

Measuring up

Comparing public transport in the UK and Europe's biggest cities

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Executive summary

“Transport is one of the supreme leveller uppers,” said the Prime Minister in his recent party conference speech. And few would disagree. A lack of public transport infrastructure is often identified by commentators and politicians as the main cause of regional inequality.

Centre for Cities’ work has shown that the biggest challenge for levelling up is to get Britain’s largest cities outside of London firing again. They trail far behind their Western European counterparts, and this underperformance costs the UK economy many billions of pounds each year. Again, the gulf in transport infrastructure is regularly cited as a key difference between the two groups, but there has been no systematic research to understand the impact of the difference.

This research, however, systematically compares the transport networks into the centre of the UK’s biggest cities outside London with their equivalent in Western Europe (these networks see the highest demand for public transport). It finds:

- **At peak times, compared with Europe, fewer people can get into the centre of Britain’s big cities**, indicating that they are much smaller than their populations suggest. Commuting by public transport to city centres from the suburbs is easier and faster in Europe – on average, 67 per cent of people can do it in 30 minutes, compared with 40 per cent in Britain. This reduces the benefits on offer to businesses that locate here.
- **The area covered by public transport networks in large British cities is not always smaller than those in big European cities.** In five of the nine largest cities outside London, the area within a 30-minute commute is similar in size to their European peers.

- **But in all of Britain's big cities, fewer people live close to the centre, so it's harder for public transport to accommodate large numbers of commuters.** European cities have a much more mid-rise built form and apartment living is more common, so a greater number of people reside close to public transport. British cities' reliance on terraced and semi-detached housing has had the opposite effect, reducing commuting by public transport and the efficiency of the networks.
- **This decrease in the 'effective size' of big cities is estimated to cost the UK economy £23.1 billion each year.** By reducing the size of the labour market for businesses, as well as workers' access to high-paying, high-productivity jobs and activity in city centres, poor public transport accessibility in big cities diminishes agglomeration effects and, by extension, productivity and economic performance. For instance, Rome and Manchester are the same size but Rome is 55 per cent more productive, partly because a much larger share of its workforce can travel into the city centre by public transport.

The nature of the urban form of cities is also likely to shape the transport options available. Greater densities increase demand for public transport, which makes tram or metro systems more viable. **Without efforts to change the built form of big cities, expanding their public transport systems will not deliver European-style transport benefits.** For example, Leeds and Marseille have a similar population, but 87 per cent of people can reach the centre of Marseille in 30 minutes by public transport, compared with 38 per cent in Leeds. If Leeds had a similar-sized network to Marseille, only 61 per cent of its population would be 30 minutes from the city centre – it cannot close the gap without changes to its built form.

Levelling up public transport, and enabling big cities to achieve their potential, depends on supply-side solutions that expand these transport networks. This makes the allocation of £5.7 billion in transport infrastructure spending to large city regions, and £1.2 billion additional funding to improve bus services in last month's Budget very welcome.

But to get the biggest bang for the buck, investment in transport infrastructure must be accompanied with more development around stations. This demand-side solution would make it easier to live near, and use, public transport by changing the built form of all big cities. Levelling up, as well as value for money and the environmental and social benefits that come with better public transport, can be achieved by national and local government focusing on the following alongside public transport improvements:

- **Local Development Orders (LDOs) to shift big cities' urban form from low-rise to mid-rise.** Local authorities in England can already use LDOs to plan mid-rise housing near existing and new public transport, and set the density and height as well as developer contributions. The Government should make new public transport infrastructure in big cities conditional on increased use of LDOs by local authorities.

- **Planning reforms to make redevelopment near public transport easier and more certain.** The current discretionary planning system makes redevelopment in existing urban areas impossible at scale, and public transport outcomes worse. Reforms, such as the 'Renewal areas' in the Planning White Paper, the 'street votes' proposal from the Yimby Alliance and Policy Exchange, and releasing land around train stations in the green belt, would all provide more homes while making the best use of existing public transport infrastructure.^{1 2}
- **Mayors should franchise their bus networks.** This would help cities take control of their bus networks and run them for the good of the wider urban economy. The Government should extend the window of time and the ability of places to sign up for bus franchising to help complete this shift.

01

Introduction

This autumn the Government will publish its Levelling Up White Paper, which will set out how it intends to deliver on a slogan that has been the bedrock of its domestic agenda.

Several policies have been brought under the levelling up banner, but the lack of strategy for delivery or a well-defined purpose has meant that policy, so far, has been down to ad hoc pots of money and symbolic prizes, such as freeports and relocated Whitehall departments. So far, these actions have not matched the ambition stated in the Government's recent Plan for Growth of having one internationally competitive city per region.

The Prime Minister has described transport as “one of the supreme leveller uppers.” Ensuring transport investment helps every place to reach its potential is necessary for achieving both levelling up and value for money.

This briefing examines whether intra-urban transport, particularly public transport, plays a role in the underperformance of British big cities and sets out the implications it has for the Government's levelling up agenda. First, it looks at how transport accessibility varies across large cities in the UK compared with their Western European peers. It then analyses the drivers behind such differences, estimates the costs of poor accessibility and looks at how policies can advance levelling up by improving connectivity in the UK's largest cities outside London.

Box 1: Methodology

Definition of a city

For the purpose of this paper, the Centre for Cities research focuses mainly on the UK's nine largest cities outside London. Unless otherwise stated, here cities refer to Primary Urban Areas (PUAs), using a measure of the built-up area of a large city or town, which sometimes spans beyond the core local authority.

For the 38 non-UK cities analysed (from nine countries), Eurostat's Urban Audit dataset has been used to provide the closest possible geography to PUAs. Urban Audit cities and 'greater cities' are defined based on population density rather than administrative borders, to avoid underbounding issues. The cities under analysis were grouped according to whether their population was below 750,000 (Bristol, Liverpool and Nottingham), between 750,000 and one million (Sheffield, Leeds and Newcastle) or above one million (Glasgow, Manchester, Birmingham), or whether they were mega cities (London). More information can be found in Appendix 1.

Data used for this research

This paper uses a number of public datasets. Population density is from GEOSTAT population grid for 2018 (Eurostat). Productivity levels for 2011 have been computed from Eurostat, INSEE ONS and ISTAT datasets. Currency and price adjustments were calculated by Centre for Cities.

TravelTime's data on transport connectivity is used for public and private transport (see Box 2 for further details). Although connectivity is a broad concept, this report will **solely focus on mobility to reach city centres**. This means that the quality of other transport connections (eg, suburb to suburb) has not been considered.

