



Department  
for Transport

# Supplement to the October 2013 Strategic Case for HS2 HS2 and the Market for Business Travel

November 2015

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# Executive summary

## Introduction

- 1 Good transport infrastructure is widely recognised as essential for the future economic success of the country. It can support the economy in many ways, depending on the nature of the infrastructure, the context in which it sits and the presence of complementary infrastructure nearby.
- 2 HS2 is national in scale and will deliver a substantial enhancement to rail connectivity. It will significantly increase rail capacity. It will create greater opportunities for businesses to connect with each other and this will make the areas served by HS2 more attractive places for businesses to grow and to locate.
- 3 The effect on their economies of greater capacity and better connections between city regions will be substantial, since better connections between places can facilitate increased trade and specialisation. HS2 will also deliver benefits for those using the existing network, by releasing capacity for commuter services, inter-regional services and for freight.
- 4 While business trips account for just over a tenth of all rail trips across the country, currently almost half of the journeys between the city regions that will be connected by HS2 are for business. The corridors to be served by HS2 are already important for business travel: they include the country's six largest rail intercity business flows.
- 5 To better understand current and future patterns of business travel, it is necessary to look at the types of companies located in city centres and city regions, and the people they employ. What this shows is that advanced manufacturing, professional services and technology – what in this report are called 'Knowledge-based Sectors' – thrive in city regions.
- 6 Firms in Knowledge-based Sectors have contributed disproportionately to job creation and the wider economy. Since 1984, employment in these sectors has grown at nearly three-times the rate of other sectors. And while they currently make up less than one-fifth of total employment, they deliver almost a quarter of all economic output and more than a third of the nation's total exports.
- 7 Knowledge-based Sectors are forecast to grow at a faster rate than other sectors and thereby become an even more important segment of the overall economy. Knowledge-based Sectors are the sectors targeted in the Strategic Economic Plans prepared by Local Enterprise Partnerships.
- 8 Even with the growth of electronic communication and all the opportunities this brings, evidence suggests that face-to-face interactions are particularly important for firms in Knowledge-based Sectors. This is attributed to the nature of the product or services being offered, the complexity of information that is required to be exchanged, and the desire to build relationships and trust with customers and suppliers. Data on the trip-making habits of the individuals that work in Knowledge-based Sectors supports this proposition.

- 9 Knowledge-based Sectors typically employ a higher proportion of professional, managerial and technical staff compared to other industries. People in these occupations undertook over 70% of all rail travel in 2013. They are more likely to travel by rail than other groups for business, commuting and leisure. Growth in Knowledge-based Sectors is therefore, expected to lead to increases in rail travel between city regions.
- 10 HS2 is ideally placed to deliver the intercity connectivity that is needed to maximise the future success of Knowledge-based Sectors. If the projected growth in Knowledge-based Sectors is to be realised, it would appear essential that people are able to access the opportunities presented. At the same time as improving links between city regions, by releasing capacity on the existing classic rail network, HS2 will allow improvements to services which are used by commuters to access jobs in cities.
- 11 By creating a more mobile labour force, by improving access to the pool of talent needed by firms to grow, by improving links between customers and suppliers and by fostering greater competition between firms, it is clear that HS2 will have a significant influence on the economic geography of the country. As well as improving links to and from London – a truly global city that presents unparalleled access to an international marketplace – HS2 has an important role to play in supporting the vision to create the Northern Powerhouse. Alongside other projects HS2 will help to bring together city regions in the North. Changing their economic geography will help create the economic mass needed to better compete on the global stage. Finally, improvements to connectivity shape the level and location of private investment. There is extensive academic evidence which suggests that good transport links influence the quantity and quality of economic activity. As a consequence, it is essential that the places that will be served by HS2 are well equipped to exploit the opportunities presented. Rising to this challenge, city regions are developing HS2 Growth Strategies which will ensure strong local leadership, better collaboration between funding streams and rapid progress with a sharp focus on delivery.

