A tale of two cities (part 2)

A plausible strategy for productivity growth in Greater Manchester and beyond

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September 2023

Acknowledgements

The Economy 2030 Inquiry

The Economy 2030 Inquiry is a collaboration between the Resolution Foundation and the Centre for Economic Performance at the London School of Economics, funded by the Nuffield Foundation. The Inquiry's subject matter is the nature, scale, and context for the economic change facing the UK during the 2020s. Its goal is not just to describe the change that Covid-19, Brexit, the Net Zero transition and technology will bring, but to help the country and its policy makers better understand and navigate it against a backdrop of low productivity and high inequality. To achieve these aims the Inquiry is leading a two-year national conversation on the future of the UK economy, bridging rigorous research, public involvement and concrete proposals. The work of the Inquiry will be brought together in a final report in 2023 that will set out a renewed economic strategy for the UK to enable the country to successfully navigate the decade ahead, with proposals to drive strong, sustainable and equitable growth, and significant improvements to people's living standards and well-being.

The Nuffield Foundation

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The cities project within the Economy 2030 Inquiry has been run in partnership with Centre for Cities, a think tank dedicated to improving the economies of the UK's largest cities and towns. Visit www.centreforcities.org.

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Executive summary

Few would disagree that the UK has a significant productivity problem, or fail to recognise that the poor performance of the nation's largest cities outside the capital contribute to that situation. As the Economy 2030 Inquiry has made clear, the productivity of our largest cities lags the UK average, bucking the global trend for bigger urban areas to be more productive. The country as a whole is poorer as a result.

At the heart of this problem are the UK's 'twin second cities': Greater Manchester and Birmingham. Their weak economic performance has long roots in the rapid deindustrialisation of the second half of the 20th century, but the fact that this persists today reflects more recent problems. Their sheer size (a combined population of 5.6 million) and central role in their regional economies (there is no route to a thriving North West that does not run through a more productive Manchester) mean they must be centre stage in attempts to boost aggregate growth, close regional productivity gaps and drive up local living standards too.

But understanding the case for change is not the same as setting out a plausible path for growth. This report on Greater Manchester (hereafter, GM), and a twin paper on the Birmingham urban area, provide grounded answers to the difficult question of what would it actually take to achieve a higher-productivity future for these two great, but very different, cities? Rooted in local realities and sharpened through conversations with local policy makers and

residents alike, we set out what a higher-productivity future would really entail for GM, a city with a crucial role to play in a more prosperous Britain.

Greater Manchester has made real progress in recent years, but the job is far from done

No one could dispute that GM has radically changed over the past two decades: think of the regeneration of Salford Quays, the introduction of the Metrolink which today runs from the airport to Rochdale, and the huge expansion of its world-class universities. GM has been one of the UK's fastest-growing cities over the past 20 years: from 2002-2019, the size of GM's economy (in terms of aggregate GVA) grew by 2.0 per cent per year, well ahead of other large cities such as Liverpool (0.8 per cent), Birmingham (1.1 per cent) and Bristol (1.5 per cent).

But it would be wrong to look at this progress and think 'job done'. GM may have grown faster than many other large cities in recent years, but it has barely kept pace with productivity growth across the UK as a whole. Put simply, GM has stopped falling behind, rather than surging ahead. How can it be 'job done' when, in 2019, average gross value added (GVA) per worker in GM stood at £50,505, way below the UK average of £58,871?

Moreover, GM remains 35 per cent less productive than London, a demonstrably larger gap than between France's second city, Lyon, and Paris, which is stands at just 20 per cent. If productivity in both the Manchester metro area and London continues to grow at its 2004-2019 pace (roughly 0.8 per cent and 0.6 per cent each year respectively), it would take nearly a century (90 years) to close the productivity gap to that observed between Lyon and Paris. Determination to accelerate the city's revival is what is needed, rather complacency about what has been achieved to date.

It is crucial to ignore wishful thinking or distractions to understand the likely path to a higher-productivity city region

Large cities are usually hives of economic activity that underpin national as well as local prosperity. As the UK's second most populous city region after London, GM clearly has the potential

to be far more productive than it is today. This would be game-changing for the country, as well as the region. Closing the productivity gap between the Manchester metro area and London to that observed between Lyon and Paris would increase total GVA by £13 billion a year (in 2019 prices), a 0.7 per cent boost to national productivity. This is a sizeable increase and would narrow the UK's GVA per worker gap to Germany by 14 per cent, and to Australia by 22 per cent.

But shifting to a permanently higher-productivity equilibrium is far easier said than done. It is all the harder if we are distracted by wishful thinking about the scale of change required; pursue ideas that might be attractive but do not offer credible routes to a higher-productivity future; or are confused about the different roles that different parts of the city region should play. This report is far from alone in recognising the importance of a more prosperous GM, but it is different in spelling out the scale and the nature of change that is likely to be required to make this a reality.

So, what would it take to reduce GM's productivity gap with London to 20 per cent? Our analysis shows that reducing the productivity gap with the capital would require change equal to increasing GM's business capital by 15 per cent (amounting to a £30 billion aggregate increase) and its graduate workforce by as many as 180,000. The latter is what it would take to raise the graduate share of employment in GM (currently, at 37 per cent, lower than many other large cities although significantly higher than we see in Birmingham) by 6 percentage points, bringing the city region in line with the likes of Glasgow and Southampton. Increased higher education participation and upskilling of existing residents could support a rise in the graduate share. But a graduate workforce increase on this scale cannot happen without significant inflows of highly-skilled people from elsewhere in the country or abroad.

Clarity is needed about the nature, not just scale, of change. Despite popular claims to the contrary, prosperity for GM will not come from a focus on raising productivity in local (i.e. non-tradeable) service sectors, such as hospitality, retail and care. Local services' sectors are important in themselves, not least because they employ more than half (58 per cent) of GM's workforce and deliver valuable services. But these are not the sectors where the

productivity shortfall lies. In fact, they do little to explain the poor performance of GM compared to highly-productive cities, with minimal differences observed in the productivity of such sectors between places.

That same does not hold true for tradeable sectors. Here the evidence suggests there is much more room for improvement. This does not, however, mean a return to GM's proud industrial history: manufacturing is simply not a large enough part of the local economy today to drive up aggregate growth. There is scope to improve GM's manufacturing productivity performance which is middle-of-the-pack relative to other UK cities. But if all manufacturing firms in the city region operated at their sector's current productivity frontier, total GVA per worker across GM would rise by just 3.8 per cent. With just seven per cent of workers in the city region employed in manufacturing today, there is no escaping the reality that re-industrialisation cannot be the centrepiece of a plausible strategy for making Manchester great again.

Expanding tradeable services is the route to prosperity

It would be a mistake, then, to expect the foundational economy or manufacturing to drive a step-change in productivity. But what is the plausible engine for growth in GM? The city region's sheer scale, and the nature of the UK's comparative advantage, gives us the answer. The UK is a services 'superpower', exporting more in this category than any country in the world save the US. This should be good news for GM, because tradeable service sectors – such as law, design, accountancy and creative industries – benefit considerably from dense locations with a large pool of labour to draw upon. Indeed, the home of such high value-added services, including that linked to the region's historic manufacturing strengths such as engineering, is naturally in large cities.

GM has already made strides in this direction: the share of employment in firms providing knowledge-intensive business services has grown from 5 per cent in 1981, to over 15 per cent in 2021. This is higher than Birmingham (13 per cent), but it lags behind higher-productivity cities such as London (25 per cent). This share will need to rise in a more prosperous GM: the productivity gap between GM and London would narrow by 9

percentage points (from 35 per cent to 26 per cent) if the sector composition in both cities were the same today.

However, there is a danger of focusing too much on the relative size of different sectors rather than the productivity within sectors. If we repeat the thought experiment above, but this time assume that GM retains its current sector composition but the productivity of firms within these sectors improves to the level of those in London, then the gap between the city region and the capital would close by a staggering 74 per cent.

Greater Manchester must work more effectively as a city region to attract high-value firms and higher-skilled workers

It might seem unrealistic for firms in GM to achieve the same productivity as firms in London, but the thought experiment illustrates an important point: although local economic strategies tend to be sector focused, the emphasis should rather be on ensuring the city region functions effectively to support firms and workers whatever their sector may be. In the 21st century, successful large cities that make effective use of investment and human capital have clear features, with different parts of cities playing distinct roles. They provide locations (usually the city centre) where large volumes of high-value activity can cluster; they deliver high rates of return on capital; and that is underpinned by access to a deep pool of skilled labour in the wider city region which provides attractive places to live and fast connections to those productive areas.

There is ample evidence that GM does not function in this way today. First, despite GM's strong performance when it comes to the rate of return on investment relative to other UK cities, its level of investment has been and remains stubbornly low, suggesting there is something about the city is acting as a brake. Second, graduates' wages in GM are only 6 per cent higher than in the broader North West, and the graduate premium is low in GM (as it is in other UK cities, apart from London), indicating that the city region is not able to make effective use of the graduates it has, and will struggle to attract large numbers of others (even though it does a good job of retaining those who study at its universities).

The task, then, is to make GM function as an effective city region, with different parts playing different roles that in combination support and attract high-value firms and higher-skilled workers. Making this a reality in GM will require action on many fronts. Achieving this will mean tough decisions about how land is best used; stepping up improvements to the intra-city transport system; and decisive planning when it comes to housing. In turn, these changes will increase productivity for firms able to access improved office space and a larger pool of high-skilled workers, encouraging them to invest and increasing capital per worker.

The city centre is too small a part of Greater Manchester's economy today

The city centre in GM is already showing signs that it has the potential to drive faster growth. Tradeable services already cluster in GM's central district: just over one-fifth of employment in GM is in finance or other knowledge-intensive services, but that rises close to a half in the city centre. Likewise, productivity is significantly higher in the city centre than the rest of the city region: a worker in the central district produces a third more than a worker based elsewhere in the city region. There are of course other distinct centres of production (particularly in Trafford and the town centres of Wigan and Bolton), but GM's city centre stands out as the place where the high value-added service firms, that are needed to raise its productivity, are saying they want to be based.

But the city centre is simply too small. GM's central district accounts for only 13 per cent of total employment in the city region, far lower than we see in richer cities – 34 per cent of employment is accounted for by the city centre in London, for example. A more productive GM will not only need up to 180,000 additional higher-skilled workers, as discussed above, but a greater proportion of higher-skilled workers overall able to work in the city centre, alongside significant investment by the kind of high-value added firms that will employ them.

This ambition should drive choices over land use, which need to integrate questions of where firms locate, where people work, where people will live, and how transport connects the two. We estimate that a further 180 hectares of office floor space would be needed if all of the additional workers were employed in city centre

workplaces. But if rents rocket as soon as the city centre starts to grow, this will lower returns on investment and choke off growth in the very high-productivity tradeable services firms that are needed to boost growth.

Expanding office space in the city centre is, therefore, crucial – but requires choices to be made. As the cranes in the central districts attest, there is already a great deal of 'building up' in GM's city centre: each hectare of land dedicated to offices in GM's city centre has an average of 5.4 storeys, compared to 5.8 in central London and only 3.3 in central Birmingham. GM could build even higher, but other margins of adjustment are likely to be needed. For example, commercial office space should increase relative to new residential or retail space (currently a higher proportion of city centre land is used for retail than we see in most productive cities). But the city centre may also need to grow outwards: the 5 per cent of land within the half-mile ring around the city centre currently used for storage and warehousing is land that should be used for more productive purposes, for example.

Developing the central district so that it can function as a more powerful engine for growth is not to discount the importance of other parts of GM as economic hubs in a higher-productivity future. GM's manufacturing sector is likely to remain significant in Oldham, Rochdale and Wigan, and transitioning more of that towards higher-tech activities is an important objective. But there is no plausible rouwte to that future that does not include more highly-skilled workers employed by city centre-based firms.

The transport network in Greater Manchester has expanded rapidly, but further improvements are required

It is not just offices that are needed in the centre: a deep pool of skilled labour is also vital. Indeed, firms will not locate there without knowing they can fill the jobs; and workers will not fill those offices without transport networks that make doing so possible. As things stand, GM is a city region of ardent car-users. Although car usage has fallen in recent years (unlike in Birmingham), close to seven-in-ten (68 per cent) commutes are still made by private vehicle today, and an outsize share (41 per cent) of journeys into the city centre too. This is likely to continue

across GM as a whole, but the question is whether a significant increase in commuting to the city centre can plausibly be achieved with that current reliance on cars.

There are, of course, examples of highly-productive cities (primarily in the United States) that do see a large share of their workforce commute to the central district by car. But there are three reasons why we do not think this can plausibly be the case in GM. First, the city region is already severely congested, ranking third for congestion out of the 11 combined authorities in the UK. Second, matching the car infrastructure of US cities like Denver, Dallas and Portland would require bulldozing large chunks of central Manchester to deliver a 60 per cent increase in land area allocated to roads, and at least a doubling of that available for car parks. Third, even if this were feasible, such a strategy is clearly undesirable: the air quality in GM is already worse than many comparable US cities.

Public transport is, therefore, the answer to how a larger, high-skilled workforce can be connected to firms and jobs located in the city centre. GM may do better than Birmingham on this score, but despite significant investment in recent years, close to four-in-ten (38 per cent) of GM's highly-skilled workers still cannot reach the central employment district within a reasonable 45-minute travel time (including those in most of Wigan and Bury). As a result, GM functions economically like a far smaller city.

GM already has significant plans to improve public transport: it will introduce bus franchising (which allows for better integration of transport) and add more bus lanes; extend the Metrolink (subject to funding and business case approval); and may perhaps even return at some point to the contentious question of a congestion charge. We estimate that this package of intra-city public transport improvements and an accelerated metro expansion (doubling current plans) would increase the number of well-connected graduates by 52,000 (or from 62 to 70 per cent). But this does not come cheap: although £3 billion has already been allocated to transport funding up to 2032, we estimate a further £1.5 to £2 billion is required to modernise the city region's public transport system to the extent required.

A higher-productivity future will require more homes, in the right locations, to be built

The transport improvements set out above would expand the footprint of well-connected areas in the city region by 31 per cent (or roughly 122 square kilometres), significantly more than the 13 per cent increase in the number of well-connected high-skilled workers. This mismatch speaks to an important element of a future economic strategy: that the returns to public transport investment can only be maximised if they are integrated with decisions on housing.

The reality, then, is simple: there is no economic strategy without a housing strategy. The number and location of homes that are built shapes the ability of workers to access employment in the city centre in the same way that public transport investments do, while also determining the housing costs faced by current and prospective residents. But shaping housing policy so that it can play its part in a more productive GM will bring some real challenges.

We estimate that housing up to 180,000 additional high-skilled workers in GM will require the city region's housing stock to expand by 126,000 homes over the next 15 years, if the greater population is not to exacerbate existing housing pressures – over 74,000 households are on social housing waiting lists already. This amounts to an almost 75 per cent increase on current building rates (which have already risen materially in recent years).

But building does not just need to take place at scale, it also needs to be in the right places. GM is a leader in integrated city-wide planning, exemplified by their latest strategic plan Places for Everyone. However, focusing new homes in well-connected areas, while balancing this with the protection of city centre land for commercial development, could demand a new approach with far more building in places like Tameside, Rochdale, Stockport and Bury. Competition for land in well-connected parts of the city region means that 'building up' will also likely be a necessity, and the density of dwellings in the 'urban core' could rise by more than two-fifths (although it would remain around half as dense as Inner London). Again, there is a price tag attached: the viability of building even in some well-connected areas is far from assured,

and up to £350 million in central government support could be required to accelerate house building in the city region.

It is not only building new houses that is needed: older houses will also need to be improved. Doing so will help attract higher-skilled workers and ensure existing residents enjoy the benefits of growth. But there is a lot to do here: nearly two-fifths of GM's housing stock has walls rated as having poor energy efficiency or below. Improving the energy efficiency of the housing stock, as well as achieving other aspects of the net zero transition (such as an ambitious rollout of heat pumps), is a significant challenge that will require coordination by local and regional authorities, as well as a hefty subsidy from national government. And public policy attention is needed in other ways to make GM a more attractive place to live: eight of the ten local authorities in GM are in the bottom half of urban local authorities in England, for example, when it comes to the proportion of state secondary schools ranked 'requires improvement' or below.

A higher-productivity GM will boost incomes but drive up housing costs too

Ensuring that the gains from a higher-productivity GM are shared fairly is key to delivering lasting change. In this context, we undertake a simple thought experiment: if GM is to close its productivity gap with London, what would the impact on living standards be? Our modelling suggests that the higher wages and more extensive job opportunities we would see in a more productive city region would boost typical household incomes by an additional 10 per cent over a 15-year timeframe. Moreover, although wages are likely to grow faster for higher- as opposed to lower-earners (the latter are determined at least in part by national decisions over the level of the minimum wage), we estimate there would be more than 106,000 new jobs for lower-qualified residents in a higher-productivity GM. This would benefit those on lower incomes the most, counteracting the increased risk of rising income inequality in a higher-productivity city region.

There is a sting in the tail, however: a more affluent GM will mean higher housing costs too. If the city region builds half of the additional homes our modelling suggests are required, we estimate around 30 per cent of the income gains to the typical

household in a higher-productivity GM would be wiped out. The downward pressure of higher housing costs is even larger for those on lower incomes.

Action is needed to ensure the gains from growth are shared

It is within the gift of policy makers to make sure the gains from a higher-productivity GM are shared. The estimated drag of housing costs on income gains would be nearly halved if sufficient homes were built to accommodate the larger population. That would need to include 26,000 sub-market homes if GM was to hold its share of households in social rented homes constant, requiring a subsidy that could total £2.1 billion, with many of these new social homes need to be built in places with a poor track record such as Trafford and Stockport.

Likewise, national policy makers need to ensure Local Housing Allowance rises in line with actual rents (it is currently frozen), which would do much to protect the living standards of lower-income households. Moreover, if local authorities or the Greater Manchester Combined Authority (GMCA) were to gain stronger revenue raising powers in the future, they would have even more scope to make choices about redistributing the wealth generated in a higher-productivity city region.

As our deliberations with residents of GM showed us, concerns about rising inequality in a higher-productivity city region are very real. A city region with more higher earners might feel more unequal in some ways. But if our focus is on the actual living standards of the poorest households, the case for a higher-productivity GM is clear: if all the changes we have laid out in this report were in place currently, we estimate both working-age and child poverty in GM would be four percentage points lower, equivalent to 24,000 fewer children growing up in poverty in the city region today.

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Time, money and additional powers are required to turbo-charge GM's productivity

There is a compelling case for putting increasing the productivity prospects for the UK's 'twin second cities' at the heart of Britain's economic strategy.

As our analysis has shown, this not only closes regional gaps and improves the living standards of those living in the region, it also contributes to higher aggregate growth. This paper has shown that a plausible route map to a significantly more productive GM exists. This will involve: tough decisions about how land is best used; further improvements to the intra-city transport system, which may need to be prioritised over higher-profile inter-city links; and decisive planning when it comes to housing to maximise its productivity-boosting potential, and minimise the rise in housing costs.

The scale of this challenge is significant, but it needs more than just a plan. First, it needs time: moving GM from relative decline to holding its own has taken two decades and now moving towards being a driver of the UK's growth will only happen over a 15-to-20-year time horizon. Second, it needs money. We estimate that a higher-productivity GM could require at least £1.85 billion of additional public investment up to 2040; to put that figure into context, in the past four years combined, local authorities and projects within GM have received just over £170 million from the Levelling-Up Fund.

But a higher-productivity GM also demands strong and empowered local leadership. The now well-established Mayoralty is a huge advantage in this regard, and the newly announced 'Trailblazer' devolution deal for the GMCA is clearly a significant step in the right direction. But even though GM has more competencies than any other combined authority today, real local economic leadership requires fiscal devolution that empowers the mayor Andy Burnham and other local leaders to drive forward a strategy for productivity growth without constant recourse to central government for permission or for funds.

A higher-productivity future for GM beckons. The progress of the last two decades should not give rise to complacency; the job is

far from done. The scale of change needed to shift to a higher-productivity equilibrium is large; the breadth of issues that require simultaneous attention is wide. But it can be done – if national politicians concentrate their efforts, and local politicians are empowered to embrace the disruption involved. It's time Britain put its 'twin second cities' centre-stage.

Section 1

Introduction

It is well known that the UK has suffered from weak productivity growth in recent years, with the underperformance of its two largest cities outside of London playing far too large a part in that broader trend. Their productivity lags the UK average, bucking the global trend for big urban areas to outperform the nation. The result is a poorer country overall. Recognising the problem is, however, far easier than setting out a realistic path for solving it. As part of the Economy 2030 Inquiry, this report on Greater Manchester (GM) and a twin paper on the Birmingham urban area provide a grounded answer to the difficult question of what it would take to make a higher productivity future for these two great cities a reality.

Central to the UK's weak productivity performance of recent years are the country's 'twin second cities': the urban areas centred on Manchester and Birmingham.[1] These cities face a range of challenges and opportunities, but share the common problem of weak economic performance which can be traced back to the period of rapid de-industrialisation of the second half of the 20th century.[2] These cities are massive in size – with a combined population of 5.6 million – and play a pivotal role they play in the regional economies; there is no route to a prosperous North West that does not run through a more productive Manchester. All this means they must be centre-stage in our national, not just local, economic strategy. And their scale means these cities are key places where we can plausibly achieve high productivity of the kind we see in similar-sized cities elsewhere.[3]

1   P Brandily et. al., Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation and Centre for Economic Performance, June 2022.
2   See: P Rice & A Venables, The persistent consequences of adverse shocks: How the 1970s shaped UK regional inequality, Oxford Review of Economic Policy, 37, 2021; J Muellbauer & D Soskice, The Thatcher Legacy: Lessons for the future of the UK economy, Resolution Foundation, November 2022.
3   P Swinney & K Enenkel, Why big cities are crucial to 'levelling up', Centre for Cities, February 2020.

Manchester's recent economic performance has been encouraging, but that does not mean 'job done'

No one could dispute that GM has radically changed over the past three decades: think of the regeneration of Salford Quays, the introduction of the Metrolink and the huge expansion of its world-class universities just to begin. Indeed, GM has been one of the UK's fastest-growing cities over the past 20 years. From 2002-2019, the size of GM's economy (in terms of aggregate GVA) grew by 2.0 per cent per year, only behind London (2.6 per cent) among the UK's large cities, and well ahead of the likes of Liverpool (0.8 per cent), Birmingham (1.1 per cent) and Bristol (1.5 per cent).[4]

But despite these and many other positive developments in the city region, GM's productivity remains stubbornly below the UK average. Figure 1 shows that productivity measured by GVA per worker in GM economy was £51,956 in 2019, compared to the UK average of £58,871. And there is a particularly large gap in productivity relative to London: in 2019, GM was 35 per cent less productive than the UK capital.[5] Overall, GM is ranked fourth out of the UK's nine largest cities – as well as London, it is also behind Cardiff (with a GVA per worker of £53,515 in 2019) and Glasgow (GVA per worker of £52,588 in the same year).

GM performs poorly on a range of other metrics too. For example, the city region has a below-average employment rate: in 2021, the 16-64-year-old employment rate in GM was 72 per cent, slightly higher than the Birmingham urban area (70 per cent) but significantly lower than 75 per cent across the UK as a whole; 76 per cent in London; and 78 per cent in Bristol (of the UK's large cities, Bristol has the highest employment rate).[6] In part, this is because GM's inactivity rate is also higher than the national average (at 24.0 per cent compared with 21.7 per cent).[7] Moreover, GM also has a relatively low share of working-age residents with a degree-level qualification: in 2021, 39 per cent of residents of GM had a degree-level qualification compared to 41 per cent in Liverpool, 49 per cent in Glasgow, and 57 per cent in London and Bristol.[8] This is one reason why in 2022 median weekly pay in GM was £515 compared to £533 for the UK as a whole.[9]

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4   Source: Analysis of ONS, Regional economic activity by gross domestic product dataset.
5   This data is based on core functional urban area boundaries – see Box 1 in this section for a description of different ways of describing city boundaries. Source: ONS, regional economic activity dataset.
6   Source: Analysis of ONS, Annual Population Survey, via Nomis.
7   Source: Analysis of ONS, Annual Population Survey, via Nomis, 12 months to March 2023.
8   Source: Analysis of ONS, Annual Population Survey, via Nomis.
9   Source: analysis of ONS, Annual Survey of Hours and Earnings, accessed via Nomis. Note the GM figure has been calculated by taking the weighted average (based on ASHE job counts) of median gross weekly pay in its constituent local authority districts.

FIGURE 1: **Greater Manchester's productivity lags the UK average, and the gap with London is large**

Gross value added per worker (2019 prices), by core functional urban area: UK, London and Greater Manchester
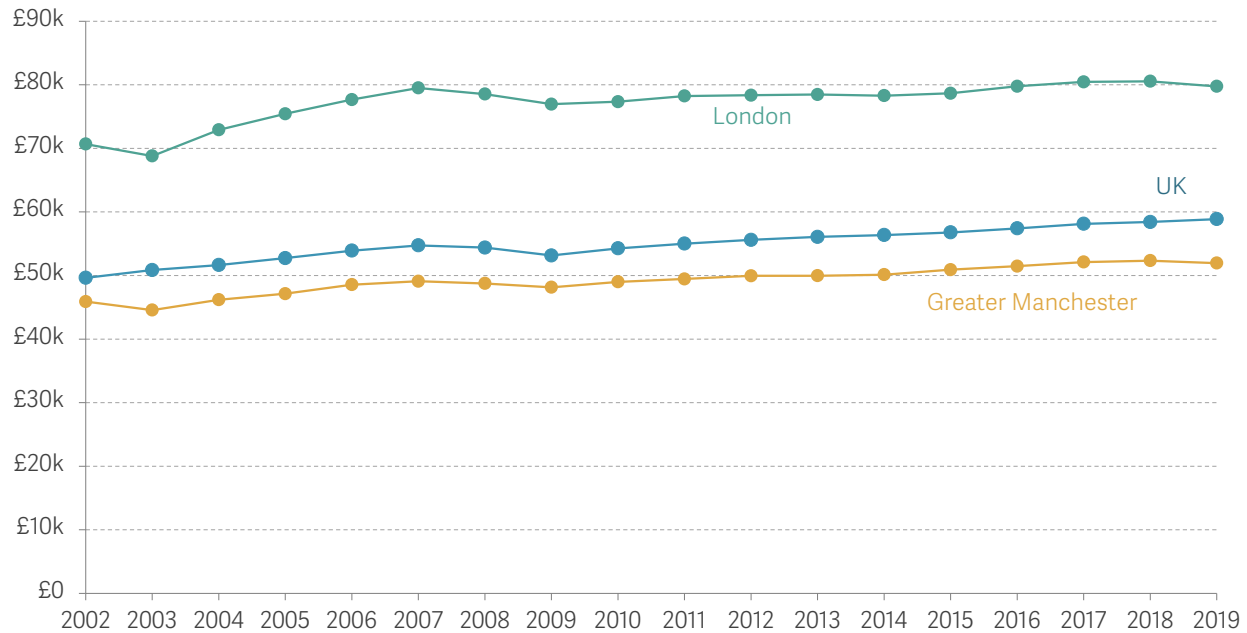
SOURCE: Analysis of ONS, Regional economic activity by gross domestic product dataset.

There is a strong case for raising GM's productivity

Even with GM's strong performance in the past few years, 'business as usual' is not a plausible proposition. If we assume that productivity growth in both Manchester and London metro areas continued at its 2004-2019 pace (0.80% and 0.63% per year respectively), it would take 90 years to close the productivity gap to 20 per cent.[10] (See Box 1 for a discussion of the geographic units we use throughout.)

10   Due to the availability of comparable international productivity data in cities, this statistic is based on analysis of productivity in 'metro areas'. For Manchester the metro area boundary is larger than Greater Manchester - see Box 1 in this section for a description of the differences between different city boundaries. Analysis of this productivity gap and our scenario for closing it is discussed more fully in Section 2 and in Annex 1. Source: OECD, productivity by functional urban area dataset (2019). The productivity gap between Manchester and London is somewhat smaller when comparing metro areas (31 per cent) than when comparing core functional urban areas, which uses the Greater Manchester boundary (35 per cent).

BOX 1: Manchester and beyond

This Box explains the different geographic units of analysis that are used in the report.

Greater Manchester – functional urban area, and combined authority

For the most part, in this report we use the boundary of Greater Manchester (GM), which helpfully is both the administrative boundary of the Greater Manchester Combined Authority (GMCA), as well as the boundary of the Manchester 'core functional urban area' (FUA) as defined by OECD and Eurostat.[11] Functional urban areas (FUAs) are geographic units designed to describe city boundaries based on where economic activity is happening, and these don't always line up with administrative boundaries. In London and Birmingham, for example, the administrative boundaries of the West Midlands Combined Authority and Greater London are different to the FUA boundaries for those cities.

GM contains ten local authority districts. In order of population size, these are Manchester (552,000), Wigan (329,000), Bolton (296,000), Stockport (295,000), Salford (270,000), Oldham (242,000), Trafford (235,000), Tameside (231,000), Rochdale (224,000) and Bury (194,000).

When we compare GM to other cities in the UK, we are generally using the core FUA boundaries for those cities. For London, the core FUA includes the 33 local authority districts in Greater London as well as ten additional local authority districts from surrounding areas.

The 'metropolitan area'

There are parts of this report (in particular Section 2) where either due to the availability of local capital stock data, or due to the availability of data on productivity in cities outside the UK, we make use of a different geographic unit: Eurostat's 'metropolitan areas' (we tend to refer to these as 'metro areas' in the report).[12] Metro areas are generally larger than core FUAs, as they are intended to capture not just the area where most economic activity is taking place (the core FUA), but also the area where most workers live who are commuting into the city.

In the case of Manchester, the metro area adds three local authority districts to Greater Manchester: High Peak (in Derbyshire), Rossendale (Lancashire) and Cheshire East (in Cheshire). The Manchester metro area is 561,000 (20 per cent) larger than GMCA in terms of population, with most of this addition coming from Cheshire East with its 399,000 population.

11 L Dijkstra et al., The EU-OECD definition of a functional urban area, OECD, 2019.
12 Eurostat, Metropolitan regions: background, undated webpage.

In this report, we conduct a thought experiment and consider what is needed to drive up productivity in GM to the point that the Manchester metro area productivity gap with London is just the same as between Lyon and Paris (20 per cent). The impact of this would be game-changing for the country, region and the city alike. Improving productivity in GM to that extent would boost total GVA by £13 billion per year, giving a 0.7 per cent boost to national output.[13] This is a sizeable increase: it would narrow the UK's GVA per worker gap to Germany by 14 per cent, and to Australia by 22 per cent, for example.

As well as being good for the country overall, boosting productivity in GM would contribute to narrowing regional gaps. More than four-in-ten workers (41 per cent) in the North West region already work in GM, and the larger the share of people who work in GM, the more prosperous their town or village tends to be. This relationship would likely strengthen if the city offered more and higher-value opportunities.[14] Even if we hold the city's share of the region's workforce constant, we estimate that our hypothetical more-productive GM would increase the North West's GVA per worker by 7 per cent. This would lower the productivity gap between the North West and UK average by a third (from 13 per cent to 9 per cent).

Finally, a higher-productivity GM is not an end in and of itself: it is the necessary condition for living standards improvements. No one should look at the level of living standards in GM today and think the status quo is defensible in economic or moral terms: close to one-quarter (23 per cent) of neighbourhoods within GM are among the most deprived in England.[15] Employment is simply far too low, and poverty too widespread.[16] Productivity growth is a necessary condition for boosting residents' incomes and reducing poverty (albeit perhaps not sufficient to address inequality as well).

A plausible strategy for productivity growth

It is clear, then, that the UK, the North West and the city's residents themselves all need GM to be great again – but that, of course, is far easier said than done despite progress in recent years. Recognising the scale of the challenge, this report takes a different approach to aspects of the current debate that can sometimes smack of wishful thinking. 'If only more powers were devolved, a step-change in productivity would automatically

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13 This assumes that GM would host an extra 180,000 high-skilled workers, whose productivity level would increase from the UK average. It also assumes a significant increase in capital per worker which we assume is added to the economy rather than displaced from elsewhere, consistent with our wider argument in the Economy 2030 Inquiry that raising investment is central to improving UK productivity and living standards. See: P Brandily et al., Beyond Boosterism: realigning the policy ecosystem to unleash private investment for sustainable growth, Resolution Foundation, June 2023. See Section 2 and Annex 1 for further details of our modelling.

14 P. Swinney, Does trickle out work? How cities help their surrounding towns, Centre for Cities, September 2023.

15 Source: Analysis of MHCLG, English indices of deprivation, 2019 which shows 23.3 per cent of Lower Super Output Areas (LSOAs) in GM are in the most-deprived decile of LSOAs.

16 Existing inequalities were a serious concern for the 30 residents of GM who participated in a two-day deliberative workshop discussing a higher-productivity future for the city region as part of this project. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming for further details.

follow'[17] or 'there is no need to prioritise public investment because a 'global city' in every single region of the UK is easy to achieve'[18] are not arguments you will see in this report.

Instead, we do something quite different: we present a plausible strategy for productivity growth for GM, rooted in reality and sharpened through conversations with local policy makers and residents alike.[19] The scale of change needed is large, and the breadth of issues that require simultaneous attention is wide, and our approach is to be upfront about the tough decisions that are required if this endpoint is to be reached.

To this end, this report is structured as follows:

- In Section 2 we show how current debates about the scale or nature of change required to move us towards a higher-productivity GM fall short of the mark, before outlining a more plausible way forward;

- Section 3 then turns to consider land use, a key strategic issue for GM if it is to attract high-value firms and workers alike;

- Section 4 explores how transport in GM needs to change to deliver the deep labour pool a high-productivity city requires;

- Section 5 investigates what must change when it comes to housing to attract the necessary workers and ensure the city region can use them to best effect;

- Section 6 considers how productivity growth of the scale envisaged would feed through to household incomes across the distribution in GM and the broader region; and,

- Section 7 concludes, drawing together lessons from our analysis and summarising a plausible strategy that would truly set GM on a higher-productivity path.

- Two annexes contain further detail on the modelling contained in this report.

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17 This is not to dispute that further devolution of powers, especially when it comes to raising tax at the local level, will have a critical role to play in economic development, and we will address this in a future Economy 2030 report; see: A Breach, S Bridgett & O Vera, In Place of Centralisation: A Devolution Deal for London, Greater Manchester and the West Midlands, Resolution Foundation, forthcoming.
18 DLUHC, Levelling Up the United Kingdom, DLUHC, February 2022.
19 The findings of this report were discussed at a two-day deliberative workshop in June 2023, where 30 residents from all parts of GM debated its implications with each other. For more details, see: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

Section 2

A plausible strategy for a higher-productivity Greater Manchester

Increasing productivity in Greater Manchester (GM) is important as it will contribute to improved UK-wide economic performance, reduce spatial disparities and improve living standards in the city and beyond. A key question, then, is: what actually has to change for this to happen? In this section we set out the scale of the change required, with a significant expansion of the city's workforce skills and capital intensity both required. Contrary to what some might say, answers do not lie in pursuing growth of any particular sector – at least not the manufacturing sector, which is too small to drive overall productivity growth, nor in local services (where there are no productivity gaps with richer cities to close). Instead, the answer lies in promoting higher productivity in tradeable services. In turn, this will come from making GM a more effective city, so that it can attract the high-value firms and higher-skilled workers that a more productive city requires.

As we showed in Section 1, while there has been progress in GM in recent years, productivity remains stubbornly below the UK average. So, what has to change to set the city onto a radically different growth trajectory? In a sense, the answer to that question is straightforward: GM needs more, and better, firms and workers. And these need to be brought together in a much more effective way. But given the starting point of the city, the nature of the UK's wider economy and the lessons to be drawn from cities elsewhere, how can we achieve this in GM?

Change on a significant scale is needed to increasing productivity in GM

In previous work, we showed that there are a number of key determinants of productivity in a local area. Other than its size, these include: levels of businesses' physical and intangible capital; and human capital (the skills of the workforce).[20] Figure 2 shows the strong positive relationship between productivity (measured by gross valued added, or GVA, per job) and capital intensity (the amount of physical and intangible capital per worker).[21] But it also reveals that capital per job in Greater Manchester is relatively low compared to that of many other UK cities.[22] In part, this is because of its size: the top-ranked city regions for business capital per worker tend to be small and highly-specialised in a handful of capital-intensive industries (for example: Aberdeen, West Cumbria and Swindon). Among the UK's 11 metro areas with a population of at least a million, the Manchester metro area is squarely in the middle of the pack, with its total capital per job of £109,250 ranking 6th in capital per worker, behind Glasgow, Liverpool and Bristol.

In Annex 1, we build on previous Economy 2030 analysis to quantify what would be required to narrow the productivity gap between GM and London from its current level to 20 per cent – roughly the gap between Lyon and Paris.[23] In the 'balanced' scenario – where higher productivity comes from higher levels of capital, as well as a more-highly-skilled workforce – our hypothetically higher-productivity GM requires capital per job to increase by 15 per cent, that is from £109,250 to £125,600.[24] This would bring the city region in line with the capital intensity of jobs in Sunderland (a good example of an area specialised in a capital-intensive sector – car manufacturing), and move it ahead of a number of city regions, including Bristol and Liverpool. This would be a significant increase in business capital – amounting to £30 billion of additional capital in the city.

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20 P Brandily et al., Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation, 2022.
21 Here, 'capital' refers to the stock of physical (e.g. buildings, machinery, ICT equipment) and intangible (e.g. R&D, computer software) assets that are available for use in the area. We construct stock measure from investment data. For more details on methodology, see: P Brandily, M Distefano, H Donnat, I Feld, H Overman & K Shah, Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation, June 2022. For more details on data definitions, see: ONS, Experimental regional gross fixed capital formation (GFCF) estimates by asset type: 1997 to 2020, May 2022.
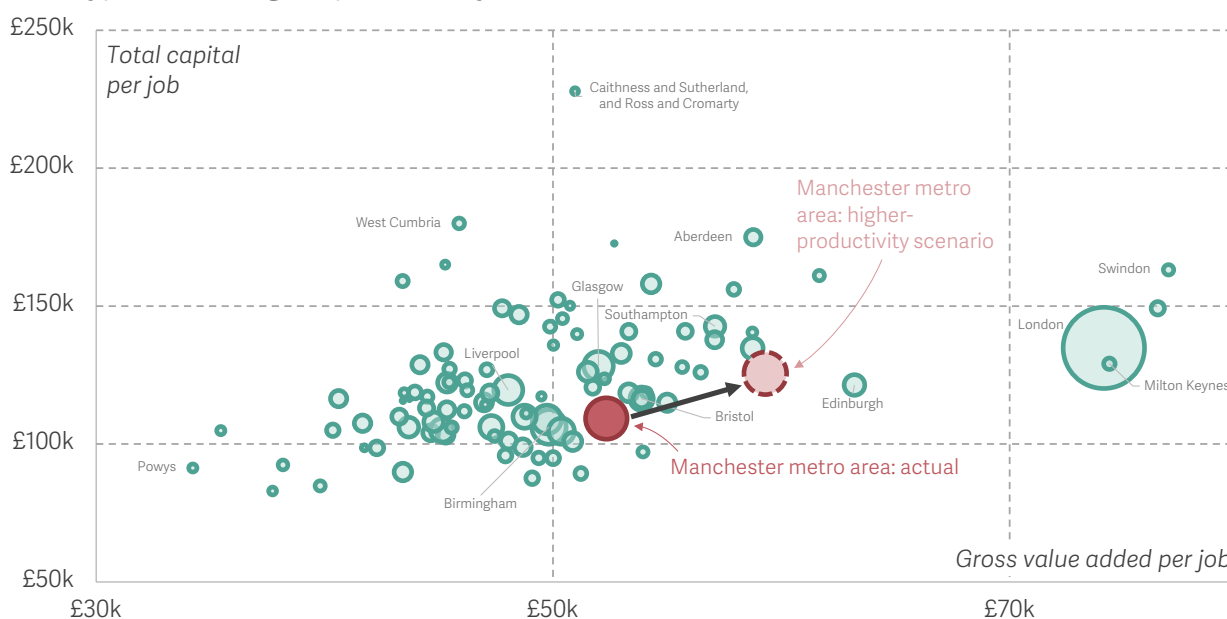22 In the first part of this section, for reasons of data availability we are using the Manchester 'metro area' boundary for our unit of analysis rather than Greater Manchester. The Manchester metro area is 20 per cent larger than GM in population, it adds the local authority districts of Cheshire East, High Peak, and Rossendale. In the latter part of the Section, we apply the results of this modelling to our favoured geography, GM. See Box 1 in Section 1 for a description of the differences between functional urban areas and metropolitan areas.
23   See: P Brandily et al., Bridging the gap: What would it take to narrow the UK'sproductivity disparities?, Resolution Foundation, June 2022. We choose Lyon and Paris as a sensible benchmark here for a number of reasons. First, France is a comparable economy to the UK when it comes to overall size as well as specialism in high-value-added service activities. Second, Lyon is not dissimilar in size or rank to GM. See Annex 1 for full details of our modelling.
24   There are, of course, a multitude of scenarios combining increases in labour and capital in different degrees that close the productivity gap between Manchester metro area and London metro area in our model to 20 per cent. Throughout this report, we present a 'balanced scenario', i.e. one that does not overly depend on an extreme and therefore unrealistic change to either factor.