02

How the transport systems of big British cities measure up to their European counterparts

Transport within cities matters to the national economy because urban mobility determines not just the speed of commuting, but also the number of workers who can access high-demand locations, especially city centres. Larger concentrations of people in urban areas should unlock economies of scale known as ‘agglomeration effects’ that better match workers to firms and achieve greater levels of specialisation and productivity.

Big British cities are less productive than their Western European peers

Big cities in the UK have lower productivity than their population would suggest, as Figure 1 illustrates. While large German and French cities are more productive, only in London is there a strong relationship between the size of a UK city and its productivity levels.³

Figure 1: Unlike a number of other Western European countries, productivity does not increase with city size in the UK

Productivity and city size



Note: The Western European countries used are Belgium, Denmark, France, Germany, Netherlands and Sweden.

If the UK's largest cities underperform in terms of transport connectivity, their 'effective size' (see Box 2) will be smaller than their total population would suggest. Also, because those cities cannot connect as many people, it reduces the benefits they offer as a place for business investment, impacting their economic performance.

Box 2: Transport connectivity, criteria, methodology and terminology

Criteria

This briefing compares transport connectivity – either by public or private transport – by looking at the area (both network area and population covered) that can reach the city centre (defined by a single point), within a certain time threshold. The thresholds used are 30 and 45 minutes.

If not stated otherwise, the 30-minute criteria is used.

Methodology

For public transport, various data sources are used to determine which areas can be reached within those times by aggregating real-life public transport timetables.

For private transport, driving speeds have been built in using a combination of open data sources and TravelTime's own proprietary algorithms to imitate how people travel. Data for private vehicles also considers a congestion factor, which is the same for all cities that are analysed.

The arrival time is set for 09:00 on Monday 26 July 2021. Some parameters have been altered, including increasing the cycling and walking time to the station.

Terminology

For this report, transport connectivity is compared and classified using the following terminology:

- **Transport accessibility:** The share of people, relative to the total number of residents, who can reach the city centre under a specific set of criteria (time threshold and mode of transport). This variable can be seen as a measure of how good transport connectivity is, as a result of both infrastructure (network size) and the urban form of a city (density).

A number above 100 per cent means that residents from outside the city can reach the selected city centre, for example people from other cities in the Ruhr being able to get to the centre of Dortmund and Duisburg. However, it does not necessarily mean that all of the city's residents can reach the city centre under the selected criteria.

Transport accessibility is a function of:

- **Network size:** Total area covered (square km) by a mode of transport, under a defined time threshold. The size of a network, especially for public transport modes, will be seen as a proxy for both the quality and the supply of public transport infrastructure.

- **Residential density:** The number of residents per square metre of the defined area who can reach the city centre by a certain transport mode within the time threshold.

How it links to agglomeration benefits and productivity:

- **Effective size:** Overall population that can reach the city centre by a certain transport mode within the time threshold. The higher the effective size, the larger the expected agglomeration benefits.

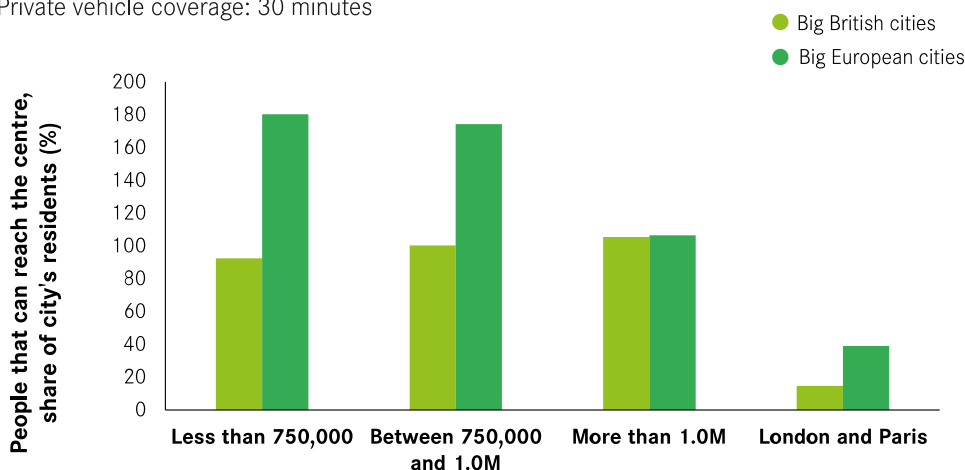
The indicators defined above do not cover the quality of the service, frequency, pricing and other factors such as intra-centre or inter-city connectivity.

Public transport accessibility in British cities is worse than in European cities

In principle, almost everyone living in a large British city could drive to the centre within 30 minutes (see Figure 2).⁴ While some Western European cities are also very accessible to residents living further out, especially those in the Rhine-Ruhr, road transport doesn't appear to be a particularly limiting factor in the productivity performance of big British cities.⁵

Figure 2: British city centres can be reached by almost all the city's residents in a 30-minute drive

Private vehicle coverage: 30 minutes

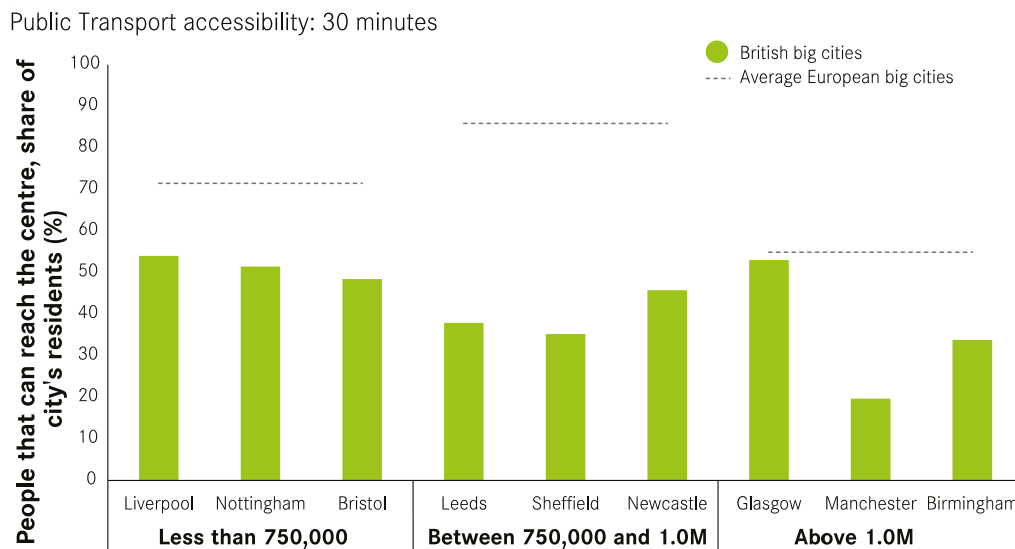


Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations. Accessibility above 100 per cent does not necessarily mean that all residents are included as the transport network may accommodate residents from different towns and cities.

