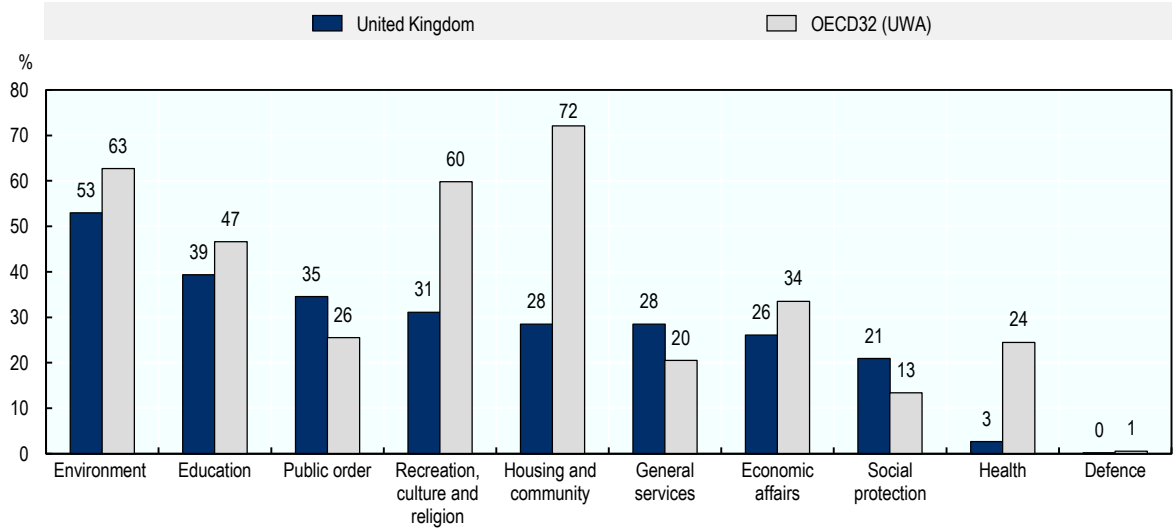
Figure 3.8. Local government spending by category in the UK, as % of GDP, 2000-17



Source: Author's elaboration based on OECD National Accounts.

This share of subnational government expenditure in public expenditure by category also reflects the distribution of competencies across levels of government in the UK, although some key functions may not mobilise significant funding (such as strategic planning, community and local development, etc.). Local governments in the UK spend a larger share than OECD average on public order and safety, general public services and social protection. In contrast, they spend a lower share than OECD average on the environment, education, recreation, culture and religion, economic affairs/transports, and particularly health (only 3% of total subnational public spending).

Figure 3.9. Subnational expenditure as a share of total public expenditure by category (%)



Note: UWA: unweighted average. The total of public spending is non-consolidated. Data for the OECD average are from 2015 and from 2016 for the UK.
Source: Author's elaboration based on OECD National Accounts and OECD (2018[22]), *OECD Regions and Cities at a Glance 2018*, https://doi.org/10.1787/reg_cit_glance-2018-en.

In reality, due to asymmetric decentralisation, local government responsibilities vary from one nation to another within the UK. In **England**, the Localism Act 2011 provided local authorities and some parish councils with a General Power of Competence and transferred new responsibilities in areas such as housing, public health and social protection. In addition, as discussed earlier, the Cities and Local Government Devolution Act 2016 allowed for greater devolution of powers to combined authorities (housing, transport, planning and policing powers), whereas the Greater London Authority has more powers and responsibilities (OECD/UCLG, 2019[2]). The allocation of responsibilities also differs between the areas where there is only a tier of local government (unitary authorities) and those where two tiers share responsibilities (county councils and the district or borough councils). In **Scotland**, the Scottish Government and the Convention of Scottish Local Authorities (COSLA) jointly launched the *Local Governance Review* in 2017 (still underway, interim consultations were disseminated in May 2019) to consider how powers, responsibilities and resources are shared across national and local spheres of government, and with communities. In **Wales**, the Welsh Government is giving extensive thought to the institutions, frameworks and practices that support regional decision-making and policy delivery. In **Northern Ireland**, since the recent local government reform, the new councils have gained additional functional responsibilities, particularly in terms of community planning, in addition to being granted a General Power of Competence.

Assigning the right responsibilities and the right functions (regulating, operating, financing and reporting) across the different levels of government is a longstanding challenge for all OECD countries. There is no single model for allocating responsibilities between national and subnational governments, and across different subnational governments when there are two or three tiers. The increasing trend towards asymmetric decentralisation also sometimes leads to allocating different responsibilities within the same category of subnational governments in the same country. However, an overarching pattern based on the observation of OECD country experiences can be proposed (Box 3.5).

Box 3.5. How are responsibilities distributed across subnational government levels in OECD countries?

The allocation of responsibilities depends on many factors, including the country's institutional structure:

- In many OECD countries, the **municipal** level tends to manage community services. Municipal responsibilities are not always defined precisely, as regulations often refer to the general clause of competency or the "subsidiarity principle". This principle gives local authorities explicit freedom to act in the best interest at the local level. Laws rarely limit or specify local responsibilities but enumerate broad functions, except if a specific responsibility is devolved by law to another government level.
- In **two-tier** subnational government systems, the **regional** level between the municipalities and the central government usually provides services of regional interest, which benefit from economies of scale, generate spill-overs, involve redistribution and are required to meet the same standards across the jurisdiction. The regional tier may also facilitate co-operation and strategic planning. In unitary countries, regions tend to have "specialised responsibilities", while the general clause of competency or the "subsidiarity principle" applies more to the municipal level.
- In **three-tier** systems, the breakdown can be complex, sometimes resulting in duplication, overlap and co-ordination challenges. Over recent decades, the intermediate level has lost many of its powers and responsibilities in favour of regions, which gained more importance. In a majority of countries, intermediate level governments are now mainly responsible for administrative and delegated tasks. They have small budgets and generally no or limited taxing powers (Table 3.2).

Table 3.2. Breakdown of responsibilities across subnational government levels in OECD countries: A general scheme