# 1. Introduction

## Background – the 2013 Strategic Case for HS2

- 1.1 The Strategic Case for HS2, published in October 2013, set out how the new railway would support the Government's goal of building a stronger, more balanced economy capable of supporting long-term growth and widely-shared prosperity. It explained why HS2 is the preferred solution to deliver the necessary capacity to meet long term growth in rail demand and to improve connectivity by making rail travel easier and faster. It also set out how this additional capacity and enhanced connectivity would improve productivity, promote regeneration, boost local skills and support job growth, particularly in the Midlands and the North.
- 1.2 Since the publication of the Strategic Case, to strengthen the evidence base, the Department for Transport (DfT) has undertaken further work to deepen the understanding of how businesses will benefit from HS2. Data on the current patterns of business travel between city regions, the types of companies located in these city regions and their city centres, and the characteristics of the people they employ have all been examined. This work has helped further the understanding of how HS2 will help foster more intense economic interactions, and how these interactions will improve productivity and shape the location of investment activity. In undertaking this work, DfT has been supported by consultants KPMG and Steer Davies Gleave.
- 1.3 The analyses have also considered a number of developments since publication of the Strategic Case that have furthered understanding about how HS2, and transport more generally, can contribute to the Government's strategic aims of supporting growth and addressing the productivity gap between the north and south of the country.
- 1.4 In "Rebalancing Britain (2014)"<sup>1</sup>, to meet the twin goals of supporting economic growth in London and the South East, while accelerating the rate of growth elsewhere, Sir David Higgins set out that as well as increasing capacity, HS2 must radically reduce journey times. Building on from Sir David's recommendations, the Government and Northern partners published a joint Northern Transport strategy - "The Northern Powerhouse: One Agenda, One Economy, One North (2015)"<sup>2</sup> which presents HS2 as an integral part of a shared vision between Government and Transport for the North to support the creation of the Northern Powerhouse.
- 1.5 Similarly, the December 2014 Transport Investment and Economic Performance report, produced for the DfT by a team of leading academics, has improved the understanding of the mechanisms through which strategic transport enhancements such as HS2 can influence economic outcomes. That report supports the view that standard approaches to estimating the benefits of a transport investment do not capture the full impact of major projects such as HS2 and sets out that there are impacts on the economy beyond these. It recommends that, in addition to applying

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<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/374709/Rebalancing\\_Britain\\_-\\_From\\_HS2\\_towards\\_a\\_national\\_transport\\_strategy.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374709/Rebalancing_Britain_-_From_HS2_towards_a_national_transport_strategy.pdf)

<sup>2</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/427339/the-northern-powerhouse-tagged.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427339/the-northern-powerhouse-tagged.pdf)

transport modelling and appraisal techniques, it is also helpful to explain how these benefits might be realised with reference to the places and people affected.

## Purpose and structure of this report

- 1.6 This report sets out the key findings of our work on business linkages and travel patterns. The report is structured as follows:
- Section 2 describes the importance of city regions to the economy and, in turn, their role in generating and attracting rail journeys
  - Section 3 looks at trends in the nature and distribution of economic activity through time
  - Section 4 identifies the group of Knowledge-based Sectors targeted for growth within the Strategic Economic Plans of our city regions and presents projections for their growth
  - Section 5 explains the importance of face-to-face interactions for firms in Knowledge-based Sectors and describes the travel patterns of individuals working in those sectors
  - Section 6 sets out what HS2 will deliver for business and how this will support their growth
  - Section 7 considers how HS2 can contribute to the creation of a Northern Powerhouse
  - Section 8 summarises the package of local and regional policy measures being developed to maximise the opportunities presented by HS2

## 2. City Regions and Rail Business Travel

- Ten English city regions account for 35% of the country's population and 38% of employment. The population of our cities is growing
- Nine of these city regions will be served by the "Y"- shaped HS2 network, either directly or by services that will also use the existing classic rail network
- These city regions are served by intercity rail services. Since 1994/95, rail travel between these city regions has grown at a faster rate than the national network as a whole: on the Midland Main Line and on cross-country services demand has grown by 150%, on the East Coast Main Line by 165% and on the West Coast Main Line by 170%. Nationally, rail trips have grown by 115%
- Just under half (45%) of intercity rail trips made on the corridors that will be served by HS2 are business trips. Nationally, just 13% of all rail trips are made for business

2.1 City regions are the engine rooms of the UK economy. Ten English city regions account for 35% of the country's population<sup>3</sup> and 38% of employment<sup>4</sup>. These city regions comprise the eight English "Core Cities"<sup>5</sup> and their functional economic areas, as well as Greater London and Derby<sup>6</sup>. Together they contribute 41%<sup>7</sup> to the nation's Gross Value Added (GVA). Analysis of the Business Registration and Employment Survey (BRES) shows that between 2008 and 2014, there has been a net increase of 700,000 jobs in these ten city regions. This compares with a net increase of 500,000 jobs elsewhere in the country. The rate of job growth has been faster in these city regions than in the rest of the country. More details on the economies of these city regions and how they have changed in recent years and are projected to change in the future is presented in the next section of this report.

2.2 Of these ten English city regions, nine will be served by the planned "Y"- shaped HS2 network, either directly or by services that also use the existing 'classic' rail network. As shown below in Figure 1, these nine city regions are currently linked by the West Coast Main Line (London, West Midlands, Greater Manchester and Merseyside), the Midland Main Line (London, Derby, Nottingham and South Yorkshire) and the East Coast Main Line (London, West Yorkshire and Tyne & Wear). Cross-country services link Tyne & Wear, West Yorkshire, South Yorkshire and the West Midlands, as well as the West Midlands and Nottingham.