But serving a city centre by private transport alone is impractical – there isn’t enough road space, which limits the number of jobs that can be created there.⁶ Given the preference for high-skilled service businesses to be located in city centres, the performance of the public transport network is crucial to the economic performance of the city.⁷

Yet fewer people in big British cities can get into the centre within 30 minutes by public transport than their European counterparts (see Figure 3) – on average, it’s 40 per cent versus 67 per cent. This is also true when looking at a 45-minute threshold (see Appendix 2).⁸ As Figure 3 shows, this is the case for every large British city except Glasgow.

Figure 3: All large British cities, except Glasgow, have worse public transport accessibility than their European peers



Source: TravelTime; ONS; Eurostat; Centre for Cities’ calculations. Accessibility above 100 per cent does not necessarily mean that all residents are included as transport network may accommodate residents from different towns and cities.

This means that the labour markets of big British cities outside London are not as large as their populations would suggest. They have a smaller effective size as measured by the number of people who can reach the city centre by public transport compared with similar European cities.⁹ In reality, they don’t offer the business benefits they would be expected to.

Box 3: Transport performance as cities get larger

As cities get larger and physical distances increase, the share of workers who can reach the centre in 30 minutes does drop, as London and Paris show. This doesn't mean, however, that these two cities have underperforming public transport networks. The large populations of economically successful megacities mean labour markets require bigger public transport networks, so many commutes are longer than 30 minutes.

There are two reasons why this may be the case. The first is a supply-side problem; British cities may have less public transport infrastructure than their European counterparts, resulting in a smaller network that is harder for residents to reach. This is what the debate on regional inequalities tends to focus on.

The second reason is a demand-side issue that is given much less air time – the built-form of British cities. As they are of a lower density than European cities, it is harder to scale public transport services and people are forced to live further away from existing infrastructure.

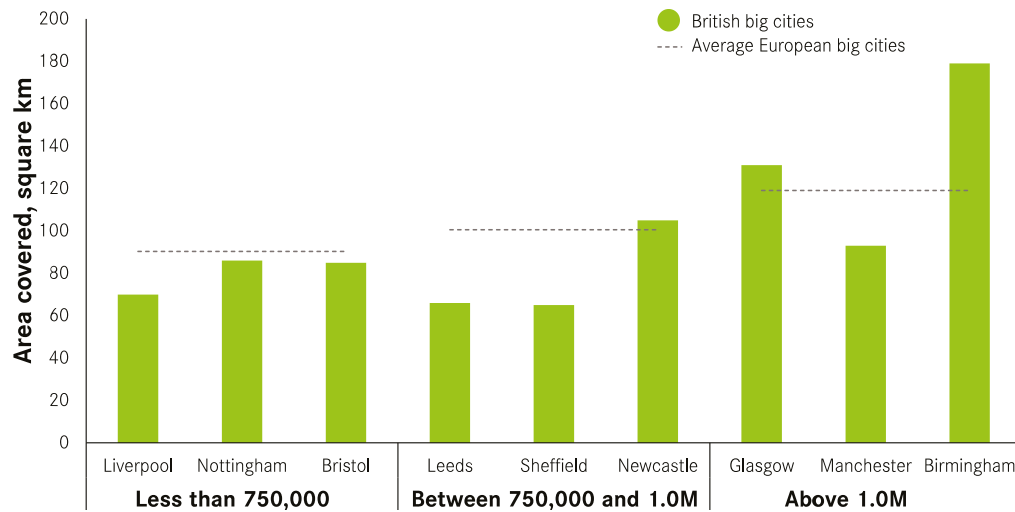
The following two sections look at the evidence available on each potential factor.

The area that public transport covers in big British cities is not universally worse than in European cities

Networks in large British cities do not necessarily cover less ground in 30 minutes than those on the continent. As Figure 4 shows, five of the nine big cities outside London have public transport systems of a similar size to their European peers. In fact, Birmingham, Glasgow, and Newcastle have networks that cover a larger physical area from which residents can still access the city centre in 30 minutes (Figure 5 compares the coverage in Birmingham and Lyon).¹⁰ In contrast, public transport systems in Leeds, Manchester and Sheffield allow a much smaller area to access their city centres in 30 minutes, despite the Metrolink and Supertram in the latter two.

Figure 4: The size of the public transport network is not a problem in all British large cities

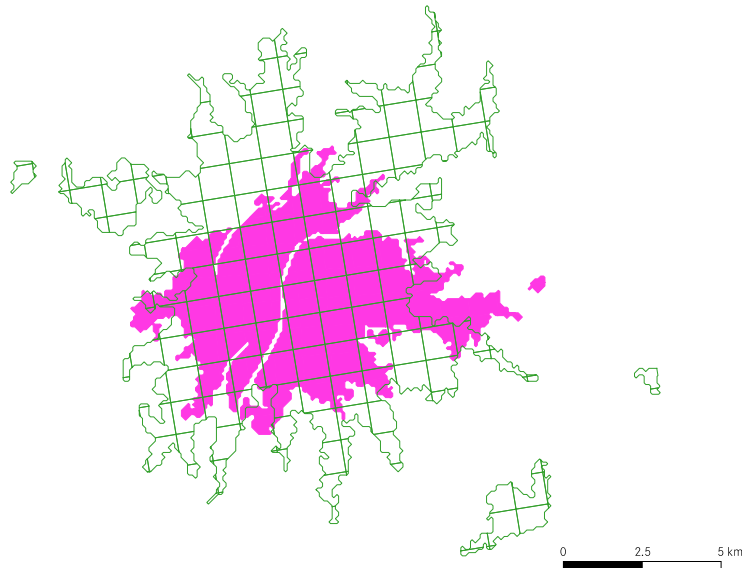
Public Transport network size: 30 minutes



Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

Figure 5: Birmingham's public transport network (green lines) is larger than Lyon's (pink), when measured by coverage area, but the two areas cover a similar number of residents

Area within 30 minutes of city centre by public transport (square km)