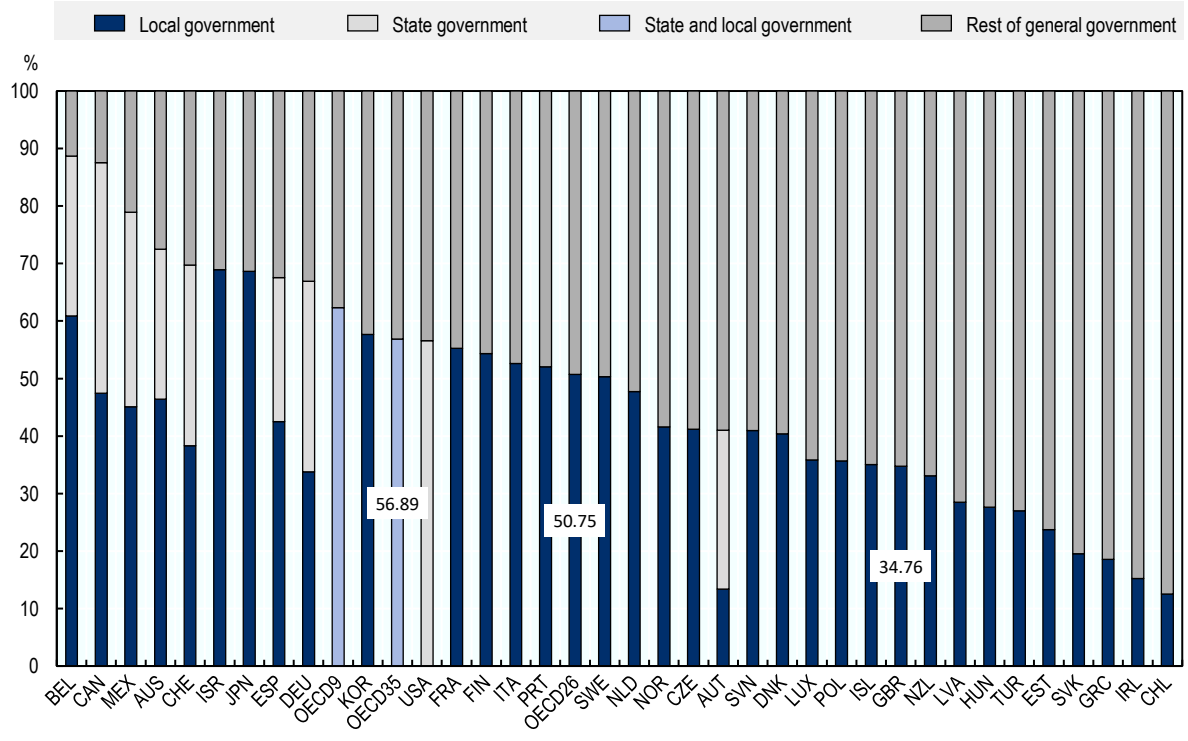
Municipal level	Intermediate level	Regional level
• A wide range of responsibilities: ○ General clause of competency ○ Eventually, additional allocations by the law • Community services: ○ Education (nursery schools, pre-elementary and primary education) ○ Urban planning and management ○ Local utility networks (water, sewerage, waste, hygiene, etc.) ○ Local roads and city public transport ○ Social affairs (support for families and children, elderly, disabled, poverty, social benefits, etc.) ○ Primary and preventive healthcare ○ Recreation (sport) and culture ○ Public order and safety (municipal police, fire brigades) ○ Local economic development, tourism, trade fairs ○ Environment (green areas) ○ Social housing ○ Administrative and permit services	• Specialised and more limited responsibilities of supra-municipal interest • An important role of assistance towards small municipalities • May exercise responsibilities delegated by the regions and central government • Responsibilities determined by the functional level and the geographic area: ○ Secondary or specialised education ○ Supra-municipal social and youth welfare ○ Secondary hospitals ○ Waste collection and treatment ○ Secondary roads and public transport ○ Environment	• Heterogeneous and more or less extensive responsibilities depending on countries (in particular, federal vs unitary) • Services of regional interest: ○ Secondary/ higher education and professional training ○ Spatial planning ○ Regional economic development and innovation ○ Health (secondary care and hospitals) ○ Social affairs e.g. employment services, training, inclusion, support to special groups, etc. ○ Regional roads and public transport ○ Culture, heritage and tourism ○ Environmental protection ○ Social housing ○ Public order and safety (e.g. regional police, civil protection) ○ Local government supervision (in federal countries)

Table source: OECD (2019[12]), *Making Decentralisation Work: A Handbook for Policy-Makers*, https://dx.doi.org/10.1787/g2g9faa7-en.
Source: OECD (2019[12]), *Making Decentralisation Work: A Handbook for Policy-Makers*, https://dx.doi.org/10.1787/g2g9faa7-en; OECD (2017[23]), *Making Decentralisation Work in Chile: Towards Stronger Municipalities*, https://doi.org/10.1787/9789264279049-en; OECD (2018[24]), *Maintaining the Momentum of Decentralisation in Ukraine*, https://doi.org/10.1787/9789264301436-en.

Direct investment

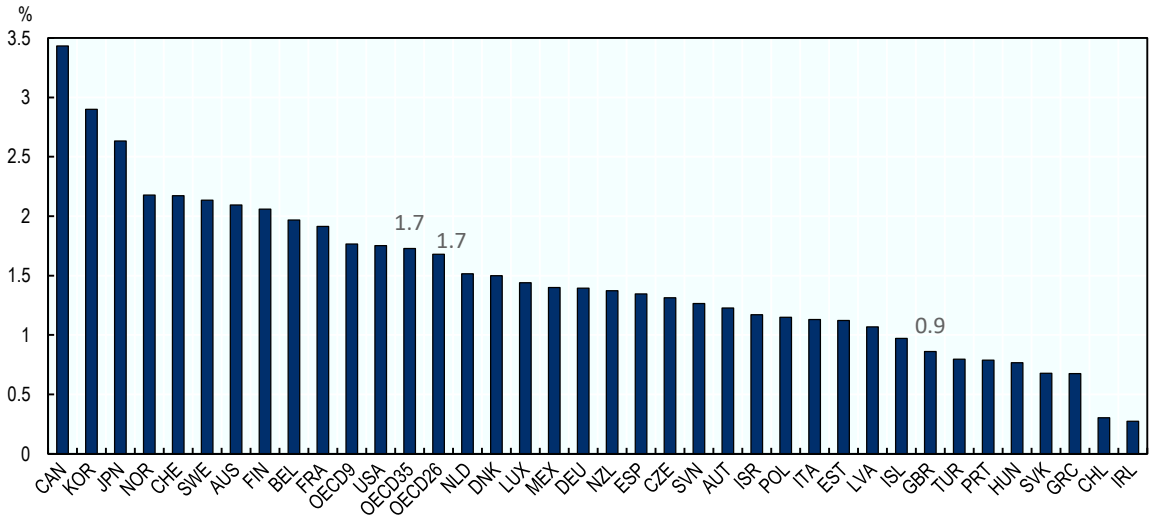
Accounting for only 35% of public investment on average in 2016, local governments in the UK also play a much more limited role as public investors than the OECD average (56.9% of public investment and 1.7% of GDP in 2016), even when considering the average for unitary OECD countries (50.7% and 1.7% of GDP) (Figure 3.10 and 3.11). On average, however, they invest more than central governments across a range of key areas that are critical to growth and well-being: in 2016, 37% for local investment dedicated to economic affairs and transport, and 31% to housing and community amenities; followed by education (13%) and general public services (11%).

Figure 3.10. Subnational governments in the UK account for a lower share of public investment than OECD average, 2016



Note: 2015 data for Mexico, New Zealand and Turkey. IMF data for Australia and Chile. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: OECD elaboration based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

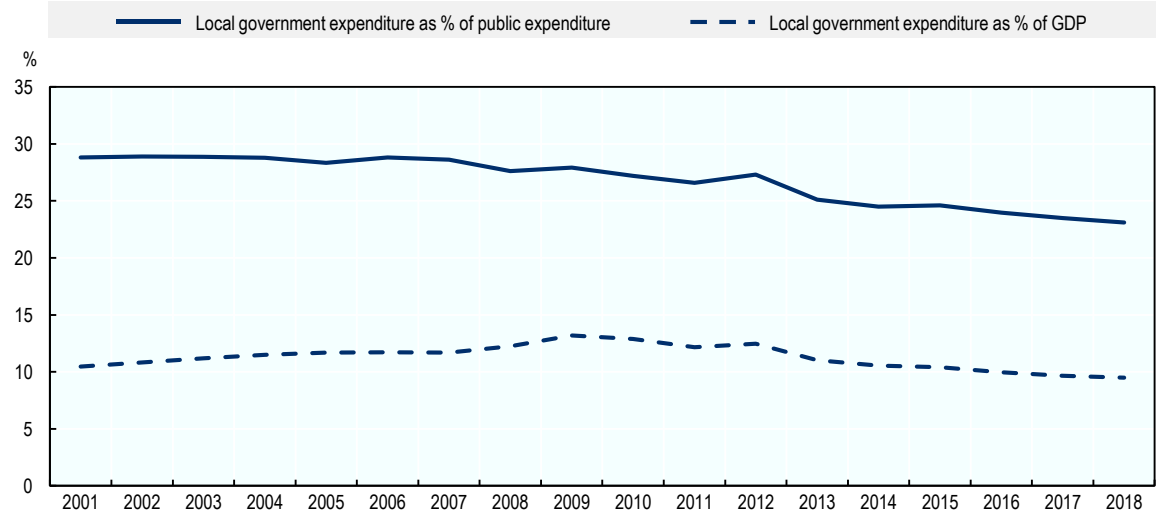
Figure 3.11. Local investment as a share of GDP in the UK is two times less than in the OECD on average, 2016



Note: 2015 data for Mexico, New Zealand and Turkey. IMF data for Australia and Chile. For the UK, the subnational government sector does not include the accounts of the three devolved nations (included in central government accounts).
Source: OECD elaboration based on OECD (2018[16]), *Subnational Governments in OECD Countries: Key Data*, http://dx.doi.org/10.1787/region-data-en.