FIGURE 2: **There is a strong positive relationship between capital intensity and productivity**

Gross value added per job and total capital per job: UK cities (metro areas), 2017-19 and hypothetical higher-productivity Manchester metro area

NOTES: Modelling is based on 'metro area' which in the case of Manchester includes the ten GM local authorities as well as six additional local authorities: Amber Valley, Erewash, South Derbyshire, High Peak, Cheshire East and Derbyshire Dales. Bubble size represents size of population. The Manchester metro area higher-productivity scenario shown involves raising output per job to 80 per cent of that in London, via greater capital intensity as well as a higher graduate share. This analysis builds on work in our 'Bridging the gap' report: P Brandily et al., Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation and Centre for Economic Performance, June 2022.
SOURCE: Analysis of ONS, Subregional productivity; ONS, Annual Population Survey; ONS, Experimental regional gross fixed capital formation estimates by asset types; EUKLEMS, Capital input data.

Moreover, in addition to a large increase in physical capital, our hypothetical higher-productivity GM also requires a big change in its workforce.[25] Compared to other large UK cities, the Manchester metro area has a middling share of high-skilled workers in its workforce, with a graduate share of 37 per cent (see Figure 3, which plots GVA per job against the share of workers who have degree level-education).[26] This is a lot lower than metro areas such as London (51 per cent) and Edinburgh (49 per cent). But it is important to recognise that it is also higher than some others, most notably Birmingham, the UK's other second city, which has a very low workforce graduate share of 30 per cent. Our modelling indicates that our hypothetical higher-productivity Manchester metro area will need the graduate share to increase by 6 percentage points, to 43 per cent, placing it alongside the likes of Glasgow and Southampton, although still behind London and Bristol.

25 These conclusions apply to GM itself and not just the Manchester metro area. The share of the economically active resident population with higher level qualifications is marginally lower in GM (where in 2017-19 41.4 per cent of economically active residents had a qualification at NVQ level 4 or higher) than Manchester metro area (41.6 per cent). Source: ONS, Annual Population Survey.
26 In practice, high-skilled workers will also include those who have taken routes other than a degree such as technical education pathways. See: H Overman & X Xu, Spatial disparities across labour markets, IFS, February 2022 for further confirmation of the strong link between the graduate share in a place and its productivity.

FIGURE 3: **Boosting the Manchester metro area's productivity will require a 6-percentage point increase in its workforce graduate share**

Gross value added per job and graduates as share of workforce: UK cities (metro areas), 2017-19 and hypothetical higher-productivity Manchester metro area

NOTES: Modelling is based on 'metro area' which in the case of Manchester includes the ten GM local authorities as well as six additional local authorities: Amber Valley, Erewash, South Derbyshire, High Peak, Cheshire East and Derbyshire Dales. Bubble size represents size of population. The Manchester metro area higher-productivity scenario shown involves raising output per job to 80 per cent of London's, via greater capital intensity as well as a higher graduate share. This analysis builds on work in our 'Bridging the gap' report: P Brandily et al, Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation and Centre for Economic Performance, June 2022.
SOURCE: Analysis of ONS, Subregional productivity; ONS, Annual Population Survey; ONS, Experimental regional gross fixed capital formation estimates by asset types; EUKLEMS, Capital input data.

GM retains more of its graduates than most other cities, but even so it will be hard to 'home grow' additional highly-skilled workers at the scale the city needs

We will now consider how GM might raise the size of its high-skilled workforce. While the above exercise was done on the basis of metro areas (for reasons of data availability), we now return to considering the GM boundary. As previously discussed in Box 1, this is slightly smaller than the metro area, with a population of 2.9 million, compared to 3.4 million. We continue to work with the same number of additional high-skilled workers, assuming that these workers will work in and around GM rather than in the non-GM parts of the Manchester metro area. This is consistent with the need to create a larger pool of high-skilled labour to support high value city centre service activity (as discussed more below and in Sections 3, 4 and 5).

So, how can GM increase the share of its workforce who are highly qualified, and, importantly, do so at the significant scale required? Arguably the most attractive proposition to politicians and residents alike would be to 'home-grow' all the new high-

skilled workers so that a higher-productivity GM could directly benefit some of its existing residents, who could enjoy the higher wages that tertiary education confers.[27] There are two potential ways this could be achieved.

The first, and more plausible, route would be to raise the rate of participation in higher education of GM's school leavers. In the North West as a whole, 45 per cent of students who left school in 2015/16 went on to study at university by age 20.[28] Like all other English regions outside the capital, this is significantly lower than in London, where this share was 59 per cent. If the North West halved the participation rate gap with London (i.e. increased higher education participation to 52 per cent), and assuming that GM's participation rate is the same as the wider North West, then this would result in an additional 1,500 school leavers from GM going to university per year.[29] But of course not all of these graduates will then work in the area. Manchester has an impressive retention rate of its young graduates: 3-in-5 young people from GM who study at university and end up working in GM after graduating – higher than all other cities apart from London. But, even so, this suggests that fewer than 1,000 of these additional GM-born graduates would eventually join the workforce of the city each year.[30]

And second, GM could also 'home-grow' more high-skilled workers by upskilling its existing adult residents. Although important in its own right, this strategy is also unlikely to result in the significant increases in the size of the GM's high-skilled workforce that are needed.[31] In 2022-23 across England as a whole, for example, just over 20,000 adults aged 25-plus achieved a higher-level apprenticeship (equivalent to a Level 4 qualification – above A-levels but below a degree).[32] Assuming these adults are spread evenly across the country, this would equate to just over 1,000 adults aged 25-plus attaining a higher-level apprenticeship per year in GM.[33]

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27 Residents of GM who participated in a two-day deliberative workshop discussing the trade-offs a higher-productivity city region would entail were vocal about their desire that current residents be able to benefit from new opportunities. For further details, see: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity **future in** the Birmingham and Greater Manchester, Resolution Foundation, forthcoming.
28 Figures are from Higher Education Statistics Authority, 'Create your own tables'. HESA does not provide data below regional level.
29 This estimate is based on applying a 52 per cent participation rate to the North West (the average of the rates in the North West and London). Based on the 2015/16 cohort this would raise the number of North West school leavers attending university by 5,300, from 33,600 to 38,900. We then assume GM's share of this number is in line with its share of secondary school students age 16 within the wider North West as a whole (which in 2022-23 was 28 per cent), giving a GM participation uplift of 1,470. This is using Department for Education data tables on student population by age and location, accessed here.
30 This is applying Manchester's city-university-city retention rate of 58 per cent, as published from 2013/14-2014/15 HESA destination of leavers survey data by Centre for Cities. See Box 1 in: P Swinney & M Williams, The Great British Brain Drain, Centre for Cities, November 2016. 'Retention rates' more commonly refers to the proportion of graduates studying in an area who remain in the area to work after graduating. According to the Centre for Cities report just cited, these are relatively high in Birmingham (in 2014/15, 49 per cent of graduates studying in the city were working in the city six months after graduating) and Manchester (52 per cent) compared to other large UK cities, albeit still significantly below London's 77 per cent.
31 Future papers in the E2030 project will address how we can improve skills policy, both to provide high-value sectors with the skills they need, but also ensure all adults have a chance to build their human capital and boost their labour market prospects.
32 Department for Education, Apprenticeships and traineeships, academic year 2022-23, July 2023 release.
33 This is based on applying to the 20,000 figure the proportion of English adults (age 20-64) who live in GM, which in 2019 was 5 per cent. Source: analysis of ONS, 2019 population estimates, via Nomis.

These 'home grown' routes to increasing the highly-skilled workforce are worth pursuing, and over a long-enough time frame would raise the skills profile of the workforce. But it's worth stressing that the time frame to raise the skills profile (and thereby raise productivity) through these routes alone would be very long. Adding 2,000 high-skilled workers per year (which is what we roughly estimate might be the combined result of the two routes described) would raise the share of the area's workforce with a high-level of skills by only 0.1 percentage points per year. At this rate it would take 70 years to close the 6 percentage-point gap we describe above.

As a result, while there are steps that local authorities in GM can and should take to boost the qualification levels of children, young people and the current workforce, many of the additional high-skilled workers that our hypothetical higher-productivity city needs will have to come from elsewhere. The alternative route to raising GM's workforce graduate share by 6 percentage points is to add 182,000 graduates to the city's workforce. If all these workers lived in GM (an assumption we revisit later in this report), they alone (absent of any partners or children) would boost the population of the city region by 6 per cent.

To deliver change of this kind requires a step-change in internal migration patterns, as shown in Figure 4. The left-hand panel shows migration into and out of GM for each year of age. Although large numbers of young people arrive in Greater Manchester every year (23,400 people in age 22-29 arrive per year), a similar number of this age group also leave (22,100 per year), meaning that in net terms Manchester is only a very slight net gainer of young people from other parts of the country (a net increase of 1,400 people age 22-29 per year).[34] If Manchester had the same internal migration profile as London, it would (adjusting for its size) add 9,500 people age 22-29 per year net. If we assume that all these people were university graduates (not an unreasonable assumption given graduates accounted for 80 per cent of net flows of people age 22-30 between GM and other regions in 2011)[35], at this rate of addition it would take around 19 years for Greater Manchester to add the 182,000 high-skilled resident we discussed above.

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34 This data is only broken down by age, so we can't directly infer that these movers are the high-skilled workers the city needs more of. But we know from other data that young people with higher-level qualifications comprise the majority of net population flows between places. 2011 census data shows that among people age 22-30, almost the entirety of net population moves in and out of Manchester are accounted for by those with degree level qualifications. See Figure 6 in: R. McDonald, The Great British Brain Drain: An analysis of migration to and from Manchester, March 2019, Centre for Cities.
35 See Figure 6 in: R. McDonald, The Great British Brain Drain: An analysis of migration to and from Manchester, March 2019, Centre for Cities.

FIGURE 4: **Greater Manchester currently loses almost as many people in their 20s as it gains from the rest of the UK**

Internal migration within UK by age, expressed as a proportion of local population: Greater Manchester urban area and London, 2012-2020
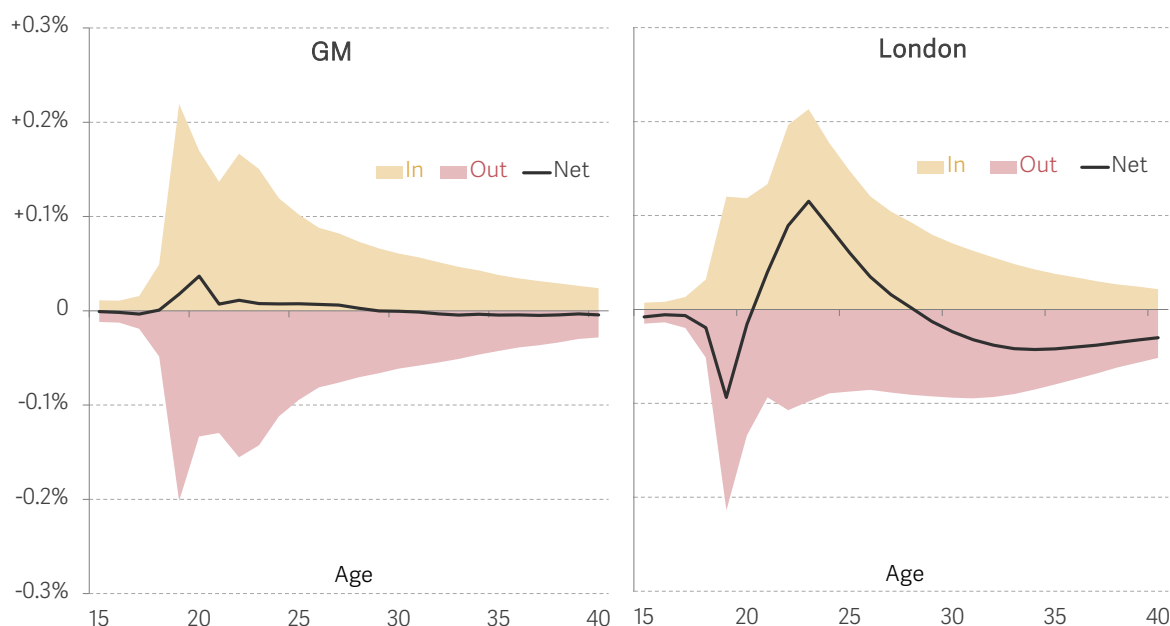
SOURCE: Analysis of ONS, Internal Migration Statistics.

In order to increase productivity, boosting tradeable services sectors is crucial

A key question, then, is: which goods and services will be produced by the firms that employ the new capital and skilled workers required to drive higher productivity? And what does this imply for the type of activities that are likely to generate the required productivity gains? Figure 5 shows that local services – the part of the economy that produces and distributes the everyday goods and services on which we all rely – will struggle to achieve game-changing productivity gains. Although local services firms account for more than half (58 per cent) of total employment in GM (as in Britain as a whole), there is little variation in the productivity of these firms across different parts of the country.[36] As the left-hand panel of the chart shows, productivity across local services firms in GM, Birmingham and London and the South East is similarly distributed (after all, the number of heads of hair cut, pints pulled, or tables served in an hour will be broadly the same everywhere). Instead, it is in the tradeable sector – a short-hand for those goods and services that are sold on national and international markets – where the productivity problem in GM is clearly visible.

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36 Source: ONS, Business Register and Employment Survey, 2019. Here we define as 'local services' those sectors which are not included in Centre for Cities' list of tradeable sectors, and which are not the mainly-public sector industries of public administration, education, and health. This leaves the following 2-digit SIC codes: 33, 36, 37, 38, 39, 41, 42, 43, 45, 46, 47, 49, 50, 53, 55, 56, 58, 68, 69, 71, 75, 77, 78, 79, 80, 81, 82, 87, 88, 90, 91, 92, 93, 94, 95, 96.

FIGURE 5: **Tradeable sectors are responsible for the differences in productivity between UK cities**

Distribution of gross value added per job by sector category and city: UK, 2017-2019
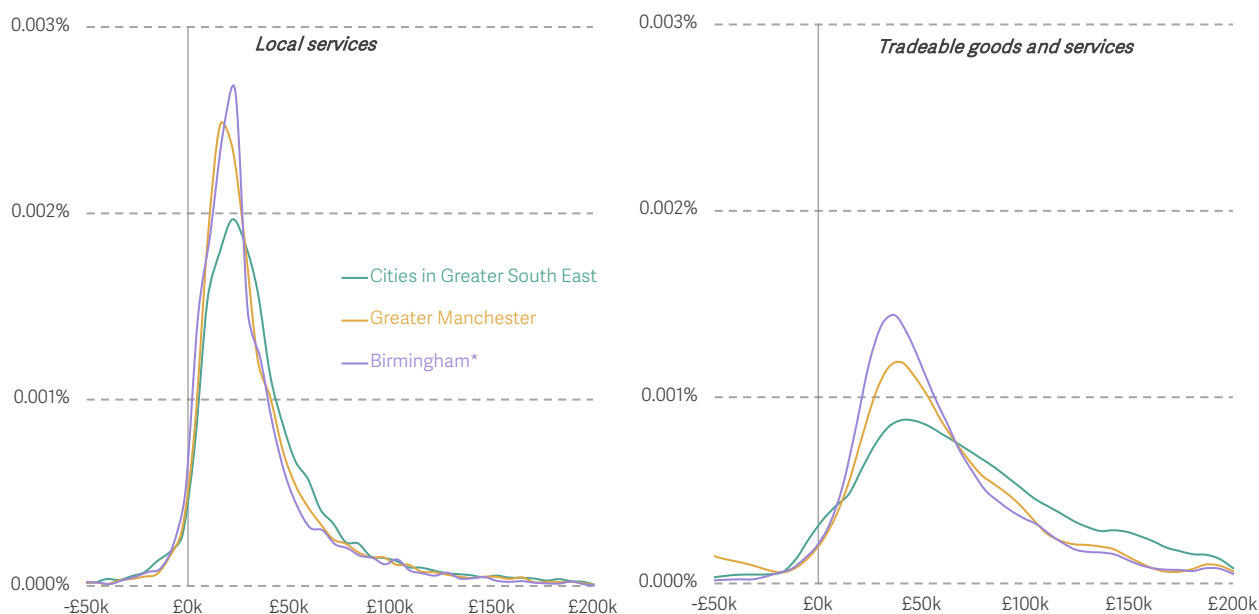
NOTES: Unit of analysis is primary urban area for Birmingham and cities in Greater South East, and GMCA for Greater Manchester. Estimated kernel densities from a pooled sample of firms from the Annual Business Survey for the years 2017-2019. Analysis excludes financial services firms and insurers. Cities in the Greater South East include London, Oxford, Brighton, Southampton, Portsmouth, Reading, Milton Keynes, Slough, Chatham, Crawley, Aldershot, Worthing, Cambridge, Luton, Peterborough, Norwich, Ipswich, Basildon and Southend. Tradeable goods and services sectors are defined in the Appendix in Centre for Cities' 2018 report The Wrong Tail. 'Local services' are all sectors except education, health, and public administration. Chart originally published in: P Swinney, What the West Midlands' local industrial strategy means for other places, Centre for Cities, May 2019.
SOURCE: Analysis of ONS, Annual Business Survey Regional dataset.

Of course, local services firms will continue to be a hugely important source of income for many people in GM, and action to improve pay, conditions and progression in these sectors is essential for improving living standards.[37] But the right-hand panel of Figure 5 suggests that tradeable sectors, not the local services, must be at the heart of a strategy that seeks significant productivity gains for the GM economy. This is because, when we look at the productivity profile of firms in GM serving national or international markets, there are too many low-productivity firms (the peak on the left), in contrast to the mass of high-productivity firms located to the right for London and cities in the South East of the UK. (Box 2 explores, and mostly debunks, some of the suggested explanations of the low productivity of firms in GM).

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37 For a programme of action to do just that, see: N. Cominetti et al, Low Pay Britain 2023 : Improving low-paid work through higher minimum standards, Resolution Foundation, April 2023.

BOX 2: **The nature of firms in GM**

It is possible that a driver of weak productivity in GM (and its firms) relative to other cities is that the types of firms in the city are different from elsewhere. Here, our analysis suggests this is not the case. As shown in the left panel in Figure 6, the city region has similar size distribution of firms to several other cities in the UK. This pattern holds within sectors too – suggesting that firm size alone cannot account for much of the within sector productivity differences across UK cities.

And second, the right panel shows that firm dynamism – proxied here by average firm birth and death rates over the four-year period from 2016 to 2019 – in GM, London and Birmingham has been broadly similar, with slightly higher levels of churn than the UK's smaller cities. Although dynamism is associated with higher overall productivity at the level of the aggregate economy, it does not appear to help explain lower productivity in GM and Birmingham.

FIGURE 6: **Variation in firm size and firm creation and exits does not explain productivity differences**

Proportion of firms by size bracket (left-hand panel) and average firm birth and death rates (right-hand panel), by functional urban area: 2012 & 2022 and 2016-2019
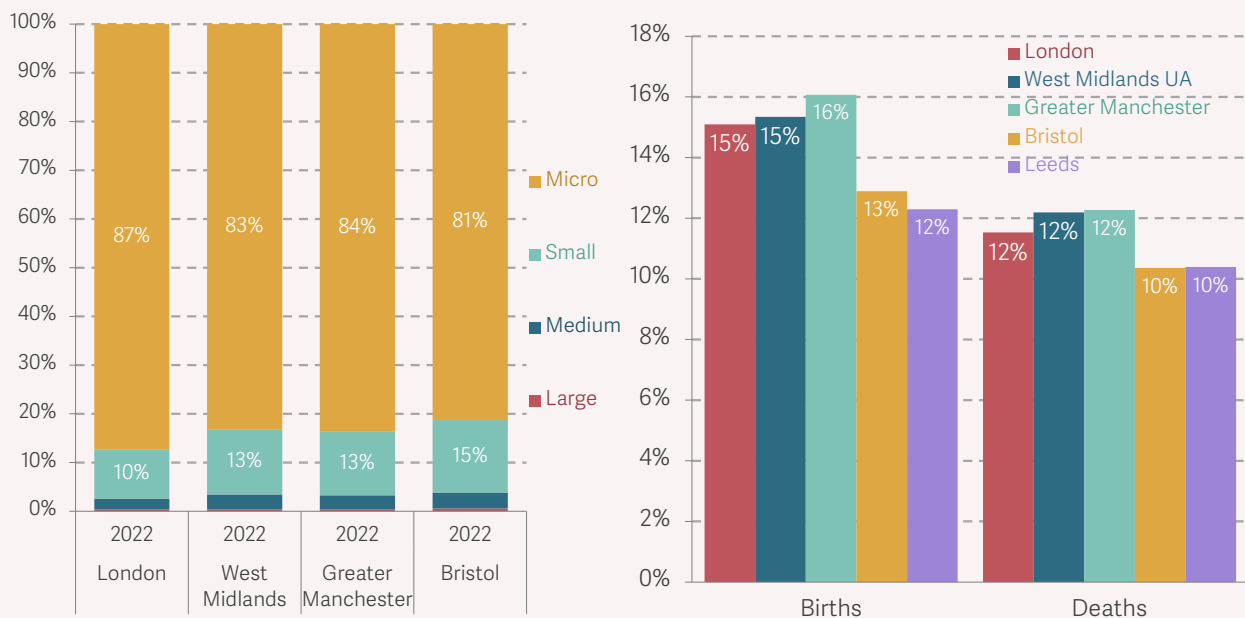

NOTES: Micro firms have 9 or fewer employees, small firms are defined as having 10 to 49 employees, medium firms have between 50 to 249 employees and large firms have 250 or more employees.
SOURCE: Analysis of ONS, Business Demography Tables, 2021 and UK Business, activity, size and location, 2022.

A focus on the tradeable sector suggests that it is natural to look to goods manufacturing as a source of productivity growth in GM. Indeed, as Figure 7 highlights, there is scope for improvement in this sector: the productivity of manufacturing activities in GM is only middling compared to other large UK cities. Box 3 below considers how additional R&D spending in the city region may help this happen.

FIGURE 7: **There are some gains to be had in GM from focusing on high-value manufacturing**

Gross valued added per job by manufacturing subsector: Greater Manchester and range across large UK cities, 2019
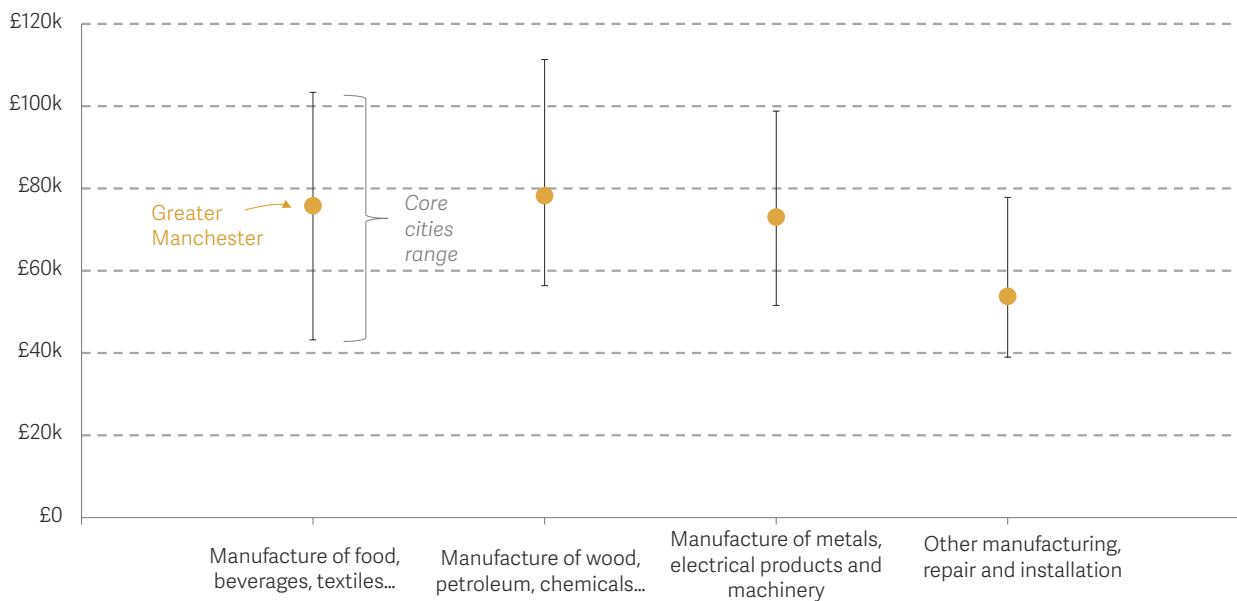
NOTES: 'Core cities' considered include London, Manchester, Birmingham, Leeds, Sheffield, Newcastle, Bristol, Glasgow and Cardiff ('core' cities not included in this analysis are Nottingham and Belfast).
SOURCE: Analysis of ONS, Business Register and Employment Survey and Regional Gross Value Added Balanced by Industry and Local Authority.

BOX 3: **Boosting R&D spending in GM**

Public research and development (R&D) expenditure amounted to £14 billion in the UK in 2021, mostly spent by UKRI and Higher Education Funding bodies (62 per cent of the total).[38] However, funding is currently skewed toward London and the South East: in 2021, UKRI's total spending per capita stood at £184 in London, £169 in the South East but just £77 in the North West.[39] Moreover, several recent studies have shown that the gap between public and

38 The other 38 per cent was spent by government departments such as the Ministry of Defence, the NHS and BEIS. See: ONS, R&D expenditure by the Government, 2023 for further details.
39 UKRI, Geographical Distribution of URKI spending Financial Year 2020-2021, 2023.

private R&D spending is greater in the UK than elsewhere, possibly indicative of an inefficient allocation of funding.[40]

There is considerable and growing evidence about the multiplier effects that R&D spending has on local activity and innovation; at the extreme, one could hope that public support could create new innovative clusters. Importantly, new commitments from public spending also set private expectations, meaning that there is a role for the public sector to move first to reduce uncertainty and incentivize the private sector to crowd-in.[41] Given this, the commitment to increase R&D spending outside of the Greater South East in the Government's Levelling up White Paper was very welcome.[42]

But shifting R&D spending from one place to another alone does not amount to a strategy for growth. First, from a national perspective, redistributing within a fixed budget may involve spending less in places where the return to innovation spend is higher. Second, note that the total amount of public expenditure in R&D is small relative to the gap in capital stock between the GM and London we noted in Figure 2. Third, agglomeration forces make it hard to generate new clusters and even strengthening existing clusters requires the private sector to respond to changes in public sector R&D spending. Central government R&D funding may stimulate innovation and further private investment, but it is not a substitute for an effective city.

Manufacturing is simply not large enough to make a transformational contribution to higher GM productivity and so should not be the focus. In 2021, only 7 per cent of GM jobs were in manufacturing. Even if manufacturing productivity in GM rose to that of the highest performing cities in the UK today, this would deliver gains of just over £2,100 per job across GM as a whole – or a 3.8 per cent improvement. This, while significant, does not deliver the level of change needed – and this is in any case based on a highly optimistic view of the potential for improvement in the sector.

Manufacturing is also likely to remain small part of the GM economy. In Figure 8 we plot manufacturing's share of employment in GM over the past 40 years – this has been in constant decline since 1980. The current small size of GM's manufacturing sector, and the fact that no major European city has seen the share of manufacturing jobs in its economy

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40 See, for example: Forth and Jones, The Missing £4 Billion: Making R&D Work for the Whole UK, Nesta, May, 2020. A Stansbury, D Turner & E Balls, Tackling the UK's regional economic inequality: Binding constraints and avenues for policy intervention, Harvard Kennedy School, 2023.

41 G Duranton & A J Venables, Place-based policies for development, NBER, 2018.

42 DLUHC, Levelling Up the UK, 2022.

increase over the past twenty years, suggests that significant re-industrialisation is unlikely to be a plausible strategy for city-wide productivity growth in GM.[43]

FIGURE 8: **Like other UK cities, GM has de-industrialised over the past forty years**

Proportion of employment in manufacturing: Greater Manchester, and primary urban areas of Birmingham and London
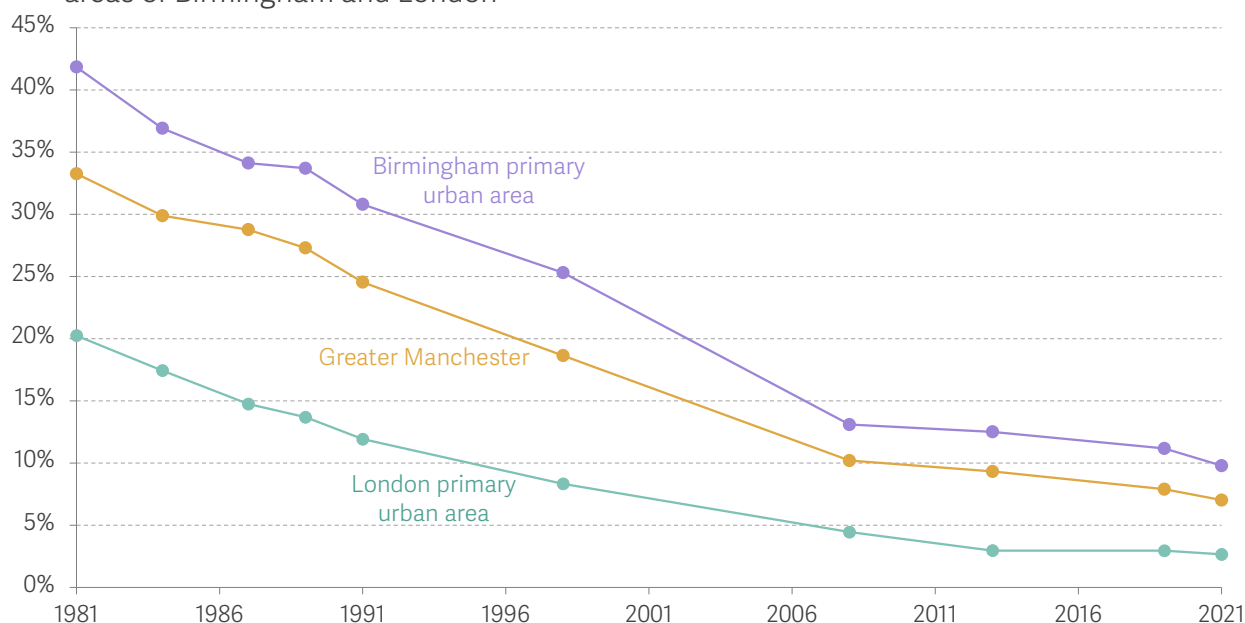
NOTES: Using primary urban areas for Birmingham and London for reasons of data availability.
SOURCE: Analysis of ONS, Census of Employment, Annual Business Inquiry, Business Register of Employment Survey.

GM has successfully transitioned to a service-led economy, but low within-sector productivity is holding it back

Our analysis so far suggests that it would be a mistake to expect local services or manufacturing to drive a step-change in productivity in GM. So, what then is the plausible engine for growth in GM?

When we look at the UK as whole, we note that the country's comparative advantage is in high-value tradeable services.[44] This should be good news for large city regions: firms that provide services in sectors such as law, design, accountancy and finance all benefit considerably from dense locations with a large labour pool to draw upon, making places such as GM their natural home. (Box 4 provides more detail as to why this is the case.)

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43 Analysis of OECD, Regions and Cities database, focusing on metropolitan areas with more than 750,000 workers.
44 J De Lyon et al., Enduring strengths: Analysing the UK's current and potential economic strengths and what they mean for its economic strategy, at the start of the decisive decade, Resolution Foundation, 2022.

BOX 4: The benefits of 'agglomeration'

There is a large evidence base that points to the existence of 'agglomeration economies' – the catch-all term used to describe the productivity benefits that accrue when firms cluster in specific places – especially city centres – rather than spreading themselves equally around the country.[45]

There are broadly three main benefits that cities offer to a business. First, it enables them to reduce costs by sharing indivisible facilities (e.g. roads, streetlights), intermediate suppliers, workers, and consumers. Sharing also encourages specialisation and allows firms to pool risks. Second, large cities make it easier for different types of worker and different types of employers to find each other, and therefore more productive job-worker matches occur at a faster rate.[46] And third, the spatial concentration of firms and workers facilitates the transfer of information, knowledge and skills and the creation of unconventional ideas.[47] Even in a world of fast communication technologies, close connections between large groups of people and firms provide more opportunities for learning and the sharing of tacit knowledge through face-to-face contact, facilitating knowledge exchange and the transfer of skills.[48]

The result of these effects is that different parts of a country play different roles in the national economy: big cities should be more productive than the hinterlands, although areas beyond the city still benefit as those firms demand goods and services from the broader region and as workers who commute in to the city for work spend their incomes in their neighbourhoods.

Tradeable services may be the UK's enduring strength, but is this also the case for GM today? Figure 9 shows that the share of employment in GM in knowledge-intensive business services (KIBS) has tripled in 40 years, from around 5 per cent in the early 1980s to over 15 per cent of employment in 2021. The growth of these types of jobs has accelerated especially sharply since the 2000s. This has been particularly notable in Salford, where the BBC's move to MediaCity kickstarted the relocation of staff from SIS, ITV and Ericsson, increasing the gross value added from the information

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45 G Duranton & D Puga, Micro-foundations of urban agglomeration economies, Handbook of Regional and Urban Economics, 2004.
46 T Papageorgiou, Occupational Matching and Cities, American Economic Journal: Macroeconomics, 2022. A Stoyanov & N Zubanov, Productivity Spillovers across Firms through Worker Mobility, American Economic Journal: Applied Economics, 2021.
47 E Berkes & R Gaetani, The Geography of Unconventional Innovation, The Economic Journal, 2021.
48 See for example I Ganguli, J Lin & N Reynolds, The Paper Trail of Knowledge Spillovers: Evidence from Patent Interferences, American Economic Journal: Applied Economics, 2020; M Andrews, Bar Talk: Informal Social Interactions, Alcohol Prohibition, and Invention, SSRN Working Paper, 2020; D Atkin, K Chen & A Popov, The returns to face-to-face interactions: Knowledge spillovers in Silicon Valley, NBER working paper, 2022.

and communication sector by over 480 per cent in real terms since 2010.[49] In recent years, the Salford Quays area has also seen the arrival of AJ Bell, Kelloggs and TalkTalk headquarters.[50]

FIGURE 9: **Greater Manchester has been relatively successful at transitioning to a high-value services economy**

Proportion of employment in knowledge-intensive business services: Greater Manchester, and primary urban areas of Birmingham and London
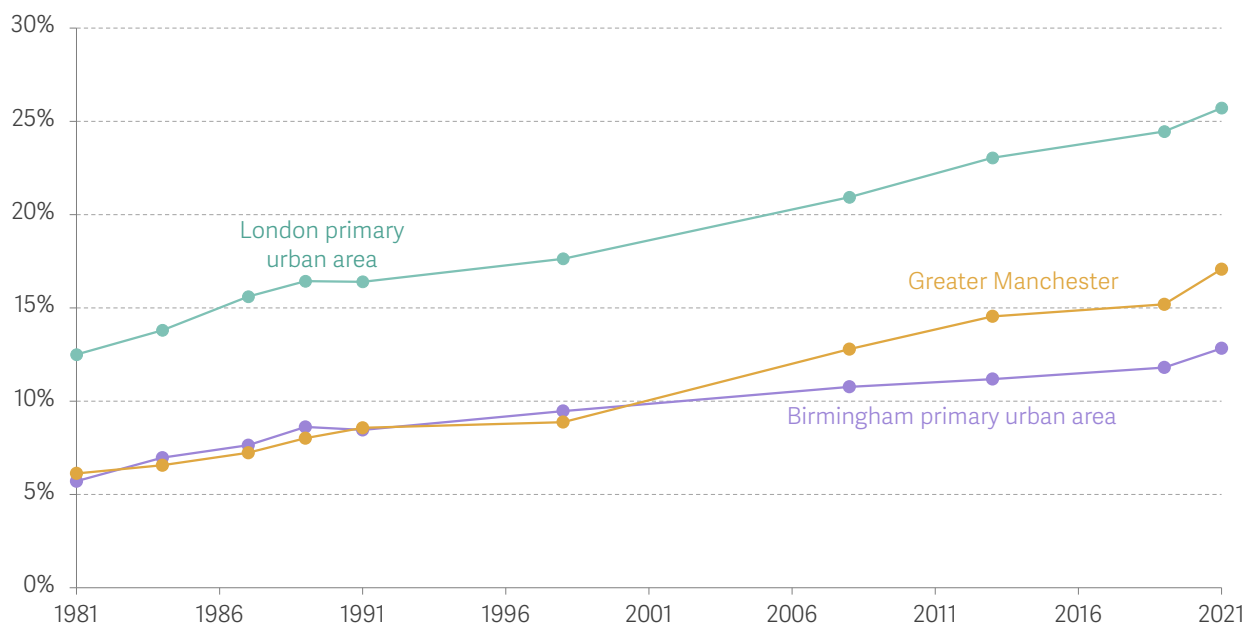
NOTES: Using primary urban areas for Birmingham and London for reasons of data availability.
SOURCE: Analysis of ONS, Census of Employment, Annual Business Inquiry, Business Register of Employment Survey.

GM has been relatively successful, then, in replacing manufacturing employment with jobs in KIBS and in broader tradeable services sectors such as finance. But in spite of this transition, concomitant improvements in productivity relative to the national average have not materialised. This suggests that simply targeting more of the same will not result in a more productive city, a conclusion confirmed by Figure 10. Here, we conduct two thought experiments. First, we calculate what GM's productivity would be if sector composition matched that of London. As the second bar shows, this would boost GVA per job by £2,261, closing the productivity gap between GM and London by just 9 per cent. In contrast, if GM retains its existing sector composition but the firms within these sectors became as productive as those in London, GVA per job would increase by £21,219, closing the productivity gap by 74 per cent. The takeaway from this analysis is very clear:

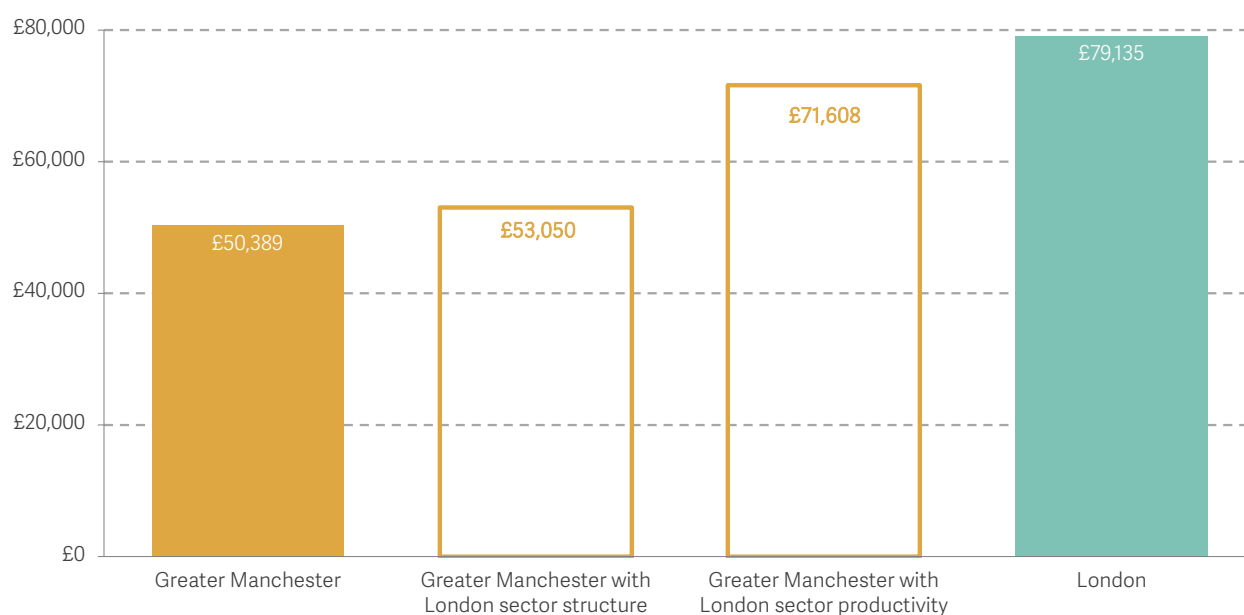49 Source: Analysis of ONS, Regional gross value added (balanced) by industry: local authorities.
50 Although some of this employment growth was displacement from other parts of Greater Manchester and the UK, there is evidence of around a quarter of the 3,300 jobs were new creations. See: P Swinney & G Piazza, Should we move public sector jobs out of London?, Centre for Cities, 2017.

poor performance within sectors, rather than broad sectoral composition, is the main cause of GM's below average productivity today.