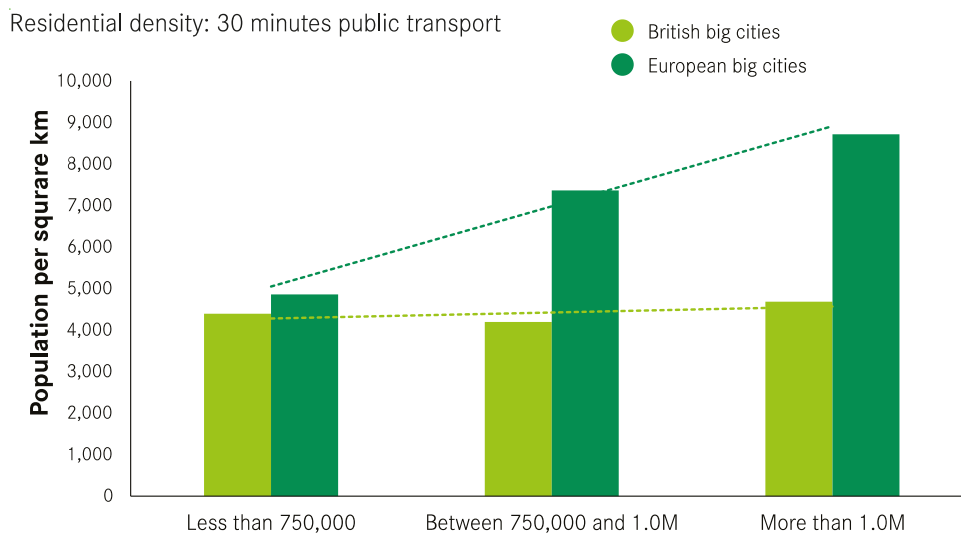
Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

British cities have poor public transport accessibility because they are not as dense as European cities

In large British cities, fewer people live in neighbourhoods that can easily access the city centre by public transport than in their Western European counterparts.¹¹

Figure 6 shows that as European cities get larger, the areas that fall within 30 minutes of the city centre by public transport become denser. This is not the case for UK's largest cities, with the exception of London, which is still less dense than Paris.

Figure 6: Britain's biggest cities outside the capital have the biggest density mismatch with their European peers

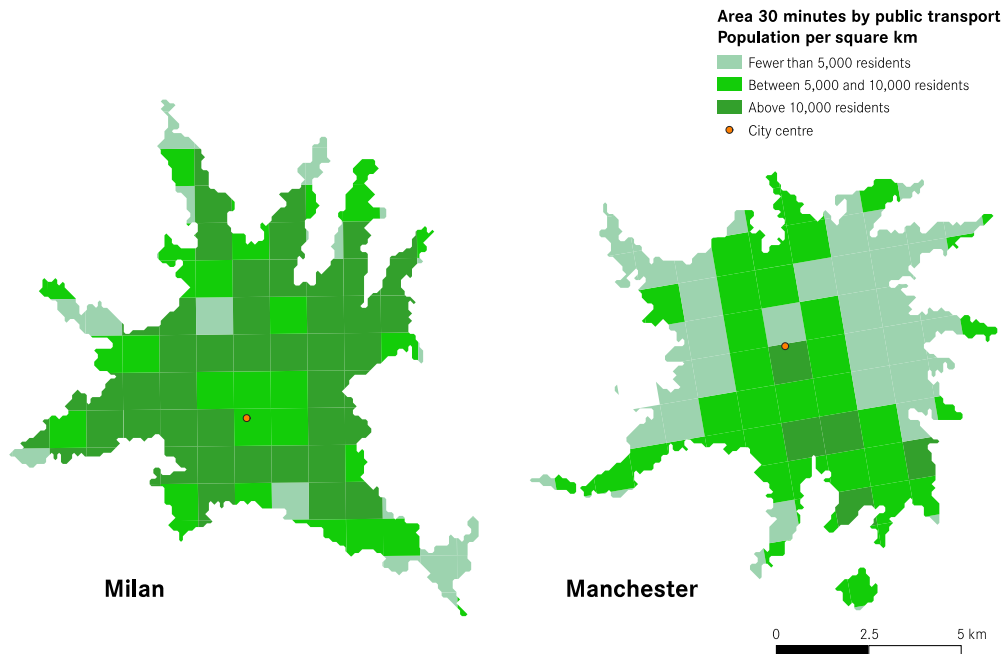


Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

As a city becomes bigger, connectivity and congestion issues are likely to increase. In response to this, densifying larger cities allows people to share land more efficiently, which in turn supports demand for public transport in terms of capacity, frequency, and infrastructure, especially to city centre locations.¹² But the UK's biggest cities have fewer people living in well-connected areas closer to the city centre, reducing potential demand for public transport. Cities like Birmingham should be substantially denser than Liverpool, just like Lyon is denser than Toulouse or Nantes.

Spatially, the impact of British cities' built form can be seen in Figure 7. Despite the public transport networks of Manchester and Milan covering a similar area within 30 minutes, far more people can access Milan's city centre in that time.

Figure 7: Milan's 30-minute area has more people living in it than Manchester's 30-minute area, despite being a similar size



Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

In practical terms, mid-rise apartment living is much more common in European cities than Britain's predominantly low-rise, terraced and semi-detached urban form (see Figure 8). Transport systems need users, but the built form of Britain's big cities prevents people from living near stations where they can easily access these networks.

Figure 8: Urban form of both Milan and Manchester, approximately 15 minutes from the city centre by public transport



Source: Google Maps, 2021. Milan (Zona Risorgimento) and Manchester (Beswick).

This is not necessarily down to different preferences in Britain, it is also an unintended result of the discretionary planning system. Its case-by-case decision-making process concentrates new homes at high densities in certain pockets on the outskirts, or in centres, of cities and prevents new development in suburban neighbourhoods, including around stations.¹³ In approximately 50 per cent of suburban neighbourhoods in England and Wales, fewer than one home was constructed every year between 2011 and 2020, and in 20 per cent none were built.¹⁴

In addition, the English phenomenon of train stations in the green belt also reduces public transport accessibility. Stations such as Whitlocks End in Birmingham have rapid city centre connections, but there are few houses within accessible walking distance. At Pilning station in Bristol, which is on the Bristol-Cardiff rail line, a lack of residents means it cannot reach its full potential (see Figure 9). By only allowing a few people to live within walking distance of climate-friendly commuting to city centres from green belt stations, English big cities make poor use of the public transport infrastructure they already have, even though they could provide more than two million homes at suburban densities.¹⁵

Figure 9: Whitlocks End (left) and Pilning (right) stations sit among fields despite being within commutable distance of Birmingham and Bristol respectively



Source: Google Maps, 2021.