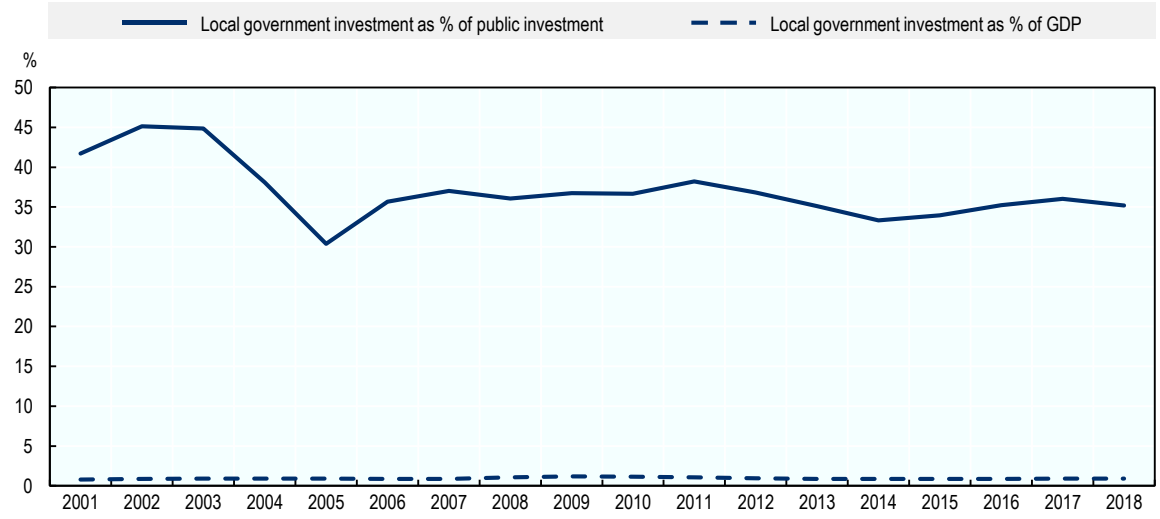
Efficiency savings measures combined with large cuts in grants have resulted in a decrease of the local government share both in expenditure and in investment over the 2001-18 period (Figures 3.12 and 3.13).

Figure 3.12. UK local government expenditure as a % of public expenditure and GDP, 2001-18



Source: OECD calculations based on OECD National Accounts.

Figure 3.13. UK local government investment as a % of public investment and GDP, 2001-18



Source: OECD calculations based on OECD National Accounts.

Borrowing and debt

Finally, access to borrowing is quite constrained in the United Kingdom, although regulations differ from one nation to another. As in many OECD countries, local governments are able to issue long-term debt to finance capital investments only (golden rule). In addition, local governments must follow the Chartered Institute of Public Finance and Accountancy (CIFPA) Prudential Code, which sets indicators to be respected regarding affordability, sustainability and prudential rules. In Northern Ireland, borrowing is subject to approval by the Ministry of the Environment and must aim at financing capital projects only. To boost infrastructure development in large cities, some new measures have been taken, in particular in the framework of Devolution Deals. The latter 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.

As a result of these constraints, local government debt remains well below the OECD averages:[5] 9.5% of GDP in the UK vs. 24.5% of GDP in OECD countries (14.5% for unitary countries only) and 7.9% of public debt in the UK vs. 20.7% of public debt in OECD countries (11.8% for unitary countries). It is composed of financial debt (51% of financial debt stock), pension liabilities (24%) and other accounts payable (25%). The use of bond financing by local governments is very limited in the UK: 95% of the financial debt stock is made up of loans and only 5% by bonds. In 2015, the Local Government Association of England set up a municipal bond agency (the Local Capital Finance Company) aimed at reducing long-term capital costs for councils and increasing competition in the marketplace and at giving councils more control over the interest rates they pay.

According to Core Cities UK, borrowing should be an essential part of fiscal devolution, as a way to enable them to pursue their strategic investment priorities and manage volatile revenue flows without having to make “emergency” cuts and reduce the quality of local public services to balance their budgets (Metro Dynamics, 2016[18]).

Core Cities are confronted with funding uncertainties, which are exacerbated in the context of Brexit

Slow growth, widening regional disparities, the impact of austerity and uncertainties surrounding Brexit make it more critical than ever to strengthen the capacity of UK local governments to finance public

services and infrastructure adequately. More fiscal devolution to local governments (including to Core Cities) could include giving more taxing powers over rates and bases, diversification of local tax revenues, more autonomy in managing grants (less ring-fenced grants) and fewer constraints on borrowing for cities that have a certain level of creditworthiness. The OECD Fiscal Network analysed "decentralisation and growth" (Blöchliger, 2013[25]) and evidenced the growth dividend of fiscal decentralisation and the role of fiscal decentralisation in reducing regional disparities (Blöchliger, Bartolini and Stossberg, 2016[26]). Such research found that policies that foster more own-source revenue (taxes, user fees and other revenue) for subnational governments dampen regional GDP disparities and underpin regional convergence.

Already starting from a lower baseline than their international peers, Core Cities have also had to concentrate significant resources on the delivery of front-line services. The Local Government Association estimates that even if all local authorities used the flexibility of Council Tax to raise revenue, a funding gap of GBP 1 billion would remain (Local Government Association, 2019[19]). Adult social care for the over 65s and child social care continue to require increased spending by local authorities (National Audit Office, 2018[27]). Demographic change and increased deprivation are taking their toll on local authority spending, raising concerns on the long-term sustainability of such funding. The Centre for Cities (2019[28]) recently made the case for a separate settlement for social care to enable local authorities to pursue activities to support economic prosperity. Core Cities, combined authorities and other stakeholders similarly argue for a more holistic approach and more proactive measures from the national government to alleviate pressures on the fiscal system.

In 2016, the UK Government embarked upon a Fairer Funding Review to revise the way funding is allocated and redistributed between local authorities from 2021 onwards. Analysis led by Core Cities suggests that around 40% of the productivity gap is due to deprivation, low skill levels and disengagement from the labour market. Core Cities advocate that the Fairer Funding Review and Spending Review should focus on the following principles:

- *Stability*: to stabilise the currently unsustainable financial position of the system as a whole.
- *Place-based*: to create a comprehensive, place-based settlement for a city or city-region, creating maximum alignment across all relevant public services and funding streams.
- *Devolved*: to give certainty across multiple years and flexibility on how funds are used to address agreed priorities, including fiscal reforms.

The Shared Prosperity Fund announced by the UK Government in 2017 will replace EU Structural Funds to "reduce inequalities between communities" (Conservative Party, 2017[29]). EU funding is currently worth GBP 2.1 billion annually and covers a range of economic development and labour market interventions (Brien, 2019[30]). The Shared Prosperity Fund is intended to underpin the aims of the Industrial Strategy at both the national and local levels. To date, the government has committed to maintaining parity with EU allocations, but at the time of writing, more precise details about the fund have not been released. Core Cities are advocating for a devolved Shared Prosperity Fund focusing on inclusive growth targets and investment to reduce deprivation, with spending brought forward as soon as possible (Core Cities, 2018[31]). Further consideration will need to be given over the administration of the fund and its alignment with the range of local growth funding administered through the City Deal partnerships, combined authorities and Local Enterprise Partnerships.

While Core Cities play a key role in productivity, they face limitations within their current powers

Whilst it is too early to assess how effective the negotiated approach to devolution has been, there is consensus among stakeholders that existing powers need to be strengthened and that fiscal devolution has been limited, which, in the context of sustained spending cuts, risks creating missed opportunities to

enhance productivity. It is estimated that Core Cities do not have sufficient powers or resources to tackle the scale of the problems facing each area (Cambridge Econometrics, 2019[32]; UK2070, 2019[33]). A number of influential collaborative commissions (such as the RSA City Growth Commission [2014],[6] the LSE Growth Commission [2017], the UK2070 Commission [2019]), think tanks (Centre for Cities, the Resolution Foundation, IPPR)[7] and academia argue for more meaningful devolution that aligns functional devolution with increased fiscal powers.