FIGURE 10: **Changing sector composition alone would not deliver the improvements in productivity Greater Manchester needs**

Gross value added per job (excluding agriculture, mining and utilities): Greater Manchester and London, 2019

NOTES: Allocations done at a range of 1-digit and 2-digit SIC codes. Results hold when excluding imputed rent.
SOURCE: Analysis of ONS, Regional Productivity Statistics and Business Register and Employment Survey.

GM is not currently functioning effectively enough to attract the investment and high-skilled workers it requires

A common approach to industrial strategies is to identify specific narrowly-defined sectors with strong local base or a clear growth potential, and focus attention on those. But this is not the approach we favour. Not only would a highly-sector specific strategy be insufficient in scale to address the productivity challenge we have set out, it would also be a strategy that has not been successful to date.[51]

An alternative, and plausible, strategy to increase productivity in GM, therefore, should focus on attracting and retaining the high-value firms and highly-skilled workers that will deliver growth, regardless of sector. This is particularly true in an economy that will flourish by growing and improving its tradeable services capabilities. Firms operating in high-value services sectors are multifarious and engage in a great variety of activities, yet

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51 UK cities which lack a diversity of firms or attempted to 'double down' on existing sector-specific strengths have often seen a decline in their productivity over the long term. See, for example,: G Rodrigues & A Breach, What levelling up really means: changing the geography of knowledge, Centre for Cities, September 2021; S Heblich et al., The Death and Life of Great British Cities, NBER Summer Institute 2023.

they also are reliant on similar underlying skills and capital. For example, an accountancy firm and an architecture firm will both require office space (ideally centrally located), IT equipment and support, as well as access to a deep pool of skilled labour. In contrast, a textiles firm requires very different machinery and commercial space to an electronics manufacturing business.

There is clear evidence that GM is currently not functioning as an effective city system. In the left-hand panel of Figure 11, we plot the average gross investment rate for different cities between 2009 and 2019. At first glance, the city's prospects look bright: the returns earned on capital invested in GM are higher than those from any other city in the UK bar London.[52] But Figure 11 also provides pause for thought. Despite GM's strong performance when it comes to the rate of return on investment, relative to other UK cities, the level of investment has been stubbornly low (right panel), suggesting something about the city is currently acting as a brake on investment.

FIGURE 11: **Returns to capital are higher in Greater Manchester than in other UK cities but investment is lower**

Aggregate gross investment rate (left-hand panel) and net rate of return on capital (right-hand panel), by functional urban area: 2009-2019
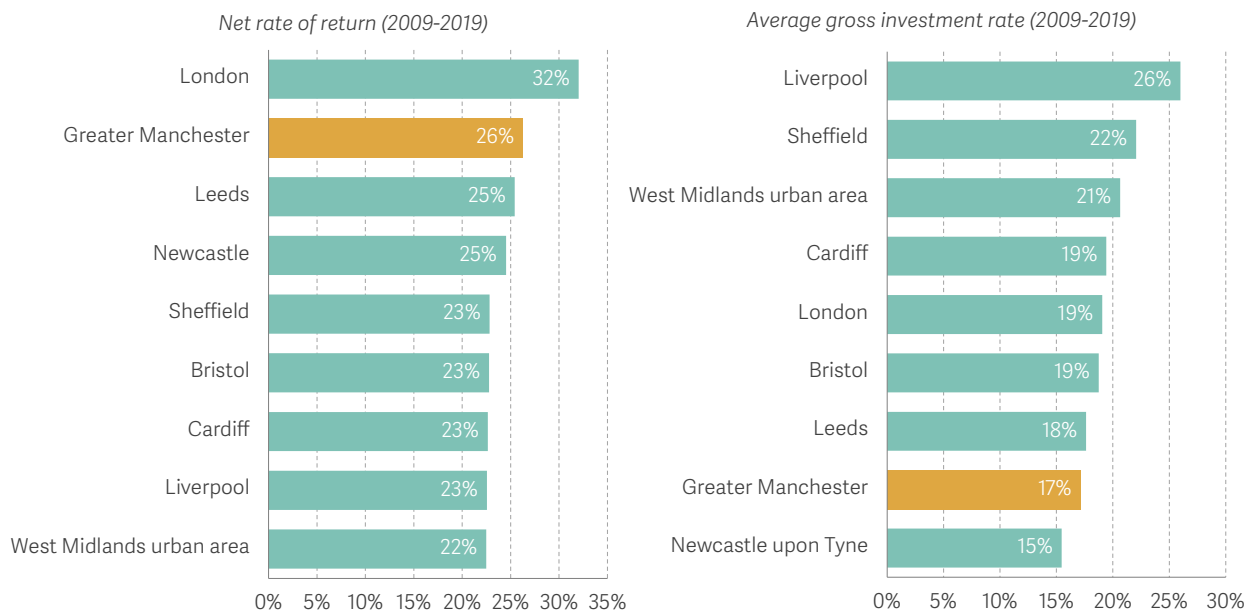
NOTES: Net return on capital is measured as gross value add less the wage bill and depreciation; this is divided by the total capital stock to produce a rate of return. Gross investment rate is Gross Fixed Capital Formation as a proportion of gross value added.
SOURCE: Analysis of ONS, Annual Survey of Hours and Earnings, Regional gross value added, by industry, Experimental regional gross fixed capital formation estimates by asset types; and EUKLEMS, Capital statistical module.

52 Some of London's higher rate of return is the result of returns to intangible capital such operating models and market research and branding, which are not included in national definitions of business capital, and which are likely to be more intensively used by high value services businesses located in the city.

There are also signs in the labour market that GM is not currently functioning as the highly effective city it needs to be. On the one hand, wages in GM are higher than in the surrounding area. Controlling for qualification and the type of work being done, graduates in GM earn 6 per cent more than in the rest of the North West (excluding its other large city, Liverpool).[53] This is what we would expect, GM is the region's major city, and cities should – on the basis of the agglomeration effects described above – be making better use of workers' skills than elsewhere. This magnitude of difference between GM and the rest of the North West is also consistent with the wider literature on urban wage premia, which find that wages are between 1 and 11 per cent higher in cities than in rural areas.[54]

On the other hand, the gap between graduates' wages and those of workers with lower-level qualifications is lower in GM than it is in London (this is also the case in all other large cities outside the capital). Although the quality of graduates in GM is not (observably) significantly different from that of London (for example, a similar share has a first-class degree or a STEM subject qualification),[55] the 'graduate wage premium' is around 30 per cent, compared to 40 per cent in London (see Figure 12).[56] This indicates that in GM, even though graduates are in lower supply than in London (the graduate share of the workforce is lower), its graduates are in insufficient demand to drive up their wages relative to other workers.[57] As we discuss in Section 3, this could be linked to the current constraints the city faces in terms of the expansion of activity in, and workers' ability to access, the city centre.

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53 Source: Analysis of ONS, Labour Force Survey, 2018-2022. These results are based on a regression of log hourly pay of 20-69-year-olds, with year dummies, and a dummy for the relevant area comparison mentioned based on workplace location.
54 S D'Costa and H Overman, The urban wage growth premium: Sorting or learning?, Regional Science and Urban Economics, July 2014.
55 For example, the proportion of graduates working in GM with a first-class degree is 16 per cent, slightly lower than the 19 per cent in London but similar to the 16 per cent in the rest of the UK. The share of graduates working GM who studied a STEM subject is 33 per cent, higher than the 30 per cent in London and the 29 per cent in the rest of the UK. Source: analysis of ONS, Labour Force Survey, 2017-2022, graduates age 20-59.
56 The approach is based on that used in: A Stansbury, D Turner & E Balls, Tackling the UK's regional economic inequality: Binding constraints and avenues for policy intervention, Harvard Kennedy School, 2023.
57 Recent research from the US concludes that: "Estimating separate place effects for college and non-college workers, we find that the college wage gap is bigger in larger and higher-wage places, but that two-thirds of this variation is attributable to differences in the relative skills of the two groups in different places. Most of the remaining variation reflects the enhanced sorting of more educated workers to higher-paying industries in larger and higher-wage C[ommuting] Z[one]s". See: D Card, J Rothstein & M Yi, Location, location, location, mimeo, August 2023,

FIGURE 12: **Like other cities outside the capital, Manchester's graduate premium is lower than London's and has fallen over the past 20 years**

Graduate hourly pay premium compared to workers with A-levels, for selected areas
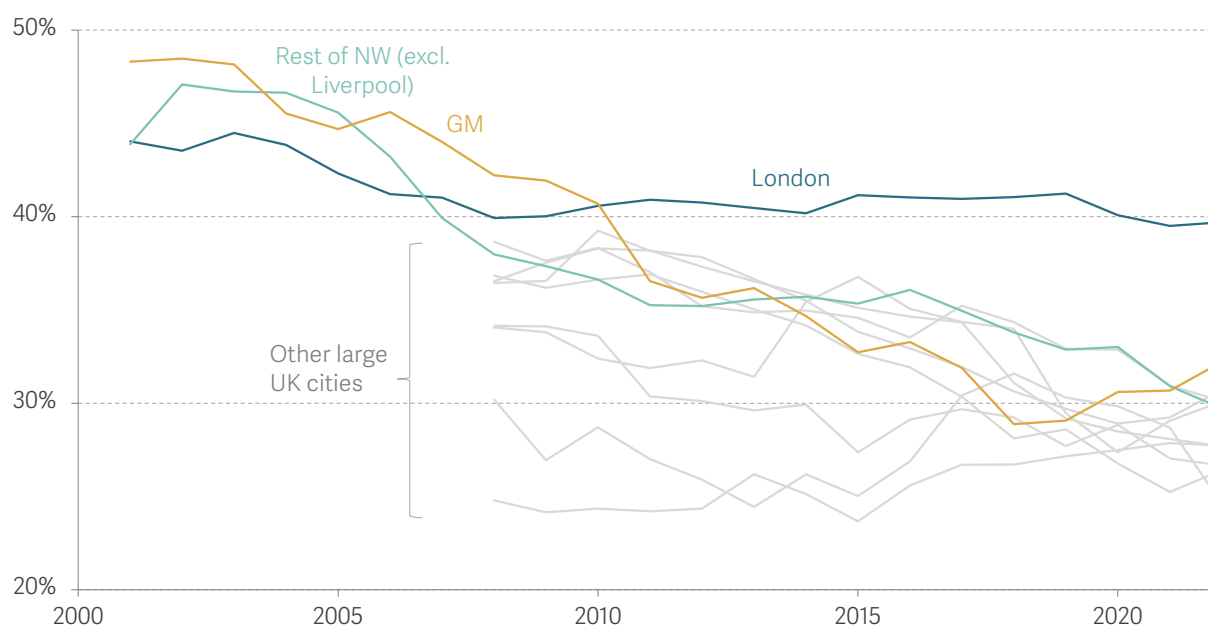
NOTES: Chart shows the five-year moving average of within-period estimates of the coefficients on having a degree versus having A-level qualifications in a standard Mincerian wage equation. Regressions also include age and gender. Approach is based on that used in: A Stansbury, D Turner & E Balls, Tackling the UK's regional economic inequality: Binding constraints and avenues for policy intervention, Harvard Kennedy School, 2023. Identification of core functional urban areas other than London and GM is only possible in Annual Population Survey, for which data is only available 2004 onwards (and a five-year average from 2009 onwards). Other cities shown in grey are Liverpool, Bristol, Leeds, Cardiff, Glasgow, Sheffield and Newcastle.
SOURCE: Analysis of ONS, Labour Force Survey and Annual Population Survey.

A strategy for productivity growth must create a virtuous circle of demand for firms and workers alike

In order to increase productivity in GM the city must build on its strengths. This means: continuing its ongoing transition to a service-led economy; increasing its already high level of graduate retention; and improving further its high rate of return on investment. But the change required to move to a higher-productivity path is huge. As our analysis in this section has shown, this could mean increasing the graduate share of the workforce by 6 percentage points; boosting capital per worker by £16,400; and enabling the population to increase by as much as 182,000 (10 per cent more workers). Despite palpable progress, continuing on the current path is not going to be enough to achieve the necessary change. Instead, GM must take heed of the lessons from other successful service-led cities, and adapt so it is fit to host (and connect) both high-value firms and highly-skilled workers at scale.

The subsequent three sections explore what needs to change with respect to three key policy areas over which local policy makers have control. First, we look first at the

strategic questions GM must face when it comes to commercial land use and planning. Second, we turn to what more needs to be done to develop a transport system that is fit-for-purpose in a higher-productivity city. And third, we consider what the city must do with respect to housing to support prosperity. In order to make a lasting difference policy needs to work across all of these interacting areas to create a complex ecosystem where high-value firms and high-skilled workers that will drive productivity growth can flourish.

Section 3

The role of the city centre in a higher-productivity Greater Manchester

In the previous section we discussed how a higher-productivity GM must be ready to host (and connect) both high-value firms and highly-skilled workers. In this section, we unpack the first part of this task and set out what is needed for GM to attract additional capital into the city. Specifically, we consider how a productivity strategy driven by tradeable services will affect GM's economic geography, highlighting the critical role that the city centre plays given it is disproportionately attractive to high-skilled services activities, and how this can be reinforced. We show that city leaders must make strategic choices when it comes to land use in the central district of GM, and need a policy framework to help them achieve this. Finally, we reflect on the role that other parts of the wider city region have to play in a higher-productivity GM.

The extent to which firms benefit from the 'agglomeration economies' discussed in Section 2 varies considerably, and this can have an important bearing on location decisions. In particular, non-tradeable businesses that sell goods or services to a local market will locate near their customers. By contrast, exporting businesses that trade internationally could, in principle at least, locate anywhere. But what is most important for those firms is finding a location where the production benefits, including from agglomeration, outweigh the costs. For manufacturing firms with large plants, issues such as supply chains and logistics, cheap land and proximity to transport will drive location decisions. But firms providing knowledge-intensive business services such as financial and legal firms as well as technology providers strongly benefit from the sharing, matching and learning that agglomeration brings.

As a result, they tend to cluster in locations where there are good facilities and access to a large effective labour pool – often found in the central district of a city.[58] We showed in Section 2 that these high-value service activities are important to a successful economic strategy for both the UK in general and GM in particular. This implies that a successful city centre strategy is key to achieving a higher-productivity GM.

Boosting the effective size of the city centre is crucial to delivering a higher-productivity Greater Manchester

Although such considerations are important in theory, how do agglomeration economies shape the economic geography of GM in practice? Figure 13 suggests such factors are already playing an important role. It provides a snapshot of the share of employment by broad sector classifications across GM and a selection of its local authorities. Around 22 per cent of employment in GM is in finance or other knowledge-intensive services, slightly more than for Great Britain as a whole (20 per cent) but lower than the 33 per cent seen in London.

However, the city centre is much more specialised in knowledge-intensive activities than the city region as a whole – nearly half (47 per cent) of employment in central Manchester is in finance or other knowledge-intensive services.[59] Within GM this is also true when comparing the broader GM average to Manchester and Salford local authorities. In contrast, in areas of GM further out from the city centre, manufacturing is a more important source of jobs: for example, 12 per cent of employment in Oldham remains in the manufacturing sectors.

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58 There are, of course, some exceptions to this rule such as firms where commercial confidentiality is at a premium, including pharmaceutical companies.
59 Throughout this report we use the term 'city centre' to denote an area within a given radius of the central point of the city. The central point is identified by studying aerial views of the city and using location of commercial amenities and road patterns. The radius is adjusted for population size of the city region, with a 2-mile radius for London and 0.8-mile radius for cities with a population between 600,000 and 2.5 million based on 2011 Census numbers. These definitions have been provided by Centre for Cities, see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, Centre for Cities, September 2013.

FIGURE 13: **Close to one-half of employment in GM's city centre is in knowledge-intensive services or finance, substantially more than city-wide**

Share of employment, by jobs type: GB, selected city regions and local authorities, 2021
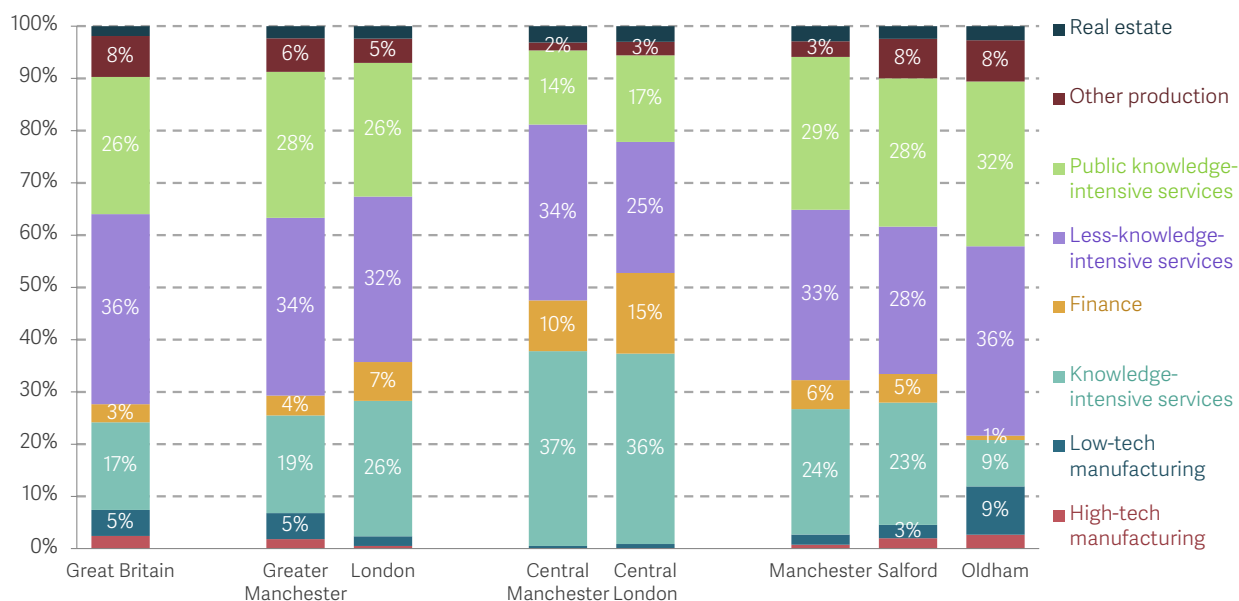

NOTES: Based on SIC 2-Digit employment shares. Sector designation by ONS: 'Other production' includes agriculture, forestry and water supply. Public Knowledge Intensive Services (KIS) includes arts, entertainment and public services. Less KIS includes retail, transportation and hospitality. Finance includes financial and insurance activities. KIS includes professional, technical and administrative activities, communication and scientific R&D. Low tech Manufacturing includes textiles, food, tobacco, paper and wood products. High-tech manufacturing includes pharmaceuticals and electronics. City centres reflect definitions provided by Centre for Cities, see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, Centre for Cities, September 2013 for more explanation.
SOURCE: Analysis of ONS, Business Register and Employment Survey.

The importance of the city centre in hosting high-value firms relative to other parts of GM is confirmed by the analysis depicted in Figure 14. This shows the share of the city's GVA generated in each square kilometre, with the large bars at the city centre indicating how much more value is already generated in that part of GM (accounting for 16 per cent of GM's total GVA). That is not to deny that there are other areas of high value added – particularly in Trafford and the town centres such as in Wigan and Bolton – but the dominance of the city centre is clear. It is tempting to conclude from this that what is needed is a strategy that aims to spread business activity out across the city. As discussed below, our view is that this would be a risky approach because it is a perilous strategy that ignores the roles that different parts of the city play in the overall economic strategy, with market forces driving high-value firms to concentrate in the central district, resulting in the demonstrable benefits that GM already enjoys as a result of agglomeration.

FIGURE 14: **A very large share of GM's economic value is already generated in the city centre**

3D map of gross value added per square kilometre, by LSOA: Greater Manchester, 2019
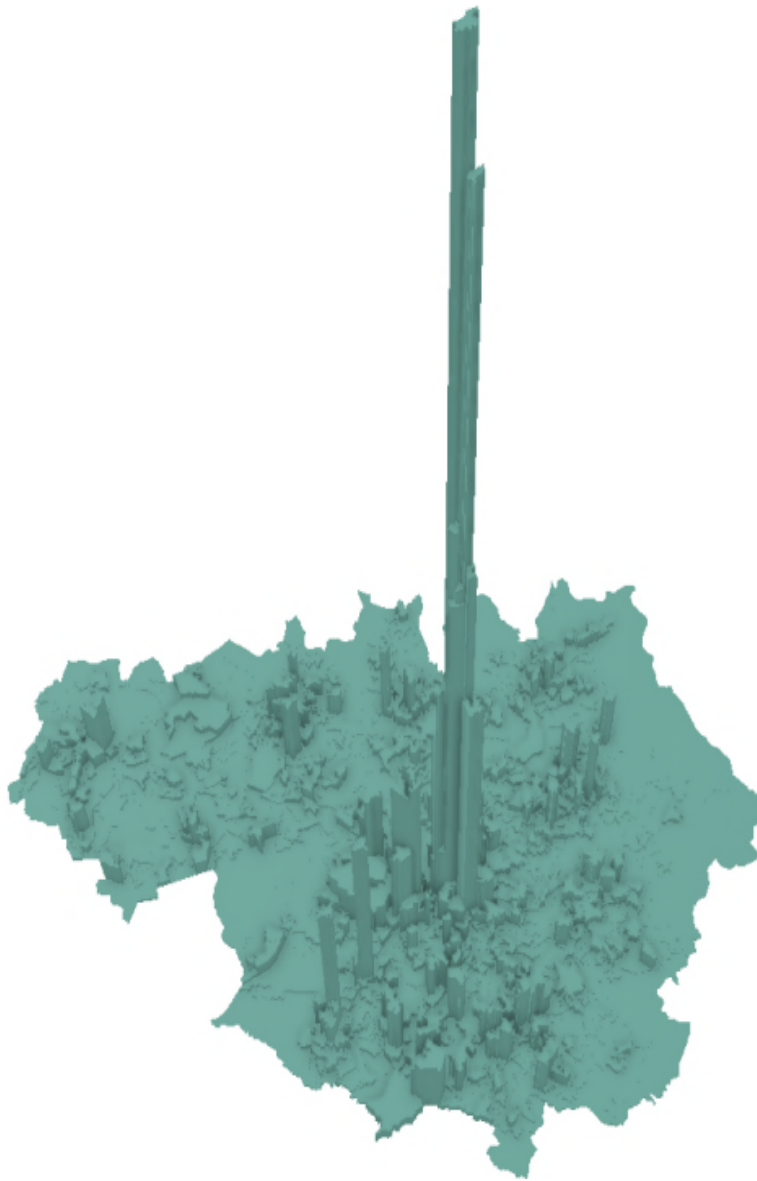
SOURCE: Analysis of ONS, Small area gross value-added estimates.

That the centre of GM already shows signs of the advantages that come from the dense concentration of human and business capital is very positive. Figure 15 shows that firms in the city centre of GM have significantly higher productivity than firms located elsewhere in GM (by 33 per cent), albeit with a lower uplift than firms located in central London have over their suburban counterparts (47 per cent).[60] The bad news is that, as the horizontal axis shows, the city centre accounts for only 13 per cent of total employment in the city region, far lower than the third (34 per cent) of employment accounted for by the city centre in London. Raising the share of employment in the city

60 Of course, GM's city centre productivity uplift is from a much lower average than London.

centre to London levels would achieve two-fifths of the productivity improvement that our hypothetical GM requires in the scenario set out in Section 2.[61] This suggests that a strategy which focusses on trying to locate more firms and jobs in the city centre could reap significant rewards.

FIGURE 15: **Agglomeration is playing out in GM's city centre, but the share of the workforce employed there is too low**

Gross value added per job in the city centre as a proportion of suburbs (vertical axis) and city centre employment as a proportion of total city employment, by city region: 2019
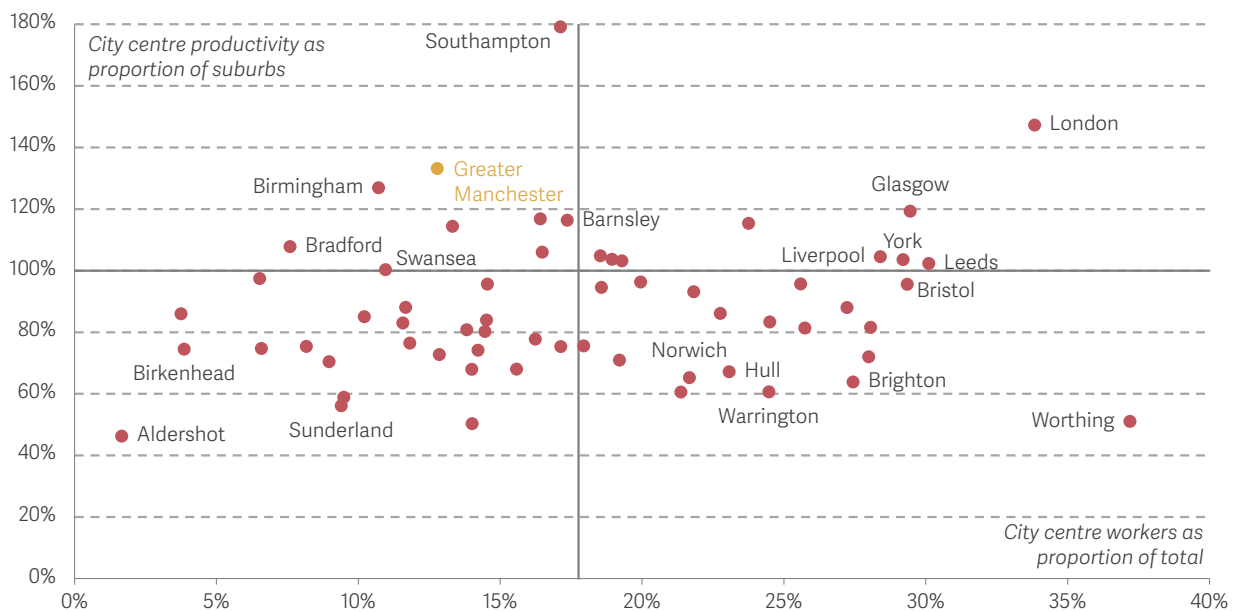
NOTES: City regions are defined as primary urban areas, apart from Birmingham (West Midlands urban area), Greater Manchester and London which are defined as core functional urban areas. City centres reflect definitions provided by Centre for Cities, see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, Centre for Cities, September 2013 for more explanation.
SOURCE: Analysis of ONS, Small area gross value-added statistics, and Business Register and Employment Survey.

The working from home revolution may not be the game-changer some think it will be

During the Covid-19 pandemic there was a significant change in working patterns, with lockdowns pushing many (at least office-based) employees to work from home (WFH), resulting in the proportion of working days done remotely currently remaining at a higher level than pre-2020.[62] Moreover, the popularity of remote working among employees is

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61 Delivering the rest of the improvement to narrow the gap between GM and London requires productivity improvements within the city centre too. It is plausible that some, albeit not all, of this increased productivity would be generated by the agglomeration benefits that an even more dynamic city centre would bring.
62 ONS, Characteristics of homeworkers, Great Britain: September 2022 to January 2023, February 2023.

well documented, with studies showing that the ability to work from home is a valued perk equivalent to 6 per cent of earnings.[63]

It is possible to argue that post-Covid-19 changes in working patterns could profoundly alter the approach to delivering higher-productivity cities. In this context, evidence is emerging from the US shows that the impact of hybrid working has been to alter the gradient of real-estate prices with respect to distance from the city centre – boosting house prices in suburbs relative to the city centre.[64] These changes in residential real-estate values are likely to reflect a change in demand for housing as workers do want more space and commute into city centre office less frequently.

Do these changes mean that city centres will be less important when it comes to delivering high productivity employment in future?

In theory at least, the extent to which central areas of cities become less important will be determined by the balance between the relative benefits of office working (i.e. the productivity-enhancing face-to-face interactions within businesses and between firms) relative to the costs of renting office space (for firms) and commuting (for workers).[65] And empirical evidence from the US suggests that the costs of commuting are important: in larger cities where the costs of commuting are large, remote working is more commonplace, whereas small cities have seen workers return to offices at pre-pandemic rates.[66]

If we assume that sector-level remote working averages apply to GM's economy then we estimate that just over two days per week are worked remotely. Although significant, this is not indicative of a significant drop in office need, as hybrid firms will still tend to retain an office presence.[67] Regional data suggests that the proportion of workers either home working or hybrid working in the North West is the lowest in the country, at 36 per cent when compared to an average of 44 per cent for Great Britain as a whole.[68] It's possible that this share might rise in a GM with a larger tradeable services sector (where working from home is more commonplace than, for example in the manufacturing sector), but the scale of the demand for office space in our hypothetical GM set out above is likely to be much larger than the relatively small reductions in demand for office space we've

63 P Mizen, S Taneja & N Bloom, Working from home is revolutionising the UK labour market, VoxEU CEPR, March 2021.
64 A Ramani & N Bloom, The Donut Effect of Covid-19, NBER Working Papers, December 2021. A Gupta et al., Flattening the Curve: Pandemic-Induced Revaluation of Urban Real Estate, NBER Working Papers, April 2021.
65 Studies have found that WFH can reduce innovation and idea generation, suggesting continued benefits from office working, see: M Brucks & J Levav, Virtual communication curbs creative idea generation, Nature, 2022. Evidence also suggests impacts on long-term career progression and productivity, for example N Emanuel, E Harrington & A Pallais, The Power of Proximity to Coworkers: Training for Tomorrow or Productivity Today, Working Paper, 2023.
66 F Monte, C Porcher & E Rossi-Hansberg, Remote Work and City Structure, NBER Working Paper, July 2023.
67 Using data from the Global Survey of Working Arrangements (G-SWA). C G Aksoy et al., Working from home around the world, Brookings Working Paper, September 2022.
68 ONS, Characteristics of homeworkers, Great Britain: September 2022 to January 2023, February 2023.

seen related to working from home. This is especially the case if effective and convenient transport networks make commuting into the centre a more attractive prospect, as Section 4 discusses.

Making the best use of land in the city centre is a key issue for policy makers

Increasing productivity in GM will require a city centre that can host high-value firms, providing the facilities they need and is fit for purpose. Office space will be crucial in this context, providing firms with the space they need to operate.[69] To assess how much office space might be required, we consider a simple thought experiment in which the number of people working in GM city centre increases by the full 180,000 high-skilled workers that our modelling suggests must join the GM workforce to narrow the productivity gap to London. To provide office space for this number of workers would require an extra 180 hectares of office floorspace.[70] In order to deliver on the benefits from agglomeration it would be most beneficial if this extra office floorspace could be delivered within the city centre. Maintaining similar densities of office space to now would mean that up to 33 more hectares of land in central Manchester would need to be made available for office development for 180,000 new office workers.

How can such a large increase in office space be delivered? On the face of it at least, such an increase does look achievable. GMCA's spatial strategy – *Places for Everyone* – identifies over 280 hectares of potential office floorspace through land availability assessments over the plan area (all local authorities in GM minus Stockport) between 2022-2039. But some of this putative office space will be in the areas around the Manchester Airport Enterprise Zone or in the other town centres of Greater Manchester, and not in the central district of GM.[71] Moreover, much of this will be absorbed by existing projected job growth, with Places for Everyone suggesting around 200 hectares of floorspace will be required to meet existing needs, so any increase in activity on top of this would require some further office supply.

But would the land be available in the city centre on top of GM's existing spatial plans? Figure 16 provides a snapshot of how land in the centre of Manchester is currently used.[72] Of the 456 hectares we define as the city centre, 63 hectares of land is designated as vacant or 'non-developed' land along with 85 hectares of unknown developed land. This

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69 In Section 4, we consider what transport connections are required to connect up the necessary workers with high-value firms located in the central districts.
70 Based on the assumption of 10 square meters per person as recommended by the British Council for Offices. See: The Future of UK Office Densities, British Council of Offices, September 2022. In reality, it is likely some of the 180,000 additional workers from our modelling would work elsewhere in GM, but an upper bound is here used to illustrate the land use challenges faced in an expansion of this scale.
71 The Plan earmarks 'more than half' of new office space for the City Centre, identifying over 230 hectares of potential floorspace across Manchester and Salford. See Places for Jobs in Places for Everyone Plan – composite version, GMCA, September 2023.
72 As discussed in footnote 2, the city centre is defined as a circle with a radius of 0.8 miles around the central point of Manchester.

might seem like a promising source of additional land for office development on the face of it. But converting some of this space into office space would come with sharp trade-offs, given that land designated as 'non-developed' in Figure 16 is often important amenities including parks, playing fields and residential gardens, key for the liveability (and even sustainability) of a city.[73] Moreover, such non-developed land comprises a fairly low proportion of land in central Manchester relative to central London (and, for example, central Bristol) where this figure is closer to 20 per cent, underlying its importance in making a city liveable. And land designated as "unknown" likely reflects courtyards and other large paved areas around the city which are not adjacent to roads and enable people to congregate, as well as carparks. The majority of this land is likely desirable to be maintained in current use, although carparks could be reduced as public transport is improved. This leaves the 17 hectares of vacant land, where a large proportion of what it is plausible to develop has likely already been allocated under the Places For Everyone strategic plan.[74]

FIGURE 16: **The margins for reallocating land in the city centre are small**

Proportion of land in the city centre by use (left panel) and proportion of commercial land by use (right panel): Greater Manchester, 2022
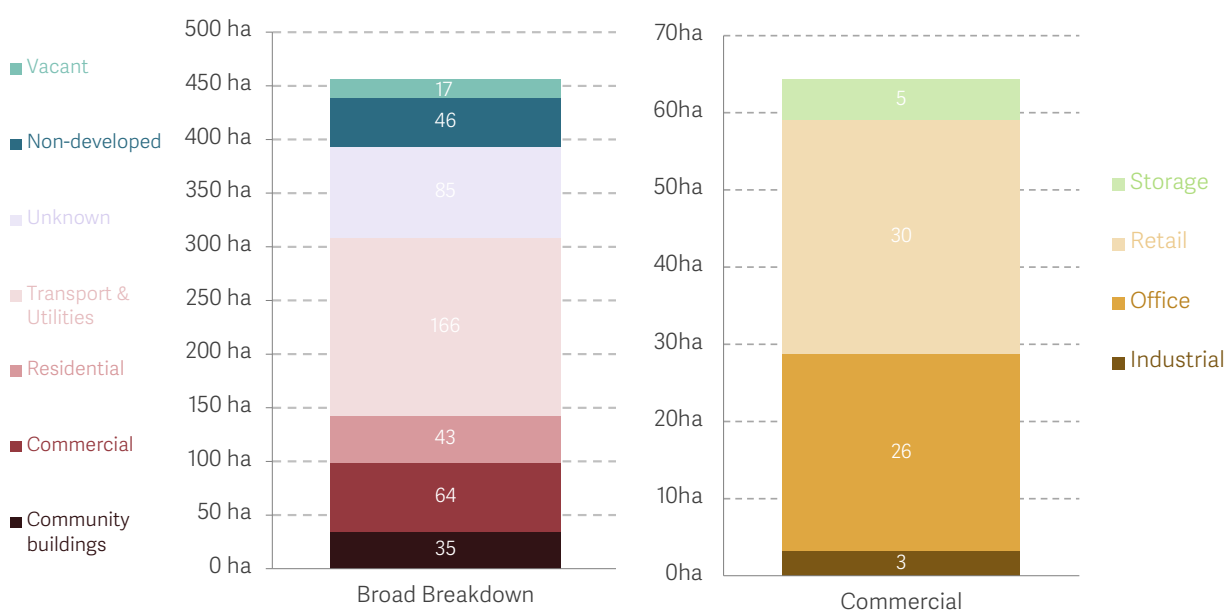
NOTES: Unknown land includes carparks and courtyards. Vacant land is land which has been previously developed but is now vacant and could be developed without further demolition or treatment. City centres reflect definitions provided by Centre for Cities, see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, September 2013 for more explanation.
SOURCE: Analysis of Department for Levelling Up, Housing and Communities, Land use in England, 2022.

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73 See Section 5 for a further discussion of this issue. See also, J Marshall, It's getting hot in here: How ever-warmer UK summer temperatures will have an outsized impact on low-income households and low-paid workers, Resolution Foundation, August 2023.
74 Given Places for Everyone identifies more potential office floorspace than is necessary to meet existing demand, a small proportion of PfE allocations may in practice count towards the total additional office space in our hypothetical scenario.

A more promising (but still small) margin for adjustment is re-allocation within the 64 hectares (14 per cent) of land in the city centre that is already used for commercial purposes, of which 47 per cent is currently used for retail, compared to just 40 per cent that is used for office space. The 14 per cent of land used for commercial purposes is not too dissimilar from the 13 per cent in London city centre, but in London far more of this land (65 per cent) is used for offices, and much less for retail (33 per cent).[75] This suggests that one way to increase the supply of office space could be to convert some retail land to office use. Shrinking the retail footprint to Central London levels would unlock 9 hectares of land – enough office space to accommodate an additional nearly 50,000 workers in the city centre at current densities (we return to discuss the density of office space shortly).[76]

There are no easy options when it comes to planning decisions about land use in the centre of GM that can harness the economic potential of the area to the full. One clear tension is between building residential homes in the central districts of GM, rather than commercial properties, a topic we return to in Section 5.[77] But, as Box 5, shows, there are also strategic decisions to be made about what types of commercial activity to really foster in the city centre, with evidence suggesting that over-reliance on tourism can crowd out more productive uses of finite city centre land.

BOX 5: The pitfalls of a tourism-led economic strategy

Given the scarcity of land in GM's city centre, policy makers must think carefully about competing uses of land. In recent years, GM has successfully promoted Manchester and Salford as tourism destinations. As we argued in Section 2, such a strategy will not bring improvements in productivity, as evidenced by the similarity in the productivity distribution of firms in

these sectors across cities in the UK. Furthermore, such a strategy may even have negative impacts for the city economy, by increasing the competition for scarce space in the city centre. Figure 17 provides the cautionary tale of Lisbon, where a strategy to increase the tourism sector has led to productivity stagnation, with output per worker 4 per cent lower than in 2013. This has

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75 The city centre definition for London is a circle with a radius of 2 miles around the central point of London – accounting for the fact that the central business district is far larger than in other UK cities and so would be overly bound by a 0.8-mile radius definition.
76 This amount of reallocation may not be desirable if amenities such as shops close to workplaces become more important for the attractiveness of office space post-pandemic.
77 Places for Everyone recognises the need to balance multiple demands on land, and explicitly states that, although office conversion could be used to supply new homes, there may need to be restrictions on conversion in some locations. The land required for more efficient transport services (as set out in the next Section) may also be a competing priority in the centre of a higher-productivity GM, although much of this could likely come from more efficient use of the 166 hectares of developed land in the city centre already used for 'transport and utilities'.

occurred while the second and third cities in Portugal, Porto and Braga,

have continued to see productivity improvement.