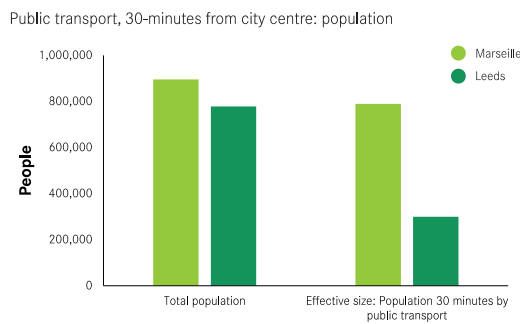
Public policy should invest in public transport infrastructure. But the UK's big cities cannot reach European levels of public transport accessibility by just expanding their public transport systems, as described in the case study below. They need to change their built form too.

Case study 1: A Leeds metro will not close the public transport gap

Leeds has a relatively small public transport network when compared with its European peers (see Figure 10), plus low levels of public transport accessibility and effective size. Marseille is a similarly sized city in terms of population, and has a metro.

Although Leeds and Marseille have comparable populations, Figure 10 shows the French city has around 776,000 residents who can access the city centre by public transport in 30 minutes or less, while 299,000 people can reach Leeds city centre under the same criteria.

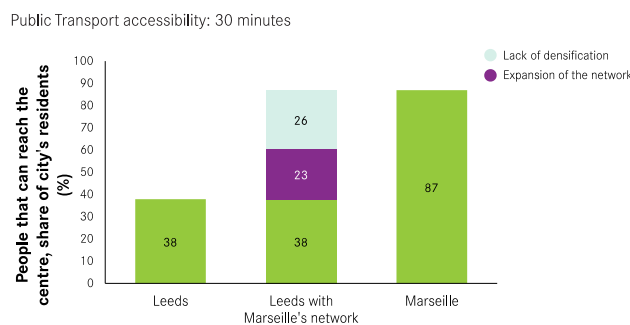
Figure 10: Unlike Marseille, the labour market in Leeds is much smaller than its total population



Source: TravelTime; ONS; Eurostat; Centre for Cities’ calculations.

However, the observed gap in effective size would not close if Leeds simply had a public transport network the same size as Marseille’s, as Figure 11 demonstrates. Currently, 87 per cent of people living in the French city can reach the centre by public transport in 30 minutes, but this is the case for only 38 per cent in Leeds.

Figure 11: The gap between Leeds and Marseille will not be fully closed just by increasing the size of the public transport network



Source: TravelTime; ONS; Eurostat; Centre for Cities’ calculations

If Leeds had a similar-sized public transport network to Marseille's, it would almost double the area within reach of the city centre in 30 minutes, from 66 to 112 square kilometres. The share of people who could access it in that time would rise by 23 percentage points to 61 per cent of the population. However, 26 per cent of the population would still be living in inaccessible neighbourhoods because of the low-rise urban form that forces people in Leeds to reside further away from public transport stops.

Figure 12: The urban form next to public transport is significantly different in Marseille and Leeds



Source: Google Maps, 2021. Marseille (next to La Blancard train station) and Leeds (next to Burley Park train station). Both areas are approximately five minutes away from the main station.

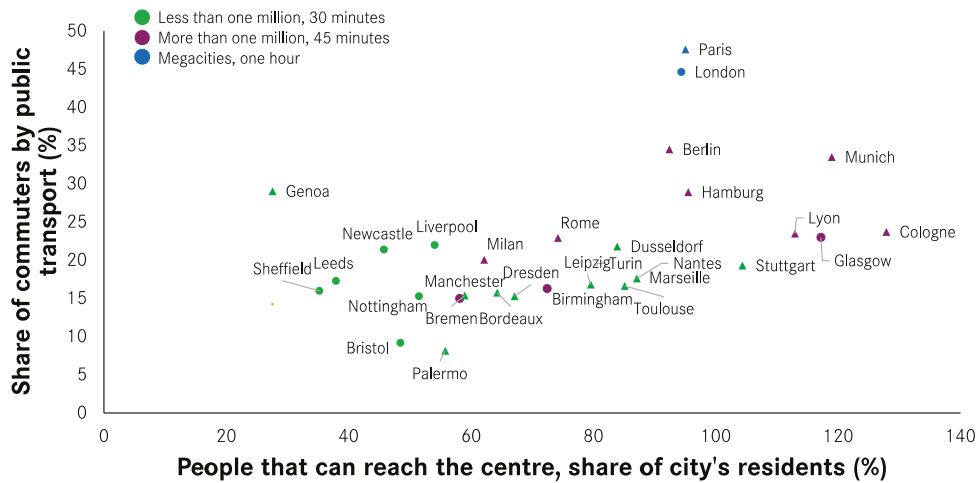
In other words, even if Leeds could build a metro system as good as Marseille's, the city centre would still be far less accessible by public transport because a lack of mid-rise housing would prevent people from living within walking distance of new and existing stations.

Lower accessibility inhibits public transport use

Poor accessibility can affect how frequently public transport networks in big British cities are used. As Figure 13 illustrates, British cities (circles) tend to be less accessible and accommodate less commuting by public transport than European cities (triangles). While factors such as ticket price will undoubtedly impact ridership, improving accessibility is the way to increase it.

Figure 13: British cities have rates of public transport commuting similar to other cities with comparable accessibility

Public transport usage and accessibility



Source: TravelTime; ONS; Census 2011; Eurostat; Centre for Cities' calculations. Data for German cities from 2012 and 2011 for the remaining cities. The different time thresholds across cities, depending on their size, were selected considering the closest threshold in which cities can reach around their population size. As Figure 3 shows, larger cities are not able to capture all of their population within a 30-minute commute due to physical distances and have had their thresholds adjusted in Figure 13 to show the relationship between commuting and accessibility. Colour code by city size; symbol by geography (UK and non-UK).