Both the 2015 and 2017 *OECD Economic Surveys of the United Kingdom* (OECD, 2017[34]; 2015[35]) set out the need for more investment in the levers to enhance productivity including transport and infrastructure, human capital, research and development and business support. The 2017 *OECD Economic Survey of the United Kingdom* specifically focused on productivity and a thematic chapter focusing on reducing regional disparities concluded that:

> *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. (OECD, 2017, p. 69[34])*

The 2017 survey recommended continuing with devolution to allow for greater tax and spending autonomy, arguing that broadening the local tax base could trigger a virtuous circle of cities becoming more attractive through more investments in infrastructure and skills.

Creating scale through pan-regional bodies

In an attempt to unlock agglomeration benefits, some Core Cities and national government have come together to form regional or pan-regional partnerships. These include the Northern Powerhouse, incorporating the North East, North West and Yorkshire and Humber regions (Liverpool, Leeds, Manchester, Newcastle and Sheffield); the Midlands Engine, including the East and West Midlands, Birmingham and Nottingham); and the Western Gateway (Bristol, Cardiff and a number of other linked areas).[8] Each pan-regional structure focuses on addressing barriers to productivity including innovation, investment, skills and transport. A recent IPPR assessment of the Northern Powerhouse (IPPR, 2019[36]) noted that since its creation in 2014, 47.1% of the North is governed 5 metro mayors and 69.6% of the population lives with a combined authority, but resources and investment remain an issue. While such partnerships have created foundations for future growth, the actual realisation of planned investments, particularly with respect to infrastructure, will be essential to ensure long-term impact.

Contributing to the implementation of the UK Industrial Strategy

In 2017, the UK national government released the Industrial Strategy Green Paper, “Plan for Britain” and the final Industrial Strategy in 2018. The Industrial Strategy focuses on:

- *Five drivers to improve productivity*: business environment (become the best place to start a business), ideas (become the world’s most innovative economy), people (create jobs and greater earning power), place (ensure prosperous communities across the UK) and infrastructure (upgrade the UK’s infrastructure network).
- *Four Grand Challenges*: artificial intelligence (AI) and the data economy (AI has the potential to boost productivity by up to 30% in some industries and GBP 9 million has been invested in a Centre for Data Ethics and Innovation), future of mobility (includes GBP 40 million in funding for new charging technologies and GBP 250 million for the development and testing of autonomous vehicles), clean growth (by 2030, the UK “clean economy” has the potential to support 2 million jobs and generate up to GBP 170 billion in annual exports; government is investing over GBP 2.5 billion in low-carbon innovation up to 2021), and ageing society (harnessing the power of innovation to meet the needs of an ageing society).

At roughly one-quarter of the UK economy, Core Cities are instrumental in addressing the four Grand Challenges identified in the Industrial Strategy. The national Industrial Strategy is underpinned by Local Industrial Strategies and Regional Industrial Strategies in the Devolved Administrations that cover Belfast, Cardiff and Glasgow. Responsibility for the Local Industrial Strategies sits with the combined authorities and the LEPs. The West Midlands (Birmingham) and Greater Manchester (Manchester) were the first Core Cities regions to prepare a Local Industrial Strategy. The What Works Centre for Local Economic Growth (2018[37]) is providing strategic guidance to stakeholders to ensure that Local Industrial Strategies are evidence-based, build on Strategic Economic Plans and enable Core Cities regions to enhance productivity. Local Industrial Strategies also represent a chance to better exploit agglomeration economies. It is too early to assess the impact of either the national or local industrial strategies, but they present an opportunity to drive growth across the country by continuing devolution to cities (OECD, 2017[34]). They will play key roles in helping Core Cities regions diversify their economies, drive innovation and be better placed to respond to megatrends. Key factors of success in this regard include a focus on functional economic scales (rather than administrative local boundaries), clear identification of place-based comparative advantages, shared commitments towards goals, monitoring and evaluation mechanisms to check progress over the short and long term, and active engagement of public, private and civil society stakeholders.

Boosting skills in Core Cities

In Core Cities, skills have long been considered a major challenge to enhancing productivity and reducing inequalities (Parkinson et al., 2004[38]). Megatrends such as ageing, digitalisation and globalisation all pose additional skills challenges for Core Cities. The skills system in the UK is complex, implicates a large number of ministries, levels of governments and stakeholders, and has been in "considerable flux" in recent years, as successive governments have reformed and reorganised policies, agencies and programmes (OECD, 2017[39]). Through City Deals, Devolution Deals and Growth Deals, a range of skills policies, programmes and finance have been decentralised to Core Cities regions. For example, in England, the national government has devolved the adult education budget to the combined authorities in an effort to better align skills and training programmes to address economic priorities and productivity challenges. Such devolution can help target skill policies to local needs and helps to address the skills mismatch. LEPs are also a critical part of this new context, as increased employer engagement will be essential to improve the skills levels of those with very basic skills (OECD, 2017[34]). However, decentralisation can lead to geographical imbalances, which need some degree of national oversight in order to maintain quality and equity in the skills system (OECD/ILO, 2017[40]).

The *OECD 2019 Skills Strategy* (2019[41]) recommended that national government tackle complexity in the skills system by promoting greater collaboration and co-ordination across responsible ministries (such as the Department for Education, the Department for Business, Energy & Industrial Strategy [BEIS], the Department for Work and Pensions) and between levels of government. National and local agencies and funds operating within given labour markets also need to join up their actions and funds to address place-specific challenges. Greater stakeholder engagement throughout the policy cycle with the private sector (trade unions, business and employers' associations) in the design, implementation and evaluation of skills policies is necessary. All levels of government and relevant stakeholders will need to support integrated information systems to facilitate evidence-based policymaking and to enable better skills outcomes. Perhaps most significantly for Core Cities, the *OECD Regional Outlook* (2019[42]) highlighted the need for a long-term strategic approach to financing skills. This is vital as the benefits from investments in skills materialise over the long term, which can create tensions with more short-term policy priorities. The determinants of future skills often go back to pre-school factors, which makes investment in early childhood education critical to the success of the future labour market. While Core Cities have grappled with the skills challenge for several decades, the adult skills system tends to remain supply-driven rather than based on how the local economy demands and uses skills.

Box 3.6. How Core Cities are working on boosting skills: Select examples

The **Belfast** City Region City Deal establishes a formal agreement between six local authorities and Belfast and Queen's University Belfast and Ulster University, Belfast Metropolitan College and Northern Regional College, South Eastern Regional College and the Southern Regional College. Employability and skills cut through all aspects of the deal, which aims to create 20 000 "new and better" jobs over its lifetime and will operate alongside a 10-year programme of inclusive growth.

Birmingham City Council (BCC) has recently secured funding from the European Social Fund for a GBP 12 million Supplier Skills Programme, to be launched in early 2020. It is a three-year programme and will run until June 2023. The programme has been developed and led by BCC and is a major skills initiative which will upskill over 7 000 employees within small- and medium-sized enterprises (SMEs). It will offer training grants between GBP 500 to a maximum of GBP 18 000 per SME to upskill new and existing employees. This will lead to full qualifications, units of qualification across basic, level 2 and at level 3+, including higher-level management and leadership skills. Partners include the National College for High-Speed Rail; Society for Motor Manufacturers and Traders; Kaplan Financial Services; and Creative Alliance to name a few.

Cardiff is emerging as an alternative fintech base to London and the sector is supported by the Welsh Financial Services Graduate Programme, a collaborative two-year full-time programme of work, training and academic study unique to Wales designed to develop an elite talent pool. The programme is backed by leading financial services employers.