<sup>3</sup> Data source: Office for National Statistics census data 2011 and Annual Mid-year Population Estimates 2014

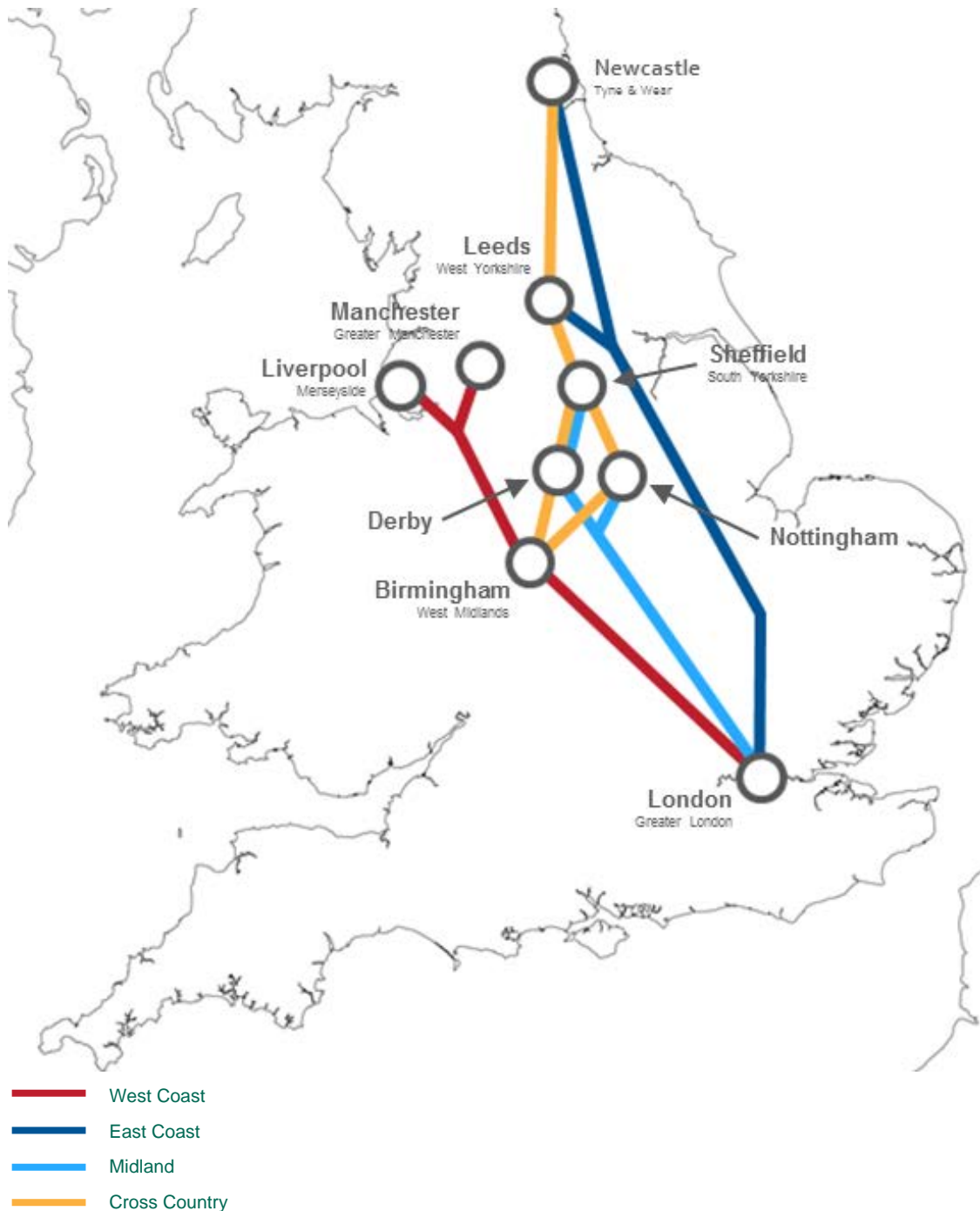
<sup>4</sup> Data source: Business Registration and Employment Survey (BRES) 2014

<sup>5</sup> Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield

<sup>6</sup> A geographic definition used in this report of the ten city regions is given in Appendix A

<sup>7</sup> Data source: Office for National Statistics, Annual estimates of NUTS3 regional Gross Value Added 2013





**Figure 1: City Regions and Inter City Rail Linkages in HS2 Corridors**

2.3 The growth in intercity rail travel for all purposes along the HS2 corridors has exceeded average growth in the number of passengers using the national rail network as a whole. As shown in Figure 2 below, intercity rail journeys in the corridors that will be served by HS2 have more than doubled since 1994/95. Looking at all four corridors, this represents an average growth rate of 4.9% each year, compared with the national network, which has experienced an annual average growth rate of 4.1%<sup>8</sup>. The largest increase in demand has occurred on the WCML, which has experienced growth of 170% over the last two decades, facilitated by the £9 billion WCML renewal and upgrade, which increased capacity, frequency and reduced journey times for intercity services.