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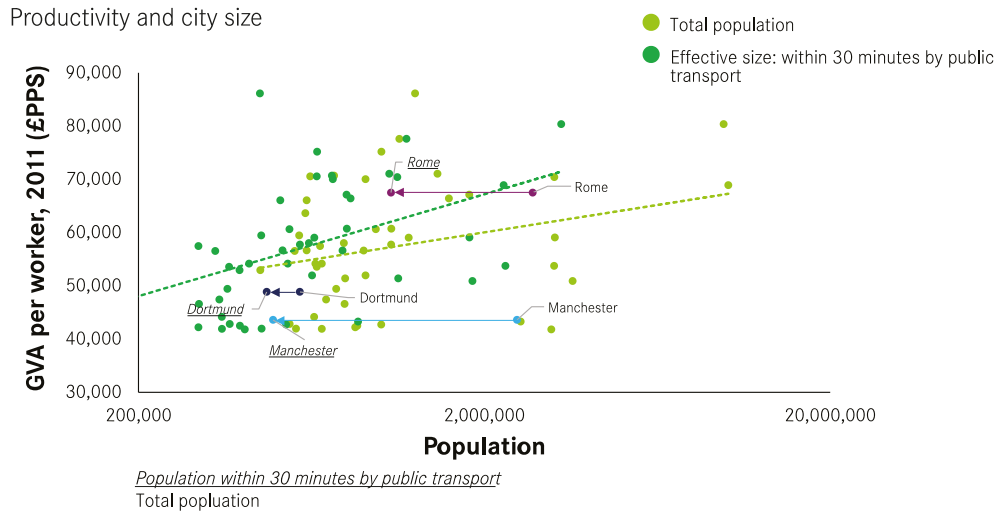
What public transport tells us about levelling up

Increasing public transport accessibility and, therefore, commuting is important for several reasons, and has both environmental and social benefits. But in the context of levelling up, improving the economic performance of big cities outside London should be the priority for public transport policy as their unfulfilled potential damages the national economy and widens regional inequality.

Returning to Figure 1, which indicates that big cities in Britain underperform given their population, and adapting it to include their effective size (determined by the number of people who can potentially reach the city centre in 30 minutes), helps to explain this underperformance. It also shows that the effective size of big cities is much smaller than their actual size.

Figure 14 indicates that the relationship between productivity and effective size (in dark green) is stronger than the link with population (light green) when looking at British and European cities. This is primarily driven by the marked difference, in Britain, between population size and effective size due to poor public transport accessibility.

Figure 14: Manchester's poor public transport accessibility reduces the size of its labour market, and helps explain its economic underperformance



Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

For example, Manchester's population is similar to Rome's, but the Italian capital is 55 per cent more productive. This is partly due to its larger effective size, as many more commuters can travel by public transport into the city centre. Manchester's effective size is closer to that of Dortmund, which has a far smaller population and narrower productivity gap of 12 per cent.

Improving public transport networks in big cities will help to close their productivity gaps

A simple estimate shows that raising the effective size of big cities to European levels would increase agglomeration benefits to the tune of £23.1 billion each year.¹⁶ Table 1 indicates, by looking at the distance between big British cities and the light green trendline in Figure 14, that poor public transport accessibility – caused by a low-rise built form in every city and small networks in some – is limiting the effective size of large cities and damaging their economies. This simple estimate is shown visually in Appendix 3.

Table 1: Mobility helps explain the productivity gap in some cities

PUA	Productivity gap, due to weak public transport accessibility (£ million)
Manchester	£8,860
Birmingham	£3,628
Leeds	£2,754
Sheffield	£2,304
Bristol	£1,787
Newcastle	£1,684
Nottingham	£1,049
Liverpool	£936
Glasgow	£137
Combined effect	£23,138

Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations. Estimates based on PUA boundaries, which may be affecting the analysis by including some towns that are unlikely to be connected by new public transport. Total figures may not add due to rounding.

It is important to note, however, that while achieving deeper agglomeration effects in large cities outside London is essential for levelling up, public transport accessibility alone is not enough to explain the gap because cities face other barriers too, such as inadequate skills.^{17 18}

Together, Manchester, Birmingham and Leeds account for around two thirds of the estimated gap that arises in big cities from poor public transport accessibility.

Manchester alone accounts for 38 per cent and it is here that it appears to have the greatest impact on productivity. A simple estimate suggests that boosting the city's effective size from around 490,000 to 1.3 million people could improve productivity by 15 per cent. In contrast, the problem in Glasgow is far less immediate. Policy should look to improve public transport further to increase the pool of workers available to businesses in Manchester, but developing skills is a much higher priority challenge.

Big cities need to enable more people to live in areas with good public transport connections to improve accessibility and encourage use. This, however, depends on increasing the density of their urban form – a London-style transport system requires London-style density. While this may put pressure on infrastructure in the short term, in the long run it would increase demand permanently. More guaranteed passengers would lock in more frequent, cheaper and better public transport, and improve the business case for further investment.

04

What needs to change to level up public transport

When addressing the transport challenges of levelling up, central and local governments need to improve public transport accessibility in big cities. It will require supply-side solutions to enhance and increase the amount of infrastructure and track in some cities, and demand-side approaches to ensure more users by changing the built form of all British big cities.

To improve connectivity, there are several priorities for central and local governments:

1. Expand public transport networks in big cities with congestion issues

A lack of public transport infrastructure is a problem for the economies of some big cities.¹⁹ Addressing this will not achieve levelling up by itself, but it will be part of the solution in areas where capacity is a bottleneck to city centre commuting.

- **The Government should invest in new transport infrastructure to help suburban commuters reach big city centres.** The existing Transforming Cities Fund and the City Region Sustainable Transport Settlements are very welcome first steps to address these issues, but there is still some way to go to reach the £31 billion of additional investment identified by the National Infrastructure Commission.²⁰ Additional funding should be available to these cities providing they meet the following conditions:
 - Cities should contribute a share of the costs locally so that risks are split between local and national government.
 - This local contribution includes revenues from a city centre congestion charge. If cities are serious about improving their transport networks, they need to make politically tough decisions locally to take ownership of the costs and rewards of public investment. Congestion charging supports public transport by providing funds to expand coverage, while discouraging driving.

- **Mayors should franchise their bus networks.**²¹ Buses are an important mode of transport in UK big cities, partly due to the lack of alternative public transport infrastructure in many places. London has long benefited from local control of buses, and Greater Manchester will franchise its services from 2023. Other areas should pursue franchising too, and should be given longer to develop their franchising plans than the Bus Strategy currently allows.²²

2. Make the most of existing local transport networks by shifting big cities from a low-rise to mid-rise built form

Any investment in new public transport must be accompanied by changes to the built environment of big cities to improve accessibility. UK cities are dominated by low-rise terraced and semi-detached housing. Moving towards a European model – which does not necessarily require high-density, high-rise housing – would have two direct benefits for public transport and levelling up.

Firstly, by allowing more people to live in areas with good transport networks, it would automatically increase the accessibility of existing systems without further investment, as well as the size, and effective size, of the city centre labour market.