In **Sheffield**, over the last decade, the council, employers and education providers have collaborated to enhance the skills of young people and adults to bridge the digital divide. In 2018, the city-region adopted the Digital Skills Action Plan to help support 3 500 new jobs and 1 300 additional businesses. The five-year plan sets out a road map to grow the tech sector in the city-region and enhance the digital skills of the citizens through measurable actions. The Sheffield City Region also introduced a Skills Bank, which is a business-led, innovative and flexible funding programme designed to help businesses invest in their workforce and improve their productivity by delivering tailor-made training. Sheffield City Council, the University of Sheffield and Sheffield Hallam University are also working collaboratively to deliver RISE, a project that brings together growing small- and medium-sized enterprises (SMEs) with suitably qualified graduates, enabling business growth and retaining talent within the Sheffield City Region's economy. The impact of RISE 2013-19 has resulted in 3 years funding being secured, through the European Structural and Investment Funds Growth Programme 2014-20, to deliver an enhanced programme of tailored business support to 198 SMEs to employ 330 graduates by 2022.

Source: Author's own elaboration, drawing on https://www.belfastcity.gov.uk/; https://www.wmca.org.uk/what-we-do/productivity-skills-commission/; https://www.cardiffcapitalregion.wales/; https://www.sheffielddigitalskills.org.uk.

Unlocking the potential of transport and infrastructure in Core Cities

While devolution has seen transport powers and funding strengthened in Core Cities regions, the function for transport remains highly centralised. Local government and local public transport bodies (which can take on some responsibilities on behalf of the local authority) can bid to the Department for Transport for funds, which are then appraised through a structured mechanism. This process is often highly uncertain and risky, as it can incur significant costs for local partners in making the bid, which they will lose if the bid is unsuccessful (estimated cost of around 1.7% of total costs). The appraisal process currently does not take into account the need for economic rebalancing, or the relative local gains to economic and productivity growth (as opposed to national gains, which as a measure favour the South East).

Greater alignment of National Infrastructure Commission investments, the National Productivity Investment Fund (budget of 1.2% of GDP by 2021/22), increased devolved powers to combined authorities and pan-regional bodies needs to be prioritised by the government (OECD, 2017[34]). The government has committed to a number of investments, which are deemed critical to the long-term economic growth of the country. Some have stalled, or are under review as in the case of High Speed 2 (HS2). The success of the national Industrial Strategy and effectiveness of the emerging local industrial strategies are dependent upon transport and infrastructure investments. The National Infrastructure Commission recommended that city leaders be required to create integrated transport plans to connect housing and jobs, that the government devolve infrastructure budgets and commit GBP 43 billion in additional investment in urban transport by 2040 (National Infrastructure Commission, 2018[43]). The national government has yet to formally respond to the recommendations of the commission. The OECD has previously recommended staying on course with an urban perspective on transport infrastructure planning as a measure to enhance productivity (OECD, 2017[34]; 2015[35]).

Going forward, the national government should continue to invest in transport and infrastructure across Core Cities as recommended in the *OECD Economic Surveys: United Kingdom 2015 and 2017*, specifically to:

- *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.*

Box 3.7. How Core Cities are investing in transport and infrastructure: Select examples

In the **Birmingham** city-region, infrastructure investments include over GBP 5 billion for public transport. The GBP 1.3 billion investment in the West Midland Metro expansion will triple the network size and add 50 additional trams by 2026, increasing passenger numbers from 7.2 million to 30 million and interchanging with both High Speed 2 (HS2) stations. GBP 280 million is being invested in bus rapid transit, which will allow 800 000 bus trips every day, and 7 new suburban rail stations and 31 km of new track will connect people to jobs across the city-region.

In **Cardiff**, the 2016 City Deal GBP 1.2 billion investment Fund will invest in the region's infrastructure, prioritising the South East Wales Metro and Valley Lines Electrification Programme and a new regional transport authority. GBP 40 million invested in the Metro Central Development will create a Central Transport Interchange in Cardiff's city centre Core Employment Zone.

HS2 and HS3 are critical pillars of the growth strategy for the **Leeds** city-region and the Northern Powerhouse and the opportunity to bridge the investment gap between the city-region and the south of England, to improve access to jobs across the region and deliver the Local Industrial Strategy. Integral to the transport vision for the city-region is the regeneration of Leeds Station and GBP 500 million of investment, including a new Station Campus.

Addressing the climate imperative in Core Cities

Core Cities are critical players to tackle climate change in the UK. The Climate Change Act 2008 set a statuary target to reduce greenhouse emissions by 80% from 1990 to 2050. Following the recommendation of the UK Committee on Climate Change, the national government increased the statutory target to net-

zero gas emissions by 2050. Each city is in the process of adopting progressive strategies, some declaring a climate emergency.

Action will be required across various sectors including transport, infrastructure, construction, energy, waste and consumption. A range of national levers is in place, from the Industrial Strategy and the Clean Growth Strategy to large-scale infrastructure and transport investments that create new framework conditions for Core Cities and their regions to accelerate climate adaptation. The government has the opportunity to pursue a new agenda to strengthen infrastructure and climate policy alignment and to create new opportunities for growth. In 2017, the OECD advocated a new approach to climate adaptation, which placed it at the heart of economic growth:

> *Current economic conditions – including low real interest rates in most countries – afford many governments the opportunity to invest in the right infrastructure now, to reignite growth while also paving the way to achieving the Paris Agreement goals. Governments need to bring together structural policy reforms, effective climate policies and the progressive alignment of regulatory frameworks to ensure effective action. A combined agenda for climate and growth offers numerous economic opportunities, including enhanced markets for low-emission infrastructure, technologies and services; increased market confidence spurred by greater climate policy clarity; and enhanced incentives for innovation and efficiency. (OECD, 2017, p. 19[44])*

Climate adaptation has the potential to enhance productivity in the UK, the economic impact of a range of climate-related sectors and investments are seen as opportunities for Core Cities and Core Cities regions to tackle climate change whilst promoting local growth. For example, the low-carbon economy could grow at 11% a year to 2030, 4 times faster than the rest of the economy, and deliver up to GBP 170 billion in exports (Ricardo Energy and Environment, 2017[45]). City Deals are creating opportunities through which Core Cities can advance climate mitigation efforts. For example, Liverpool and Newcastle are growing low-carbon manufacturing sectors, Birmingham is accelerating building retrofits, Manchester is creating a low-carbon investment portfolio, district heating is tackling climate change and inclusive growth in Bristol and Nottingham and all Core Cities are looking to promote sustainable transport solutions and promoting the uptake of active and public transport (Scott, 2012[46]). Climate emergencies have been declared in Bristol, Glasgow and Nottingham. Core Cities have released a Climate Emergency Declaration, which calls for a renewed partnership between national and local governments to drive radical, innovative and urgent change (Core Cities, 2019[47]). All Core Cities have adopted individual carbon-neutral targets or are part of regional efforts. Going forward, cities will play increasingly important roles in mitigating and adapting to climate change (OECD, 2010[48]). Cities have control over a wide range of policy instruments that are critical to the fight against climate change, which means that Core Cities and their regions acting together can create an impact of significant scale in the UK.

Box 3.8. How Core Cities are tackling climate change: Select examples

Bristol was the UK's first European Green Capital in 2015. In 2017, low-carbon environmental goods and services supported 14 000 jobs in Bristol and 38 000 in the west of England. Bristol has a strong start-up culture (93.7 per 10 000 working-age population in 2017), including being home to the globally renowned university-led incubator, SETsquared. In the city-region, the combined authority and partners are pursuing an ambitious agenda to reduce carbon emissions. Since 2005, carbon emissions have reduced by 30% and local renewable energy generation, insulating homes and reducing coal generation has grown by 30%. It is developing the clean growth sector, GBP 10 million was awarded to the Institute for Advanced Automotive Propulsion Systems, and investments made in the National Composites Centre, which is developing lightweight materials that have the potential to increase carbon efficiency.

Leeds declared a climate change emergency in March 2019 and aims to be carbon neutral by 2030. There are a number of schemes working towards this aim, including introducing the Leeds PIPES

district heating network. The network will reuse heat from Leeds's Recycling and Energy Recovery System to supply heat to almost 2 000 council homes and numerous businesses to reduce the release of greenhouse gases and lift citizens out of fuel poverty.