<sup>8</sup> Data source: RUDD (LENNON) and Transport Statistics Great Britain (DfT, 2014)

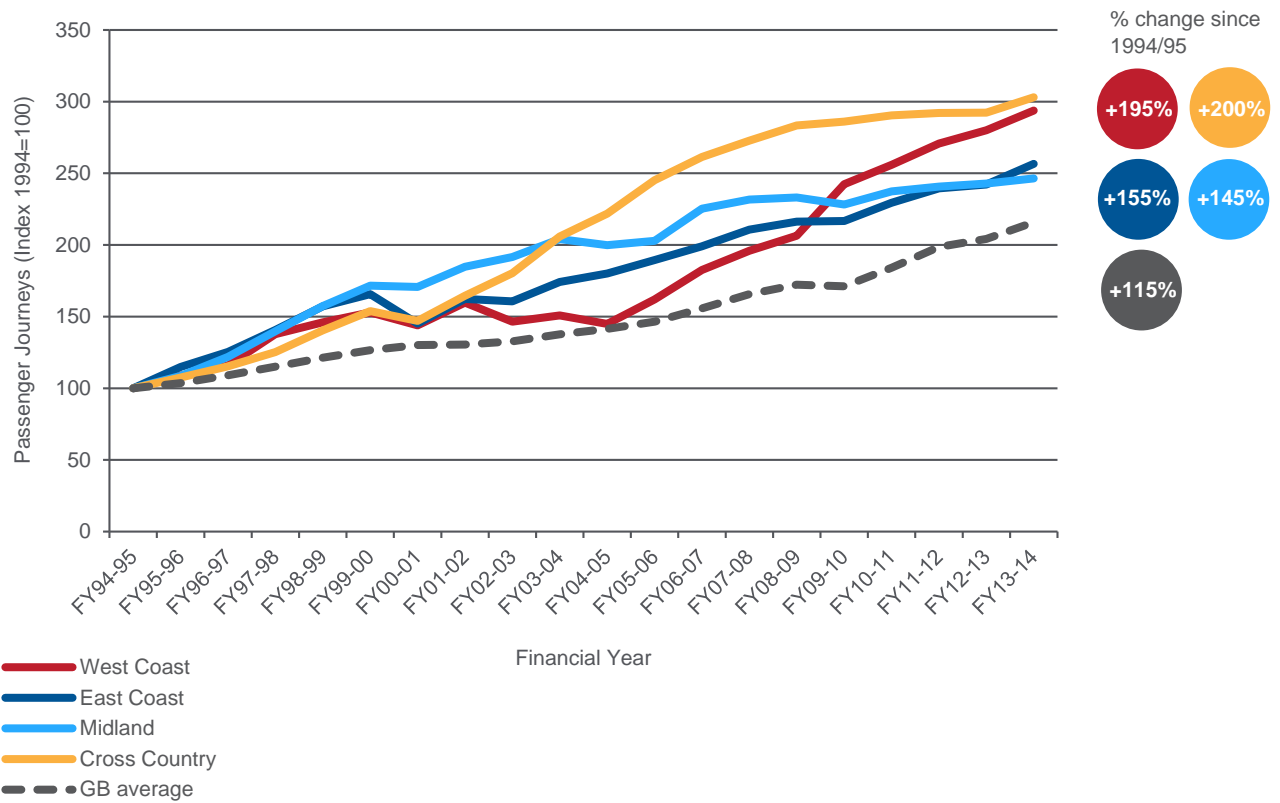


Figure 2: Growth in Intercity Rail Journeys by Corridor, 1994-95 to 2013-14

2.4 As shown in Figure 3 below, business travel accounts for nearly half of all journeys currently made on the intercity rail corridors that will be served by HS2. The proportion of business trips travelling in these corridors (45%) is much higher than the average for the national rail network (13%).