However, such changes are almost impossible to pursue in the UK at scale, outside of pockets of very high density around transport link within cities, such as Wembley and Manchester city centre. As the discretionary planning system's case-by-case approach makes redevelopment of existing urban areas risky, the supply of new housing is reduced. It is also concentrated in areas with the lowest political costs to local authorities, rather than those most suitable from an urban planning perspective.²³

In contrast, European cities with rules-based zoning systems, such as those in France and Germany, are successfully pursuing densification along transport corridors with much greater ease because the systems are more predictable. For example, Lille, which is about the size of Newcastle, has special planning measures that set minimum density levels in areas next to existing tram stations (500-metre circles). Meanwhile, Bordeaux launched the '50,000 housing' project in 2010 to develop homes along existing transport links.²⁴ This shows that historical legacies in the built-form of British and European cities are not the only reason for variations in their accessibility levels – European cities have institutions that make it easier to build a mid-rise urban form today.

Secondly, the built form of a city also influences the quality of the public transport network – a more mid-rise city can better support more extensive and frequent services. Without further changes to their built form, British cities will need significantly larger and more expensive networks than their European peers to achieve similar transport outcomes.

Changing this depends on moving from the current planning system's discretionary design to a more rules-based approach.

- **Local government in England should use Local Development Orders (LDOs) to allow redevelopment of land near existing public transport.**²⁵ LDOs are a form of planning consent that differs from the usual process, as they are much more rules-based. Local authorities can attach conditions to LDOs to set height limits, density and developer contributions, among other things, and once applied to land, they significantly reduce risk for builders. By applying LDOs to brownfield and residential sites with good access to public transport, especially those near stations, local authorities would, over time, shift land from a low-rise to a mid-rise built form. This would improve public transport accessibility by making it easier for people to live nearby. Using LDOs to increase the total housing supply will become especially important with the new ‘urban uplift’ to the Standard Method for calculating housing need, which gives 20 urban local authorities, plus London, a 33 per cent increase in their housing targets. Many of these local authorities are currently under-bounded and will struggle to meet this new level without changes to their planning practices and the built form of their cities. The rules-based nature of LDOs can support cities by speeding up the construction process and helping to open up small sites for smaller developers.²⁶
- **Central government should make public transport investments conditional on the use of LDOs by local authorities.** Despite their benefits, LDOs are rarely used by local authorities. If central government does decide to invest in expanding public transport networks in big cities, it should aim to increase their use by tying transport capital funding for local authorities to their use. They should be applied to land near both new and existing stations, and be generous enough in their conditions to allow for redevelopment that improves accessibility across entire urban public transport networks.
- **Local authorities in England should release parts of the green belt next to stations for ‘button development’.** Large parts of England’s railway infrastructure provide services to small settlements that cannot grow because of the green belt. If this land were made available for development by being allocated in local plans, Centre for Cities has calculated that between 795,000 and 994,000 homes could be built at suburban densities in walkable ‘buttons’ around stations, on lines leading into the centres of England’s four largest cities outside London.²⁷ Not only would this provide many more new homes and help tackle the housing shortage, it would increase public transport accessibility into big cities by using existing infrastructure more efficiently and enabling more climate-friendly commuting.
- **The Government should press ahead with planning reform in England.** Both the housing crisis and the lack of mid-rise homes in the UK emerge from the same systemic problem – the discretionary and case-by-case decision-making that forms part of the current planning process.²⁸ Previous research from Centre for Cities has shown that the system does not promote redevelopment of existing urban land; large parts of suburban England and Wales are providing almost no new homes.²⁹ The Renewal areas mentioned in the Planning White Paper, as well

as the street votes proposal championed by the Yimby Alliance and Policy Exchange, would improve this greatly, and should be included in the forthcoming Planning Bill.^{30 31}

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Appendix

Appendix 1: Cities in the analysis grouped by size

The tables below show the cities in each size category used for this report, and their average population.

Table 2: Cities under analysis by population

Groups	British cities (avg. population)	European Cities (avg. population)
Less than 750,000	Bristol, Liverpool and Nottingham	Stuttgart, Frankfurt am Main, Dortmund, Toulouse, Leipzig, Düsseldorf, Essen, Bremen, Nantes, Bordeaux, Dresden, Nice, Zaragoza, Palermo, Seville and Genoa
Between 750,000 and one million	Sheffield, Leeds and Newcastle	Lille, Marseille, Valencia, Rotterdam, Bilbao and Turin
Above one million	Glasgow, Manchester and Birmingham	Berlin, Brussels, Stockholm, Munich, Copenhagen, Barcelona, Hamburg, Milan, Rome, Lyon, Dublin, Amsterdam, Madrid, Cologne and Napoli
Mega cities (nine million-plus)	London	Paris

Source: ONS; Eurostat.

Table 3: Based on average population levels, the defined groups are comparable

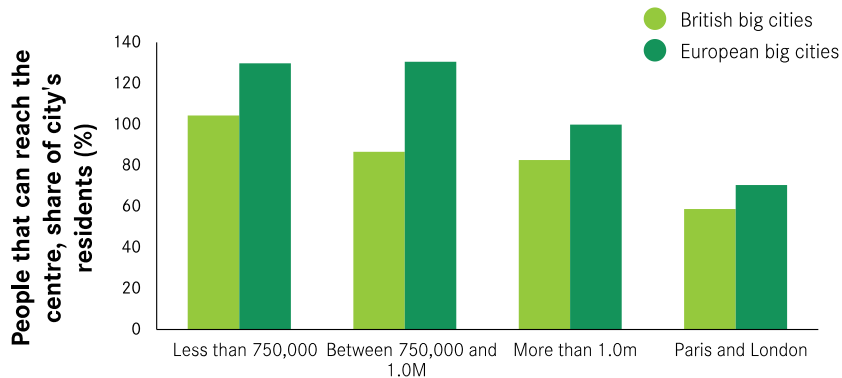
Groups	Less than 750,000	Between 750,000 and one million	More than one million	London and Paris
UK	689,350	831,775	2,014,618	10,151,260
European cities	615,891	876,374	2,045,383	9,845,879

Source: ONS; Eurostat.