Manchester worked with the Tyndall Centre for Climate Change Research to develop a science-based target committing the city to release a maximum of 15 million tonnes of CO2 from 2018-2100. To stay within this budget, the city must reduce its carbon emissions by at least 13% every year, which means roughly halving emissions every 5 years, and become zero-carbon no later than 2038. Manchester City Council is one of 60 "pioneer" organisations that are currently developing action plans to help meet the zero-carbon 2038 target. The council has achieved a 48.1% reduction in CO2 emissions between 2009/10 and 2018/19 via the implementation of energy efficiency improvements to council buildings, a full LED street lighting replacement programme and the development of a new Civic Quarter Heat Network to provide low-carbon power for major buildings in the city centre.

Nottingham has been working on tackling climate change and air quality, meeting its 2020 energy strategy target of reducing CO2 emissions by 26% (from 2005 levels) several years ahead of schedule, and targeting to become the UK's first carbon-neutral city by 2028. Reducing emissions from transport, and tackling the issue of congestion in the city are key areas to support the city's climate and air quality ambitions, with numerous health benefits. Nottingham has also adopted the UK's first workplace parking levy (WPL) – a small charge made on workplace parking places provided by employers in the city. All the funds are ring-fenced for improving public transport and supporting workplace travel schemes. Benefits of this have included extending the Nottingham Express Transit tram network, redeveloping Nottingham's Railway Station into a 21st century transport hub, and investing in the UK's largest fleet of electric buses. Nottingham is now looking to extend the tram to the east of the city and provide links to HS2. To promote other sustainable forms of transport (walking and cycling), Nottingham City Council also secured funding from its Local Enterprise Partnership to support the aim of increasing the number of people cycling on a regular basis by 10% by 2025. It is building four main cycle corridors into the city centre, segregated from traffic where possible.

Source: Author's elaboration, drawing on https://www.bristol.gov.uk/; https://www.westofengland-ca.gov.uk/; https://www.apse.org.uk/apse/index.cfm/local-authority-energy-collaboration/beis-local-energy-team/nottingham-city-council/; https://newcastlehelix.com; http://gmlowcarbonfund.uk/; https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017.

Pursuing more inclusive growth in Core Cities

Inclusive growth has become a major policy goal across Core Cities and their regions. Definitions and approaches vary: city plans (Bristol, Leeds and Liverpool), mainstreamed throughout all policy areas (Glasgow, Greater Manchester), a framework for reducing inequalities (Belfast, Sheffield), through Devolution and City Deals (Cardiff, Newcastle) or a dedicated unit (West Midlands Combined Authority). A range of supporting policy measures include Fair Work and living wage campaigns – on average, 22.5% of jobs in the Core Cities pay below the living wage (slightly above the national average, which is 22%).

A strong evidence base is emerging in the UK to help Core Cities realise more inclusive growth. The RSA Inclusive Growth Commission (RSA, 2017[49]) built on earlier work of the City Growth Commission (2014) to set out an evidence-based framework and recommendations relevant to central and local government and specifically to Core Cities regions and the emerging mayoral authorities. The UK2070 Commission (UK2070, 2019[50])[9] is an in-depth inquiry into city and regional inequalities. *A Fairer and Stronger Economy* (UK2070, 2019[33]) makes the case for greater devolution of powers and funding, including the creation of four new "super-regional" economic development agencies; a national spatial plan; action to harness new technologies and strengthen local economies and the creation of a National Renewal Fund to rebalance

the economy over a 25-year period. In Scotland, the 2015 Economic Strategy mainstreamed inclusive growth across government and led to the creation of the Centre for Regional Inclusive Growth. The centre is a collaboration between government, industry and academia to support the delivery of inclusive growth. In Wales, the 2015 Well-Being of Future Generations Act similarly establishes inclusive growth as a whole of government objective.

Box 3.9. Anchor institutions, public procurement and social enterprises are playing critical roles in supporting inclusive growth: Select examples

In **Glasgow**, Strathclyde University leads the Glasgow Procurement Collaboration Group, which includes Glasgow City Council, NHS Greater Glasgow and Clyde, the University of Glasgow, Glasgow Caledonian University, City of Glasgow College and Glasgow Clyde College. The initiative seeks to leverage the significant employment and purchasing impact to increase local spending and benefit SMEs in the city.

In **Birmingham**, anchor institutions employ significant numbers of people (the Queen Elizabeth Hospital around 6 000 and the University of Birmingham 7 400) and leverage procurement spending. In 2016/17, Birmingham City Council spent GBP 762.3 million with organisations based in the city, equivalent to 68.7% of procurement spend with the top 300 organisations. The University of Birmingham spent GBP 125.6 million in 2012-17 and 58.3% of net salary spend goes to people living in the city.

Bristol is investing in the shared prosperity of its citizens through an established network of social businesses. Over 1 000 organisations operate in the social enterprise sector, employing 9 000 people and generating an annual turnover of GBP 233 million in 2016. Community businesses focus on diverse needs in the city through a range of innovations. The Bristol Pound (£B) encourages people and businesses to buy locally, keeps money circulating in Bristol to support local job creation and more recently has piloted provides zero-rate loans to business.

In **Leeds**, major employers have joined forces to create a super-network to boost the city's economy. Leeds City Council, universities, hospitals and educational institutions are working together as the Leeds Anchors Network to improve job opportunities, retain talent in the region and maximise the local benefits from their spending, services and recruitment. The network members employ hundreds of thousands of people and spend hundreds of millions of GBP. The Anchors Network is an innovative way of unlocking the potential within Leeds to create jobs and prosperity that can be shared by everyone in the city, as part of the Leeds Inclusive Growth Strategy.

In **Liverpool**, the Procurement Strategy and Fair City Policy Statement aim to leverage community benefits to support the 2018 Inclusive Growth Strategy from GBP 550 million of annual spend on good and services. Objectives include job creation, a Real Living Wage and Decent Work contacts, apprenticeships and opportunities for young people, contracts awarded to local businesses, and collaborations with a range of third sector actors across the city.

As part of **Newcastle**'s City Deal, the council secured the ability to borrow against future business rate income, investing in critical infrastructure through tax increment financing across key development sites including Newcastle Helix. A 24-acre quarter in the centre of Newcastle upon Tyne, this is a unique joint venture partnership of Newcastle City Council, Legal and General (one of the UK's largest asset managers) and Newcastle University. A GBP-350-million transformational programme of investment is creating a new district for commercial, academic and residential-led economic development and innovation in the heart of the city. It has attracted businesses in emerging growth sectors – data, ageing and urban sustainability – which are aligned with Newcastle University's research expertise and the creation of two National Innovation Centres – Ageing and Data. Helix has excited multi-nationals

including Engie, Red Hat and Siemens, whilst providing opportunities for homegrown talent, including HexisLab, NewCells and Urban Foresight. An active engagement programme is ensuring that local residents and school children are connected to current and emerging employment opportunities on the site. Upon completion, Helix is expected to create 4 000 jobs, 500 000+ square feet of office space, 450+ new homes, conferencing, hotel, leisure/retail and public spaces.

Source: Author's elaboration, drawing on https://www.bristol.gov.uk; www.glasgow.gov.uk; www.birmingham.gov.uk; https://liverpool.gov.uk.