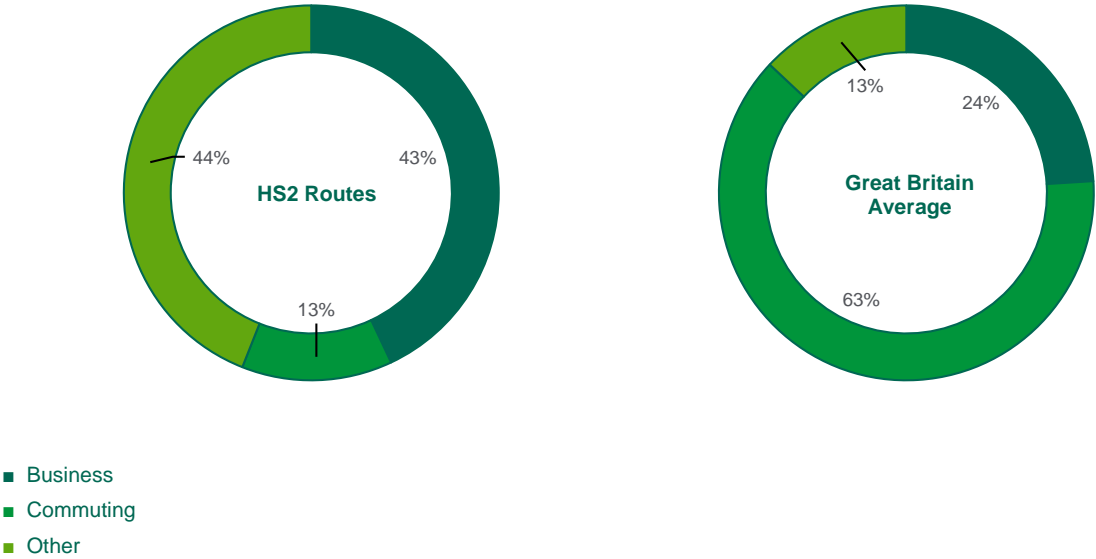


Figure 3: Journey Purpose Split<sup>9</sup>

<sup>9</sup> Data sources: RUDD (LENNON), National Rail Travel Survey (2010, DfT), HS2 Ltd

2.5 As shown in Table 1, in 2013/14, the top six intercity rail business flows in Great Britain were between stations that will be served by HS2<sup>10</sup>. This shows that HS2 will serve a large and established business travel market. As we show in the following sections of this report, projected growth and changes to the structure of our economy will support further growth in the demand for business travel in these corridors.

2.6 HS2 will also serve three of the top ten non-London business flows. These are shown in Table 2. Looking at both Tables 1 and 2, it can also be seen that the volume of rail business trips between London and Manchester, the largest intercity business flow, is nearly six times bigger than the largest non-London business flow (which is between Glasgow and Edinburgh). The London-Manchester business flow is eight times bigger than the business flow between Manchester and Leeds. The London-Leeds business flow is four times that between Leeds and Manchester.

Rank	Origin/Destination	Origin/Destination	Business Trips in 2013/14
1	London	Manchester	1,843,000
	London	Birmingham	1,528,000
	London	Leeds	853,000
	London	York	577,000
	London	Liverpool	491,000
	London	Bristol (Temple Meads)	487,000
	London	Coventry	479,000
	London	Cambridge	446,000
10	London	Bath Spa	426,000

Table 1: Business Trips by Rail in 2013/14 – to/from London<sup>11</sup>

Rank	Origin/Destination	Origin/Destination	Business Trips in 2013/14
1	Glasgow	Edinburgh	314,000
2	Manchester	Leeds	227,000
3	Edinburgh	Newcastle	196,000
4	Birmingham	Manchester	145,000
5	Leeds	Sheffield	139,000
6	Leeds	York	136,000
7	Manchester	Stoke-on-Trent	108,000
8	Manchester	Liverpool	101,000
9	Newcastle	York	96,000
10	Birmingham	Liverpool	94,000

Table 2: Business Trips by Rail in 2013/14 – non London<sup>12</sup>

<sup>10</sup> This table is drawn from analysis of ticket sales data and the flows are therefore between stations rather than the wider city regions that these stations serve. In addition to the flows shown in Table 1, there are other flows between city regions that make up the total rail demand. For example, as can be seen from the table the largest flow in rail business trips is between London and Manchester. This figure comprises journeys made on tickets between central Manchester stations ("Manchester BR") and central London ("London BR"). It does not include journeys on tickets between other stations in Greater Manchester and central London (e.g. Stockport or Bolton to "London BR"), central Manchester to elsewhere in Greater London (e.g. "Manchester BR" to Croydon) or elsewhere in Greater Manchester to elsewhere in Greater London (e.g. Bolton to Croydon).