Appendix 2: Cities' specific features – accessibility, effective size and productivity

Figure 15: Unlike in Western European cities, the entire population of most British cities are not within a 45-minute public transport range

Public Transport coverage: 45 minutes



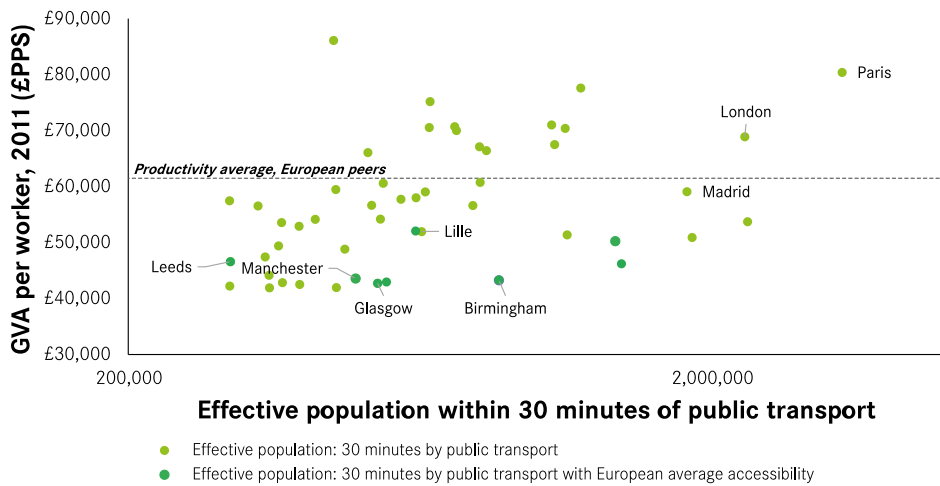
Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations. Accessibility above 100 per cent does not necessarily mean that all residents are included as the transport network may accommodate people from different towns and cities.

Appendix 3: Visual demonstration of the estimated impact on public transport accessibility

The Figure below is a visual representation of what the simple modelling in this would mean for the correlation between cities' size and productivity. The intention is not to provide a prediction – in reality, increasing the effective size may lead to greater improvements in productivity, placing cities nearer to the regression line.

Figure 16: Improving transport accessibility increases the effective size of Britain's big cities, moving them along the trendline, but does not entirely close the gap with big European cities

Productivity and city size



Source: TravelTime; ONS; Eurostat; Centre for Cities' calculations.

Endnotes

- 1 Hughes S and Southwood B (2021), Strong Suburbs, Policy Exchange: London; Myers J, (2020), Fixing Urban Planning with Ostrom: Strategies for Existing Cities to Adopt Polycentric, Bottom-Up Regulation of Land Use, Mercatus Centre: Arlington VA
- 2 Ministry Housing Communities and Local Government (2020), Planning for the Future: London
- 3 Centre for Cities' blog, Is London too successful?, www.centreforcities.org/blog/is-london-too-successful/
- 4 In 2019, according to Eurostat, 60 per cent of the UK's workers commuted for 30 minutes or less, and 80 per cent commuted for less than 45 minutes. The average commuting time in the UK was around 30 minutes, while the European Union average was 25 minutes.
- 5 Some other European big cities do have higher rates of private transport accessibility, primarily due to them being located near each other, such as in the Ruhr. Additionally, despite the good performance of UK cities in terms of private vehicle infrastructure, car ownership is not as high as it is for their European peers – in 2018, the number of passenger cars per capita was 17 per cent lower than German levels, 1 per cent lower than France and 27 per cent lower than Italy.
- 6 Bertaud A (2018), Order Without Design: How Markets Shape Cities, Cambridge, Massachusetts: MIT Press
- 7 Swinney P and Serwicka I (2016), Trading Places: Why firms locate where they do, London: Centre for Cities
- 8 In Liverpool, Leeds and Glasgow, more than 100 per cent of the population are within a 45-minute commute.
- 9 Rice P, Venables AJ and Patacchini E (2006), Spatial Determinants of Productivity: Analysis for the Regions of Great Britain, *Regional Science and Urban Economics* 36 (6), 727-752. A study on the largest US cities suggests that agglomeration has an effect over a 60-minute drive time, with most of the gains concentrated in the first 20 minutes. See Melo P, Graham D, Levinson D and Aarabi S (2015), Agglomeration, accessibility and productivity: Evidence for large metropolitan areas in the US, *Urban Studies*.
- 10 Cities with large areas covered by public transport may suffer from public transport congestion, which may require infrastructure investment. Jeffrey S and Enenkel (2020), Getting moving: Where can transport investment level up growth?, London: Centre for Cities
- 11 Almost all cities analysed have density below their European peers. Liverpool's present density is marginally above its comparative group (European cities with fewer than 750,000 people).

- 12 Bertaud, A (2018), Order Without Design: How Markets Shape Cities, Cambridge, Massachusetts: MIT Press (page 143)
- 13 Breach A (2020), Planning for the Future: How flexible zoning will end the housing crisis, London: Centre for Cities
- 14 Breach A, Magrini E (2020), Sleepy suburbs: The role of the suburbs in solving the housing crisis, London: Centre for Cities
- 15 Cheshire P, Buyuklieva B (2019), Homes on the right tracks: Greening the Green Belt to solve the housing crisis, London: Centre for Cities
- 16 Estimated output gap of £18.7 billion in 2011, which is approximately £23.1.2 billion in 2020 based on the implied GVA deflator between 2011 and 2020 (23.3 per cent).
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- 18 A similar and recent US result can be found in Card, D and Rothstein, J and Yi, M (2021) Location, Location, Location, Washington DC, Centre for Economic Studies.
- 19 Jeffrey S and Enenkel K (2020), Getting Moving, London: Centre for Cities
- 20 Jeffrey S and Enenkel K (2020), Getting Moving, London: Centre for Cities. £5.7 billion for the following mayoral combined authorities: West Midlands; Greater Manchester; Liverpool City Region;; Tees Valley; West Yorkshire; Sheffield City Region; and the West of England around Bristol and Bath.
- 21 Jeffrey S (2019), Delivering change: Improving urban bus services, London: Centre for Cities
- 22 Harvey D (2021), Get on board: Why Mayors should choose bus franchising, London: Centre for Cities
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- 24 JLL with support from Mott MacDonald (2021), City Region Connectivity: The role of transport infrastructure in driving regeneration and levelling up (2021), commissioned by London Property Alliance and Sheffield Property Association
- 25 See 'Local Development Orders Case study research and analysis (2019): Local Government Association: London' at www.local.gov.uk/sites/default/files/documents/2018%20Case%20Study%20Research%20on%20Local%20Development%20Orders.pdf
- 26 Breach A (2021), A new planning algorithm requires a new planning system; Breach A (2020), No, landbanking does not cause the housing crisis – here's why, Centre for Cities blog

- 27 Estimates for Birmingham, Bristol, Manchester and Newcastle. See Cheshire, P and Buyuklieva B (2019), Homes on the right tracks, London: Centre for Cities
- 28 See 'First Report – The future of the planning system in England' at <https://committees.parliament.uk/work/634/the-future-of-the-planning-system-in-england/publications/reports-responses/>
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