Ways forward to help make devolution more effective in boosting productivity in Core Cities

A stronger partnership between Core Cities, combined authorities and the national government is essential to raise productivity. When properly designed and implemented, devolution can have a range of benefits, ranging from economic aspects (e.g. greater efficiency in the local public sector, contributing in turn to higher productivity) to improved public service delivery and greater democratic accountability (e.g. bringing government closer to citizens). The OECD has long advocated the need for effective place-based policies supported by robust multi-level governance and fiscal systems as mechanisms to boost growth and well-being. According to the recent OECD report *Making Decentralisation Work: A Handbook for Policy-Makers* (2019[12]), decentralisation is among the most important governance reforms of the last 50 years. The report argues that:

> *.. making the most of decentralisation for regional development is particularly crucial in the current context of a "geography of discontent" characterised by growing divides between places that feel left behind by globalisation and technological change and those that may benefit from the opportunities offered by megatrends. Dysfunctional decentralisation systems are part of the story behind the crisis that some democracies are facing: it is thus critical to find ways to make decentralisation systems work more effectively. (OECD, 2019, p. 11[12]).*

Continue the devolution process and ensure a better match between responsibilities and financial resources

The national government should continue with the recommendations set out in the 2015 and 2017 *OECD Economic Surveys* and consider how more comprehensive devolution could enable Core Cities regions to boost their capacities.

Fiscal decentralisation also needs to go hand in hand with administrative decentralisation to reduce vertical fiscal gaps and ensure there is no unfunded (or underfunded) mandate. Enabling local authorities to retain a greater share of business rates is a positive step forward but more comprehensive fiscal decentralisation could strengthen the current programme of functional devolution, help reduce disparities and ensure that responsibilities are adequately resourced. A more systematic and coherent strategy should be established to help bring the revenues and tax powers of Core Cities regions and combined authorities closer to the OECD average. This could include increasing their taxing powers on the current property taxes (Council Tax, business rates, district rates) diversifying local tax revenues, providing more flexibility in managing grants and easing borrowing restrictions for more capable cities in order to safeguard the level and quality of public services while boosting infrastructure investment.

Drawing lessons from across the OECD, decentralisation of social service delivery and networked co-ordination responsibilities to local governments, especially in the case of redistribution, has proved to be effective (OECD, 2019[12]). In Finland, for example, networked co-ordination (including horizontal inter-municipal co-ordination) has been introduced with support from the national government. Greater

Manchester has been at the forefront of health and social care decentralisation in the UK, albeit within the broader context of addressing adult social care funding challenges. Core Cities will need adequate resources to deliver this agenda.

Enable multi-year budgeting

Core Cities would benefit from the ability to plan over longer-term frames. Multi-year budgets would improve funding predictability and enable more strategic policymaking and investment by the Core Cities. It has long been argued for, and if reinforced with appropriate powers to determine funding priorities and the means to raise revenue, Core Cities would be in a stronger position to address structural weakness in their economies, reduce disparities and boost local growth. A one-year spending review replaced the usual multi-year approach and increased spending was announced across a number of areas including health, education, social care and policing. Proposals by the UK Government to increase spending on education and health are important for Core Cities, but in light of economic uncertainty, increased spending in strategic areas such as transport, skills and research and development should continue.

Strengthen the capacity to plan and implement integrated strategies

Devolution creates a new imperative to reduce policy fragmentation and ensure alignment between various deals and strategies. Core Cities and their leaders had built up strong economic development capacities between 1990 and 2010, which contributed to making the case for devolution. Narrowing the productivity gap and reducing disparities will require the appropriate capacity to co-ordinate strategic sectors (such as skills, transport and infrastructure, spatial planning, climate change) across the entire public policy system and budget for them over the long term. Both national and local policymakers should continue to ground their decisions in solid evidence, which can be provided by bodies such as the What Works Centre for Local Economic Growth.

Towards achieving the productivity-inclusiveness nexus in Core Cities

Addressing the productivity-inclusiveness challenge in Core Cities is an important step on the path to higher productivity in the UK. Enhancing productivity in Core Cities is ultimately about embracing a more inclusive type of growth – not only across the national territory but also within cities themselves. In 2012, the OECD launched All on Board for Inclusive Growth to fundamentally rethink growth – what drives it and who benefits from it. From this work emerged a comprehensive framework to help policymakers design and implement multidimensional policy programmes,[10] and understand the trade-offs and synergies that exist between pro-inclusiveness and growth-friendly policies and the need for effective multi-level governance (OECD, 2018[51]). Cities, as is evident with Core Cities, are the places where the nexus between productivity and inequality is most evident.

A new accord between Core Cities and national government needs to be achieved to strengthen key drivers of productivity by upskilling low-skilled workers, encouraging labour force participation, strengthening public transport provision and regulation, reinforcing spatial planning at the city-region scale and better exploiting the potential of place-making policies. The devolution process needs to continue and ensure a better match between responsibilities and financial resources, enable multi-year budgeting and planning, as well as strengthen the capacity to implement integrated policies.

Box 3.10. The OECD Productivity-Inclusiveness Nexus – A call to policymakers

To adopt a broader, more inclusive, approach to productivity growth that considers how to expand the productive assets of an economy by investing in the skills of its people and providing an environment where all firms have a fair chance to succeed, including in lagging regions.

National policies to boost productivity and foster inclusiveness need to take into account the spatial dimension

- Labour markets and skills policies need to take into account the local dimension. Measures to improve information about labour market conditions, matching, training and/or subsidies to employers tend to be better designed at the regional or local level — since information about local conditions can be a crucial factor in their effectiveness.
- Economy-wide policies aimed at increasing skill levels and reducing skills mismatch are often most effective when adapted to the characteristics of local labour markets.

Spatial policies play a major role in facilitating the efficient allocation of resources in the labour market and improving access to opportunities and essential services.

- Land use planning and transport, along with housing and commercial development policies, help shape the location decisions of individuals and firms; they play a key role in determining whether and to what extent disadvantaged groups can access training, jobs and services.
- Providing accessibility to efficient and affordable transport systems helps determine the size of the effective labour market and thus contribute to both productivity and inclusion.
- Housing policies should be integrated with jobs and public transport systems to reduce congestion, pollution and commuting costs that reduce productivity and well-being.

Systems that govern metropolitan regions can either support or hamper productivity and inclusion

- Co-ordination across municipalities or regions can be used to improve the cost-effectiveness of public services, the quality of those services, and coherence of overall planning.

Source: OECD (2018[51]), "The productivity paradox", https://dx.doi.org/10.1787/9789264292932-3-en.

References

Allain-Dupré, D., I. Chatry and A. Moisio (2019), "Asymmetric Decentralisation: Policy Implications in Colombia", *OECD Multi-Level Governance Studies*, OECD, Paris, https://www.oecd.org/countries/colombia/Asymmetric_decentralisation_Colombia.pdf. [15]

Amin-Smith, N., T. Harris and D. Phillips (2019), *Taking Control: Which Taxes Could be Devolved to English Local Government?*, Institute for Fiscal Studies. [20]

Bird, R. and R. Ebel (2006), "Subsidiarity, solidarity and asymmetry: Aspects of the problem", in Bird, R. and R. Ebel (eds.), *Fiscal Fragmentation in Decentralised Countries*, Edward Elgar Publishing Limited and World Bank. [13]

Blöchliger, H. (2013), *Decentralisation and Economic Growth*, OECD Publishing , Paris, http:/dx.doi.org/10.7887/5k4559gp7pzw-en. [25]

Blöchliger, H., D. Bartolini and S. Stossberg (2016), *Does Fiscal Decentralisation Foster Regional Convergence?*, OOECD Publishing, Paris, https://doi.org/10.1787/5jlr3c1vcqmr-en. [26]

Brien, P. (2019), *The UK Shared Prosperity Fund*, House of Commons Library. [30]

Cambridge Econometrics (2019), *Powering Up the Core City Economies*, Cambridge Econometrics. [32]

Centre for Cities (2019), *Cities Outlook 2019*, Centre for Cities. [28]

Centre for Cities (2017), *Business Rates: Maximising the Growth Incentive Across the Country*. [17]

Conservative Party (2017), *Forward, Together: Our Plan for a Stronger Britain and a Prosperous Future*. [29]

Core Cities (2019), *Core Cities UK Climate Emergency Declaration*, https://www.corecities.com/cities/agenda/environment/core-cities-uk-climate-emergency-declaration. [47]

Core Cities (2018), *Core Cities UK 2030*. [31]

Heseltine, M. (2012), *No Stone Unturned*. [7]