FIGURE 17: **Productivity in Lisbon has stagnated as tourism has crowded out higher-value business**

Gross value added per job, constant PPP adjusted: selected functional urban areas, 2001-2019
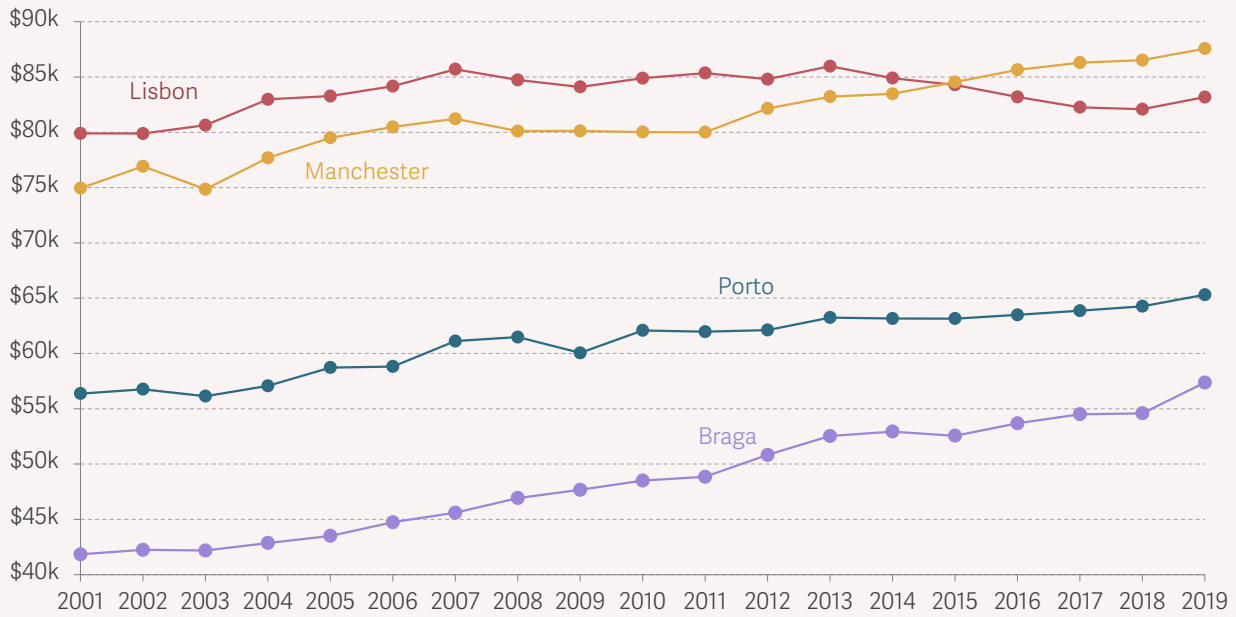
NOTES: 'Manchester' is here defined as the entire functional urban area (including non-core local authorities such as High Peak,Cheshire East and Rossendale), for consistency with the international comparisons presented.
SOURCE: Analysis of OECD, Functional Urban Areas and Cities database.

A higher-productivity GM will need to expand the city centre up – or out

Given there is limited scope to change the use of much land in the city centre of GM, how else could the office space that high-value firms will require in order to locate in the city be created? Rough calculations of the density of commercial space in central Manchester (illustrated in Figure 18) suggest 5.4 hectares of office floorspace for every hectare of land is allocated to offices – this ratio is 5.8 in central London and only 3.3 in central Birmingham, suggesting large increases in density will involve markedly changing the character of the city centre and building more high-rise office space even than London.

FIGURE 18: **Greater Manchester's city centre is already almost as dense as London in terms of office floorspace**

Average number of storeys per hectare, by land use: selected cities, 2022
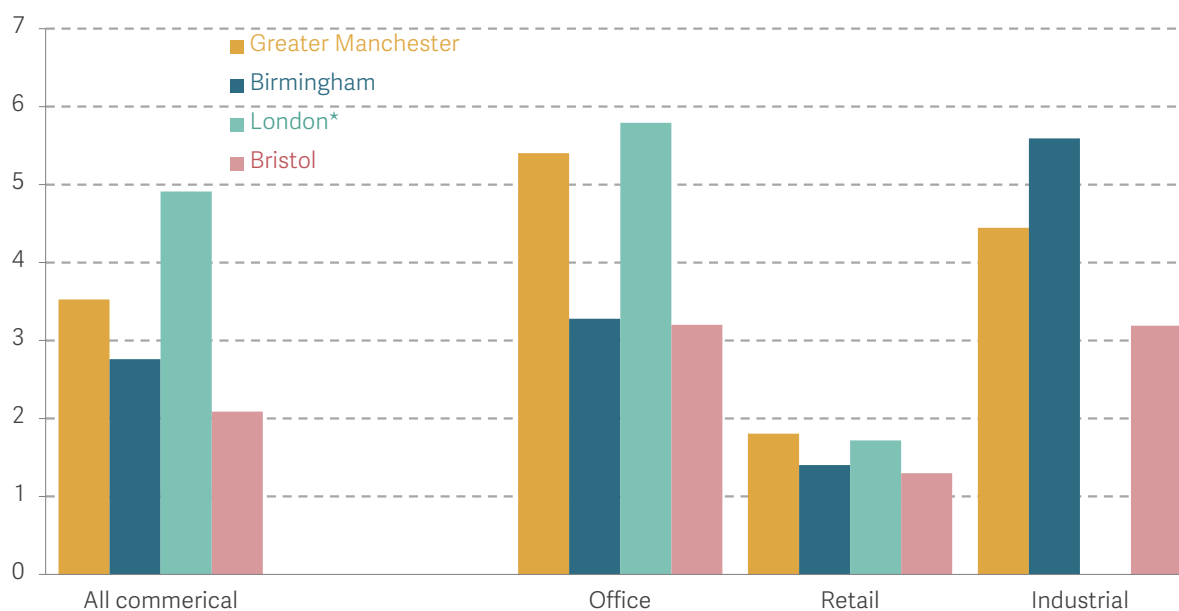
NOTES: Industrial category for London is not shown due to data issues. City centres reflect definitions provided by Centre for Cities; see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, September 2013 for more explanation.
SOURCE: Analysis of Department for Levelling Up, Housing and Communities, Land use in England, 2022; Valuation Office Agency, Non-domestic rating business floorspace statistics, 2022.

The most plausible strategy, then, is to look beyond the immediate city centre to the areas adjacent for development land. A greater proportion of total land is non-developed in the adjacent ring, with 26 per cent of the land within a half-mile ring around the city centre designated as non-developed, compared to the 10 per cent in the city centre. The majority of this land is, again, residential gardens and outdoor recreation space, and it is not surprising that this is more prevalent in the ring around the city centre. In Figure 19, we instead focus on the use of developed land in the half mile ring around the city centre. This reveals that currently a significantly smaller share of land (1 per cent) is used for office space in the outer ring than in the city centre (6 per cent). But significantly more is used for storage and warehousing (a category which includes depots, scrap and timber yards): 5 per cent of land in this outer ring compared to 1 per cent in the city centre. Extending the business district outwards may therefore involve displacing some of these 28 hectares of storage space. Moving to the same ratio of storage and warehousing as a proportion of land in this adjacent ring, as is currently in the city centre, would free up a further 20 hectares of land for office space. Combined with modest reductions in retail space and some use of vacant land in the city centre, this could provide sufficient office space to accommodate the increase in workers envisaged by our modelling. This is however, assuming that commercial development is prioritised instead of residential uses in any land freed up by the displacement of storage space.

FIGURE 19: **There is ample land adjacent to GM's city centre that may be better used for new office development**

Proportion of developed land, by use in GM city centre and half mile ring around the city centre: 2022
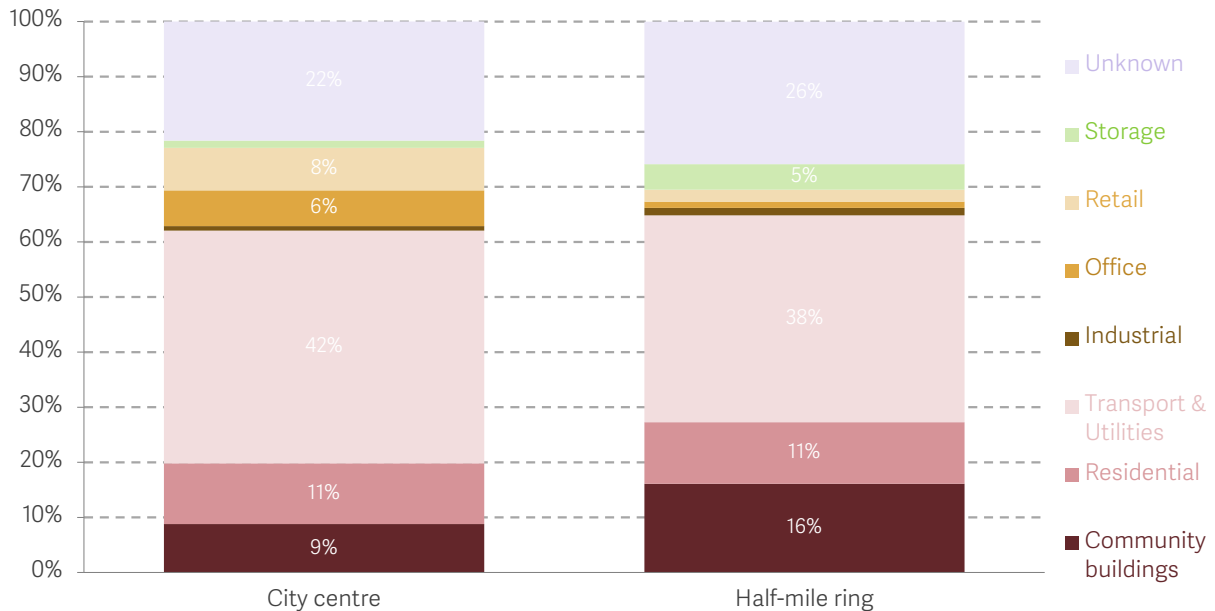

NOTES: City centres reflect definitions provided by Centre for Cities, see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, September 2013 for more explanation. Total developed land is equal to 394 hectares in the city centre and 595 hectares in the half mile ring.
SOURCE: Analysis of Department for Levelling Up, Housing and Communities, Land use in England, 2022.

This prioritisation of commercial land use is especially important given it's not just theory that tells us office space should be the priority in central Manchester, the market agrees too. Figure 20 presents the residual land value per hectare in Manchester local authority compared to a number of others. This is an indication of the overall development value of the land in the city for various uses, deducting an assumption of developer costs and profit margins. The differences in residual land values between using land for office space in GM and other uses suggests high demand relative to supply for this type of development. This contrasts with other parts of the country, such as the highly productive city of Oxford, where housing and office needs appear to be roughly balanced, and the Outer London borough of Harrow, where the high relative price of land for residential is providing a clear signal for the need for more residential development. Moreover, it is striking just how high residual land values are for commercial builds in Manchester compared to both Oxford and Harrow (the figures for all are a lot lower than central London, however). Of course, land-use plans need to consider more than just market values, and the best use may vary by site, but these price signals indicate the high economic value of using land in the city centre for office space even when the construction costs are taken into account. Moreover, the uplift between land for office space and other uses also suggests (at first glance, at least) that viability should be less of an issue for new office floorspace than for other uses.

FIGURE 20: **Land values suggest that expanding office space should be the priority in central GM**

Residual land value per hectare, by use and local authority: 2019
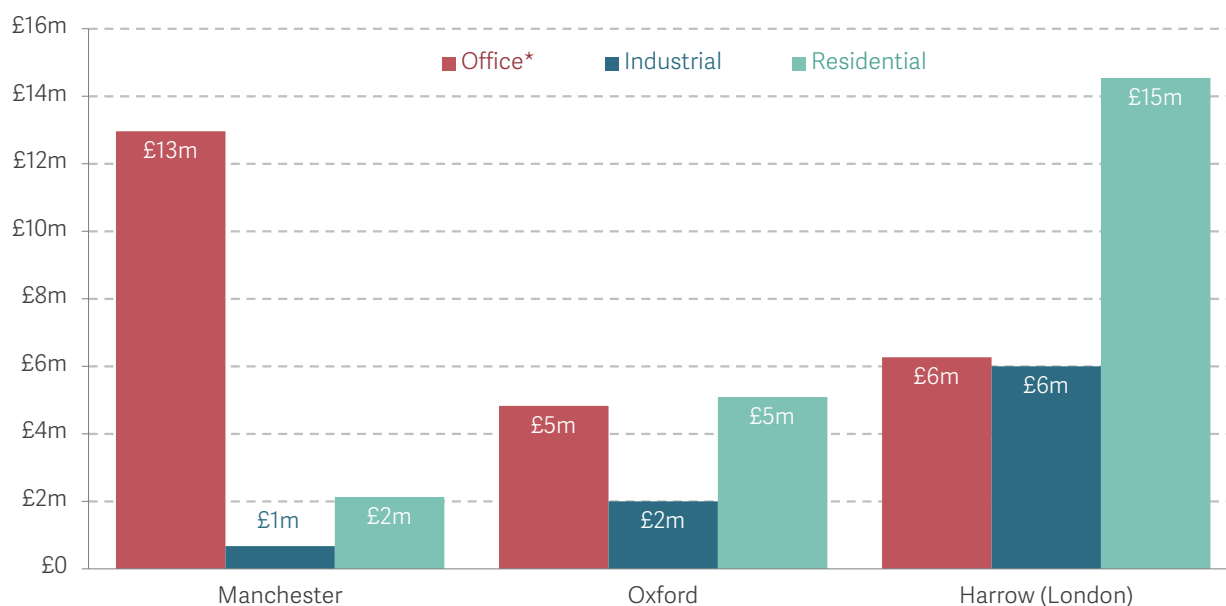
NOTES: Office space values are estimated as the value of the land on the edge of the central business district while all other values are a local authority level average. Differences in land values provide a sense of the incentives that exist of the market to use land for one purpose over another.
SOURCE: Analysis of Department for Levelling Up, Housing and Communities, Land value estimates for policy appraisal 2019.

In order to make good land use decisions, local policy makers need the right framework

Although there appear to be sizeable land-value uplifts from increasing office space, floor space in GM's city centre has grown relatively modestly by around 15 per cent over the past two decades.[78] So what is holding this increase back?

An obvious candidate is the planning system. Here, it is possible that the system may be disincentivising viable development by raising capital costs and increasing uncertainty. On the face of it, evidence from planning rejection rates does not suggest that GM is notably more restrictive on decisions on proposed commercial buildings: over the past 20 years, annual planning rejection rates for office space were close to 9 per cent in Manchester, the same as averages of 9 per cent across Camden and Westminster in London.[79]

This is not the end of the story, however, as these statistics only consider decisions on planning applications and not the impact of the system on the likelihood of proposals being filed in the first place. One way to think about this issue is to compare the price of

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78 Analysis of Valuation Office Agency, Non-domestic ratings business floorspace statistics, 2022.
79 Analysis of Department for Levelling Up, Housing and Communities, Live tables on planning applications. Looking at individual local authorities shows Manchester has the same rejection rates as Camden and Westminster local authorities in London.

office rents relative to the costs of construction: this can be thought of as a measure of the effective tax from planning regulations. Previous research has found that this 'tax' makes commercial development more expensive in UK cities (including Manchester), compared to their European counterparts, such as Amsterdam, Paris and Brussels.[80] Of course, these values could have changed since then, although the lack of significant planning reform and the fact that overall office floor space has grown only marginally suggests this is unlikely.

As well as updating these figures, progress should be made (whether by local or central government) in reducing the cost of regulatory constraints on commercial building. This is difficult but, as outlined in our previous work on 'turnaround cities', setting the correct institutional framework, at the right geographic level, is crucial for driving economic growth.[81] GM has led the way on this front – outlining plans for a spatial framework at the level of the combined authority (which Stockport subsequently withdrew from), as discussed in more detail in Section 5.[82] But further moves towards a zone-based plan as called for in other Economy 2030 work could help reduce uncertainty in the planning process.[83]

It is also possible that planning applications do not come forward in the first instance because landowners – whether private or public – are unable to align their actions to maximise the return from a set of sites, and that this is contributing to the slow growth in office floor space in GM. It could be that the building ecosystem in GM is just not as responsive to incentives from land value uplifts as implied by theory: fragmented land ownership can make agreement around development difficult to attain, and uninterested landowners are unlikely to be forthcoming with new development plans. In major regeneration developments, such as in King Cross, this coordination failure was overcome by consolidating land ownership through the creation of a single entity which united landowners and developers.[84] In the GM context, it may be possible to issue Mayoral Development Orders (MDOs) to reduce planning uncertainty.[85] Moreover, central Government proposals to streamline and speed up the process of providing compulsory purchase orders (CPOs) in the Levelling Up and Regeneration Bill could clearly help.[86]

80 P Cheshire & C Hilber, Office Space Supply Restrictions In Britain: The Political Economy of Market Revenge, The Economic Journal, 2008.

81 S Frick et al., Lessons from successful 'turnaround' cities for the UK, Resolution Foundation, May 2023.

82 Places for Jobs in Places for Everyone Plan – composite version, GMCA, September 2023.

83 P Brandily et al., Beyond boosterism: Realigning the policy ecosystem to unleash private investment for sustainable growth, Resolution Foundation, June 2023.

84 S Bridgett, T Leeman and A Breach, Making places: The role of regeneration in levelling up, Centre for Cities, October 2022.

85 Mayoral Development Orders (MDOs) refer to tools available to mayors of combine authorities to grant automatic outline or full planning consents for developments which comply with the terms set out in the order within a combined authority.

86 UK Parliament, Levelling-up and Regeneration Bill, September 2023.

A more productive GM will require areas outside the city centre to also play a role

In adopting a strategy that focuses on increasing employment in the city centre, and prioritising high-value services firms, there can be a perceived risk that this will not deliver widespread and shared prosperity.[87] But such an approach should not be seen as choking off industrial activity taking place elsewhere, or hoarding wealth in the central districts. Indeed, as shown in Figure 21, there are areas of successful services-led cities where manufacturing still plays an outsized role. For example, Woking, Ealing and Dagenham (all part of, or close to, London) have around 9 per cent of their jobs in manufacturing industries. It is true that this is a smaller share than found in Oldham, Rochdale and Wigan – which all have over 10 per cent of jobs in these industries – but it is reasonable to think that these jobs will continue to exist in a more productive GM and these areas of the city will continue to be manufacturing hubs.

FIGURE 21: **Manufacturing employment is important in areas of both London and GM**

Share of employment by jobs types and local authority: UK 2021
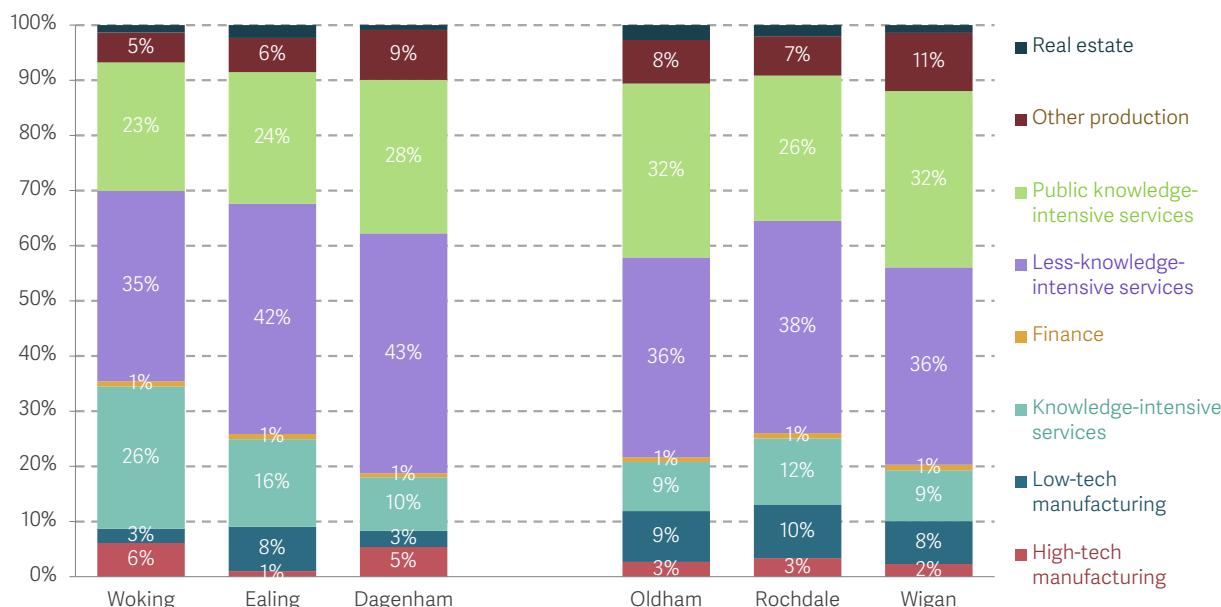
NOTES: Based on SIC 2-Digit employment shares. Sector designation by ONS: High-tech manufacturing includes pharmaceuticals and electronics. Low-tech manufacturing includes textiles, food, tobacco, paper and wood products. Other KIS includes publishing and public services. Less KIS includes retail, transportation and hospitality.
SOURCE: Analysis of ONS, Business Register and Employment Survey.

But Figure 21 also makes clear that where the comparator local authorities have the edge is when it comes to high-tech, as opposed to low-tech, manufacturing, something that lies behind the fact that the manufacturing sector overall in London

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87 T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

is nearly 10 per cent more productive than that in Greater Manchester.[88] Given the importance of manufacturing for employment in the local authorities around GM, policy needs to support innovation in these areas – with the hope of boosting productivity of manufacturing jobs and upgrading the currently low-tech manufacturing base into higher-tech activities that invest more intensively in intangible capital, such as operational and management assets.[89]

In addition, prioritising the city centre for high-value services activities should not be in conflict with the benefits from productivity growth being shared geographically throughout the city region. This key reason for this is that those who produce value in the city centre often do not live in the city centre. The rise of a larger and richer resident commuter population in places such as Oldham or Wigan would bring money into those local areas, boosting local demand and benefiting local businesses.

It is likely that further policy interventions will be needed if a more productive city centre is going to deliver these benefits. Figure 22 looks at areas of GM as categorized by both their position in either the top or bottom half of the city region's income distribution, and whether these areas have above or below the median proportion of residents that commute into the GM city centre.[90] It shows far lower levels of commuting into the centre in GM compared to London, among both high and low-income residents. This limits the extent to which a more productive city centre will result in shared benefits across the city, particularly given that many of the areas with lower levels of commuting are geographically concentrated around the edges of the city.[91] Section 4 deals with how transport policy can help to broaden the areas over which the benefits of a productive city centre are shared.

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88 Based on analysis of ONS, Regional Productivity Statistics and Business Register and Employment Survey, as used in Section 2.
89 Evidence from the US suggests that manufacturing companies which develop these assets in-house are better able to adapt to shocks and enjoy a productivity advantage over competitors. X Ding et al., Structural change within versus across firms: Evidence from the United States, NBER Working Paper, June 2022.
90 This is based on Census 2011 data, which while outdated avoids the issue of limited commuting during the covid lockdown conditions when Census 2021 was conducted.
91 P Swinney, Do city centres really benefit their wider areas?, Centre for Cities, forthcoming.

FIGURE 22: **Improving the ease of commuting to the city centre would help spread the gains from a higher productivity GM across the city**

Share of LSOAs, by whether above or below median proportion of residents commuting into the city centre, and median income bracket: Greater Manchester and London core functional urban areas, 2011

Poorer half of LSOAs   *Richer half of LSOAs*

Legend:
■ Fewer city-centre-commuters than GM average
■ More city-centre-commuters than GM average

Values:
- Greater Manchester (Poorer half): 56% / 44%
- London (Poorer half): 5% / 95%
- Greater Manchester (Richer half): 44% / 56%
- London (Richer half): 98%
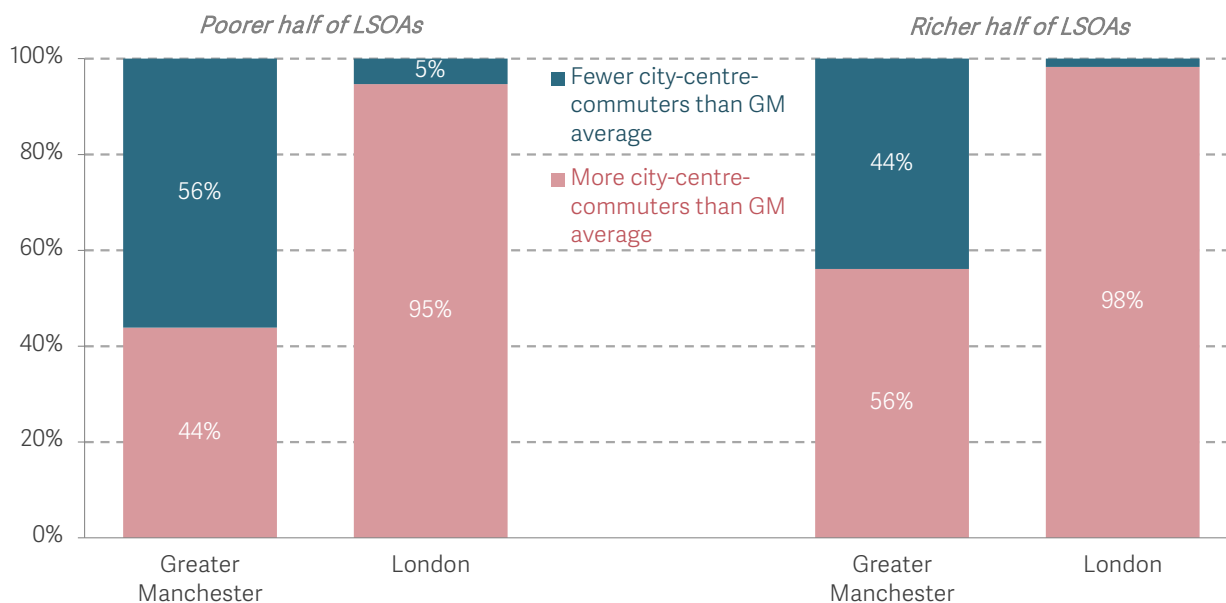
NOTES: 'Poorer half' and 'Richer half' of LSOAs is categorised as LSOAs above or below median LSOA-level income in the core functional urban area, for GM and London respectively. City centres reflect definitions provided by Centre for Cities; see P Swinney & D Sivaev, Beyond the High Street: Why our city centres really matter, September 2013 for more explanation.
SOURCE: Census 2011; ONS, Income estimates for small areas, England and Wales, Financial year ending 2018 edition.

Overall, then, it is clear that local and national policy makers need to prioritise the city centre in GM as an area of high-skilled and high-value-added employment in order to deliver higher productivity. That is not to say Manchester's city centre is currently performing badly in delivering agglomeration benefits, but it is undersized, and needs to attract more workers. This has implications for the location of new office space in the city region, and the use of land around in and around the city centre. A key component of this approach, however, is to ensure workers can get into the centre – and this has important implications for both the city's transport system, as well as the decisions taken around housing, and we discuss those in the following two sections.

Section 4

Transport in a higher-productivity Greater Manchester

In the previous section, we showed that a productivity strategy means a greater concentration of economic activity in the city centre. In this section we continue that theme and consider the role of transport in enabling a more productive city region. The objective of transport, either public or private, in helping to drive growth in high-value service activities, which tend to be located in central areas, is to increase the effective size of the skilled labour pool available for firms. To that end, we begin by showing that private transport will continue to play an important role in the city region, but it's not credible to expand the size of the labour pool by relying on driving to the same extent as today. This means public transport will have to play a greater role in connecting workers to jobs, particularly in the city centre, where high-productivity services jobs are likely to be located. We also examine and analyse the impact and costs of intracity public transport improvements as well as the benefits that would stem from improved inter-city links.

We have previously highlighted the role of land use, particularly in the city centre, to facilitate the expansion of higher-productivity businesses. So what role does transport play in that objective?

Connectivity, through both private and public transport, is fundamental to generating economic value. The transport network connects workers to their workplaces; facilitates interactions between businesses; and enables residents to access public services and

leisure activities. The first of these is likely to be the most relevant for a growth strategy that aims to increase the number of high-value services' jobs in GM.[92]

The role of transport in this strategy is to increase the effective size of the skilled labour available to highly productive firms. The role of transport is self-reinforcing: when connectivity is low, this effectively shrinks the effective size of the skilled labour market, meaning that headline figures overstate the availability of such labour. And, likewise, high-skilled workers will not choose to live in the city region if they cannot easily access the wide range of job opportunities that the most productive parts of the city offer.

Driving is the main mode of transport and it is likely to remain that way in a more productive GM

Current commuting patterns helps us to understand the potential issues with connectivity in GM, and to define the role of transport in a growth strategy. Today, as Figure 23 shows, the car is by far the most common way to get to work in GM, with around 68 per cent of workers in the city region driving to work in 2021.[93] This share has hovered around the same level for more than a decade, even as the expanded tram system significantly improved the public transport network. Between 2010 (when Salford Media City opened) and 2019 (by which point the Metrolink had been extended considerably), the proportion of commuters who travelled by car into GM fell by just 2.4 percentage points (from 74.6 per cent to 72.2 per cent). Although the data point to falls in car usage in 2021 (a 6.3 percentage point drop from 2010), pandemic data collection issues should make us wary of thinking there has been a step-change when it comes to commuting by car.

Moreover, car dependency is highlighted by the fact that four-in-ten (41 per cent) commutes to the city centre, where congestion tends to be highest and the public transport offer is greater, were done by car (Figure 24). While some parts of GM, like Salford, may be less reliant on driving after the Metrolink expansion, commuting by car in the city region has not declined significantly since 2011 (as shown in Figure 23).[94] And as Figure 24 makes clear, GM is not atypical in this respect – the figure is marginally higher in the Birmingham urban area, for example, although that is a city with a far more limited public transport network than GM.[95]

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92 For manufacturing firms, transport's role in enabling business-to-business interactions can be as important as its role in allowing workers to get to work, if not more so. For high-value added service firms, however, transport's primary role is to connect workers and jobs. See, for example, T McKillop et al., Understanding labour markets, skills and talent, Manchester Independent Economic Review, March 2009.

93 Department for Transport, Modal Comparison statistics 2022, February 2023.

94 ONS, Census 2011, Location of usual residence and place of work by method of travel to work, November 2014. We use Census 2011 because Census 2021 were collected under Covid-19 restrictions (March to May 2021).

95 See: Brandily et al., A tale of two cities (part 1): A plausible strategy for productivity growth in Birmingham and beyond , Resolution Foundation, September 2023 for further details.

FIGURE 23: **Despite a marginal decrease, car is the dominant mode of transport in GM**

Proportion of commutes, by usual method of travel: Greater Manchester, 2002-2020

Car   Rail (including Metrolink)   Bus   Active travel   Other
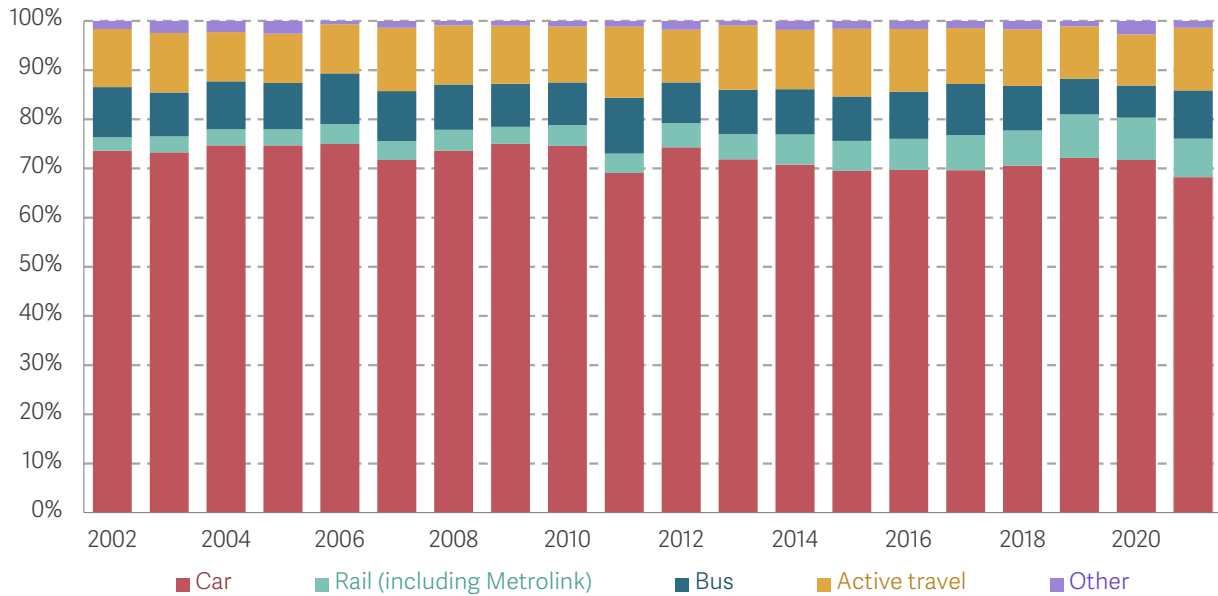
SOURCE: Analysis of Department for Transport, Modal Comparisons Statistics.

FIGURE 24: **Four-in-ten commutes into GM's city centre are made by car, more than three times as many as in London**

Proportion of commutes by car, by workplace area: Greater Manchester and London, 2011

Central area   Remaning areas
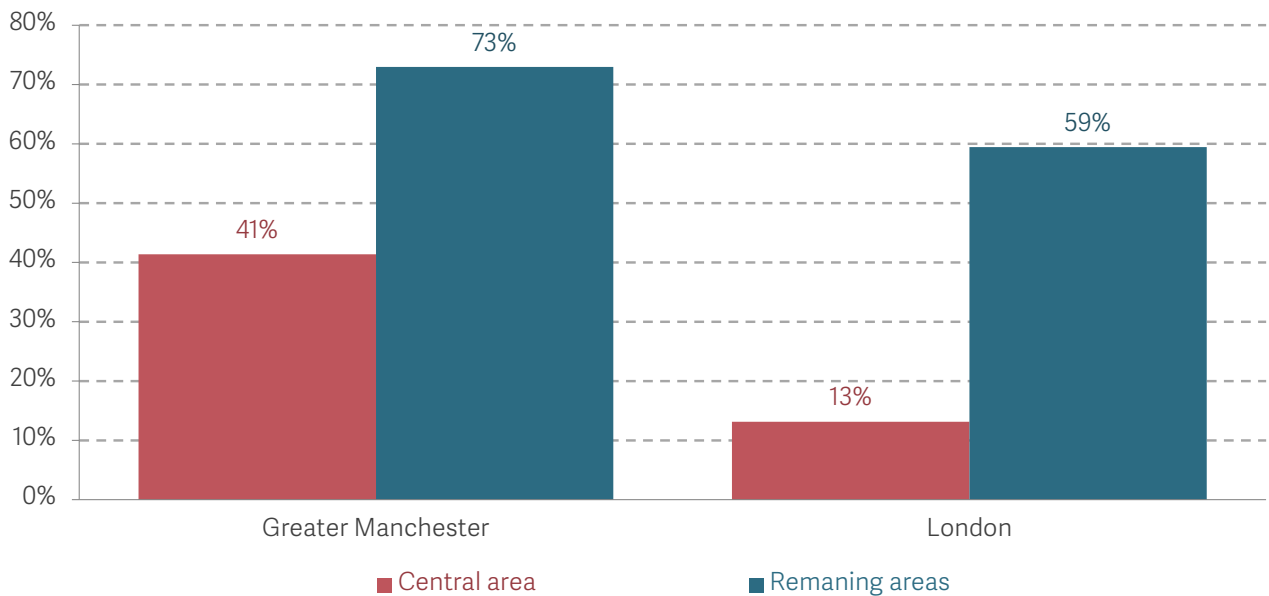
NOTES: City centre for GM and West Midlands urban area defined as an 0.8 mile radius circle from a central point in each city (Saint Peter's Square and Priory Square respectively). London's Central Area are TfL's Zones 1-2.
SOURCE: Analysis of ONS, Census 2011, Location of usual residence and place of work by method of travel to work, November 2014.

But comparing commuting patterns in GM to those in London points towards how a large and productive city, with a highly concentrated job market, can operate: just 13 per cent of commutes into London's central area were undertaken by car in 2011. By contrast, six-in-ten (59 per cent) of commutes in the capital to areas other than the city centre are made by car. Figure 24 is a strong indication that a growth strategy in GM is likely to change how many workers commute, but it should be expected that driving will remain the main mode of transport outside GM's city centre.

Public transport needs to facilitate connectivity to the city centre

A key issue, then, is whether it's plausible that increasing the effective size of the skilled labour pool can be facilitated by encouraging even more commuting by car? Here, today's connectivity patterns in other big UK cities, and the performance of similar-sized US cities, suggests there are three reasons why this need not necessarily be the case.

FIGURE 25: **GM already has a high level of road congestion**

Average delay on the Strategic Road Network, seconds per vehicle per mile: Combined Authorities and London, 2022
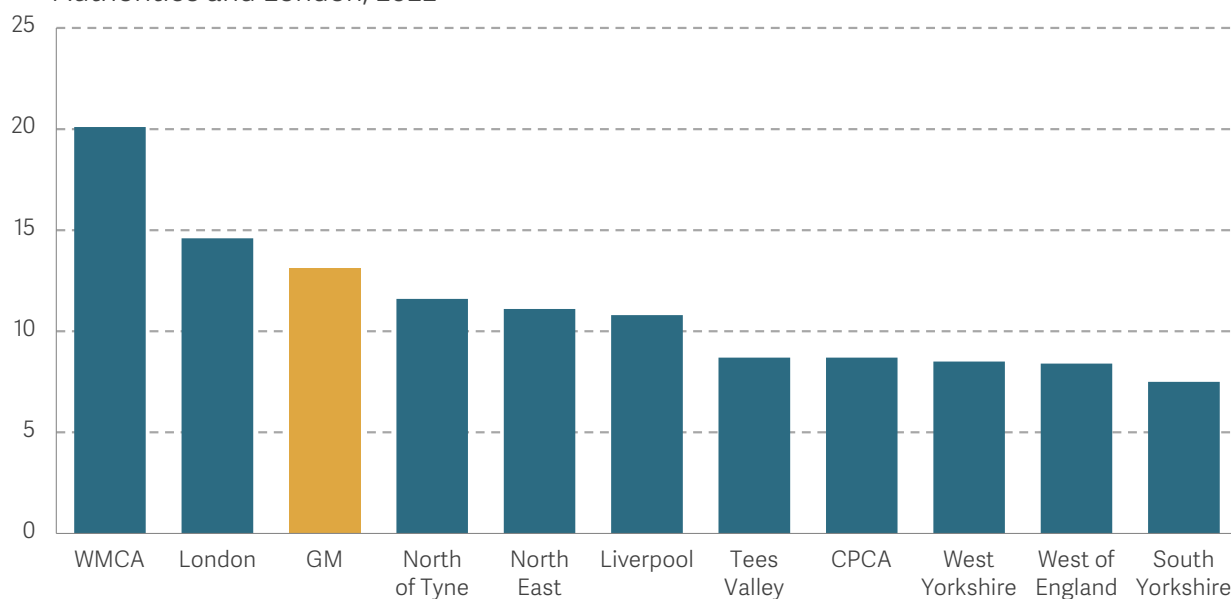
NOTES: WMCA = West Midlands Combined Authority; CPCA = Cambridgeshire and Peterborough Combined Authority.
SOURCE: Analysis of Department for Transport, Road Congestion Statistics.

First, GM already has a high level of road congestion, when compared with London, and is higher than many of the UK's Combined Authorities (see Figure 25). Even more worryingly, based on available data, there are only seven US cities where drivers lost more

hours in congestion than in Greater Manchester.[96] These levels of car congestion are a signal that connectivity is already constraining GM's economic activity. This means that a strategy, which relies both on keeping commuting trends and existing infrastructure, may limit GM's ability to increase the effective size of its pool of high skilled workers.