<sup>11</sup> One of the city pairs in the top ten has been redacted from this table at the request of a Train Operating Company. Data source: RUDD (LENNON), National Rail Travel Survey (2010, DfT), Steer Davies Gleave analysis. Figures rounded to nearest 1,000

<sup>12</sup> Data source: RUDD (LENNON), National Rail Travel Survey (2010, DfT), Steer Davies Gleave analysis. Figures rounded to nearest 1,000

# 3. Industry in the UK

- The structure of the UK economy has changed over the last three decades and is forecast to continue to change
- These changes have reinforced the role of cities as drivers of economic growth
- Between 2008 and 2014, 700,000 net jobs were created in city regions. This compares to a net increase of 500,000 elsewhere

## Structural change

3.1 As can be seen in Figure 4, despite two significant recessions the UK economy has created more than five million jobs in the past 30 years. At the same time national output (as measured by GDP) has nearly doubled in real terms, and output per person has increased by more than 75%<sup>13</sup>.

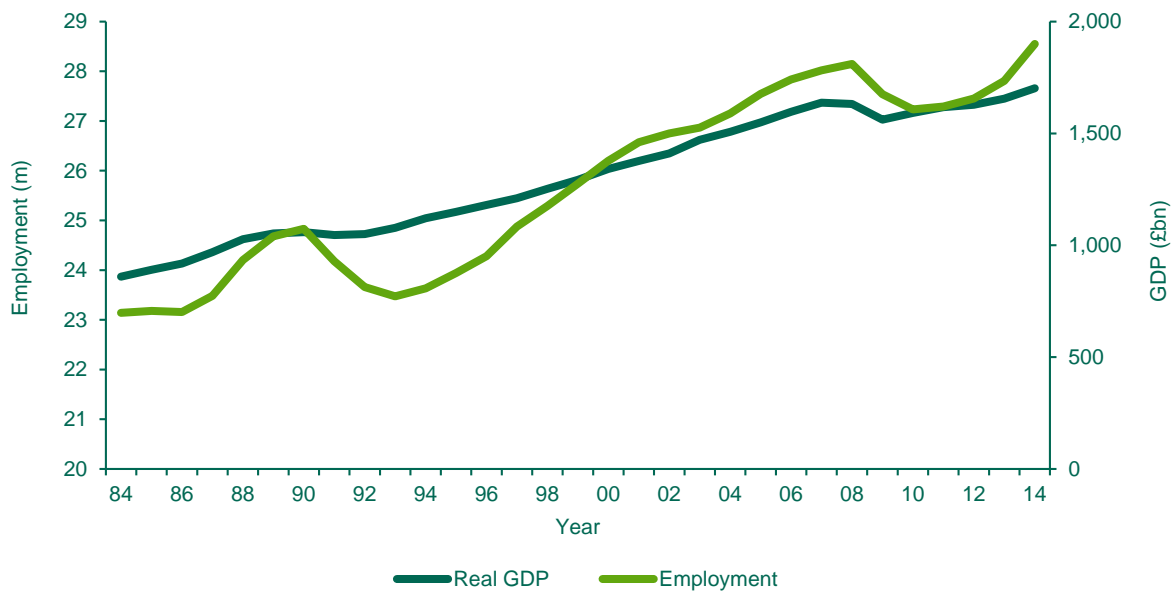


Figure 4: Growth in UK Employment and Output (1984 to 2014)<sup>14</sup>

<sup>13</sup> Data source: Office for National Statistics (GDP data = ABMI series, employment data from BRES).

<sup>14</sup> Data source: Office for National Statistics Business Registration and Employment Survey

- 3.2 Behind the headline trends in employment and output lie a wide range of different sectors whose activities, and the activities of the firms within those sectors, has evolved significantly over time. The changes have been driven by technological progress, rising incomes and changing consumer tastes and preferences, and in some cases a combination of pressures – for example where new markets emerge from the development of new technologies such as information systems.
- 3.3 In common with other developed economies, there has been a marked shift in the structure of the UK economy away from manufacturing and towards service-based sectors. The extent to which the structure of the UK economy has changed over time is illustrated in Figure 5 using employment data. This shift has largely been driven by the considerable growth of service sectors. Professional, science and technology-based industries are amongst those sectors that have grown most strongly. Employment in sectors such as agriculture and manufacturing has declined.