HM Government (2011), *Unlocking Growth in Cities*, HM Government, United Kingdom, http://www.cabinetoffice.gov.uk. [6]

IPPR (2019), *The Northern Powerhouse: 5 Years In*, http://http:/www.ippr.org (accessed on 15 July 2019). [36]

Liverpool JMU (2012), *Second Tier Cities in Europe: In an Age of Austerity Why Invest Beyond the Capitals?*, Liverpool John Moores University, Liverpool. [8]

Local Government Association (2019), *Homepage*, http://www.local.gov.uk. [19]

Lupton, R. et al. (2018), "City-region devolution in England", *SPDO Research Paper*, No. 2, London School of Economics, http://sticerd.lse.ac.uk/dps/case/spdo/spdorp02.pdf (accessed on 4 September 2019). [10]

Martin, R. et al. (2019), *The Economic Performance of Britain's Cities: Patterns, Processes and Policy Implications*, UK 2070. [1]

Metro Dynamics (2016), *A Call for Greater Fiscal Autonomy For Our Cities*. [18]

National Audit Office (2019), *Local Enterprise Partnerships: An Update on Progress*, National Audit Office, London. [11]

National Audit Office (2018), *Financial Sustainability of Local Authorities 2018*, National Audit Office, London. [27]

National Infrastructure Commission (2018), *National Infrastructure Assessment*, HM Government. [43]

ODPM (2006), *The State of the English Cities*, Office of the Deputy Prime Minister, United Kingdom Government, London. [5]

OECD (2019), *Key Data on Local and Regional Governments in the European Union (brochure)*, OECD, Paris, http://www.oecd.org/regional/regional-policy/Subnational_Finance_Nuancier_EU_2019.pdf. [14]

OECD (2019), *Making Decentralisation Work: A Handbook for Policy-Makers*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/g2g9faa7-en. [12]

OECD (2019), *OECD Regional Outlook 2019: Leveraging Megatrends for Cities and Rural Areas*, OECD Publishing, Paris, https://doi.org/10.1787/9789264312838-en. [42]

OECD (2019), *OECD Skills Outlook 2019 : Thriving in a Digital World*, OECD Publishing, Paris, https://doi.org/10.1787/df80bc12-en. [41]

OECD (2018), *Maintaining the Momentum of Decentralisation in Ukraine*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264301436-en. [24]

OECD (2018), *OECD Regions and Cities at a Glance 2018*, OECD Publishing, Paris, https://doi.org/10.1787/reg_cit_glance-2018-en. [22]

OECD (2018), *Subnational Governments in OECD Countries: Key Data*, OECD, Paris, http://dx.doi.org/10.1787/region-data-en. [16]

OECD (2018), "The productivity paradox", in *The Productivity-Inclusiveness Nexus*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264292932-3-en. [51]

OECD (2017), *Getting Skills Right: United Kingdom*, Getting Skills Right, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264280489-en. [39]

OECD (2017), *Investing in Climate, Investing in Growth*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264273528-en. [44]

OECD (2017), *Making Decentralisation Work in Chile: Towards Stronger Municipalities*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264279049-en. [23]

OECD (2017), *OECD Economic Surveys: United Kingdom 2017*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2017-en. [34]

OECD (2015), *Local Economic Leadership*, OECD, Paris. [4]

OECD (2015), *OECD Economic Surveys: United Kingdom 2015*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-gbr-2013-en. [35]

OECD (2013), *Delivering Local Development: New Growth and Investment Strategies*, OECD, Paris. [3]

OECD (2010), *Cities and Climate Change*, OECD Publishing, Paris, https://doi.org/10.1787/9789264091375-en. [48]

OECD (forthcoming), "Uncovering the unknown: Spending indicators on municipal decision-making authority", CFE/RDPC(2019)19, OECD, Paris. [21]

OECD/ILO (2017), *Engaging Employers in Apprenticeship Opportunities : Making It Happen Locally*, OECD Publishing, Paris, https://doi.org/10.1787/9789264266681-en. [40]

OECD/UCLG (2019), *2019 Report of the World Observatory on Subnational Government Finance and Investment – Country Profiles*. [2]

Parkinson, M. et al. (2004), *Competitive European Cities: Where do the Core Cities Stand*, Office of the Deputy Prime Minister, London. [38]

Ricardo Energy and Environment (2017), *UK Business Opportunities of Moving to a Low Carbon Economy*, Committee on Climate Change, https://www.theccc.org.uk/publication/uk-energyprices-. [45]

RSA (2017), *Inclusive Growth Commission: Making Our Economy Work for Everyone*, Royal Society for the Encouragement of Arts, Manufactures and Commerce, https://www.thersa.org/discover/publications-and-articles/reports/final-report-of-the-inclusive-growth-commission. [49]

RSA (2014), *Unleashing Metro Growth: Final Recommendations*. [9]

Scott, F. (2012), *Green Cities: Using City Deals to Drive Low Carbon Growth*, Green Alliance. [46]

UK2070 (2019), *A Fairer Stronger Economy*, UK2070 Commission. [33]

UK2070 (2019), *UK2070*. [50]

What Works Centre for Local Economic Growth (2018), *Developing an Effective Local Industrial Strategy*, https://whatworksgrowth.org/policy-challenges/industrial-strategy/ (accessed on 10 September 2019). [37]

Notes

[1] This model is currently not employed in the devolved nations. The administrative arrangements of Belfast, Cardiff and Glasgow are determined by their respective Devolved Nation. There are "Devolved Administration City and Growth Deals" jointly agreed between the UK, devolved nations and local authorities (seven in Scotland, two in Wales and one in Northern Ireland as of September 2019) while devolved nations also established their own schemes to support local growth.

[2] According to the National Audit Office in 2018.

[3] It is important to note that figures for the "subnational government sector" presented in this chapter are under-estimated as fiscal data regarding the devolved administrations in Scotland, Wales and Northern Ireland are not included in the subnational government sector but rather in the central government sector. Therefore, data presented relate to local authorities and their related organisations only.

[4] The seven Core Cities are: Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle upon Tyne and Sheffield.

[5] Based on the SNA 2008, gross debt includes the sum of the following liabilities: currency and deposits + debt securities + loans + insurance pension and standardised guarantees + other accounts payable. Most debt instruments are valued at market prices. OECD definition differs from the one defined in the EU Maastricht protocol which is restricted to the sum of the first three items (i.e. mainly borrowing).

[6] RSA stands for the Royal Society for the encouragement of Arts, Manufactures and Commerce.

[7] IPPR stands for the Institute for Public Policy Research.

[8] For further details, see http://www.metrodynamics.co.uk/blog/2019/7/9/a-powerhouse-for-the-west-britains-missing-powerhouse.

[9] The UK2070 Commission is an independent inquiry into city and regional inequalities in the UK.

[10] Macroeconomic policies, labour market policies, education and skills, competition and product market regulation, innovation and entrepreneurship, financial markets, infrastructure and public services, and development and urban policies are all part of this new paradigm.

OECD Urban Policy Reviews

Enhancing Productivity in UK Core Cities

CONNECTING LOCAL AND REGIONAL GROWTH

Core Cities is an association of eleven cities in the UK: Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham, and Sheffield. Altogether, Core Cities and their surrounding regions account for around one quarter of the UK population and economy. Given their size and assets, Core Cities have the potential to boost national growth. However, unlike second-tier cities in most other large OECD countries, Core Cities have low levels of productivity by national and international standards. With the right policies and sufficient investment in public transport, housing, skills and other key policy areas, Core Cities could become centres of economic activity that pull their regions and the entire UK to higher productivity levels. This report unpacks the causes of low productivity in UK Core Cities and offers policy recommendations for the local and national level to achieve higher productivity and more inclusive growth.

Consult this publication on line at ***https://doi.org/10.1787/9ef55ff7-en***.

This work is published on the OECD iLibrary, which gathers all OECD books, periodicals and statistical databases.
Visit ***www.oecd-ilibrary.org*** for more information.

ISBN 978-92-64-88921-7

OECD*publishing*
www.oecd.org/publishing