Second, if GM decided to enable more commuters to come into the main economic hubs by car, without significantly increasing the current levels of congestion, this would entail expanding the road network and making additional parking available. So, how plausible is this?

FIGURE 26: **Car-related infrastructure would need to expand significantly in GM to enable a larger workforce to access the city centre by car**

Length of roads in a 10-kilometre radius from the centre (left-hand panel) and city centre land allocated to parking infrastructure (right-hand panel): Greater Manchester and US peers, 2023
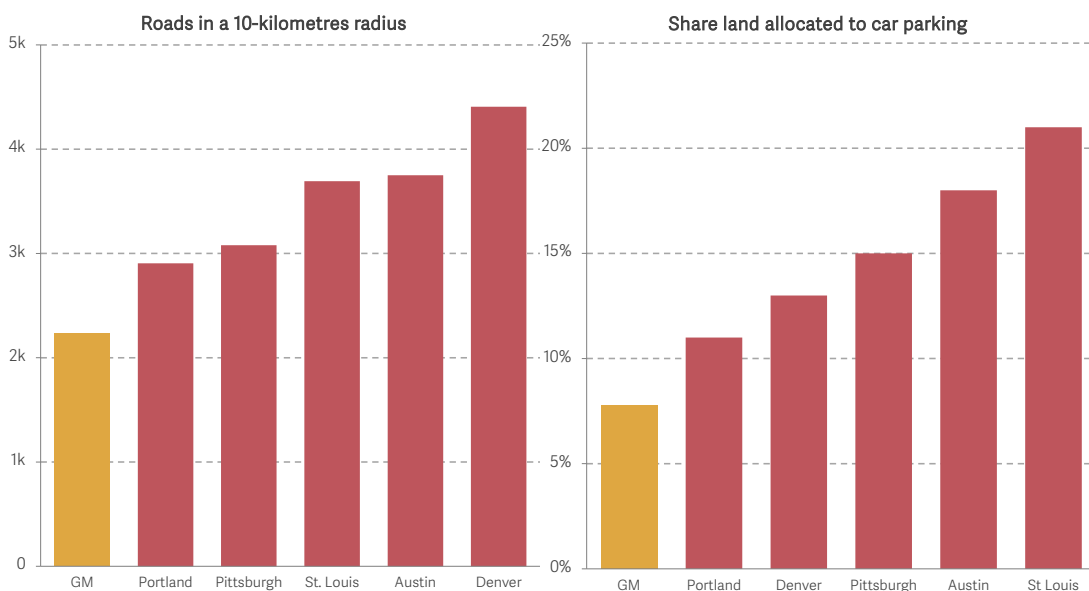
NOTES: City Centre areas in US cities already defined by Parking Reform Network (source of car parking data), GM's defined as the areas within M57 (approximately 6 square kilometres). Road infrastructure considers the length of roads in the Open Street Map excluding the ones classified as 'path', 'pedestrian', 'steps', 'cycleway and 'footway'. Parking data is based on the most recent google maps satellite imagery. Road data is from the most updated Open Street Map data at the time of writing.
SOURCE: Analysis of Open Street Map, road length in each in each city; Analysis of Parking Reform Network, Central City Devoted to Parking.

Figure 26 suggests the answer is: 'not very'. That's because this would require significant amounts of additional land to be dedicated to car-related infrastructure. First, as the left-hand panel shows, replicating the car-based model of similarly populated US cities

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96 The number of hours lost per driver, on average, in Manchester was 84 hours in 2022, up from 66 hours in 2021. The US cities that were more congested, based on hours lost per driver, were: Chicago (155 hours), Boston (134 hours), New York City (117 hours), Philadelphia (114 hours), Miami (105 hours), San Francisco (97 hours) and Los Angeles (95 hours). See, 2022 Global Traffic Scorecard, INRIX, January 2023.

such as Denver, Portland or Pittsburgh would require a 60 per cent increase in land area allocated to roads.[97] Second, the right-hand panel suggests the area allocated to parking in central GM would need to double. In short, expanding commuting by car requires massive changes to the use of land in the centre of GM. This is likely incompatible with land use pressures discussed in the previous section, which highlighted the need for more office space in central areas of GM.

And third, even if it was feasible to deepen GM's pool of skilled labour by having more cars on the roads, this would come with significant environmental and health impacts.[98] Indeed, transport-related emissions per capita in GM are already slightly above the UK's urban average.[99] Furthermore, as Figure 27 shows, air quality, as measured by PM2.5 concentration,[100] is already higher than many comparably US cities and significantly exceeds the level recommended by the World Health Organisation, despite the improvement since the pandemic.[101] The switch towards electric vehicles will likely reduce these levels, but not eliminate them.[102]

FIGURE 27: **GM's air quality is already very poor**

Annual average PM2.5 concentration (microgrammes per cubic metre): GM and US peers, 2019 and 2022
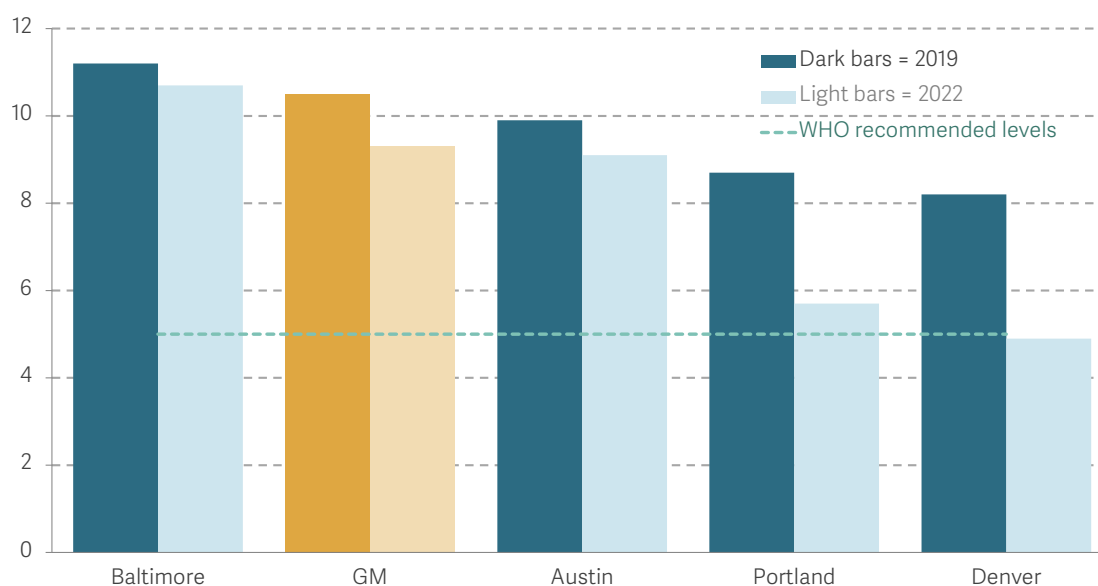
NOTES: Definition of cities from the data provider, which means they may not exactly match the boundaries defined in most of the analysis.
SOURCE: Analysis of IQAir, City ranking based on annual average PM2.5 concentration.

97 Similar findings were found using smaller urban radius (3 kilometres and 5 kilometres from the city centre).
98 In 2017, more than 1,000 annual deaths were attributed to PM2.5 in GM. See K Enenkel, V Quinio & P Swinney, Cities Outlook 2020, Centre for Cities, January 2020 for further details.
99 See, for example: V Quinio & G Rodrigues, Net zero: decarbonising the city, Centre for Cities, July 2021
100 Particulate matter is one of several measures of air quality. Concentrated particulate matter is caused by chemical compounds and materials, instead of gases. Driving is one of the activities that cause this type of air pollution, due to dust generated by the burning of fuels and from brake pads being applied to wheels. As such, electric cars do contribute to PM2.5 concentration.
101 Particulate matter is regulated by air quality standards set by the British Government and the World Health Organisation.
102 A Corlett & J Marshall, Where the rubber hits the road: Reforming vehicle taxes, Resolution Foundation, June 2023.
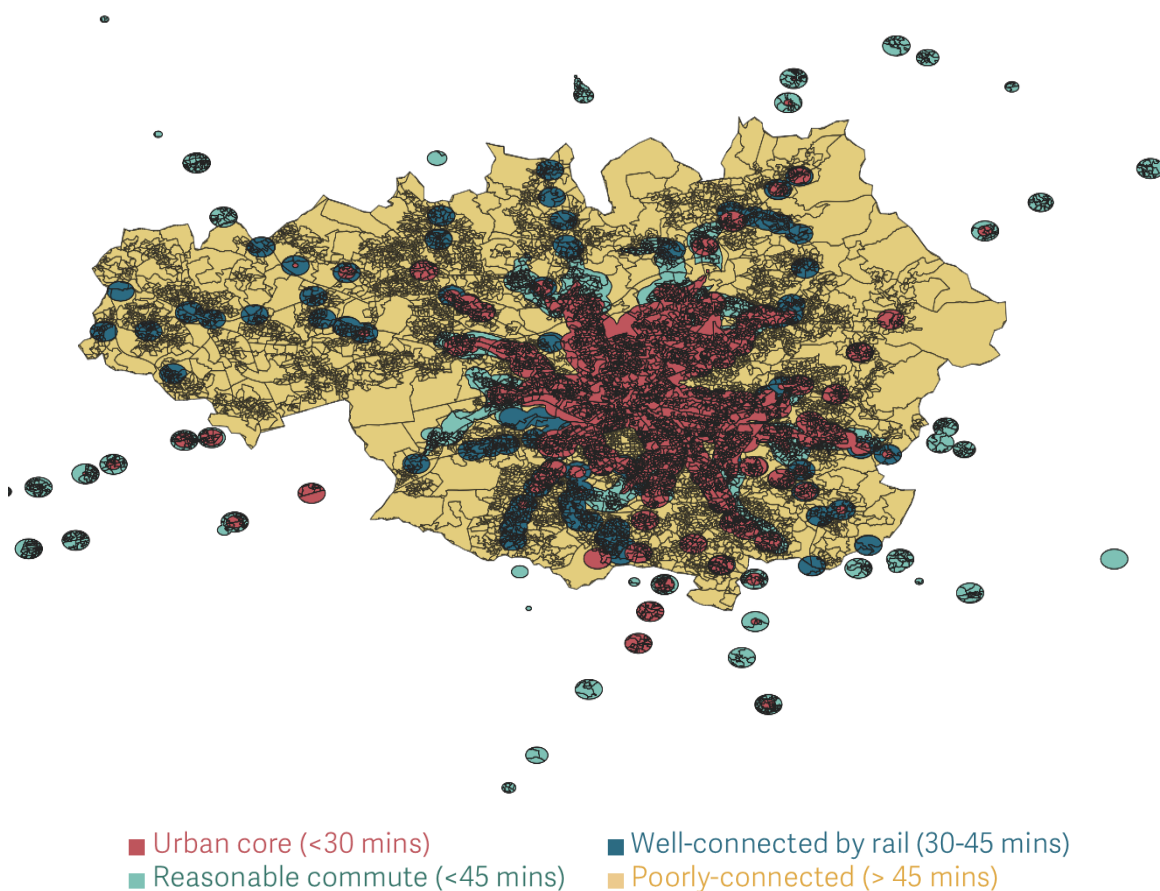
Overall, then, there are a number of compelling reasons why increasing the effective size of GM's labour pool cannot – or should not – rely mostly on cars for commuting to the city centre. Therefore, public transport needs to play larger role than it does today in a strategy aimed at growing high valued services in the city centre.

A large part of GM's high-skilled workers do not have good public transport access to the most productive parts of the city region

So there are a number of reasons why expanding the depth of GM's labour pool should not be delivered through a greater number of car commutes into city centre. This means public transport needs to play an important role in expanding the availability of skilled labour, especially in the city centre.

FIGURE 28: **Using both real-time and scheduled data, we can classify GM into four connectivity zones**

Greater Manchester and surrounding areas divided into four connectivity zones: 2021

■ Urban core (<30 mins)   ■ Well-connected by rail (30-45 mins)
■ Reasonable commute (<45 mins)   ■ Poorly-connected (> 45 mins)

NOTES: Public transport catchment areas are measured using real-time bus data (DfT) and schedule rail data for light and heavy rail (TfGM and DfT, respectively). Map image is cropped to emphasise the area's core.
SOURCE: Analysis of DfT, TfGM and ONS, Census 2021.

GM has already invested considerably in its public transport infrastructure over the past two decades, most visibly through the development and expansion of Metrolink.[103] Unfortunately, the effective size of the labour market supported by public transport remains much lower than headline numbers suggest.

To demonstrate this, we first classify GM (and, where appropriate, some of its surrounding areas) into four zones: 'urban core', 'well-connected by rail', 'reasonable commute' and 'poorly connected'. Figure 28 provides a graphic depiction, and Box 6 provides further details.

BOX 6: Classifying GM into connectivity zones

We begin dividing GM into connectivity zones by identifying three key central hubs: Manchester Piccadilly, Manchester Victoria and Salford Quays. These hubs were selected because of the following features: total number of jobs, job concentration and productivity levels. The three areas (defined by the LSOA they are in) account for 0.2 per cent of GM's land area,[104] but for 7 per cent of jobs and 10 per cent of GVA.[105]

Next, using real-time data for buses and scheduled data for rail (including Metrolink), we sequentially isolate the following four zones: 'urban core', 'well-connected by rail', 'reasonable commute' and 'poorly connected'.

- First, we designate any area (based on output areas, census 2021) that can reach at least one of the main economic hubs in 30 minutes by public transport or less as the 'urban core' (the red zones in Figure 28). We consider these to be the best-connected areas within GM. This includes places like East Didsbury, Eccles and around Stockport stations, among others.

- Second, we then identify areas that sit outside the urban core described above but are located within an 800 metres radius of rail stations, both Metrolink and Heavy Rail. Most of these places are between 30 and 45 minutes away from at least one economic hub. Proximity to rail stations often means close access to buses and the ability to reach relatively easily areas other than the three main economic hubs. The residents within this group are

103 The Metrolink route currently covers 103 kilometres (64 miles), compared to 39 kilometres (24 miles) in the period between 1999/20 and 2010/11. Department for Transport, Light rail and tram statistics, August 2022.
104 ONS, Census 2011, Usual resident population (land area), February 2012.
105 ONS, Business Register and Employment Survey, November 2022 and ONS, UK small area gross value added (GVA) estimates, January 2023.

considered to be in the second-best area in terms of connectivity. Typically, these areas are nearby Metrolink stations in zones 3 and 4 (for example, Rochdale and Oldham), but some areas around heavy rail stations are further from GM's centre, such as Wigan and Bolton.

- Third, we focus on areas that can still be regarded as reasonably connected because they can reach at least one of the three main economic hubs within 30 and 45 minutes, but are not nearby a rail station. Their accessibility either depends on longer buses or a combination of modes (a bus or a longer walk to a rail station). This zone includes places such as Whitefield, Winton, Moss Side and Haughton Green. However, it also includes some areas outside GM, such as small pockets in Chorley, Warrington, and Edale.

- Finally, we classify any remaining parts of GM as poorly-connected, given a commute to one of GM's main economic hubs by public transport would take more than 45 minutes. This includes vast parts of suburban GM, such as most of Wigan and Bury local authorities.

The connectivity analysis in this section looks at how current residents (Census 2021) are distributed between these connectivity zones. It does not consider the population growth scenarios defined in previous section. The interactions between population growth and connectivity zones will be analysed in the housing section.

In Figure 29, we exploit the four zones we have defined to analyse how easy it is for Mancunians and nearby residents to access the most productive parts of the city. As the chart shows, highly-skilled workers (i.e. graduates) are slightly more likely to live in well-connected areas compared to the rest of the working-age population (i.e. non-graduates): 62 per cent compared with 57 per cent.[106] However, the fact that close to one-in-four (38 per cent) of graduates in GM cannot easily access the most productive parts of the city by public transport highlights how connectivity is limiting GM's labour pool. Put differently, even with the significant improvements to the network in recent years, connectivity constrains the ability of GM's graduates to access the areas that produce the greatest economic value.

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106 This is not surprising given that connectivity is capitalised into higher housing costs, and therefore all things being equal, a higher income is required to live in better-connected places. See, for example, J. Nellthorp et al., Land Value and Transport Modelling and Appraisal, University of Leeds' Institute for Transport Studies, August 2019.

FIGURE 29: **Close to four-in-ten of GM's graduates live in poorly-connected areas of the city region**

Number (left-hand panel) and proportion (right-hand panel) of working age population, by qualification level and connectivity areas: Greater Manchester, 2021
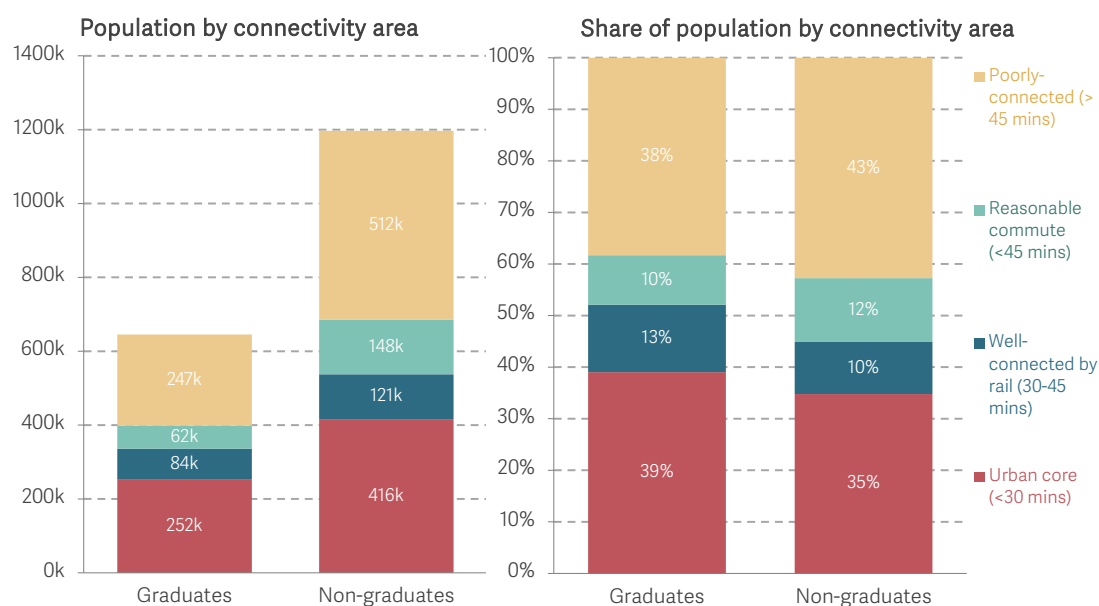
NOTES: Public transport catchment areas are measured using real-time bus data (DfT) and schedule rail data for light and heavy rail (TfGM and DfT, respectively). Estimates of the population are based on the public transport catchment areas and the numbers living in those Output Areas (Census 2021).
SOURCE: Analysis of DfT, TfGM and ONS, Census 2021.

Transport improvements are needed to deepen GM's labour market but on their own will deliver limited gains

A set of public transport policies are needed to increase the effective size of GM's skilled labour pool and facilitate economic growth. GM already has plans to introduce bus franchising (which allows for better integration of transport) and add more bus lanes;[107] to extend the Metrolink (subject to funding and business case approval);[108] and may perhaps even return at some point to the contentious question of a congestion charge which, by discouraging private vehicle use, would enhance the efficiency of GM's 'above ground' public transport services.[109] If we assume that all those policies are introduced, both the ones ongoing (bus franchising) and the ones not actively being discussed (congestion charge), and as a result, the existing bus network runs on schedule, this would increase the size of the areas that are within 45 minutes from GM's main economic hubs by public transport.

107 Bus Service Improvement Plan, Transport for Greater Manchester, October 2021 and Greater Manchester Bus Strategy, Transport for Greater Manchester, July 2023.
108 See: Greater Manchester Transport Strategy 2040 (2020-2025) for more details. This includes both Train-Tram stations (e.g. Timperley East and Pendlebury) and Metrolink (e.g. Cop Road or Elton Reservoir).
109 GM held a referendum on congestion charging in 2008 as part of its bid for transport funding; 79 per cent of those who voted were against it. The proposal at that time was for a two-tier congestion charge system: one fee to enter into a large part of GM, and then another fee to enter into the city centre. See: Wikipedia, Greater Manchester congestion charge, accessed August 2023. Congestion charges have been shown to have many positive effects, however, as they incentivise city centre commuters with good public transport alternatives away from driving, releasing road capacity for drivers without a credible transport alternative. See: Introduction to Congestion Charging: A Guide for Practitioners in Developing Cities, Asian Development Bank, May 2015.

Moreover, if we assume that twice the number of 'potential stations' set out in GM's Transport Strategy are built, and that all of these additional stations add to our 'well-connected by rail' category, we estimate this would increase the proportion of well-connected graduates living in GM today by 8 percentage points, from 62 per cent to 70 per cent.[110] As shown in Figure 30, that means around 52,000 of GM's current graduate population would have much-improved commuting options to central GM. Nonetheless, that would still leave 30 per cent of GM's graduates without easy access the most productive parts of the city. Box 7 gives our estimate of the costs of these transport improvements.

FIGURE 30: **Connectivity improvements will increase GM's pool of skilled labour**

Distribution of graduates by connectivity areas: Greater Manchester, 2021
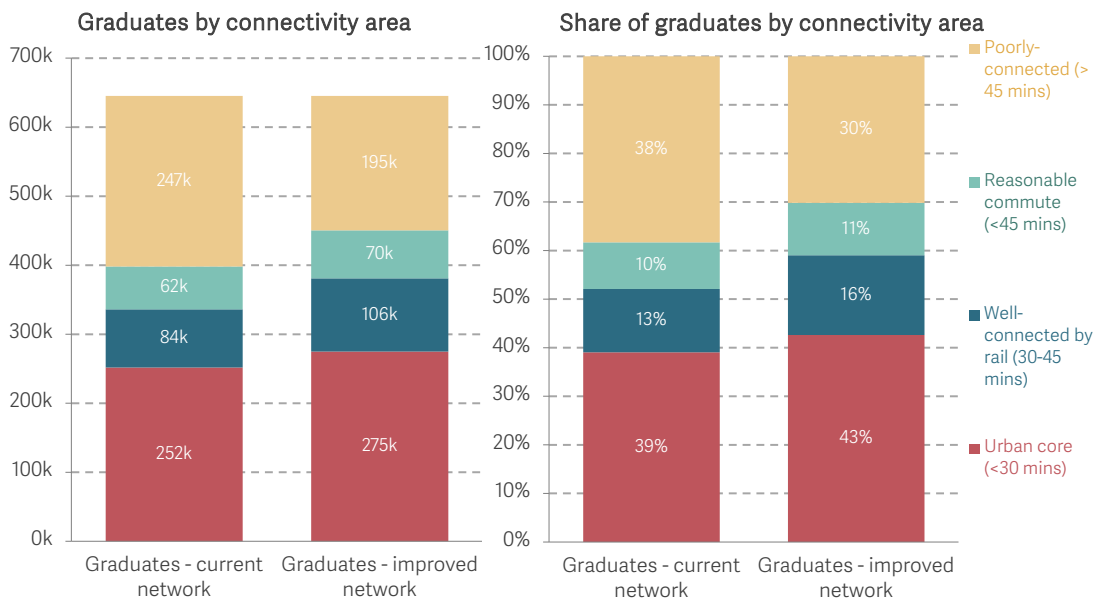
NOTES: Public transport catchment areas are measured using real-time bus data (DfT) and schedule rail data for light and heavy rail (TfGM and DfT, respectively). Estimates of the graduate population are based on the public transport catchment areas and the number of graduates living in those Output Areas (Census 2021).
SOURCE: Analysis of DfT, TfGM and ONS, Census 2021.

BOX 7: **Estimating the capital costs of expanding intra-city public transport in GM**

As previously mentioned, some of the public transport improvements modelled in this section are ongoing, such as Bus Franchising and other bus-related investments. The initial cost of franchising the network is expected to be around £134 million over the first five years.[111] In recent years, GM was able to secure two tranches of the City Region Sustainable Transport Settlements: around £1.1 billion in the first round (covering 2022 to 2027).[112] If GM gets the same share in the second tranche, it would receive an extra £1.7 billion for the following 5 years (2028 to 2032).[113]

Assuming that the rail expansion modelled (i.e. Metrolink and tram-trains), would be completed by 2040, and the costs are similar to the last Metrolink expansion (2008-2020) it

would cost at least £1.5 billion.[114] As those expansions had a relatively low cost per kilometre, a higher bound was estimated at £2.0 billion, based on more recent light rail projects.[115] In total, the estimated costs for these transport improvements are £4.4- £5.0 billion until 2040. On an annual basis, that represents between 0.3 per cent and 0.4 per cent of GM's GDP in 2021.

Government's City Region Sustainable Transport Settlements are a step in the right direction, but the scale of investment needed goes beyond this. The amounts committed fall short of the £30 billion for transport-related infrastructure projects in 'priority cities' until 2040, recommended by the National Infrastructure Commission.[116]

Critically, our modelled expansion does not do more to increase the effective size of the high-skilled labour supply in GM because of the relatively low number of graduates currently living in areas that end up better connected: the 13 per cent boost to the well-connected graduates' numbers comes from a 31 per cent increase (around 122 square kilometres) in the footprint of well-connected areas. Of course, these figures may represent a lower bound in the medium term if, as seems likely, better-connected areas then attract more graduate households to live there. The current low housing density in

111 Greater Manchester Combined Authority, Housing, Planning, Environment Overview Scrutiny Committee, October 2021.
112 Department for Transport, City Region Sustainable Transport Settlements: confirmed delivery plans and funding allocations, July 2022
113 The Chancellor announced a second round of the City Region Sustainable Transport Settlements of £8.8 billion. See, HM Treasury, Spring Budget 2023, March 2023.
114 See, for example, Transport for Greater Manchester, Annual Report 2011/2012, April 2012.
115 Metrolink expansion cost around £23 million per kilometre. A light rail project typically costs somewhere between £20-£30 million per kilometre in the UK. The estimated upper bound increases the cost by 30 per cent (from £23 million to £30 million). See, for example, House of Commons Library, Railways: Light Rail, February 2022.
116 National Infrastructure Commission, Annual Monitoring Report 2021, February 2021.

the areas that would benefit directly from these improvements puts a limit on how much adjustment can take place without changes in the urban form. The role of densification, and the link between public transport connectivity and the location of new residents in GM, will be discussed in the housing section.

Improvements in quality and price may also be necessary to incentivise commuters to use public transport

Shifting commuter behaviours away from driving towards public transport clearly requires a more expansive and efficient network, but it may also require other changes. In our conversations with residents of GM conducted as part of this project, two key issues arose.[117] First, many reported that their current experience with public transport had been, at best, unpleasant (in terms of cleanliness and anti-social behaviour, for example, or accessibility for wheelchairs, prams and bikes), and at worst unsafe (especially when travelling at night). As a result, even those who disliked driving because of congestion still chose to do so because their car was seen as a safe space. As the transport system improves, increased ridership may in itself address some of these issues, but this is also clearly food for thought for Transport for Greater Manchester (TfGM).

Second, perhaps unsurprisingly given the cost of living crisis, residents were anxious about the price of public transport and especially that a more modern system would be out of reach in terms of cost for some.[118] They were strong supporters of existing plans to integrate fares and the network, and wanted to see fares kept low (or at least subsidised for those on low incomes). Doing that, however, would potentially pose the city region with a challenge in terms of operational costs for the public transport system, and may require central subsidy or cross-subsidy from other parts of the city's revenue.[119] However, despite the strong resistance to a congestion charge in GM, our conversations suggested residents would be more accepting of a move in this direction if the funds raised were hypothecated for public transport improvements or fare support.

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117 See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

118 In 2018/19, overall journey satisfaction in Metrolink was 89 per cent, but value for money satisfaction was lower at 60 per cent. Value for money satisfaction was below Blackpool Tramway (97 per cent), Sheffield Supertram (77 per cent) and Midland Metro (71 per cent). See: Department for Transport, Light Rail and Tram Statistics, England: 2018/19, June 2019.

119 In the past, TfL received a government grant to cover part of its operational costs. In 2014/15, it was around £842 million (12 per cent of its revenue), which was phased out and then removed by 2018. As a result, TfL and local government pursued a combination of operational savings and additional borrowing, until the pandemic. Ridership (the major source of revenue) declined sharply with the pandemic and has not fully recovered. Under these circumstances, TfL received emergency funding of over £5 billion. The current funding settlement has the target of TfL becoming financially sustainable afterwards and it is expected to last until March 2024. See, for example: Mayor of London, Government must support London's transport network for good of the UK, February 2018. Department for Transport, TfL long term funding settlement, September 2022. Of course, if the city region had additional revenue-raising powers, and a reformed (less regressive) council tax system, it would also have more scope to make choices about cross-subsidising transport costs. See: A Breach, S Bridgett and O Vera, In place of centralisation: A devolution deal for London, Greater Manchester and the West Midlands, Resolution Foundation, forthcoming.

Intercity improvements are clearly needed for many reasons, but will not expand the skilled labour pool to a significant degree

The discussion so far has focused on the intra-city transport network. What about inter-city connections, like the ones included in the Integrated Rail Plan (IRP), which will improve intercity connectivity to Leeds, Huddersfield and Liverpool?

Our analysis, set out in Figure 31, suggests these investments are unlikely to be an effective way of increasing GM's pool of skilled workers. We estimate that around 15,000 graduates in Leeds, Huddersfield and Liverpool currently live relatively nearby the rail stations that will have a fast connection to GM's city centre, far lower than the numbers that intra-city improvements would bring.

FIGURE 31: **Connectivity improvements will increase GM's pool of skilled labour**

Potential number of additional graduates in Greater Manchester's public transport catchment areas, intracity and intercity improvements: 2021
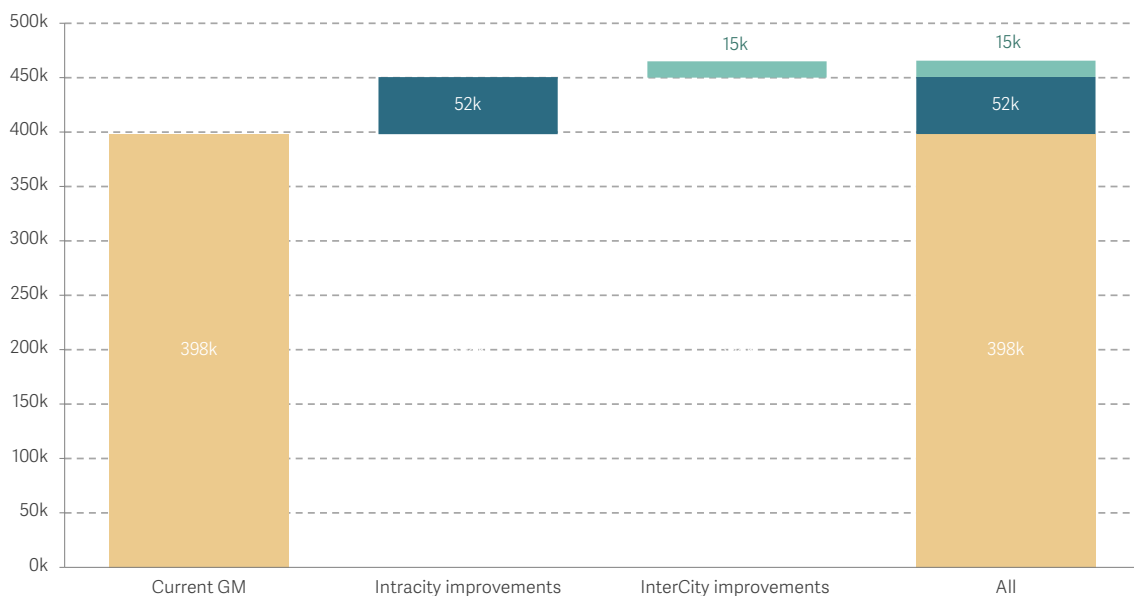
NOTES: Public transport catchment areas are measured using real-time bus data (DfT) and schedule rail data for light and heavy rail (TfGM and DfT, respectively). Estimates of the graduate population are based on the public transport catchment areas and the number of graduates living in those Output Areas (ONS, Census 2021). For output areas not fully included in the isochrones, estimates consider the share of the land area included within the catchment area. Intercity improvements count the number of graduates living 15 minutes by public transport, using UK Travel Area Isochrones by Public Transport and 2021 output areas, from the main rail station of Leeds, Liverpool, and Huddersfield.
SOURCE: Analysis of DfT, TfGM and ONS, Census 2021.

Moreover, those graduates living within commuting distance from GM would not necessarily opt to do so: the costs associated may be prohibitive. That is not to say there would not be other benefits to these investments, such as dealing with capacity

constraints in the rail network or reducing transport-related carbon emissions.[120] However, increasing the pool of skilled labour available for GM does not seem likely to be a major benefit of the IRP.

This section has shown that despite recent improvements, the existing public transport connectivity in GM means that around 40 per cent of GM's graduates are poorly connected to the main economic hubs. A plausible growth strategy needs to improve public transport connectivity, both in terms of infrastructure (i.e. continue the Metrolink expansion) and how current transport operates (i.e. bus franchising and reducing congestion). Those changes would increase the pool of skilled labour, making GM a more attractive place for high-value firms and high-skilled workers alike. The public transport improvements we have modelled are clearly necessary, but they are unlikely to be enough to deepen GM's current and future graduate labour pool to the full extent required to close the productivity gap between GM and London to 20 per cent (our thought experiment in Section 2). Therefore, it is key that alongside these transport interventions, there is a housing strategy that seeks to make the most of the public transport network through densification. And it is to the topic of housing that we now turn.

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120 For example, the Integrated Rail Plan is expected to double capacity between Manchester and Leeds. See, Department for Transport, Integrated Rail Plan for the North and Midlands, March 2022.
High speed rail can potentially reduce demand for short flights, which have higher carbon emissions. See, for example, F Dobruszkes C Dehon & M Givoni, Does European high-speed rail affect the current level of air services? An EU-wide analysis, November 2014.

Section 5

Housing in a higher-productivity Greater Manchester

In this section, we focus on the key role that housing policy has to play in increasing productivity in GM. In particular, we emphasise the importance of strategic decisions the city will have to make in order to attract the high-skilled workers GM needs and to connect them to jobs in the centre. Our analysis points to the importance of increasing housing supply in GM beyond current plans, and to concentrate that effort in areas that are well-connected to the most productive areas of GM. This means tough choices when it comes to land use. It is, however, also important to invest in the existing housing stock if it is to be attractive enough to entice new highly-skilled workers to the city, and also benefit existing residents.

There are clear signs of pressure in the GM housing market, as there are in other UK cities. Most obviously, house prices have increased nearly three-fold in the past 20 years,[121] and there are over 74,000 households on waiting lists for social housing.[122] In recent years, GM has developed a comprehensive plan to ensure housing supply matches housing need as part of its Places for Everyone (PfE) strategy (see Box 8 for further details). However, a more productive GM will likely require a non-negligible increase in its population over and above current population trends: our modelling in Section 2 suggests an upper-bound estimate of 180,000 additional high-skilled workers will be required to increase the effective size of the high-skilled labour market, in order to narrow the productivity gap between GM and London. So, what does this mean for housing policy makers in the city in light of their current plans?

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121 Source: Analysis of HM Land Registry, UK House Price Index, June 2023. Prices in Greater Manchester have increased by 193 per cent between June 2003 and June 2023; this is higher than the UK average of 124 per cent.
122 DLUHC, Local authority housing statistics data returns for 2021 to 2022, June 2023.

BOX 8: Places for Everyone: Places for Homes

GM is a leader in integrated city-wide planning, as exemplified in their latest strategic spatial plan, Places for Everyone. This is a joint development plan currently moving through the consultation process for all local authorities in GM (other than Stockport, which opted out of the plan in December 2020).[123] This began as the GM Spatial Framework (GMSF) in 2014, with the latest version of the development plan setting out a strategy to meet housing, employment and sustainability targets, while minimising the extent of development on the Green Belt. The housing section of the plan ('Places for Homes') sets out a spatial framework to deliver the over 175,000 dwellings projected to be required to meet existing housing need over the period of 2022-2039. This figure is the total of the nine relevant local authorities' housing need, as calculated for each area using the standard method for assessing local housing need from DLUHC's national planning guidance, redistributed across the plan area in line with strategic goals.[124] Land supply has been identified to meet this need, along with a 'buffer' of additional land to ensure the overall target is reached if some sites that have been identified are unable to be developed.

GM needs more homes than the number currently planned if it is to raise productivity

It is clear that inaction is not an option. Failing to plan for the bigger workforce necessary to boost productivity will just further increase housing-cost pressures. In turn this would reduce incentives for the much-needed additional high-skilled workers to locate in GM. It would also reduce the returns on investment for firms, as they would be required to provide higher real wages to compensate workers for more expensive housing or longer commutes.[125] This would undermine any strategy that seeks to maximise the effective pool of high-skilled workers that can access the city centre as the most productive part of GM. Perhaps most importantly, further increases in housing costs would also risk the displacement of lower-paid residents, excluding many local residents from the benefits

123 Places for Homes in: GMCA, Places for Everyone Plan – composite version, September 2023.
124 The approach here draws on DLUHC, Housing and economic needs assessment, December 2020. In particular, for each local authority, this uses ONS household projections (2014-based) as a baseline for the increase in homes required, which is scaled upwards to reflect 'affordability' in the area, by a quarter of a per cent for each percentage point the median house price to workplace-based earnings ratio is above four. A 35 per cent uplift is included on top of this for Manchester (as one of a list of core local authorities for the top twenty cities and urban centres by population size).
125 See, for example: L Judge, Moving matters: Housing costs and labour market mobility, Resolution Foundation, June 2019; P Cheshire, C Hilber & H Koster, Empty homes, longer commutes: The unintended consequences of more restrictive local planning, Journal of Public Economics 158, 2018.

of a higher productivity city.[126] (We examine how pressure on housing costs for those on lower incomes can be mitigated by both housing supply increases and other policy interventions in Section 6.)

In assessing the impact of expanding the high-skilled labour market for housing supply, our first step is to translate the 180,000 additional workers a higher-productivity city requires into households. The simple assumption here is that some of the new workers will be part of couples or families, or choose to share a home, in line with the proportion of high-skilled workers in the North West currently forming shared households.[127] Based on this, we estimate that a hypothetical higher-productivity GM would require 131,000 more homes, on top of existing housing need, to avoid the size of the population expansion putting further upward pressure on housing costs. This means building an additional 8,700 homes per year for 15 years over existing plans.

FIGURE 32: **Net additions would need to increase by over 70 per cent to match the scale of population growth in our scenario**

Net additions to housing stock: Greater Manchester, 2001-02 to 2021-22 and projected
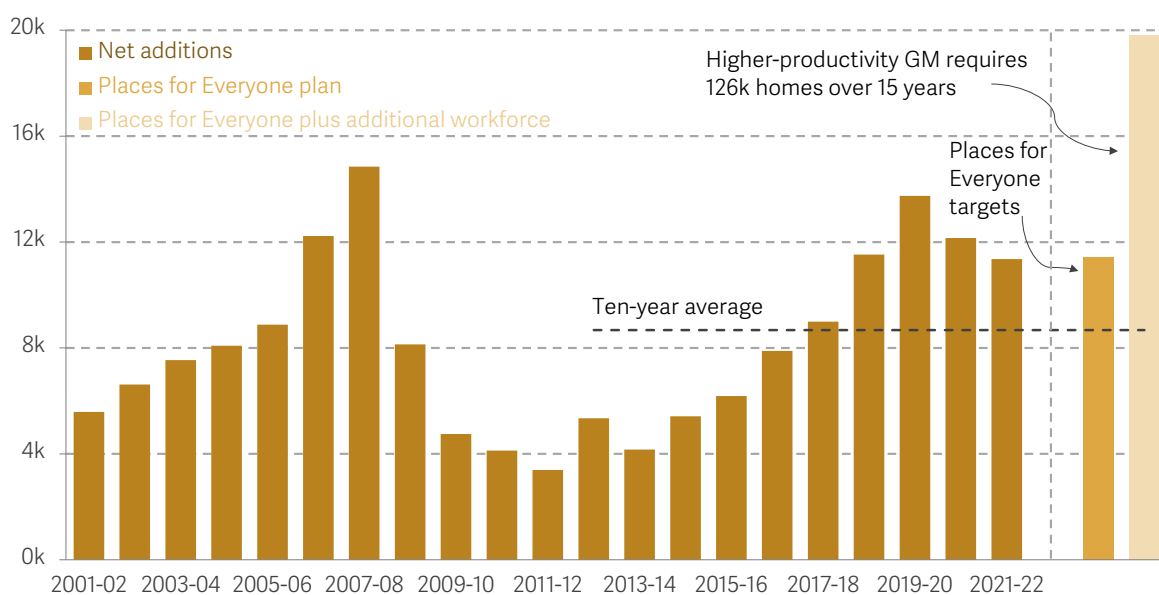
NOTES: Excluding negative net additions in Oldham 2009-10 and 2010-11, and Stockport in 2002-03. Targets modelled separately for Stockport, based on calculations of their Local Housing Need. Places for Everyone targets illustrated using annual housing need, scaled to 15 years to match the timescale of our scenario. SOURCE: Analysis of DLUHC, Live Table 122, 2022; GMCA, Places for Everyone, September 2023.