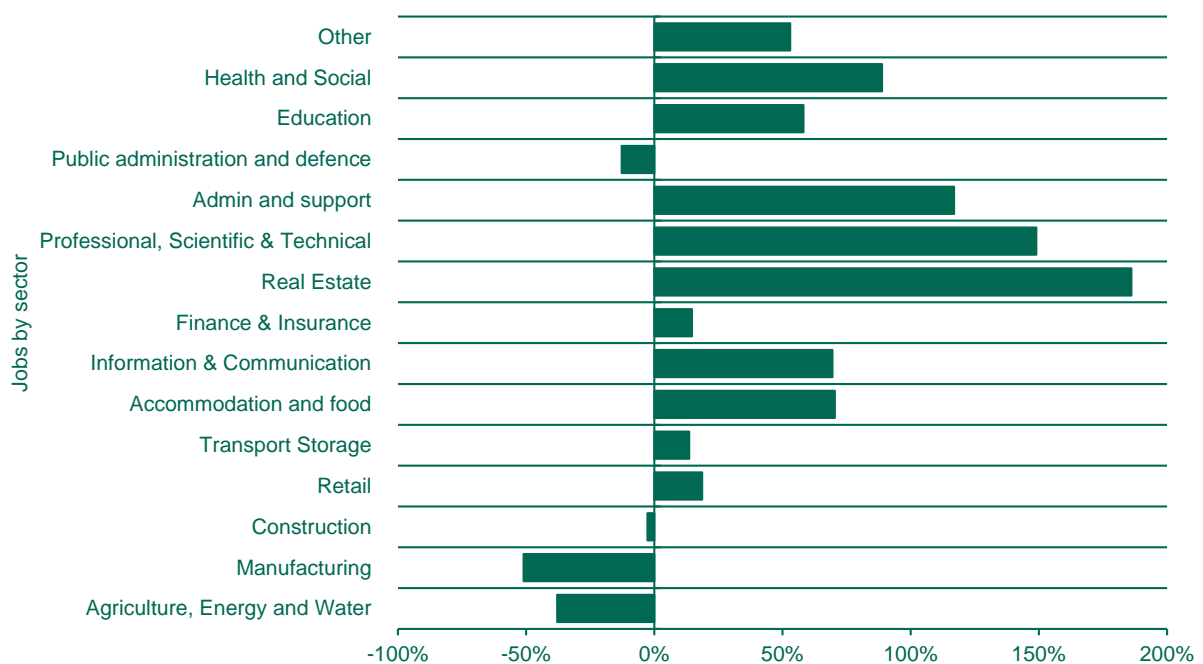


Figure 5: Change in UK jobs (1984 to 2014)<sup>15</sup>

- 3.4 As identified by the Department for Business, Innovation and Skills in its “Industrial Strategy: UK Sector Analysis<sup>16</sup> (2012)”, these trends can be attributed to a range of factors, including:
- The rapid pace of globalisation and technological progress, particularly in manufacturing, where increased low-wage competition and technological improvements have led to falls in the price of manufactured goods relative to services, driving down their share of GDP
  - Growing demand, particularly from emerging economies, which has broadened the UK’s export market across a range of services, including creative industries and professional business services
  - A steadily ageing population, driving rising demand for health and social care

<sup>15</sup> Data source: Office for National Statistics Business Registration and Employment Survey

<sup>16</sup> Industrial Strategy: UK Sector Analysis, Department for Business, Innovation and Skills, 2012

- Changing priorities for government investment, including the green agenda, public services and infrastructure

3.5 In part, these sectoral shifts reflect increasing specialisation across all advanced economies, whereby a small number of sectors account for a relatively large share of GDP<sup>17</sup>. This pattern of increased specialisation can, in turn, generate powerful positive spill-over benefits. These arise from the spatial concentration and clustering of activities which allow for greater labour market pooling and knowledge sharing.

## The Role of cities

- 3.6 Coupled with changes in the distribution of economic activity between sectors, the past thirty years have seen important changes in the role of cities as centres for growth.
- 3.7 The prominent role of UK cities as sources of economic growth was established in the second half of the 18th Century. This was primarily a consequence of the increased demand for labour at individual locations caused by the onset of large-scale manufacturing during the Industrial Revolution. The development of our rail network took place at the same time as industrial activity in the UK was migrating towards cities and therefore reflects Victorian patterns of economic activity.
- 3.8 As can be seen in Table 3, the Sixties and Seventies saw industrial decline within our conurbations.

Area	Change in manufacturing employment (%)
London	- 42.5%
Conurbations	-26.5%
Free-Standing Cities	-13.8%
Large Towns	-2.2%
Small Towns	15.7%
Rural Areas	38.0%
Great Britain	-11.5%

Table 3: UK Manufacturing Employment Change (1960 – 1978)<sup>18</sup>

- 3.9 Throughout the Eighties and Nineties the economy restructured. As we show in the next Chapter, since 1984 employment in the knowledge-intensive and service sectors of the economy has grown at nearly three times the rate of jobs growth in other sectors. With its concentration of service sectors, the rate of growth has been faster in London and the South East than elsewhere, leading to a widening gap in prosperity with the rest of the country.
- 3.10 Despite the deindustrialisation of our city regions, their role as drivers of economic growth is still important and will continue to be so. Research by the Organisation for Economic Co-operation and Development (OECD)<sup>19</sup> suggests that cities have two key advantages which support their continuing growth. First, the presence of amenities such as better healthcare, culture and the arts and a wide range of leisure opportunities, along with tertiary education establishments all help make cities attractive places to live. Indeed, much of the urban regeneration agenda during the