So how plausible is an expansion of this scale? Following a post-financial crisis decline, housing supply across GM has been on an upwards trend since 2013-14, with 11,000 net

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126 This was a very strong theme in our deliberative work. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.
127 This ratio is based on analysis of the Labour Force Survey. As discussed in Section 2, the evidence suggests relatively few of the additional graduates that a higher-productivity GM requires will come from upskilling of the existing population. Throughout this section we therefore assume all the additive 180,000 workers will move to the city and neighbouring areas from elsewhere.

additional homes built in 2021-22 (Figure 32). The PfE housing plan commits to continue at this pace. But building an additional 126,000 new homes in GM over 15 years (assuming a small proportion of the 131,000 set out above are built outside of GM) would require a significant increase of 74 per cent per year over and above 2021-22 levels of building.[128] And abstracting from the fact that 2021-22 is a relatively high base compared to previous levels of building, this would involve a more than doubling of the average annual build over the past ten years.

The overall scale of this increase in housebuilding is certainly ambitious, but similar changes have already been achieved in some areas of the city. For example, Salford, where the most significant increases in housebuilding have been concentrated in recent years, witnessed two-and-a-half times more housebuilding on average over the past five years, than the five years before. On the other hand, one constraint could be that housebuilding on this scale across several areas of the city at the same time could require a significant scaling up of the construction sector and workforce within the city. This is a potential challenge given existing labour shortages of around 8,000 workers in the sector, according to latest forecasts.[129] This has implications for GM's skills strategy, and would likely involve a significant number of additional job opportunities for existing residents of the city.

To maximise the boost to productivity, it is important that homes are built in well-connected areas

The location, as well as the number of new homes, is key. If additional homes are to support the wider economic strategy by increasing the effective size of the skilled labour market, then it also matters where these homes are located. In the previous section, we highlighted the need for more workers to live in places that are well-connected to the most productive areas of the city region to achieve this objective.

Is this realistic? As shown in Figure 33, to answer this we have set out what we view as a theoretically plausible allocation of the additional new homes required in a higher-productivity GM across these four transport zones (see Box 6 for further details of these classifications). In particular, we work on the basis that new high-skilled workers are half as likely to live in the least well-connected areas of the city region (i.e. those with a 'reasonable commute' or a commute of 45 minutes or more) as existing graduates.[130] This implies concentrating on building new housing in areas that are well-connected to the city centre: within a 30-minute travel time (the 'urban core') or within 500m of a rail

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128 The spatial allocation of these skilled workers within and outside GM is set out in Figure 2 below.
129 GMCA, Industry Labour Market and Skills Intelligence Report: Construction and Infrastructure, August 2021.
130 The rest of the new high-skilled workers are allocated between the urban core and areas well-connected by rail, in line with the current ratio of the number of graduates between the two areas.

station ('well-connected by rail'). In our simple approach, then, close to 5,600 of the new homes in well-connected areas are outside of GM (i.e. largely near rail stations), leaving just over 100,000 to be built in the best-connected areas of GM, and 25,000 elsewhere, to reach the target of nearly 126,000.

FIGURE 33: **New housing should be concentrated in well-connected areas of the city to enhance productivity**

Location of hypothetical new housing for a more productive GM, by travel area
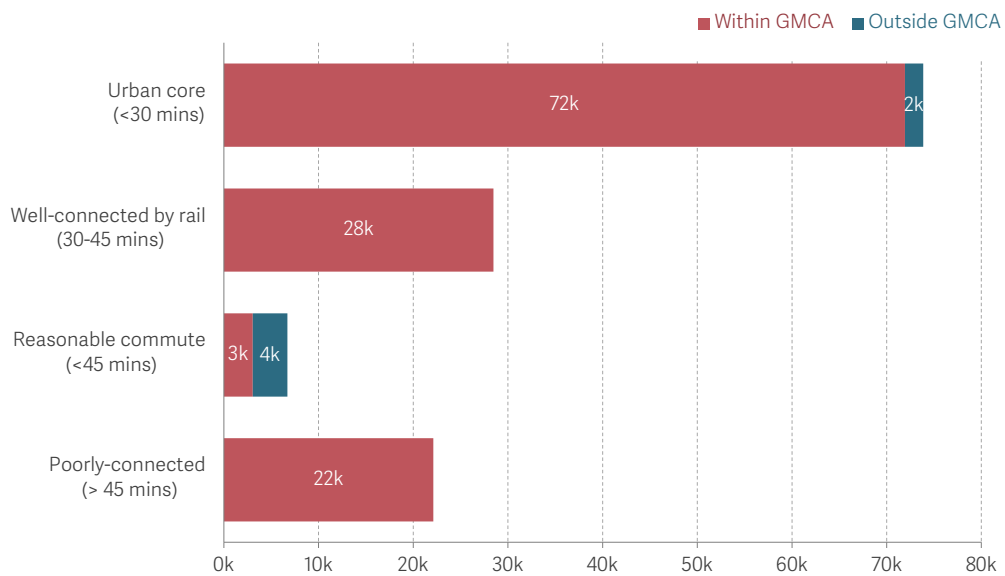
NOTES: Public transport catchment areas are measured using real-time bus data (DfT) and schedule rail data for light and heavy rail (TfGM and DfT, respectively).
SOURCE: Analysis of DfT; TfGM; ONS, Census 2021.

Prioritising city centre land for commercial use requires outer areas of the city region to build far more homes than currently planned

The need to build additional homes over and above current plans to enable GM to expand the size of its high-skilled labour market brings up another key question: what role does each of the constituent local authorities in the city need to play? Figure 34 presents GM's net additions record over the last two decades as shown in Figure 32, but this time broken out by local authorities in GM. As this shows, the vast majority of net additional housing stock (including changes of use, for example from office or industrial buildings to residential) has historically been in Manchester and Salford, and to a lesser extent in Wigan.

FIGURE 34: **Manchester and Salford have historically built the majority of new homes in GM**

Net additions to housing stock, by local authority: Greater Manchester, 2001-02 to 2021-22 and projected
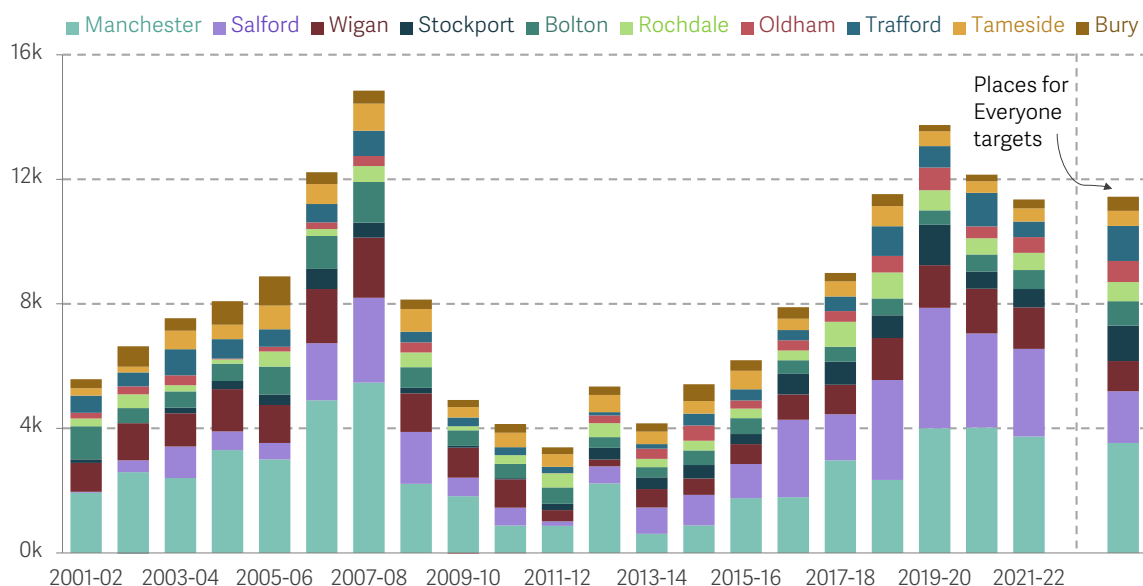
NOTES: Excluding negative net additions in Oldham 2009-10 and 2010-11, and Stockport in 2002-03. Targets modelled separately for Stockport, based on calculations of their Local Housing Need. Places for Everyone targets illustrated using annual housing need, scaled to 15 years to match the timescale of our scenario. SOURCE: Analysis of DLUHC, Live Table 122, 2022; GMCA, Places for Everyone, September 2023.

The PfE housing plan is broadly consistent with this approach, indicating that much of the new housing stock the city wants to build to manage existing need will be in local authorities which already have a track record of high housebuilding. Close to one-third of the new additional stock under PfE (31 per cent) is expected to be built in Manchester, for example, followed by Salford (14 per cent). In contrast, the 'northern districts' are expected to make a far lower contribution to the total, such as Bolton (7 per cent), Oldham (6 per cent) and Bury (4 per cent).[131]

The benefits of spatial planning at a combined authority level are apparent, with PfE illustrating a plausible approach to delivering against current housing need in all local authorities covered by the plan, with the required land supply for development identified, plus a contingency 'buffer'. Figure 35 illustrates these estimates of land supply across GM, expressed as the number of dwellings that it is theoretically possible to deliver on available sites over the planning period.[132] In contrast to local authorities within the PfE plan area, Stockport, which opted out of PfE in 2020, is the only local authority in GM

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131 Land allocations to deliver these homes are calculated from existing Strategic Housing Land Availability Assessments undertaken by local authorities to identify potential sites for housing, prioritising brownfield sites. Further 'small sites' identified through Places for Everyone analysis are added on top of this, along with areas of Green Belt, to make up the final land allocations required to meet the local authorities' housing targets.

132 Here, we present the total land supply included in Places for Everyone for the 17 years it covers (2022-2039), but present existing housing targets, and our additional dwellings over a 15-year horizon. In practice this may overestimate land supply, as some sites may not be available for development within our 15 year horizon.

which has a shortfall between its estimated housing needs and the land supply required to meet these needs over the next fifteen years.

So, should the additional 126,000 homes that GM needs to plan for in a more productive city be distributed across the city region in the same way as PfE sets out?

At first glance, building a significant share of the extra housing our modelling shows is required in the central boroughs makes a lot of sense: their proximity automatically means residents would be well-connected to the city centre, and inner-city living is often popular and a hallmark of 'turnaround cities'.[133]

But this presents GM with a conundrum. In Section 3, we highlighted that land in the city centre and its immediate environs are already the most productive parts of GM today, and will be where the high-value firms would want to cluster. Given this, there is a very strong case for prioritising city centre land for commercial, rather than residential, building.

So in Figure 35 we address that issue by assuming that no further residential building (on top of PfE) should be planned on land in the very centre of the city, consistent with our analysis in Section 3 that suggests that this land should be protected for commercial use.[134] Re-allocating total housing need for the next fifteen years, our prioritisation of land in the city centre for commercial usage outweighs the effect of emphasising well-connected locations, with the result that housebuilding increases everywhere (additionally to PfE targets, which we assume are fixed given the advanced stage of the planning process), but disproportionately outside of Manchester and Salford.

133 S Frick et al., Lessons from successful 'turnaround' cities for the UK, Resolution Foundation, May 2023.
134 The city centre is here defined as a circle with a radius of 0.8 miles around the central point of Manchester (this definition has been created by Centre for Cities to allow comparisons across different cities in the UK), and the 0.5 mile ring adjacent to it.

FIGURE 35: **Land supply is limited in our scenario, outside of Manchester and Salford**

Places for Everyone land supply, existing housing need projections over the next 15 years and extra dwellings required, by local authority: Greater Manchester, latest data
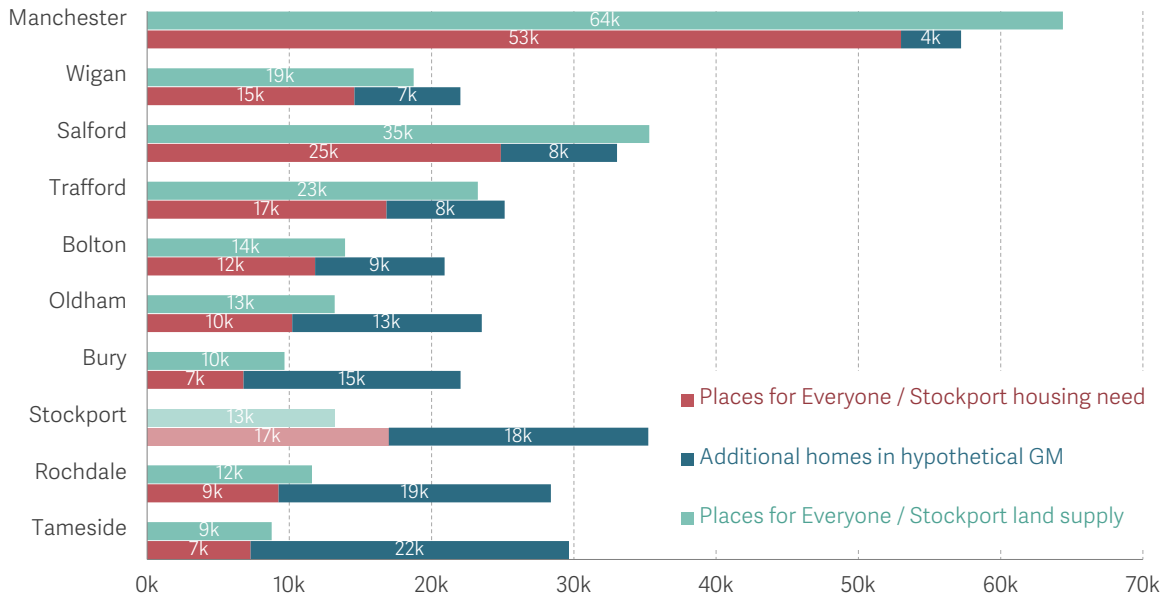
NOTES: Land supply modelled separately for Stockport, based on their most recent Strategic Housing Land Availability Assessment. This analysis strips out the city centre, as defined as a circle with a radius of 0.8 miles around the central point of Manchester, and the 0.5-mile ring around this. Places for Everyone targets illustrated using annual housing need, scaled to 15 years to match the timescale of our scenario. Land supply for the 17 years covered by Places for Everyone included in full, which may include some sites that will not be available for development within our 15-year horizon.
SOURCE: Analysis of DfT; TfGM; ONS, Census 2021; GMCA, Places for Everyone, September 2023; Stockport Metropolitan Borough Council, Strategic Housing Land Availability Assessment (SHLAA), June 2022.

This would mean that, in our scenario, some of the local authorities in which housebuilding has been concentrated in recent years, and areas prioritised in PfE, do not have to build many more homes than already planned. Manchester and Salford, for example, would only build a further 4,000 and 8,000 homes respectively, in addition to current plans (which given the 'buffer' included in PfE means both local authorities likely have enough existing land supply). However, in our analysis, Oldham and Stockport would need to double housebuilding, Bury and Rochdale would need to nearly triple current targets, and Tameside quadruple theirs – resulting in significant shortfalls against current land supply.

Finally, as well as taking a different approach to current PfE plans, a land use strategy for these additional homes that also protected the city centre and immediate environs primarily for commercial use could conflict with existing calculations of local housing need using DLUHC's 'standard method'.[135] This adds a 35 per cent uplift to the number of homes required as part of Manchester local authority's calculated 'housing need' and so

encourages higher targets for this area of the city region. Removing this artificial uplift for the very centre of the city (but only in cases where wider economic strategies for housing exist, and are aimed at delivering in excess of the overall housing need for the area as a whole) would be a welcome policy change to avoid constraining city-centre commercial development.

Achieving this spatial plan is likely to require much denser housing

The numbers in Figure 35 might be a plausible spatial allocation across local authorities in theory, but how practical are they in aggregate? Building homes in well-connected areas requires a sufficient overall land supply in those areas. PfE sets out GM's total land pipeline out to 2037, which includes a 'buffer' of identified sites over and above those required to build for existing need.[136] Given the land-supply shortfalls in most local authorities in Figure 35 once we include our additional dwellings, it is clear this will not be sufficient for a housebuilding expansion of the scale required in our scenario. So Figure 36 looks at the overall land supply picture by broadly mapping the sites set out in PfE to our four travel zones. As the chart makes clear, although there is close to enough land available in the PfE plan to build additional homes in the 'reasonable commute' and 'poorly-connected' areas, there is a significant shortfall in land supply in the zones designated 'urban core' and 'well-connected by rail'.

Moreover, these shortfalls are material. In the urban core this shortfall amounts to land for around 100,000 dwellings (significantly more than double the amount of currently available land), with land for another 37,000 required in areas proximate to rail stations. At current housing density (and assuming no further brownfield windfalls), that would require new building on an undeveloped area of 86 square kilometres, or over land equivalent to nearly 90 per cent of the size of Salford.[137] This amounts to building on nearly 8 per cent of 'undeveloped' land in the relevant areas, given current estimates of 'undeveloped' land stand at roughly 1,000 square kilometres.

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136 Throughout this section, total land supply includes an estimate of Stockport's land supply based on their latest Strategic Housing Land Availability Assessment (SHLAA), given the local authority opted out of PfE and so is not included within totals in that report.
137 Comparisons to Salford are based on a local authority area of around 97 square kilometres.

FIGURE 36: **Land supply is a significant strategic challenge to building housing in well-connected areas**

Places for Everyone land supply, existing housing need projections over the next 15 years and extra dwellings required, by travel area: Greater Manchester, latest data
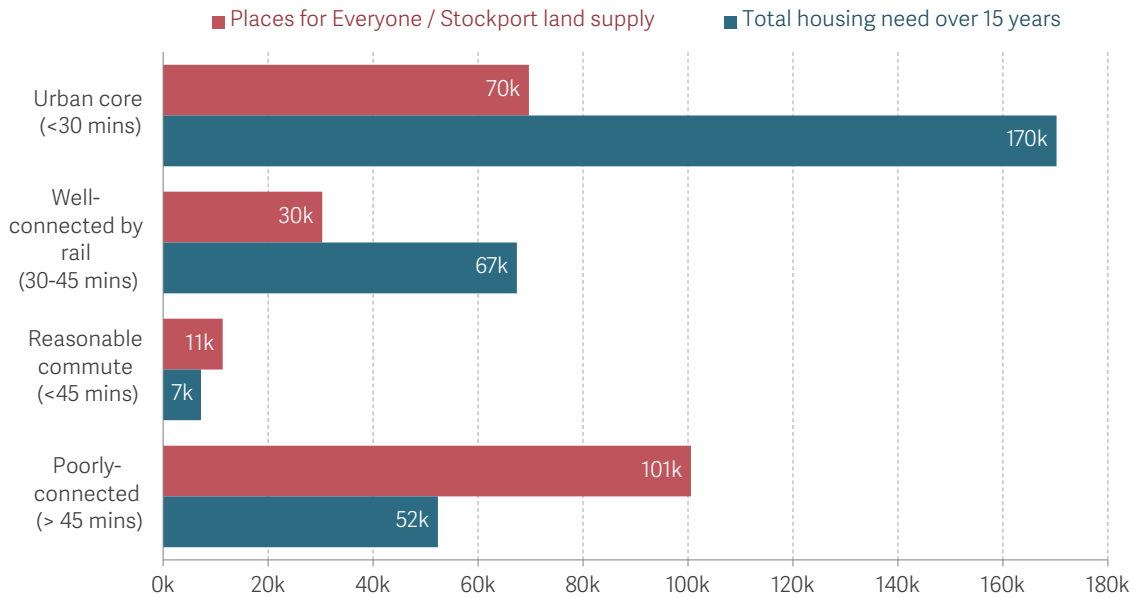
NOTES: Land supply modelled separately for Stockport, based on their most recent Strategic Housing Land Availability Assessment. This analysis strips out the city centre, as defined as a circle with a radius of 0.8 miles around the central point of Manchester, plus the half mile ring around this. The blue bars illustrate the combined total of existing local housing need (as set out in PfE, and Stockport's latest housing publications), and the additional homes in out hypothetical scenario set out in Figure 33 above. Places for Everyone housing targets illustrated using annual housing need, scaled to 15 years to match the timescale of our scenario. Land supply for the 17 years covered by Places for Everyone is included in full, which may include some sites that will not be available for development within our 15-year horizon.
SOURCE: Analysis of DfT; TfGM; ONS, Census 2021; GMCA, Places for Everyone, September 2023; Stockport Metropolitan Borough Council, Strategic Housing Land Availability Assessment (SHLAA), June 2022.

Using 8 per cent of undeveloped land might sound plausible, but 'undeveloped land' includes significant amounts of undevelopable land, including the Green Belt, residential gardens and public green spaces. Furthermore, as we highlighted in Section 3, land in the city centre and its immediate environs are the most productive parts of GM, and so will be where many of the additional high-value firms that a higher productivity city requires would want to locate.

But if 'building outwards' is constrained, 'building up' is the alternative. If we take the total number of houses involved (as set out in Figure 33), and the prioritisation of housebuilding within well-connected areas, then we can calculate what this would mean for the number of dwellings per square kilometre. Figure 37 has the answer: it shows that housing density would need to increase by nearly 830 extra dwellings per square kilometre in areas within the urban core, and by a further over 430 dwellings per square

kilometre in areas that are well-connected by rail.[138] These changes might seem big – requiring the number of dwellings per square kilometre to increase by around two-fifths in the 'urban core' and areas well-connected by rail. However, it would still leave the urban core nearly half as dense as Inner London (while the parts of GM 'well-connected by rail' remain even less dense).[139]

FIGURE 37: **There is more scope to densify well-connected areas of the city**

Current dwelling stock density and implied additional dwellings per square kilometre, by travel area: Greater Manchester and Inner and Outer London, 2021
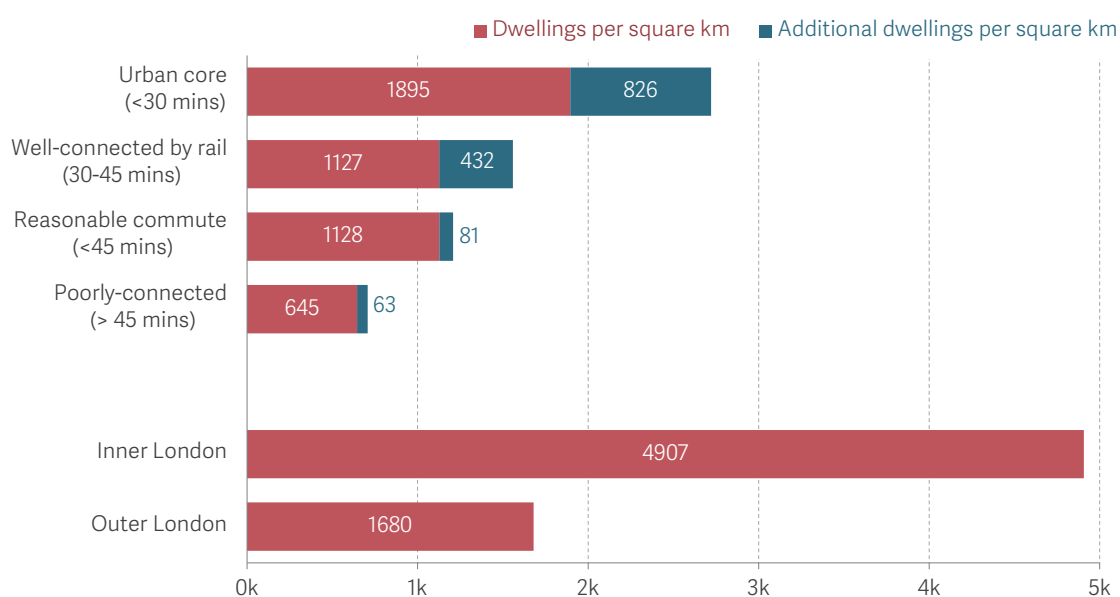
NOTES: This analysis strips out the city centre, as defined as a circle with a radius of 0.8 miles around the central point of Manchester and the half-mile ring around this. Places for Everyone housing targets are included, using annual housing need, scaled to 15 years to match the timescale of our scenario.
SOURCE: Analysis of DfT; TfGM; ONS, Census 2021; GMCA, Places for Everyone, September 2023.

138 These calculations use Census data for existing dwelling stock density, calculating additional dwelling stock density by dividing total housing stock increases over the next 15 years (from PfE and our hypothetical scenario) by the existing land area of each 'travel area'. The city centre (as defined as the 0.8-mile radius around the centre of Manchester, and the half mile ring around it) is removed from the land area used to calculate 'additional dwellings per square km' for the urban core. This suggestion aligns relatively closely with DLUHC's recent announcement of a long-term plan for housing, which emphasised densification in urban centres, and the redevelopment of existing brownfield sites. However, as set out above, any expansion of residential development in the city centre also be consistent with wider economic strategies for the city and the prioritisation of commercial land use, with residential development likely to be better placed in well-connected areas outside of the city centre. See: DLUHC and The Rt Hon Michael Gove MP, Long-term plan for Housing: Secretary of State's speech, July 2023.

139 An additional challenge for policy makers is whether both existing and new residents would be happy to live in 'denser', taller properties. The deliberative work carried out alongside this project suggested local residents often dislike the idea of higher-rise housing, but found it more acceptable if it was well-designed with access to communal green space. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

Overall, then, given the already tough constraints on land supply, the main way that GM is likely to find 126,000 more homes than currently planned is through densification and higher-rise developments, rather than developing on greenfield land, although some level of both is likely to be necessary.[140]

Public funds may be required to catalyse housebuilding on the scale required

It is certainly challenging to find land for an additional 126,000 homes over and above existing plans while also allowing for commercial use in the city centre and also making sure new homes are in well-connected areas. To add to that challenge there is also the question of how to deliver this. In particular, is it plausible to leave all the required development to the private sector?

FIGURE 38: **Some areas targeted for development may not currently be viable**

Number of total additional homes by quintile of LSOA-level house prices per square metre: Greater Manchester, May 2023
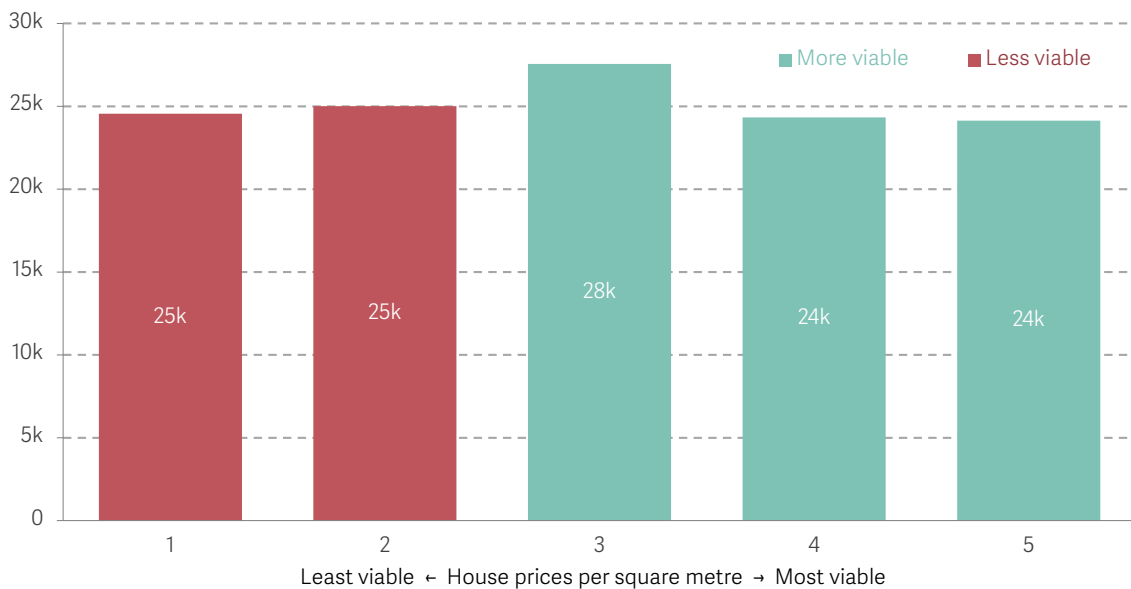
SOURCE: Analysis of DfT; TfGM; ONS, Census 2021; DLUHC, Energy Performance Register; HM Land Registry, House Price Index.

Whether a plot is considered 'viable' for private-sector development is highly site-specific, dependent on land costs and house prices, as well as construction and remediation

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costs. In order to analyse the extent to which this might be a constraint, we have mapped our hypothetical housing increases and their location (as set out in Figure 33) to LSOA-level house prices per square metre. The variation across the city is shown in Figure 38. This calculation suggests nearly 50,000 of the additional homes in our scenario would need to be built in areas that are currently 'less viable' (here proxied as being in the lowest two quintiles of house prices per square metre).[141]

It is certainly plausible that the viability of many of these areas would improve over time as more development takes place, the area becomes a more attractive place to live, and the benefits of being well-connected to a more productive city centre improve with the growth of the city.[142] But if the private sector does not deliver the total number of homes required in our hypothetical scenario, some level of support from the state would likely be required to subsidise building on the scale needed to set GM on a higher-productivity course, especially in the early years of housebuilding, and these costs could be considerable. To calculate a ballpark figure, we assume similar unit costs to those used in the recent Trailblazer deal, which offered £150 million of brownfield funding over the next two years to support regeneration and the delivery of 7,000 homes.[143] Assuming subsidies were required for the 'less viable' proportion of the homes built in our hypothetical scenario, and that subsidies would likely be concentrated in the first five years of development, this suggests an annual cost of £70 million over the first five years, or just over £350 million to build 16,500 dwellings. This assumes the entirety of the stock of additional homes in our scenario are private sector homes (and not affordable or social housing), with unit costs for affordable housing generally higher – we revise this assumption in Section 6.

GM's existing housing stock also requires investment

Up to now we have concentrated on the strategic challenges that will have to be addressed to build the additional new housing stock required. Even if successful, that housebuilding programme would still only comprise around 10 per cent of the total stock of dwellings in the city area – so, what of the other 90 per cent of the stock? Much of the housing in GM was built during the city's industrial heyday and as a result is older than

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141 This includes 28,000 of the homes planned for the 'urban core'. This area is generally more 'viable' than other areas of the city, but the large number of new homes prioritised in this area in our modelling means that even a lower-than-average proportion (39 per cent) of these adds a large contribution to the total number of homes requiring subsidy.
142 For example, one estimate is that house prices in areas neighbouring large-scale regeneration rise by over 2 per cent more than local averages over the regeneration period. See: CBRE, The effect of regeneration on local residential property values, March 2023.
143 DLUHC, Greater Manchester Combined Authority Trailblazer deeper devolution deal, March 2023.

the national average,[144] and poorer quality (at least by modern standards).[145] Tackling the existing housing quality challenge is not tangential to a productivity-boosting strategy for two key reasons. First, better-quality housing is crucial for attracting higher-skilled workers, with improving energy efficiency for existing residents also a central part of that given the importance of the net-zero transition (within this, ensuring adequate capacity for electricity transmission and rolling out electric vehicle charging also stand out as challenges in that regard).[146] Second, improving the quality of the existing stock is a key way to share the gains from productivity growth with existing residents.

The challenge here is daunting, however. To illustrate this, Figure 39 shows the current wall-energy efficiency ratings of homes in the constituent local authorities in GM.[147] Nearly two-fifths of homes are reported as having walls with a poor or very poor energy efficiency rating. Zooming in on Trafford reveals an even worse picture, with over half of homes rated poor or below. Even in Rochdale and Bolton, which have a lower proportion of homes rated poor or below, the number of homes with poor or very poor walls is significant: 34,000 and 43,000 respectively. Across GM as a whole, we estimate there are over 484,000 homes with poor or very poor walls. Improving the energy efficiency of the housing stock, as well as achieving the speed and scale of the rollout of heat pumps required as a key part of the UK's net zero transition,[148] is a big challenge and is likely to need coordination by local and regional authorities, as well as money in the form of subsidies from central government.[149]

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144 Based on Valuation Office Agency data from Council Tax administrative data, 41 per cent of homes in Greater Manchester were built pre-World War Two, as compared to an average of 36 per cent across England and Wales. See: Valuation Office Agency, Number of properties by Council Tax band, property build period and administrative area 1993-2022, March 2022.

145 Based on DLUHC modelling, 17.3 per cent of homes in GM were below the Decent Homes Standard (i.e. free from Category 1 hazards, in a reasonable state of repair, providing a reasonable degree of thermal comfort and with reasonable modern facilities and services), compared to an average of 16.7 per cent across England. See: DLUHC, English Housing Survey Local Authority Stock Condition Modelling – Decent Homes Standard, June 2023.

146 H Scammell, Understanding the costs and impacts of potential approaches to providing electric vehicle charging for households without private off-street parking, Ricardo Energy & Environment for the Climate Change Committee, May 2022.
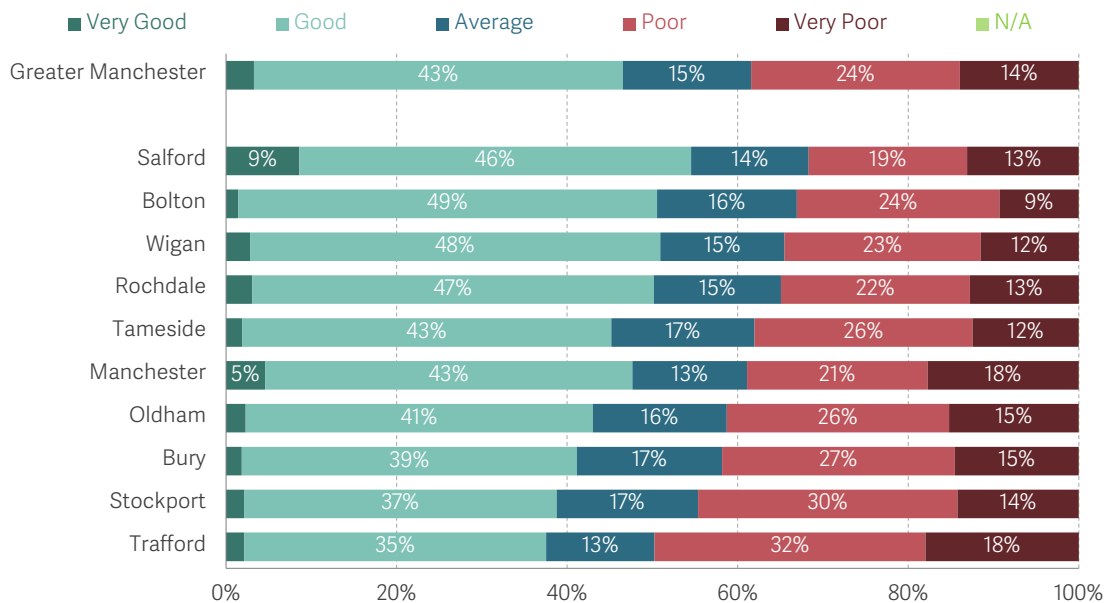
147 We focus here on walls because previous work for the Economy 2030 Inquiry has shown how this is the biggest home insulation challenge. For further details, see: A Anis-Alavi et al., Hitting a brick wall: How the UK can upgrade its housing stock to reduce energy bills and cut carbon, Resolution Foundation, December 2022.

148 Climate Change Committee, Independent Assessment: The UK's heat and buildings strategy, March 2022.

149 See the structure of means-tested subsidies set out in A Anis-Alavi et al., Hitting a brick wall: How the UK can upgrade its housing stock to reduce energy bills and cut carbon, Resolution Foundation, December 2022. Here it was assumed that roughly a tenth of homes would require full state subsidy for remediation work, with further 38 per cent receiving half subsidy. Given that incomes in GM are lower than the national average, this is likely to be an underestimate of the scale of homes requiring subsidy. An alternative to retrofitting is to rebuild the existing stock of homes, as newer homes are built with relatively high energy efficiency ratings (due to improved building standards). Here, there is some good news, in that Salford and Manchester rank 10th and 16th respectively out of 150 urban local authorities in England when it comes to total demolitions over the past five years (DLUHC, Live Table 123). But the current rate of demolition, if continued for 15 years, would only be enough to replace 0.8 per cent of the housing stock in Salford and Manchester.

FIGURE 39: **A large share of GM's housing stock has very poor energy efficiency**

Proportion of residential properties by wall energy efficiency rating: Greater Manchester, 2021

■ Very Good   ■ Good   ■ Average   ■ Poor   ■ Very Poor   ■ N/A

	Very Good	Good	Average	Poor	Very Poor
Greater Manchester		43%	15%	24%	14%
Salford	9%	46%	14%	19%	13%
Bolton		49%	16%	24%	9%
Wigan		48%	15%	23%	12%
Rochdale		47%	15%	22%	13%
Tameside		43%	17%	26%	12%
Manchester	5%	43%	13%	21%	18%
Oldham		41%	16%	26%	15%
Bury		39%	17%	27%	15%
Stockport		37%	17%	30%	14%
Trafford		35%	13%	32%	18%

NOTES: Figures for England are weighted by EPC category using English Housing Survey, with local authority figures weighted using latest Census data, by property type and tenure.
SOURCE: Analysis of DLUHC, EPC Register; DLUHC, English Housing Survey; ONS, Census 2021.

The amenities in local areas will also play a role in attracting workers

In addition to building new homes and improving old ones, it is also important to take into account the role that neighbourhood amenities may need to play in a higher-productivity GM. In this context, we focus on the role played by housing quality; access to urban green spaces; and the quality of public services, particularly schools.

The requirement for a higher housing density discussed above creates challenges. This is not just in terms of the visual environment,[150] but also the comfort of new residents as the UK experiences climate change, with denser, smaller properties being much more vulnerable to over-heating.[151] One way to reduce this risk is to make sure newly-built homes align with (or even exceed) the Government's recently-introduced standards to reduce overheating in new homes. That said, doing so runs the risk of making some of the new building projects less viable, potentially requiring additional public funds which we have not allowed for in our earlier calculations.[152]

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150 Concerns about the effect of higher-rise housing on the visual environment of the city were a feature of our discussions with residents in the deliberative workshop that accompanied this project. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.
151 J Marshall, It's getting hot in here: How ever-warmer UK summer temperatures will have an outsized impact on low-income households and low-paid workers, Resolution Foundation, August 2023.
152 DLUHC, Overheating: Approved Document O, June 2022.

A key opportunity from denser housebuilding, and particularly higher-rise building, is that it allows more land to be used as urban green space. This would have benefits for the local environment, reducing the extent to which urban areas become 'heat islands'.[153] And, as Figure 40 illustrates, public green spaces become more important as a city densifies. In general, across GM, denser areas of the city perform much better on metrics of proximity to local parks. Manchester and Salford both sit within the top sixty urban areas by average proximity of homes to parks – this is just as well, given that residents are much less likely to have their own gardens (both local authorities are in the bottom twenty urban local authorities in terms of the proportion of homes with gardens). But clearly the prosperity of an area also has an impact, with Stockport an outlier that currently performs well on both these measures. If future builds are both denser and spread more equally across the city region (as our preceding analysis suggests should be the case), then it is likely that fewer homes in future will have private gardens. This makes prioritising the retention – and creation – of urban green spaces much more important.[154]

FIGURE 40: **Public green spaces are likely to become more important if the city becomes denser**

Average distance from homes to nearest park (left-hand panel) and proportion of homes with private outdoor space (right-hand panel) with rank within 150 urban local authorities in England, by local authority: Greater Manchester, April 2020
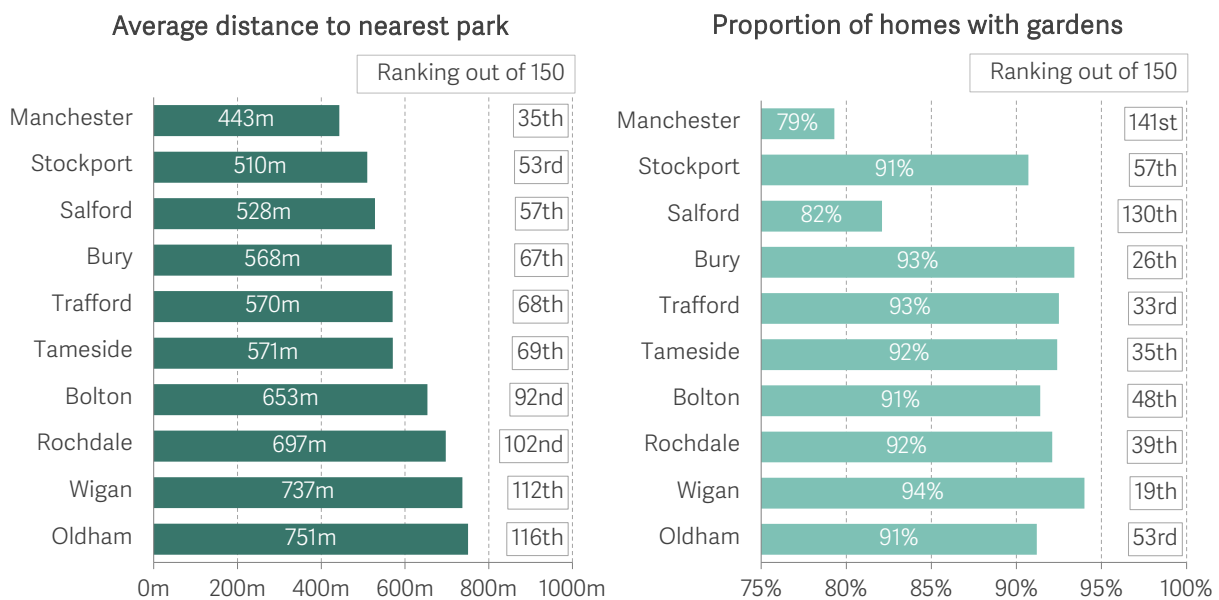
NOTES: Rankings reflect the local authority's position compared to the 150 local authorities within core functional urban areas in England (excluding City of London and West Northamptonshire due to data issues).
SOURCE: Analysis of ONS, Access to gardens and public green space in Great Britain, May 2020.

153 Royal Meteorological Society, Urban Heat Islands, October 2017
154 The premium placed on green spaces in denser urban environments was also highlighted by residents of GM in the deliberative workshop. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

Public services' quality is the final factor we consider in the context of attracting new (high-skilled) residents, as well as improving the lives of those already living in GM.[155] Here, certainly compared to other urban areas, GM performs poorly in terms of the quality of its secondary schools. As Figure 41 shows, eight of the ten local authorities in GM sit in the bottom half of urban local authorities in England when it comes to the proportion of state secondary schools ranked 'Requires improvement' or below. Even more worryingly, six GM local authorities are in the bottom third of urban local authorities in England (with Salford and Oldham particularly low scoring, in the bottom ten).[156] Boosting the performance of GM's schools may, then, be a necessary prerequisite to attract and retain high-skilled workers with children, as well as ensuring all children in GM have good chances of benefiting from job opportunities in the future.[157] A further challenge will be ensuring the scale and availability of access to existing public services and utilities in GM keeps pace with population growth.

FIGURE 41: **GM does not perform well in terms of secondary school ratings relative to other urban areas**

Proportion of state secondary schools (left-hand side) and rank within 150 urban local authorities in England (right-hand side), by Ofsted rating: Greater Manchester, 2021/22
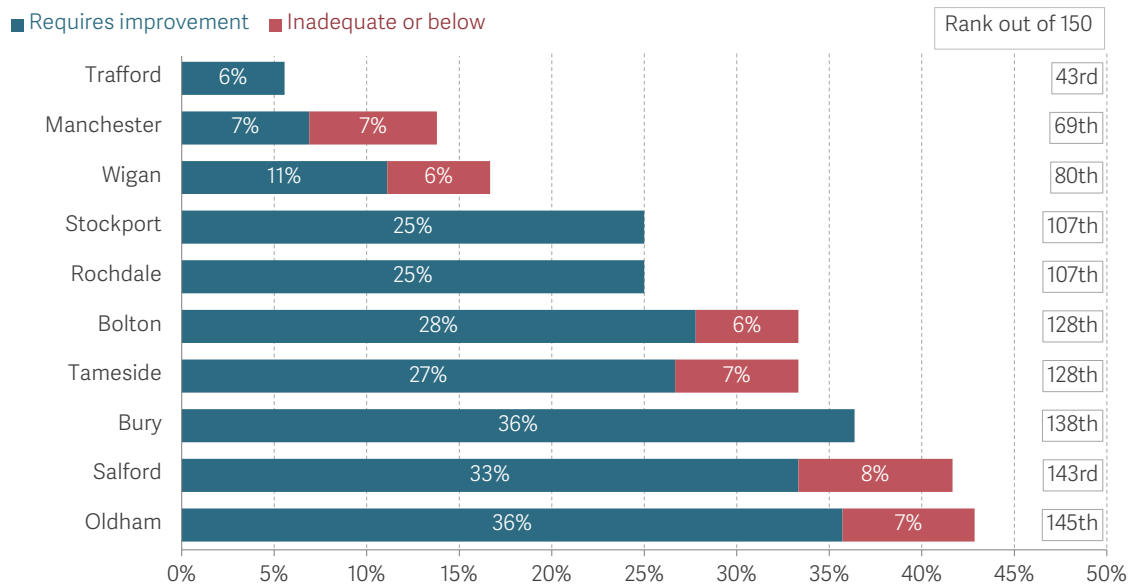
NOTES: Rankings reflect the local authority's position compared to the 150 local authorities within core functional urban areas in England (excluding City of London and West Northamptonshire due to data issues). Inadequate = schools ranked inadequate, serious weaknesses or special measures.
SOURCE: Analysis of DfE, Ofsted ratings.

155 In addition to the quality of local amenities, a further challenge will be ensuring the scale and availability of access to existing public services and utilities in GM keeps pace with population growth.
156 Given the relatively small numbers of schools per local authority, a change in one or two schools can make a significant difference to individual rankings. However, the overall picture is not an attractive one for parents within the region, or for future residents.
157 The equalising and opportunity-enhancing effect of good public services was a core theme that ran through all our discussions with residents for this project. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

Overall, then, housing will clearly be important for setting GM on a higher-productivity path. The need to build more homes in well-connected areas will certainly be crucial for attracting and retaining up to 126,000 additional high-skilled households. But so will meeting preferences for (and, as the climate warms, the need for) green space, as well as improving neighbourhood amenities and public services. Achieving all this will require local leadership and, at least in the short term, significant public funds. But it is an agenda that must be pursued if a higher-productivity GM is to be achieved.

Section 6

Living standards in a higher-productivity Greater Manchester

We showed at the outset of this report that a more successful Greater Manchester (GM) is necessary to boost incomes nationwide, within the broader North West region and in the city region too. In this final section, we look beneath the averages and examine how current and future residents of GM are likely to see their living standards change in a higher-productivity city region. We explore how higher wages and new job opportunities could benefit households across the income distribution; show the scale of the downside risk when it comes to higher housing costs; and examine how policy change at both the national and local level will be necessary to ensure the gains from productivity growth are widely shared.

Higher productivity is not an end in itself: it is the necessary condition for living standards improvements.[158] And the need for stronger living standards growth could not be more pressing. Since the financial crisis, living standards growth has been extremely slow: over the past 15 years, average working-age household incomes have risen by just 12 per cent in the North West (although it is worth noting this was faster than the UK average of 9 per cent).[159]

So, what difference could a higher-productivity city region make to the incomes of the current and future residents of GM – and how might this vary across the income distribution? In this section, we model the impact on working-age incomes that we should expect from GM becoming a more productive city region – as well as the impact

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158 M Brewer et al., Sharing the benefits: Can Britain secure broadly shared prosperity?, Resolution Foundation, July 2023.
159 Source: Analysis of DWP, Households Below Average Income, 1994-95 to 2021-22. Unless otherwise stated, all income figures in this section are equivalised working-age household incomes on an after-housing costs (AHC) basis. Detailed data on the distribution of household incomes is not available for geographies lower than the region (as discussed in: L Judge & C McCurdy, Income outcomes: Assessing income gaps between places across the UK, Resolution Foundation, June 2022).

of the important policy choices facing local and national decision makers. We consider what the impact might be in 2040, so after approximately 15 years, but it is important to stress that the figures we show do not represent the total income growth over the next 15 years. Rather, they show the change in household incomes over and above any underlying change in incomes over the next 15 years that would exist without the improvements in the city region's productivity that we have outlined in previous sections.[160]

As previous sections have made clear, a core part of the change that needs to happen for productivity to increase is a rise in the number of skilled workers, where our working assumption is that this means an additional 174,000 graduates in an additional 126,000 households, above and beyond any 'business as usual' population changes. In what follows, we first consider how a higher-productivity GM might affect incomes for the population of GM excluding these new residents. We then show how income in GM would be different from a 'do-nothing' scenario including the incomes of the newcomers.

Higher wages in a more productive GM would give a much-needed boost to incomes, but drive up inequality too

We start by modelling how the wage effect of a higher-productivity city region would change incomes across the distribution for GM's current population – by which we mean the people who would live in GM over the next 15 years ignoring the 174,000 extra workers mentioned above. We should be confident that higher productivity will feed through to higher average earnings, but our analysis suggests that at the local level at least the relationship between the two is not perfect. Instead, we estimate that for every 1 per cent of productivity growth in the city region, the typical worker's wage rises by 0.8 per cent.[161]

The impact on wages of higher productivity is not likely to be consistent across the wage distribution. In recent years in the UK, for example, pay growth for middle and higher earners has been closely tied to growth in productivity, while pay growth for the lowest earners has been more driven by minimum wage increases.[162] We therefore expect that higher productivity would have a larger impact on the wages of middle- and high-earners than lower-earners. In practice, we model how household incomes would change if graduate workers experienced an average pay increase of 10.5 per cent, and non-graduate workers see a boost of 7.1 per cent.[163]

160 Annex 2 gives more details of our methodology.
161 This is based on observing the strength of the correlation between hourly labour productivity and hourly pay across UK cities. Source: Analysis of ONS, Sub-regional productivity estimates; ONS, Annual Survey of Hours and Earnings.
162 For example, between 2015 and 2022, output per hour worked rose by 5 per cent, and gross hourly pay adjusted for CPI inflation rose 8 per cent at the median and 22 per cent at the 10th percentile. Source: analysis of ONS, Labour productivity; ONS, Annual Survey of Hours and Earnings, ONS, Consumer Price Index.
163 These specific wage growth figures were chosen such that growth in average earnings equals 80 per cent of the city's productivity growth, consistent with the compositional effects of adding high-skilled workers and raising employment among lower-skilled workers through spillover effects. See Annex 2 for more details.

Figure 42 presents the results of this exercise. The £3.4 billion total earnings uplift (in 2024-25 prices) that a higher-productivity city region would bring would raise the typical working-age household incomes of GM's current residents by an additional 5 per cent.[164] This would be a very welcome development.[165] However, although all parts of the income distribution benefit from higher earnings in a higher-productivity GM, the boost – and particularly one that is skewed towards graduates – would be stronger for higher earners, meaning that inequality would rise. In particular, we expect that such a change would lead to a rise in incomes in the poorest vigintiles of around just 2 to 3 per cent (above secular income growth), compared to 8 per cent for households at the top of the income distribution.

FIGURE 42: **Earnings growth looks set to lift incomes across the distribution, but give an especially large boost to higher-income households**

Change in net equivalised working-age household income (after housing costs), by income vigintile (higher wages scenario): Hypothetical higher-productivity Greater Manchester, 2040
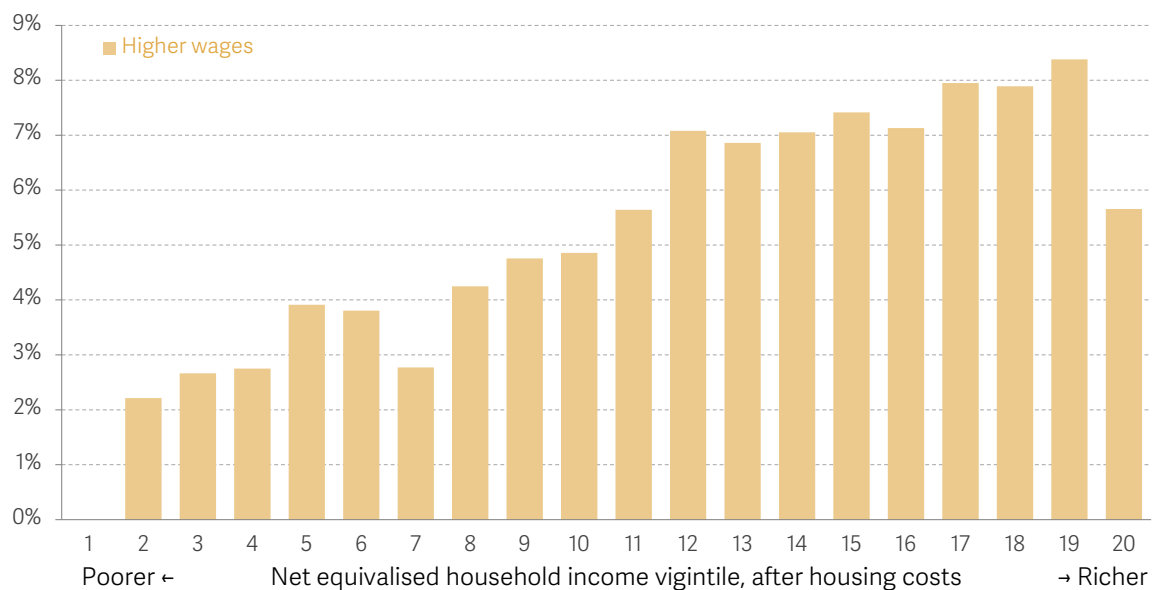
NOTES: Chart shows effect on resident population excluding 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group.
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

In part, of course, this is an artefact of our assumption that earnings rise more for higher-skilled workers than for those with lower skills. But this also hints at how policy could potentially recalibrate who benefits from the earnings uplift in a more productive city region: by increasing the minimum wage. The 'National Living Wage' (the adult rate minimum wage) is on course to reach its target 'bite' of two-thirds of the median

164 Typical household income figures present the average change for those in vigintiles 10 and 11.
165 See, for example: S Clarke, New Order: Devolution and the future of living standards in Greater Manchester, Resolution Foundation, November 2016 for a discussion of pay and employment performance of the city region over the last two decades.

hourly wage by 2024,[166] and it is clearly possible that (national) policy makers could go further after that point.[167] Setting the minimum wage 'bite' on an upward trajectory could certainly help more equitably redistribute the earnings gains that are intrinsic to a higher-productivity GM, but given the uncertainty, we do not model its impact here.

There will be more job opportunities for all in a higher-productivity GM, disproportionately benefiting lower-income households

The fact that there is only a small income boost for lower vigintile households in a higher-wage GM speaks to another key reason why the gains from growth are not spontaneously shared: fewer adults in poorer households are working than in richer households, meaning many such households will see either no (if workless) or smaller (if not all adults are working) gains from higher wages. In addition, for those lower-income households in receipt of means-tested benefits, some of the income gains from higher wages are lost as benefits are 'tapered' away.[168]

However, in addition to changes in earnings, we would also expect employment to rise in a higher-productivity GM. That is because the presence of additional high-skilled workers in the city region would likely lead to positive employment for existing residents. There is strong evidence for an employment 'multiplier effect' when a city sees growth of high-paid jobs, thought to arise through workers spending locally, and through additional demand via the supply chains of the firms employing the high-paid workers. These processes boost demand for local goods and services and generate additional jobs in the process. As a result, new job opportunities open up in a higher-productivity city region not just for those with higher skills, but across the board.

Drawing on previous analysis, we make the (conservative) assumption that for every ten additional high-skilled workers a further seven lower-skilled roles are created in the city region – equivalent to more than 106,000 new jobs for lower-qualified workers in a higher-productivity GM.[169] We now bring this employment effect into our modelling in Figure 43. Employment effects make a material difference to working-age household incomes (the line shows the results we presented in Figure 42, the income boost from higher wages alone). Over a 15-year period, we expect the higher wages and higher employment that are part and parcel of a higher-productivity city region to boost typical household incomes by an additional 10 per cent. But as the chart makes plain, employment effects

166 Low Pay Commission, The national minimum wage in 2023, March 2023.
167 We make recommendations on future levels of the minimum wage in: N Cominetti et al., Low Pay Britain 2023: Improving low-paid work through higher minimum standards, Resolution Foundation, April 2023.
168 There is a longer discussion of this in: M Brewer et al., Sharing the benefits: Can Britain secure broadly shared prosperity?, Resolution Foundation, July 2023.
169 Our 0.7 multiplier is taken from S Clarke & N Lee, Do low-skilled workers gain from high-tech employment growth? High technology multipliers, employment and wages in Britain, SPRU Working Paper series, July 2017. See also: What works centre for local economic growth, Toolkit: Multiplier effects, March 2019, which suggests this is at the low end of the observed range.

will benefit households in the lowest income brackets to a greater extent than higher-income households, spreading the gains of a more prosperous city region more equally than the boost to wages alone.[170]

FIGURE 43: **New job opportunities will boost incomes across the board, but benefit those at the bottom of the distribution the most**

Change in net equivalised working-age household income (after housing costs), by income vigintile (higher wages and higher employment scenario): Hypothetical higher-productivity Greater Manchester, 2040
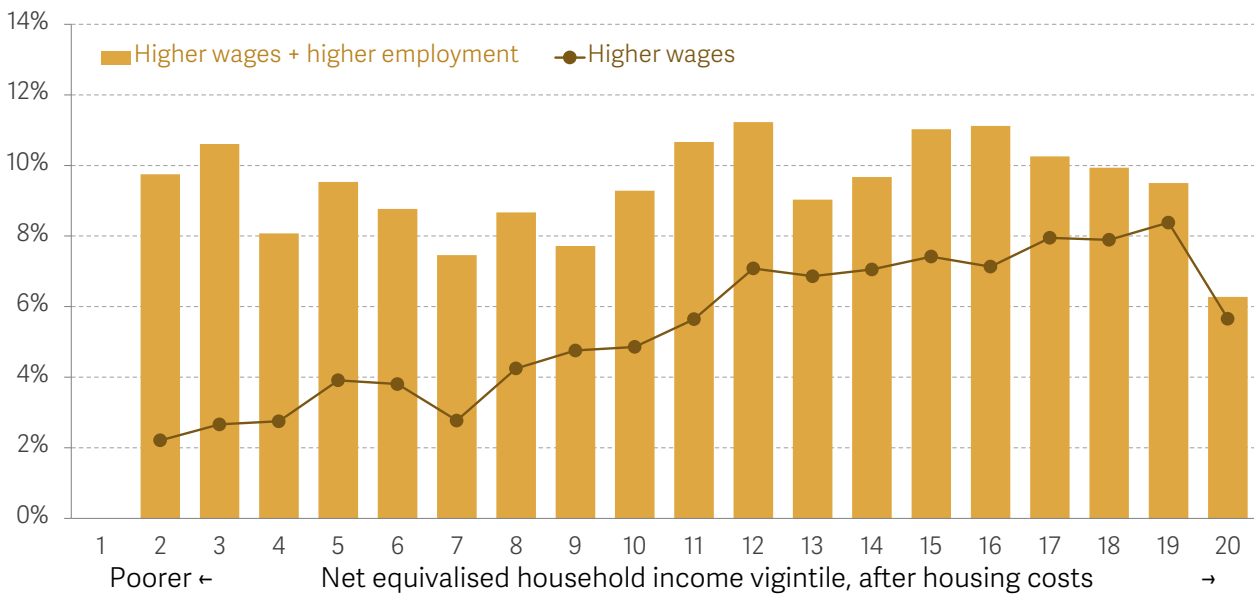
NOTES: Chart shows effect on resident population excluding 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

This finding has important implications for local policy makers. This means that developing and expanding support for workless individuals and households is especially important in GM to ensure these new opportunities are real opportunities. Back-to-work programmes, adult education and action to tackle underlying health issues that limit participation clearly have a crucial part to play in a strategy to spread the gains from growth – for the purpose of this exercise, we assume that enough is done to allow the extra labour demand for lower-skilled workers to turn into new jobs.[171]

170 Some of the apparently large percentage gains in income at lower vigintiles are an artefact of our decision to measure incomes after housing costs. A given percentage increase in before housing costs income automatically translates into a larger percentage increase in after housing costs income, because the denominator is (usually) smaller – and especially so for those with low after housing costs income.

171 Poor health can affect not just short-term ability to flourish in the labour market, but also potentially the longer-term. For example, recent work has shown that 79 per cent of 18-24-year-olds who are out of work because of ill-health only have qualifications at GCSE level or below. See: L Murphy, Left behind: Exploring the prevalence of youth worklessness due to ill health in different parts of the UK, Resolution Foundation, June 2023.

Higher housing costs will act as a drag on living standards in a more successful city region

So far, our modelling has only considered the beneficial impacts of a higher productivity city region on incomes, by thinking about how it might change earnings and employment. But as average incomes rise, so does something else – housing costs – and this will provide a living standards headwind.[172] A sensible starting assumption is that housing costs will rise in line with average earnings.[173] But housing supply is also a determinant of housing costs, and achieving a higher-productivity GM requires a larger population. Therefore, it is possible that housing costs would increase in a higher-productivity GM over and above the growth of earnings, with this depending on whether enough homes are built to keep up with the higher number of households a more productive city region requires.

In Section 5, we showed how challenging (though not impossible) it will be for the housing stock in GM to expand beyond that required by business-as-usual demographic and population changes. Given this, in Figure 44 we first model a pessimistic scenario where not only have housing costs risen in line with earnings but also it has not been possible to build sufficient homes in the city region given the population expansion (in other words, the number of houses has fallen relative to the size of the population).[174] The effect of higher housing costs in this scenario is significant: around one-third of typical households' income gains in a higher-productivity GM would be absorbed by higher housing costs. But the effect is even stronger for those in the lowest income households. For example, the 10 to 11 per cent income growth that households in vigintiles 2 and 3 would enjoy from higher wages and employment more than halves when higher housing costs are taken into account.

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172 Throughout this section, housing costs are private rents and mortgage interest unless otherwise stated.
173 A link between the level of rental prices and the level of average wages at the local level is shown in: H Overman & X Xu, Spatial disparities across labour markets, IFS Deaton Review of Inequalities, February 2022.
174 We assume half the 126,000 additional homes have been built, reducing the housing stock to household ratio by 4.8 per cent. We then assume that for every 1 percentage point fall in this ratio, private rents rise by 1.8 per cent, consistent with the findings of: Oxford Economics, Forecasting UK house prices and home ownership: A report for the Redfern Review into the decline of home ownership, Oxford Economics, June 2016. But we may be understating the rise in housing costs in this scenario; other sources suggest a 1 per cent increase in housing stock to households would decrease house prices by 2 per cent (MHCLG, Analysis of the determinants of house price changes, MHCLG, April 2018).

FIGURE 44: **Higher housing costs could absorb a large part of poorer households' income gains in a more successful city region**

Change in net equivalised working-age household income (after housing costs), by income vigintile (higher wages, higher employment and pessimistic housing cost scenario): Hypothetical higher-productivity Greater Manchester, 2040
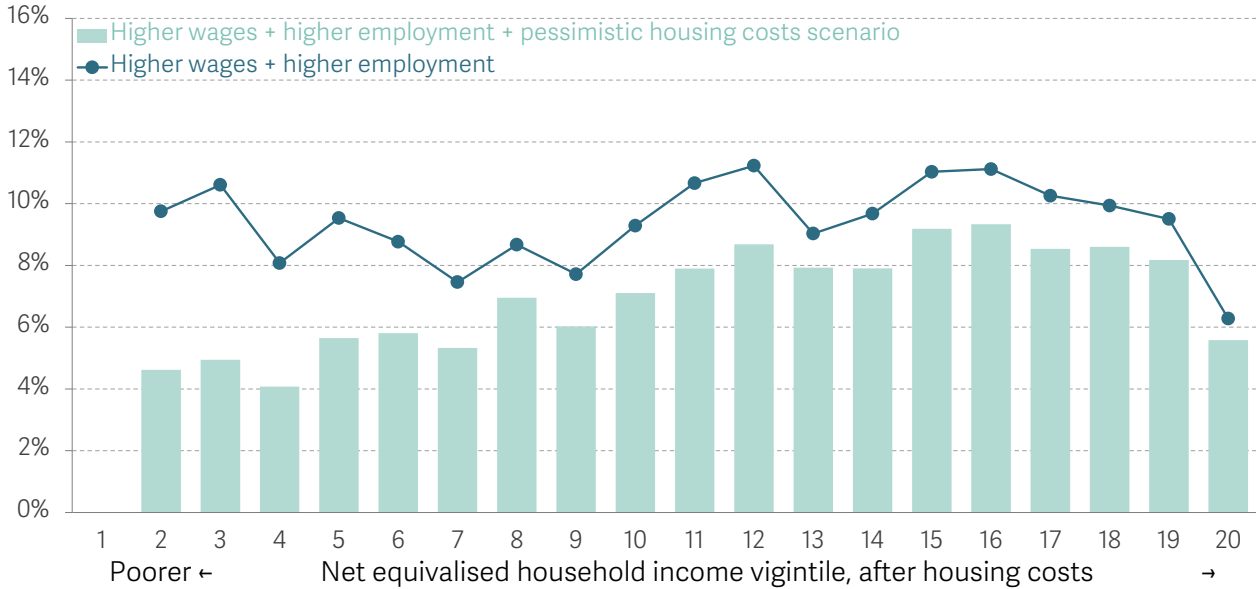
NOTES: Chart shows effect on resident population excluding 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group. Pessimistic scenario assumes city region builds half of the new homes required by a larger population.
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

Of course, this scenario could be overly pessimistic: with strong local leadership and suitable support from national government, it is plausible that the housing stock in GM could expand to the extent required. In Figure 45, we set out how household incomes would change if, alongside earnings and employment growth, housing supply was raised to fully keep up with population growth. Here, the downward effect of higher housing costs on household incomes is, naturally, more muted. But it is still material: typical households would see around 13 per cent of their income gain absorbed by higher housing costs under this scenario. And once again, the downward pressure housing costs place on living standards is more acute for lower-income households.

FIGURE 45: **Building homes for all is key to minimising housing cost pressures**

Change in net equivalised working-age household income (after housing costs), by income vigintile (higher wages, higher employment and optimistic housing costs scenario): Hypothetical higher-productivity Greater Manchester, 2040
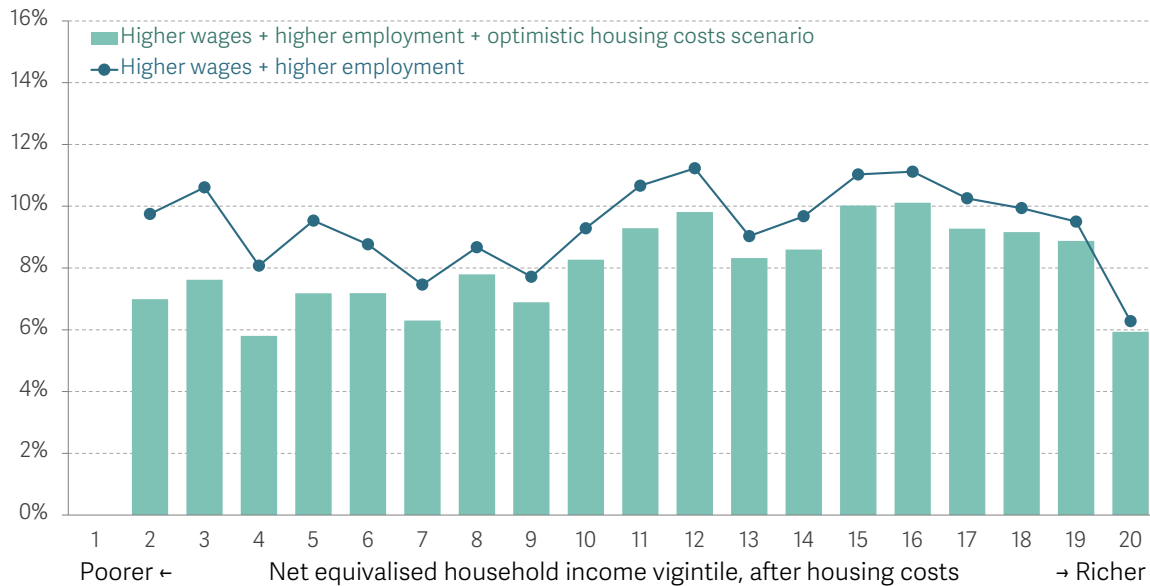

NOTES: Chart shows effect on resident population excluding 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group. Optimistic housing costs scenario assumes city region builds all the new homes required by a larger population.
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

Additional social housing could help ease housing costs pressures, but would require significant subsidy from central government

In addition to ensuring that housing supply keeps up with population growth, the negative impact of housing costs on incomes could be ameliorated through the right policy choices. One key way the state can help low-income households manage high housing costs is by offering them a below-market rent and a stable home in the form of social housing. With over 74,000 households currently on waiting lists for social housing (33,000 of which fall under the more acute 'reasonable preference' category of housing need), it's clear that more would need to be done.

We estimate that if GM wishes to hold its share of households in social rented homes constant in a larger-population city, it would need to ensure a further 26,000 sub-market homes are built.[175] But as Figure 46 shows, in the past ten years, local authorities in GM have built an average of 1,700 additional sub-market homes every year simply to cope with existing need. We estimate that the local authorities in GM would need to double the (overall) rate of social rent build over a 15-year period in order to ensure the extra 26,000 homes required over and above current plans. Moreover, this would also likely

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175 These homes are a subset of, and not additional to, the 126,000 additional homes we identified in Section 5 as being required by the population expansion in a higher-productivity GM.

require additional grant finance from central government. Assuming a subsidy of £80,000 for each social rent unit built, this could total £2.1 billion over a 15-year period.[176] All of this would represent big changes, but Figure 46 shows that higher rates of affordable housing completions (albeit still not as high as the doubling of current rates that we are saying is needed in future) were achieved in the 1990s.

FIGURE 46: **Building more sub-market homes in GM may be a challenge, but rates have been higher in the past**

Affordable housing completions: Greater Manchester, 1991-92 to 2021-22
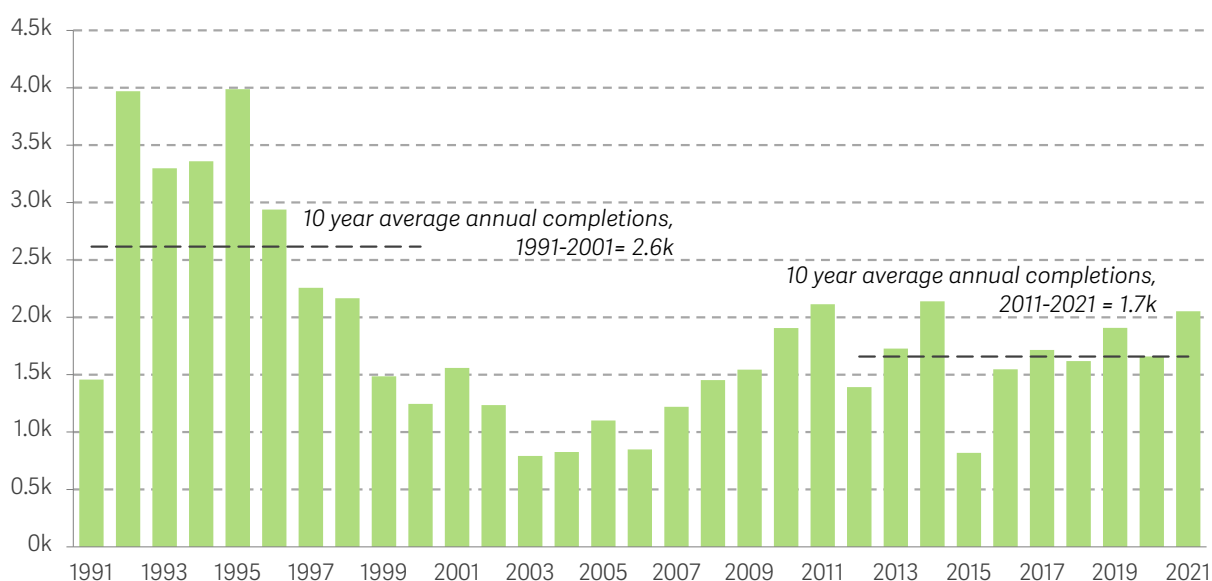
NOTES: This chart presents affordable housing completions – the net additions to the affordable housing stock may be lower taking into account sales and demolitions.
SOURCE: Analysis of DLUHC, Live Table 1011.

But getting affordable housing right is not just about how many homes are built; equally important is where those homes are located and how they are dispersed throughout the city region. Currently there exists an unequal distribution of affordable housing units among local authorities within GM: there tend to be higher proportions of social housing among authorities in GM with lower house prices (such as Manchester and Salford), and low proportions of social housing in areas with more expensive housing, such as Trafford and Stockport (see Figure 47). Significantly expanding social housing supply, while fostering mixed communities, will require a boost in affordable housebuilding across GM, particularly in local authorities where the current share of social housing is low.

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176 Building social rent homes at this scale with central government subsidy would, however, reduce our estimate of the cost of subsidising private sector building to deal with issues relating to viability in Section 5, by around £70 million (£280 million instead of £350 million), given this initial estimate was assuming all 126,000 additional homes were being provided through the private sector.

FIGURE 47: **Affordable housing is currently concentrated in less-affluent local authorities**

Social housing as a share of total dwelling stock (2021) and average house prices (March 2022), by local authority: Greater Manchester
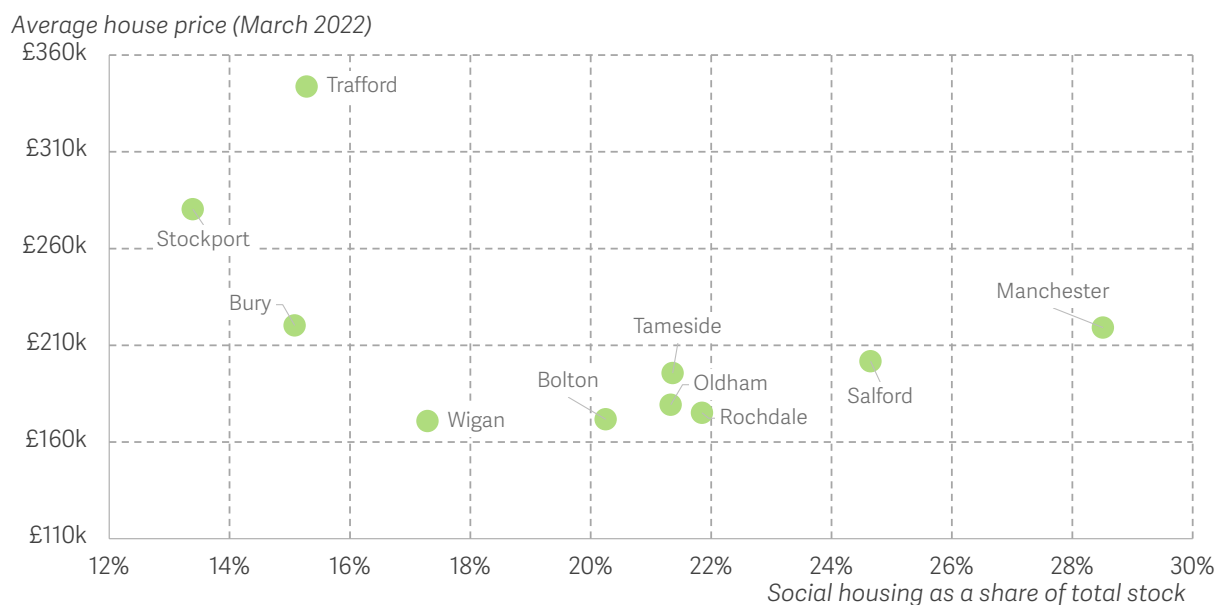
SOURCE: Analysis of ONS, Subnational estimates of dwellings by tenure, England and HM Land Registry.

Policy change at both national and local levels could protect low-income households from the housing costs headwind

In addition to building adequate social housing, another way policy makers can minimize the impact of higher housing costs on incomes is by providing proper support for housing costs in the benefits system. Many lower-income households receive support with their housing costs through the national benefits system in the form of Local Housing Allowance (LHA) for private renters. LHA is currently frozen at 2019 rent levels, which erodes the amount of support renters receive, but our view is that it is infeasible for this policy to continue indefinitely, and so earlier charts in this section have assumed that it is linked to inflation, which was the approach from 2013 to 2019. In the final scenario, though, we set out the impact of re-pegging LHA to the 30th percentile of local rents, as was the original intention of the Government's reform in 2012, and what happened again in 2020. This would protect poorer households from one of the major pressures on their incomes in a wealthier GM.[177]
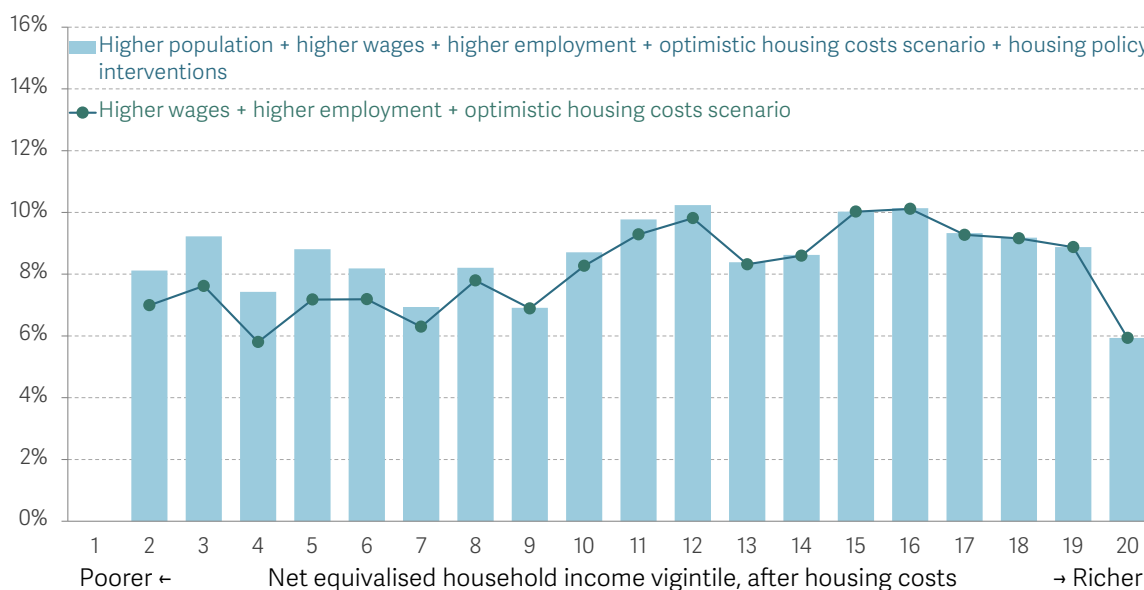
The powerful impact that different policy choices can make when it comes to supporting low-income households with their housing costs through both 'bricks' and 'benefits' is brought home in Figure 48. The effect of housing policy intervention is material: the incomes of poorer households would be around 1.5 percentage points higher if LHA is

re-pegged to local rents (as opposed to uprated in line with inflation) and sufficient social homes were built to hold the share of social renters constant in a larger city region.

FIGURE 48: **Higher Local Housing Allowance and more social rented homes could blunt the impact of higher housing costs in a more productive city region**

Change in net equivalised working-age household income (after housing costs), by income vigintile (higher wages, higher employment, optimistic housing costs scenario and housing policy interventions scenario): Hypothetical higher-productivity Greater Manchester, 2040

NOTES: Chart shows effect on resident population excluding 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group. Optimistic housing costs scenario assumes city region builds all the new homes required by a larger population. Housing policy interventions = linking LHA to actual rents; building 26,000 additional social rent homes over and above PfE plan.
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

A higher-productivity GM would be less equal but with far fewer children growing up in poverty

So far, we have presented results that show how the incomes of the resident population of GM in 2040 could be different in a higher-productivity city ignoring the additional 174,000 high-skilled workers required. In Figure 9, we present the impact that a higher-productivity GM could have on the distribution of household incomes in GM once we also include the additional high-skilled residents that we think the city region will need, and if all the changes described above – higher wages, higher employment, higher housing costs and housing policy interventions – were to come to pass.

To begin, the chart shows that the boost to household incomes is larger when we factor in the new population of GM than it is when we focused on the 'business as usual' population (the blue line). This is simply a compositional effect: as we bring in high-

skilled, mostly well-off, households to GM, this pushes some (existing) households down the income rankings, lifting the average income in their new vigintile as a result.

FIGURE 49: **A higher-productivity GM would be richer but more unequal than today**

Change in net equivalised working-age household income (after housing costs) of current population, by income vigintile (higher population, higher wages, higher employment, higher housing costs and housing policy interventions scenario): Hypothetical higher-productivity Greater Manchester, 2040
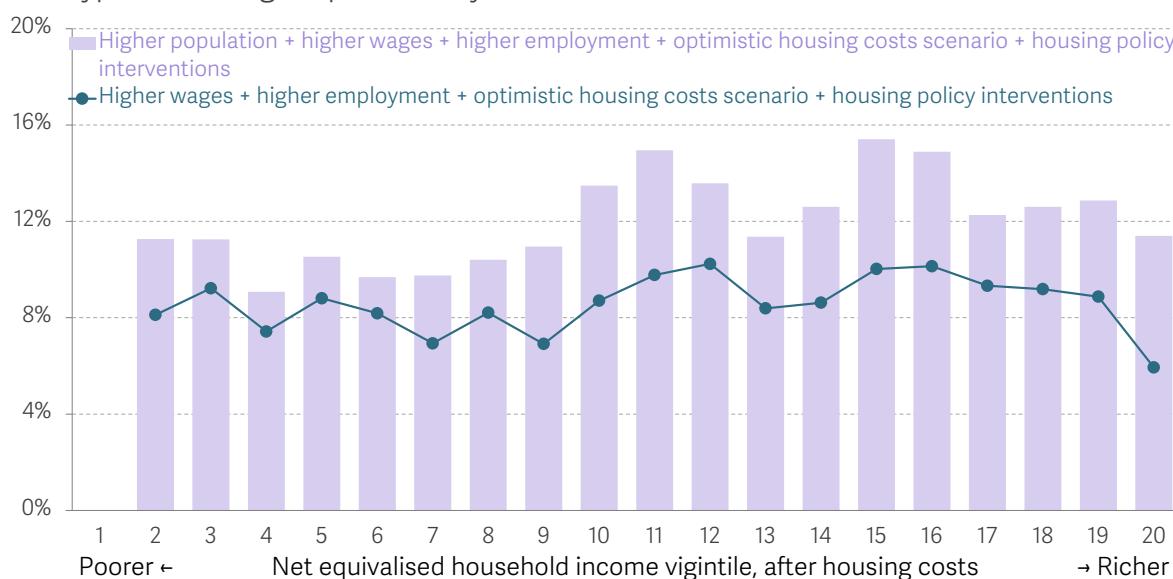
NOTES: Chart shows effect on resident population including 174,000 additional high-skilled workers required by a higher-productivity city region. We exclude the bottom 5 per cent due to concerns about the reliability of data for this group. Higher population = additional 126,000 households over current population, each of which contain at least one graduate in employment. Optimistic housing costs scenario assumes city region builds all the new homes required by a larger population. Housing policy interventions = linking LHA to actual rents; building 26,000 additional social rent homes over and above PfE plan.
SOURCE: Analysis of DWP, Family Resources Survey, using the IPPR Tax Benefit Model.

More materially, Figure 49 shows that if all the changes we have modelled came to pass, then households across the board in a more productive city region would be significantly better off. We estimate that, by 2040, the typical household in GM would have an income that was about 14 percentage points higher than secular growth in living standards should lead us to expect, a significant improvement given (as stated at the outset), over the past 15 years incomes in GM have risen by 12 per cent. In today's prices, that is equivalent to a rise in the median household's income of £2,400 a year.

However, the chart also makes plain that higher-income households would see their incomes increase to a somewhat larger extent than those on lower incomes (the gain for the top half is around 13 per cent, compared to around 11 per cent respectively for

the bottom half), increasing income inequality in the process. Put simply, a higher-productivity GM would likely be a richer, but marginally more unequal, city region than it currently is.

But if that seems like an undesirable conclusion, perhaps consider this. If household incomes in GM were to rise as we have modelled here (because high-value firms and high-skilled workers flock to the city region in response to strategic choices local leaders make around land use, public transport and housing), this could bring about a four percentage point fall in the working-age poverty rate, and a four percentage-point fall in child poverty.[178] That would be equivalent to 24,000 fewer children growing up in poverty in GM today.[179] And the future could be even brighter still: if the city region were to gain stronger revenue-raising powers under new devolution deals, it could harness more of the wealth of a more productive city region for redistribution locally, and truly ensure the gains from growth are shared.[180]

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[178] Poverty figures show relative poverty rates.

[179] It is worth noting that residents who participated in the two-day deliberative workshop we ran as part of this project were less offended by inequality per se, and more by poverty and destitution which they feared would rise in a more productive city. See: T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity **future in** the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.

[180] We will be making proposals that achieve this in: A Breach, S Bridgett & O Vera, In place of centralisation: A devolution deal for London, Greater Manchester and the West Midlands, Resolution Foundation, forthcoming.

Section 7

Conclusion

A higher productivity future for the UK's 'twin second cities' should be a central objective of Britain's economic strategy. It is a key way we boost aggregate growth, close regional gaps and improve the living standards of local people too. This paper has shown that a plausible routemap to a significantly more productive Greater Manchester (GM) exists, and what it might (and might not) look like. It has highlighted the scale and nature of change, and the difficult decisions required. But, making changes across multiple domains requires more than just a vision. A higher productivity GM needs time, money and strong local leadership, and a Greater Manchester Combined Authority (GMCA) that has the powers to drive and shape the change to come.

Cities play a key role in driving national prosperity in the service-led advanced economies of the 21st Century. But, despite progress in recent years, GM still does not fulfill fulfil that role. As we have shown, becoming a higher-productivity city requires policy action in a number of areas. This will include tough decisions on land use; substantial improvements in intra-city public transport, allowing firms to access a wider pool of skilled workers; and decisive planning when it comes to housing to maximise its productivity-boosting potential, and minimise the negative impact of higher housing costs. There is no doubt that the challenge here is substantial, requiring a clear strategy and coordinated action from both local and national leaders.

Improving productivity cannot be achieved overnight

As this report has made clear, there are no immediate measures that will deliver higher city-wide productivity. A plausible strategy for productivity growth is one that is realistic about the enduring nature of the task, and able to keep these objectives firmly in sight

over years or even decades. Figure 50 drives home this point by plotting the path of productivity in comparably-sized city regions in OECD countries over the past 15 years. It shows there is definitely scope for cities to make real progress over such a time period, although this is far from guaranteed. A positive example in this context is Greater Perth's, where real GDP per worker grew by 44 per cent in the 15 years up to 2019. But there are cautionary tales here too: Milan's productivity fell by almost 2 per cent in the same period. Manchester metro area is in the middle of the pack.[181] Achieving further gains does not require the city to move right to the productivity frontier – matching the 15-year growth performance of mid-range cities such as Seattle (37 per cent) or Austin (21 per cent) would be a significant change. Solid, sustained progress, year after year is what success looks like.

FIGURE 50: **The productivity performance of city regions across the OECD has varied dramatically in the last 15 years**

Index of real GDP per worker, OECD metro areas with >750k+ workforce (100=2004)
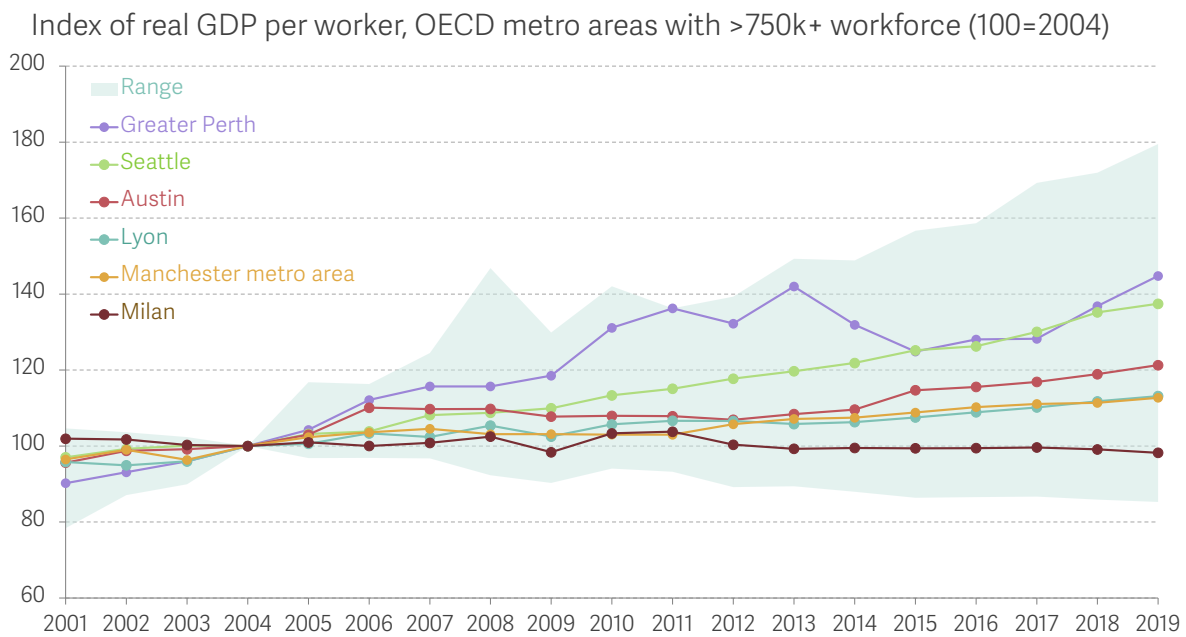
NOTES: GDP per worker measured in in US dollars, constant prices, constant PPP. City workforce over 750,000 in 2019. Results are shown for the 93 cities for which data was available for all years.
SOURCE: Analysis of OECD GDP per worker dataset, accessed through OECD.stat.

Significant spending will be be needed...

However, the findings of this report also show vividly that staying power alone will not be enough. Many local authorities' financial woes might currently be front-page news, but it is important not to let events of recent weeks undermine the long-term case for investing in our 'twin second cities' if we are serious about a higher-productivity future.[182] As we

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181 Results shown here are for metro areas. See Box 1 in Section 1 for further details.
182 Most obviously, in Birmingham in recent weeks. See: Birmingham City Council, Section 114 notice, September 2023.

have argued elsewhere, current and future UK governments must step up when it comes to public investment to support growth.[183] But what does that mean specifically for GM?

There are three clear, inter-related policy areas that will need to be prioritised to deliver sustained increases in productivity. When it comes to commercial development in the city centre (our first area), our analysis suggests the market should largely be able to deliver. But that is not the case when it comes to expanding public transport in the city region (our second area). Here, we estimate an additional £1.5 to £2 billion of public funding is required in total up to 2040 over and above that already committed to date.[184] And there is also a price tag when it comes to residential housing (our third area). Our analysis suggests it would cost over £350 million to kickstart house-building in parts of the city region where viability is a challenge. Increasing the housing stock is, however, crucial to deepen the labour pool and keep housing costs manageable in a bigger city.[185]

Reflecting this, just in these three areas we estimate that a higher-productivity GM could require at least £1.85 billion of additional public investment up to 2040 – on top of assuming no rolling back on existing capital spending plans. It is helpful to put that figure in historical context. Indeed, over the past four years combined, local authorities and projects within GM have received just over £170 million from the Levelling-Up Fund.[186] The scale of sustained investment required should give the Government pause for thought when it comes to their ambition of supporting a globally-competitive city in every region.[187] But this also points to the need to leverage institutional investment such as pensions funds more effectively for places like GM, and to 'power up' the British Business Bank so it, too, can help turbo-charge the city region.[188]

...as well as empowered local leadership

There is a very clear need for time and money to be put into GM, but will that be enough to achieve higher producitvity? We point to one final, critical condition for success: strong local leadership. Policy uncertainty has been shown to reduce firms' perceived returns to investment, choking off the supply of private capital that a more productive

183 F Odamtten & J Smith, Cutting the cuts: How the public sector can play its part in ending the UK's low-investment rut, Resolution Foundation, March 2023.
184 See Section 4 for further details.
185 See Section 5 for details of this estimate. This would be reduced to around £280 million over five years for subsidies for private sector development if funding was also made available to build sufficient social rented housing stock to hold the share of households in that tenure constant in a larger city region. However, expansion of that scale would require £2.1 billion of additional capital grant. We make no estimate here of funding required to retrofit GM's existing poor-quality housing stock, nor to fund repegging Local Housing Allowance to local rents.
186 Relevant local authorities were awarded £112.9 million in Round 1 (source: DLUHC, Levelling up fund: Round 1 successful bidders, October 2021), and £58.3 million in Round 2 (source: DLUHC, Levelling up fund round 2: Successful bidders, January 2023.
187 DLUHC, Levelling Up the United Kingdom, DLUHC, February 2022.
188 P Brandily et al., Beyond Boosterism: Realigning the policy ecosystem to unleash private investment for sustainable growth, Resolution Foundation, June 2023.

city region so desperately requires.[189] In addition to minimising uncertainty, local leadership should also bring the public onside by presenting a clear vision for growth, and providing demonstrable gains for local people that convince them of the case for change.[190]

The funding of local authorities – which have faced uncertainty around their finances for many years – is important. The UK Govenrment makes extensive use of grants with local authorities in GM receiving at least 70 distinct grants for current and capital spending in 2022-23 alone.[191] But the approach to Levelling Up taken so far – where local government competes for several small pots – has continued adding uncertainty to capital budgets. The newly announced 'Trailblazer' devolution deal for the Greater Manchester Combined Authority (GMCA) is clearly a significant step in the right direction, treating them in the same way as government departments for the purposes of the next Spending Review.

But it is important that devolution goes further than how spending decisions are taken, and should include more extensive powers to raise revenue. GMCA may already have more competencies than any other combined authority, but genuine local-economic leadership requires fiscal devolution. The importance of that for local leadership is shown in numerous examples of 'turnaround cities' globally, where it enables areas to drive forward a strategy without constantly seeking central-government approval.[192] A future paper in the Economy 2030 project will set out what form of fiscal devolution would be needed to accompany our vision for boosting productivity in GM and beyond.[193]

There is a clear path towards a higher-productivity future for GM. The scale of change needed to reach that end is, however, large – despite progress in recent years. The breadth of issues that require simultaneous attention is wide. But success is achievable – if national politicians concentrate their efforts, and local politicians are empowered to embrace the disruption involved. It's time we put the UK's 'twin second cities' centre-stage.

189 See, for example: S Baker, N Bloom & S Davis, Measuring Economic Policy Uncertainty, The Quarterly Journal of Economics, November 2016; N Bloom et al., Investment and Subjective Uncertainty, BFI Working Paper Series, 2022; T Hassan et al., Firm-Level Political Risk: Measurement and Effects, Quarterly Journal of Economics, 2019. S Kumar, Y Gorodnichenko & O Coibion, The Effect of Macroeconomic Uncertainty on Firm Decisions, Econometrica, forthcoming, provides evidence of the causal impact of uncertainty on investment using a survey of firms and randomised informational treatments.
190 T Burchardt, T Goatley & L Judge, Talking trade-offs: Deliberations on a higher-productivity future in the Birmingham and Greater Manchester urban areas, Resolution Foundation, forthcoming.
191 See: Local Government Association, Fragmented funding: The complex local authority funding landscape, LGA, September 2020.
192 S Frick et al., Lessons from successful 'turnaround' cities for the UK, Resolution Foundation, 2023.
193 A Breach, S Bridgett & O Vera, In Place of Centralisation: A Devolution Deal for London, Greater Manchester, and the West Midlands, Resolution Foundation, forthcoming.

Annex 1

Explaining productivity differences across space

This annex summarises analysis that explains productivity gaps between areas in the UK, and the changes that might be needed to narrow the productivity gap between Manchester and London. We also include similar analysis for Birmingham – the subject of a companion piece to this GM report. More details of the analysis can be found in an earlier Economy 2030 report, "Bridging the Gap" (hereafter: BTG).[194]

We use data for metro areas and non-metro NUTS3 regions. Our metro areas are based on the Eurostat-OECD definition which combines Functional Urban Areas and their commuting zone.[195] The Manchester metro area includes the territory of the Greater Manchester Combined Authority as well six neighbouring local authorities in Cheshire and Derbyshire. The Birmingham (or West Midlands) Metro Area covers Birmingham, Dudley, Sandwell, Solihull, Walsall and Wolverhampton boroughs (and notably excludes Coventry). We use these definitions to make consistent comparisons across space for functional economic areas based on economically meaningful flows of workers and because of data constraints. In the text below, all references to 'Manchester', 'Birmingham', and 'London' designate the respective Eurostat-OECD metro area.

The productivity performance of Manchester and Birmingham metro areas

One commonly used measure for comparing economies is labour productivity: the amount of output produced per worker. As explained in Box 9, we use a version of this measure – Gross Value Added (GVA) per job – and refer to it as 'productivity'.

Despite their size – across the metro and non-metro areas of the UK, Manchester has the 2nd largest number of jobs after London, and Birmingham the 3rd largest – the two metro areas have relatively low productivity levels. As shown in Table 1, in terms of GVA per job (averaged over 2017-2019), Manchester ranks 28th out of the 98 UK metro areas in our dataset, with productivity 30 per cent lower than in London. Birmingham ranks 47th, with productivity 33 per cent lower than in London. As discussed in Section 1, this is surprising given the UK's strong comparative advantage in tradeable services that should benefit

194 P Brandily et al., Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation, 2022.
195 A Moreno-Monry, M Schiavina & P Veneri, Metropolitan areas in the world. Delineation and population trends, Journal of Urban Economics, 2021.

bigger cities, where those productive industries usually cluster. This is also surprising by international standards, with other large European cities usually performing well relative to their own countries.[196]

TABLE 1: **An overview of the economies of Manchester, Birmingham and London**

Metro area	(1) GVA/job [Rank]	(2) Relative to London [Gap]	(3) Number of jobs [Rank]	(4) Graduate share [Rank]	(5) Capital/ job [Rank]	(6) TFP
Manchester	£52,337 [28]	70.6% [30%]	1,882,661 [2]	36.7% [42]	£109,250 [75]	-£391
Birmingham	£49,825 [47]	67.2% [33%]	1,193,078 [3]	29.6% [86]	£106,199 [79]	£2,567
London	£74,120 [4]	100% [.]	8,631,014 [1]	49,0% [5]	£134,867 [31]	£1,989

NOTES: For all columns, rank is compared to the 98 (out of 106) metro and non-metro regions for which capital data is available.
SOURCE: GVA data is from ONS Subregional productivity, number of jobs and graduate share are from ONS Annual Population Survey, capital is from ONS experimental regional gross fixed capital formation and authors' calculations.

The underlying factors of productivity

To account for these differences in productivity, BTG considered the role of five factors identified by the literature as key determinants of area level productivity: the size of the local economy, its levels of human, physical and intangible business capital, and its 'total factor productivity' (or TFP). All else equal, we expect each of these factors to have a positive effect on productivity. For example:

- A larger local economy generates agglomeration economies – a catch-all term for the productivity advantages that firms gain when they locate in places with lots of other firms and lots of workers.

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196   P Brandily et al., Bridging the gap: What would it take to narrow the UK's productivity disparities?, Resolution Foundation, 2022.

- Education and skills, often referred to as human capital, boost worker productivity.

- Physical capital (e.g. machinery, computers, buildings) and intangible capital (e.g. design, branding, R&D), also make labour more productive.

- TFP captures all the other factors that make labour more productive. TFP differences may arise for many reasons: for example, because firms use different technologies or organisational practices in different areas, or because specific local policies enhance the efficiency of factors of production).

BOX 9: Data definition and sources

We need to have some way of measuring each of these concepts to analyse their role in explaining spatial differences in productivity. Our approach is as follows:

- We use total employment to capture the size of the local economy.

- We measure differences in human capital using the share of the working age population with a degree-level qualification.

- We measure differences in physical and intangible capital using estimates of local capital stocks constructed from newly available data on differences in investment across areas. (The data appendix in BTG describes how we construct these estimates.)

- Finally, TFP is defined as the difference between actual and predicted productivity, based on area size and levels of human and business capital. We explain how this is constructed below.

These measures come with caveats. Human capital can take many forms, including hard-to-measure aspects (such as talent), many of which are not captured by holding a formal degree. Our capital stock data relies on assumptions about the initial stock, depreciation rates in the economy and so on. In our main results, used to develop the scenarios used in this paper, we also focus on a measure of total capital stocks that ignores the difference between physical and intangible capital.

Despite these caveats, the literature has shown that the coarse measures we rely on are reasonable approximations and, as we show below, they go a long way in accounting for spatial disparities in productivity.

The exact definitions are as follows:

- Spatial units: 98 areas with data (out of 106 in total), defined as OECD metro areas or NUTS3 for non-metro areas.

- Productivity: GVA/job. 2017-2019 average. ONS, Subregional productivity in the UK.

- Size: number of jobs. 2017-2019 average. ONS, Annual Population Survey.

- Human capital: share of working age population holding a degree-level qualification. 2017-2019 average. ONS, Annual Population Survey.

- Capital stock: total or asset-specific capital stock in 2019. Asset type: buildings and structures, ICT equipment, transport equipment, intangible assets – including R&D – and other tangible assets. Consolidated from gross fixed capital formation using permanent inventory method over 1997-2019 (see the data appendix in BTG for details.). ONS, Experimental regional gross fixed capital formation (GFCF) estimates by asset type: 1997 to 2020, 2022.

Columns (3) to (6) in Table 1 summarise the size, the levels of human and business capital and TFP for the three cities we focus on here. Despite being the 2nd and 3rd biggest areas in terms of number of jobs, Manchester and Birmingham rank 75th and 79th in capital intensity, and 42nd and 86th in graduate share, respectively, suggesting that both rank low in 'human capital' and capital stock measures.

TFP is negative (–£392, to be precise) in Manchester indicating that, on average, we should expect an area the size of Manchester, and with its level of human and business capital to be slightly more productive than Manchester actually is – with a predicted GVA/job of £53,023 (101 per cent of measured). On the contrary, in Birmingham, TFP is +£2,567 – Birmingham is more productive than we would predict, based on its size and levels of human and business capital.

A regression model

We used regression analysis to quantify the separate impacts of size and human and business capital (aggregating physical and intangible, as explained above) on productivity. This amounts to an accounting approach, where we seek to explain the measured productivity of a given place by its size and levels of each of the input factors summarised in columns (3) to (5) of Table A1.

We can also extend the model to include the three 1-by-1 interactions between these factors. Doing so tells us about how the change in one input (e.g. an increase in the graduate share) has different effects in areas with different levels of the other inputs (e.g. whether additional skills increase productivity more in a larger or smaller area, or in an

area with a higher or lower capital intensity). The interaction of graduate share and size means we are also allowing for the total stock of human capital to affect productivity. Given the emphasis in this report on the importance of the size of the pool of graduates, and because this interaction model explains more of the variation in productivity, we use this extended version of the model to generate the numbers used in the text.

The model's explanatory power and measuring TFP

Models using just the size of the economy and human and business capital explain 40 per cent of the variance in local productivity level, and up to 55 per cent if we break down the different types of capital stock (which we do in BTG, but we do not use in the analysis here). Figure A1 illustrates the explanatory power of our preferred specification by contrasting the actual level of productivity observed in each area – on the vertical axis – and the productivity level of the same area predicted by the local levels of each factor (i.e. number of jobs, graduate share, total capital per worker, and their interactions) – on the horizontal axis. The strong correlation indicates that the economic factors used in the regression can account for a large fraction of the actual gap in productivity across places.

FIGURE 51: **Differences in size, human capital and capital stocks explain up to half of the differences in productivity across areas**

Actual and fitted gross value add per job, by area: Great Britain, 2017-2019

NOTES: Unit of analysis are OECD metro areas and rural NUTS3 areas in Great Britain.
SOURCE: Analysis of ONS, Subregional productivity in the UK, Annual Population Survey and Experimental regional gross fixed capital formation.

As discussed above, we measure TFP as the difference between the predicted and observed productivity level. In Figure 51 this is represented by the vertical distance between the dot for the area and the 45-degree line. An area above the line – such as Birmingham – has a higher measured productivity than one would have expected (positive TFP). An area below the line – such as Manchester – has a lower measured productivity than one would have expected.

The role of each factor

As well as looking at the overall explanatory power of the factors combined, we can also look at the role of individual factors using the estimated coefficients from the regression analysis. As explained above, these coefficients give an estimate for the effect of changing one input (e.g. size) holding the others constant. Table 2 reports the coefficients from two regressions (with and without the interactions).

We first consider the effect of each individual input in a simple model that excludes interactions (column (1)), before re-introducing our preferred specification (column (2)). The coefficients of the simple model imply the following:

A 1 per cent increase in total employment increases productivity by 0.05 per cent, all else being equal. Or, to put it another way, a doubling of total employment increases productivity by 5 per cent.

A 1 percentage point increase in graduate share increases productivity by 0.6 per cent, and a 1 per cent increase in capital stock increases productivity by 0.4 per cent. These estimates are broadly in line with existing research for the US that shows that a 1 per cent increase in the city share of college graduates is associated with a 0.5-0.7 per cent increase in output,[197] and that a 1 per cent increase in capital per job increases output by 0.3-0.7 per cent. It suggests, unsurprisingly, that areas with lots of graduates or with lots of capital per job are more productive.[198]

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197 E Moretti, Worker's education, spillovers, and productivity: Evidence from plant-level production functions, American Economic Review, 94(3), 2004.
198 N Bloom et al., What drives differences in management practices? American Economic Review, vol 109 (5), 2019.

TABLE 2: **Selected regression coefficients**

Coefficient associated with:	(1) Base model	(2) Interaction model
(A) Log number of jobs	0.0497*** (0.00936)	0.228 (0.873)
(B) Graduate share	0.558*** (0.159)	3.257 (14.97)
(C) Log capital per job	0.384*** (0.0831)	0.848 (0.766)
(A) * (C)		-0.0247 (0.0741)
(A) * (B)		0.281 (0.142)
(B) * (C)		-0.520 (1.261)
Constant	5.514*** (0.7597)	1.415 (10.823)

Interacting factors

As discussed above, our preferred specification introduces interactions between the three factors. This complicates the interpretation of each individual coefficient. For example, the first coefficient must now be interpreted as the effect of increasing the number of jobs by one percent in an area with no graduates and no capital per worker. Obviously, such an area does not exist, and the impact of increasing the number of jobs by one percent for an area such as Manchester is equal to the sum of the direct effect of Manchester's size (row 1 in column (2)), and its size interacted with the local capital per worker (row 4) and with the local graduate share (row 5).

The interaction of size and graduate share in column (2) of Table A1 is positive, which means that larger areas are more productive, and even more so if they are areas with a high graduate share. Conversely, the interaction with the capital stock is negative: this is indicative of the fact that areas with high capital per worker tend to be smaller and specialized (e.g. in car production).

In short, the interaction model gives a more detailed description of productivity across cities. It shows the importance of graduate workers for the productivity of big areas. This result is in line with the literature which shows how recent growth in cities has been driven by high-skilled jobs in tradeable service industries. Those very productive and fast-growing sectors tend to cluster in big areas.

Change over time and robustness

In BTG, we compared the results at the end of the 2010s to those from the mid-2000s. Data limitations become more pronounced in the initial period, and results should be interpreted with caution. With this caveat in mind, the results showed that the same key factors matter over the whole period. Results also showed an increase over time in the importance of size and skills, as well as in the role of intangible capital. We think this is in line with the growing importance of high-skilled tradeable services, which are concentrated in cities and have driven recent productivity gains.

Closing the gap: scenarios for Manchester

We can use the model to generate estimates of the changes needed to narrow the gap between Manchester and London to 20 per cent. Table 3 below shows how this translates into changes in GVA/job. Starting from its initial level (column (1)), productivity in Manchester metro area would need to increase to £59,300 GVA/job. This is equivalent to a productivity increase of 13.3 per cent in the Manchester metro area.

TABLE 3: **Target productivity increase for Manchester**

Metro area	(1) GVA/job	(2) Target GVA/job (change)	(3) Productivity increase
Manchester	£52,337	£59,300 (+£6,963)	13.3%

 The regression analysis helps quantify what it would take to reach this target. In the regression, a rise in productivity can happen in one of three ways:

- changes in the local inputs (size, skills or capital) of the different places;

- changes in the part of productivity that is unexplained by size, skills or capital (TFP); and,

- changes to the importance of these different factors (e.g., graduate share may become more important due to technological change).

Here, we focus on what changes would be need in terms of inputs (the first channel) assuming that Manchester can close its TFP gap. While recognising that the importance

of size, skills and capital can change over time (the third channel), we ignore this in our analysis as we have no way of deciding what those changes might involve.

Focusing on changes in inputs, we can consider three scenarios for the city: capital only, capital plus graduate (intensive), and capital plus graduate (extensive). Graduate (intensive) assumes that any necessary increases in skills come from 'upskilling' of the current population (i.e. training people, or replacing current residents with degree holders). Graduate (extensive) assumes that this happens by attracting graduates from other areas in the UK. These two scenarios have different implications because the latter also involves an increase in the size of the economy, which will in itself increase productivity. In the report, we call the Graduate (extensive) scenario 'balanced scenario'.

TABLE 4: **Scenarios**

Scenario: 25% gap	(1) Lever	(2) Change	(3) Population change	(4) Additional graduates
(1) Capital only	Capital/job Grad. Share Population	+47.5% No change No change	Zero	Zero
(2) Graduate (intensive)+ (1)	Capital/job Grad. Share Population	+15% +6.5pp No change	Zero	+112.6k
(3) Graduate (extensive)+ (1)	Capital/job Grad. Share Population	+15% +6pp +10.5%	+181.9k	+181.9k

The first row of Table 4 considers changes needed in the capital-intensive strategy. In this scenario, the number of workers and the share of graduates in Manchester remain the same. To achieve the desired change in productivity, our model predicts that capital per worker would need to increase by 47.5 per cent, reaching £161,150 per job. This is a huge increase, which would rank Manchester in the top 9 most capital-intensive areas in the UK (up from 75th currently). This seems unrealistic, not only in terms of the extent of the increase, but also because areas with this level of capital intensity are usually smaller and specialised in specific capital-intensive sectors, such as in the case of Luton or Norfolk.

Large metropolitan areas, with their more diversified, services-orientated economies, rarely attain this level of capital intensity. London, for example, currently has only the 31st highest capital intensity.

The second row of Table 4 considers a scenario where both capital intensity and the share of graduate workers increase at the same time, but area size is held constant (so all the change in graduates comes from 'upskilling'). To achieve the desired change in productivity would involve a scenario where capital per worker increases by 'only' 15 per cent (to £125,650) and the graduate share increases by 6.5 percentage points from 36.7 per cent to 43.2 per cent. These magnitudes are more realistic, and would see Manchester rise to 44th place in capital intensity (above Belfast and York, and at the same level as Sunderland) and at the 18th rank in graduate share (just above Southampton – at 42.2 per cent and Glasgow at 43.0 per cent).

As discussed in the main text, the most unrealistic thing about this scenario is the assumption that the graduate share in Manchester can be increased sufficiently through the 'upskilling' of the local workforce, at least in the short to medium run. Hence, in the third row of Table A4 we alter the scenario by considering a case where all the new graduates move to Manchester from elsewhere. As discussed above, a second key difference between the second and third scenario is that the population of Manchester now increases, which in turn has a positive effect on productivity through the 'size' component of our model. In this scenario, because of that positive effect, the graduate share only needs to increase by 6 percentage points. This would involve 182,000 new graduate workers moving to Manchester.

Figure 52 represents the impact of the changes in inputs involved in this third scenario. The first bar on the left-hand side displays current productivity in Manchester as measured in our data. As explained above, we assume that Manchester's productivity would be slightly higher if it had average TFP. This change is represented in the second bar, which accounts for this TFP increase. The third, fourth and fifth bar represent the main channels through which Manchester's productivity increases in our model. The 15 per cent increase in capital intensity increases GVA/job by £2,260. Increasing the graduate share has two positive effects: a direct effect from a larger high-skilled labour market and an indirect effect from the positive interaction of high-skilled workers and more capital-intensive production process. In total, those add £4,042 GVA/job. Finally, the increase in Manchester's size, due to increased numbers of graduates, adds an extra £344 GVA/job. These numbers suggest that the higher graduate share and the higher capital intensity generate 57.5 per cent and 32 per cent of the total change, respectively.

These magnitudes show the importance of those two channels in an effective strategy, although the exact number here should not be over-interpreted (because it is subject to the order in which we change the inputs).

FIGURE 52: **Greater capital intensity and more graduates are both important in raising Manchester productivity**

Contribution to change in GVA per worker from different input factors, under hypothetical scenario
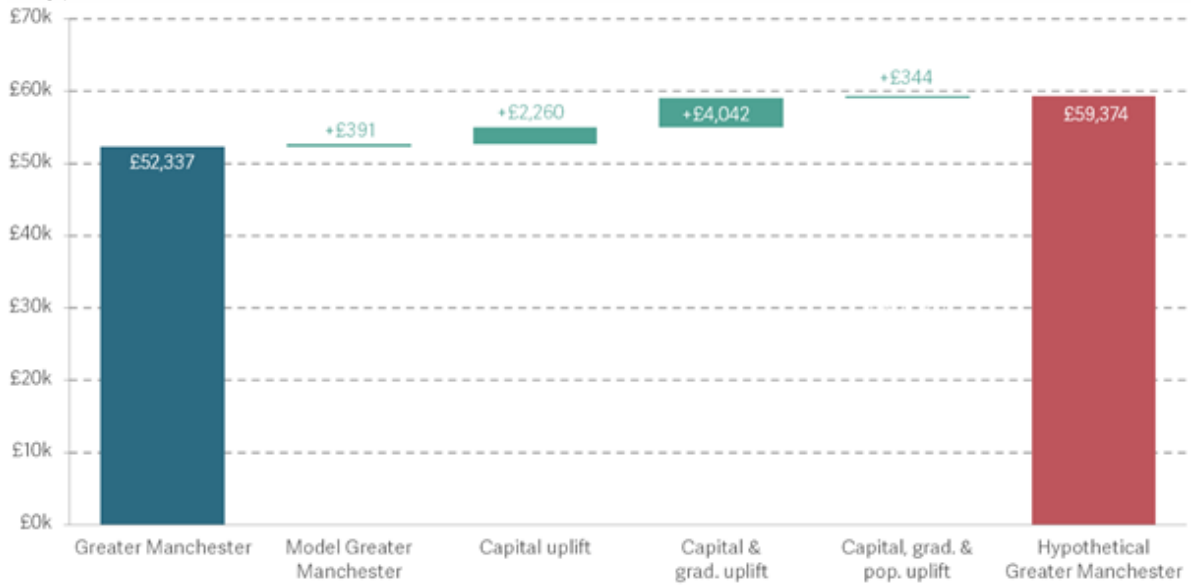
Source: Analysis of ONS, Subregional productivity in the UK, Annual Population Survey and Experimental regional gross fixed capital formation.

Annex 2

Income modelling

This annex provides a description of the methods used to produce the results in Section 6.[199]

We begin with an estimate of the distribution of income in GM. Detailed information on the distribution of household income, including the role of different income sources, is not available for geographical areas in England below the level of the region, so our approach to this should be seen as providing a rough approximation that allows us to investigate the role of policy and economic changes. In particular, we take the combined Family Resources Survey and Households Below Average Income dataset from 2019-20, and reweight the observations sampled in the North West region in a way that aligns key socio-demographic characteristics with those in GM.[200] In particular, we control for: the number of households, the number of adults and their age, gender, ethnicity, housing tenure, employment, and the number of adults with a degree-level qualification or equivalent, taking data on all of these from the 2021 Census.[201] The underlying assumption is that the characteristics of households in the North West but outside GM is similar to those in GM once we control for those characteristics.

In order to estimate the impact on the distribution of income in GM of increasing the population by 174,000 graduates, we created an alternative set of weights that allowed for more working-age adults with degree-level qualifications. We also allowed the number of households to rise by 126,000, and allowed the other individual- and household-level characteristics (i.e. age, ethnicity, employment, housing tenure) to change in ways that are consistent with the existing stock of graduates in GM, with the exception that we assumed that none of the new graduates would live in social housing.

Section 6 shows how incomes would change in a higher-productivity GM under various scenarios. These were implemented as follows:

- Higher wages: we increased all earnings and self-employment income by 10.5 per cent for graduates and 7.1 per cent for other adults.

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199 The method develops that used in: M Brewer et al., Sharing the benefits: Can Britain secure broadly shared prosperity?, Resolution Foundation, July 2023.
200 We used the 2019-20 data so that employment and housing patterns are not affected by the Covid-19 pandemic. This should not materially affect the results: all financial concepts are uprated in line with known aggregate growth rates, and we re-weight the data to make it consistent with the characteristics of Greater Manchester in 2021.
201 We use the reweight2 command in Stata: see J Browne, Reweight2, Institute for Fiscal Studies, July 2012.

- Higher earnings for the already-resident population: we increased non-graduate employment by 7.2 percentage points. We did this by identifying adults without a degree-level qualification in our sample who were not in work, and moved them into work, giving them earnings and other work-related characteristics from a 'matched' working individual.[202]

- An increase in housing costs, and an increase in LHA rates: these scenario were achieved by increasing annual growth in rents and average mortgage interest payments, or by increasing LHA rates.

- An increase in the supply of social housing: to simulate an increase in the social rented sector, we selected households in our sample who were in the private rental sector, and moved them to the social rented sector, giving them a new (lower) rent that was taken from a 'matched' household in the social rented sector.[203]

The aim of this exercise is not to forecast or simulate explicitly what the income distribution in GM will be in 2040. Instead, the thought experiment is "how might the policy changes set out in this report change the income distribution in GM if they happened now?". But they should be understood as estimates of the medium- to long-run impact of making these changes.

The analysis in Section 6 shows the change in the mean income in each vigintile of the income distribution, where vigintiles are recalculated after each policy scenario (and we do this because the policy scenarios involve a lot of 'reranking' of households). We exclude the bottom vigintile from our analysis, due to concerns about the under-reporting of income in the FRS for these households.[204]

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202 This was done using a propensity score match, using the following explanatory variables: employment, age, if there are children in the benefit unit, region, disability, and sex.
203 This was done using a propensity score match, using the following explanatory variables: unemployment, if someone in the household is unemployed, household income, if someone in the household received free school meals, age, if there are children in the benefit unit, region, disability, and sex.
204 M Brewer, B Etheridge & C O'Dea, Why are Households that Report the Lowest Incomes So Well-off?, Economic Journal, 127, 2017.

THE ECONOMY 2030 INQUIRY

SHAPING A DECADE OF CHANGE

The UK is on the brink of a decade of huge economic change – from the Covid-19 recovery, to exiting the EU and transitioning towards a Net Zero future. The Economy 2030 Inquiry will examine this decisive decade for Britain, and set out a plan for how we can successfully navigate it.

The Inquiry is a collaboration between the Resolution Foundation and the Centre for Economic Performance at the London School of Economics. It is funded by the Nuffield Foundation.

For more information on The Economy 2030 Inquiry, visit economy2030.resolutionfoundation.org.

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