<sup>17</sup> See the OECD Science, Technology and Industry Scoreboard 2011: *Innovation and Growth in Knowledge Economies* (OECD, 2011)

<sup>18</sup> Data source: *The Economy in Question*, (Fothergill, Gudgin, Kitson and Monk, 1986)

<sup>19</sup> OECD Science, Technology and Industry Scoreboard 2011: *Innovation and Growth in Knowledge Economies* (OECD, 2011)

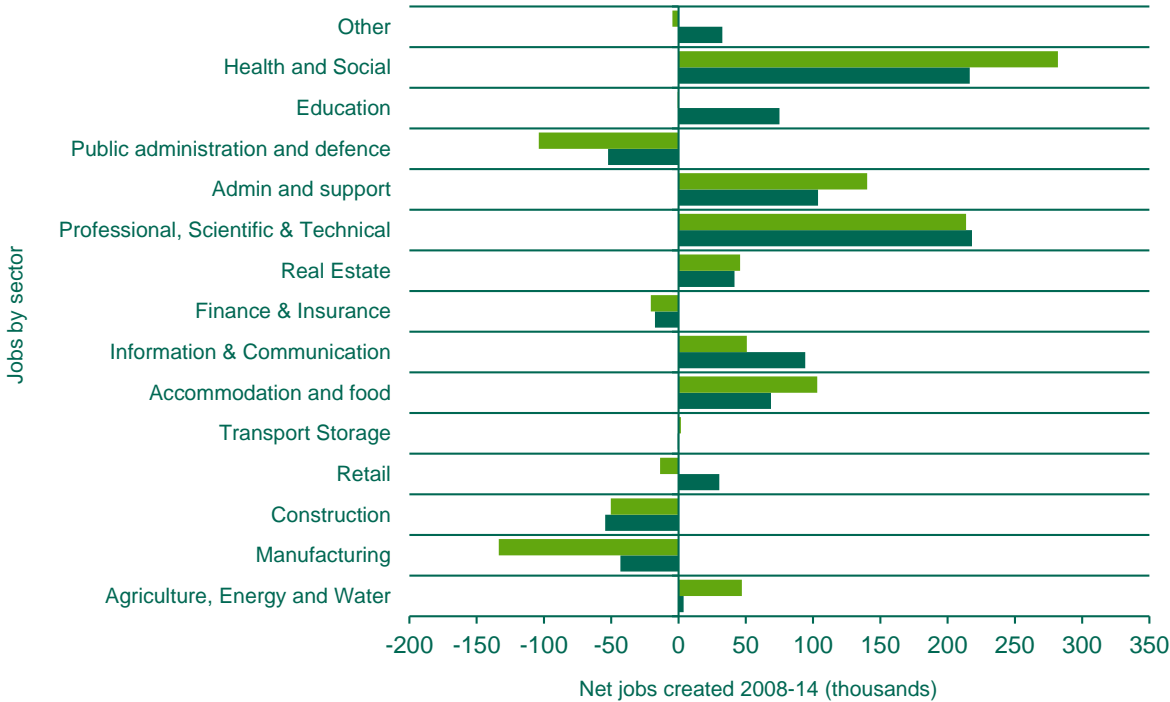
late 1990s and early 2000s was focused on improving the amenity value of our major urban centres.

3.11 Second, agglomeration effects make it beneficial for business to be located in cities, even if they do not require specific resources. Agglomeration economies arise when many people and businesses operate in close proximity. They generate benefits through a range of channels as first described by Marshall in 1890<sup>20</sup>. These are:

- the existence of specialised providers of industry inputs
- a large local market for specialised labour skills
- the existence of so-called ‘information spill-overs’ (that is, proximity affects such as the frequency of interaction and information exchange) leads to greater innovation

3.12 Figure 6 highlights the importance of city regions for job creation. Against the backdrop of a significant fall and subsequent recovery in total employment, 700,000 net jobs were created in city regions between 2008 and 2014, compared to a net increase of 500,000 elsewhere in the country.

3.13 It is notable that jobs in the information and communications sector and the professional, scientific and technology sector have remained resilient despite the downturn, especially in city centres.



■ City region  
■ Non city region

Figure 6: UK Employment Change by Sector 2008 – 2014 (thousands)<sup>21</sup>

<sup>20</sup> The Principles of Economics, (Alfred Marshall, 1890)  
<sup>21</sup> Data source: Office for National Statistics Business Registration and Employment Survey

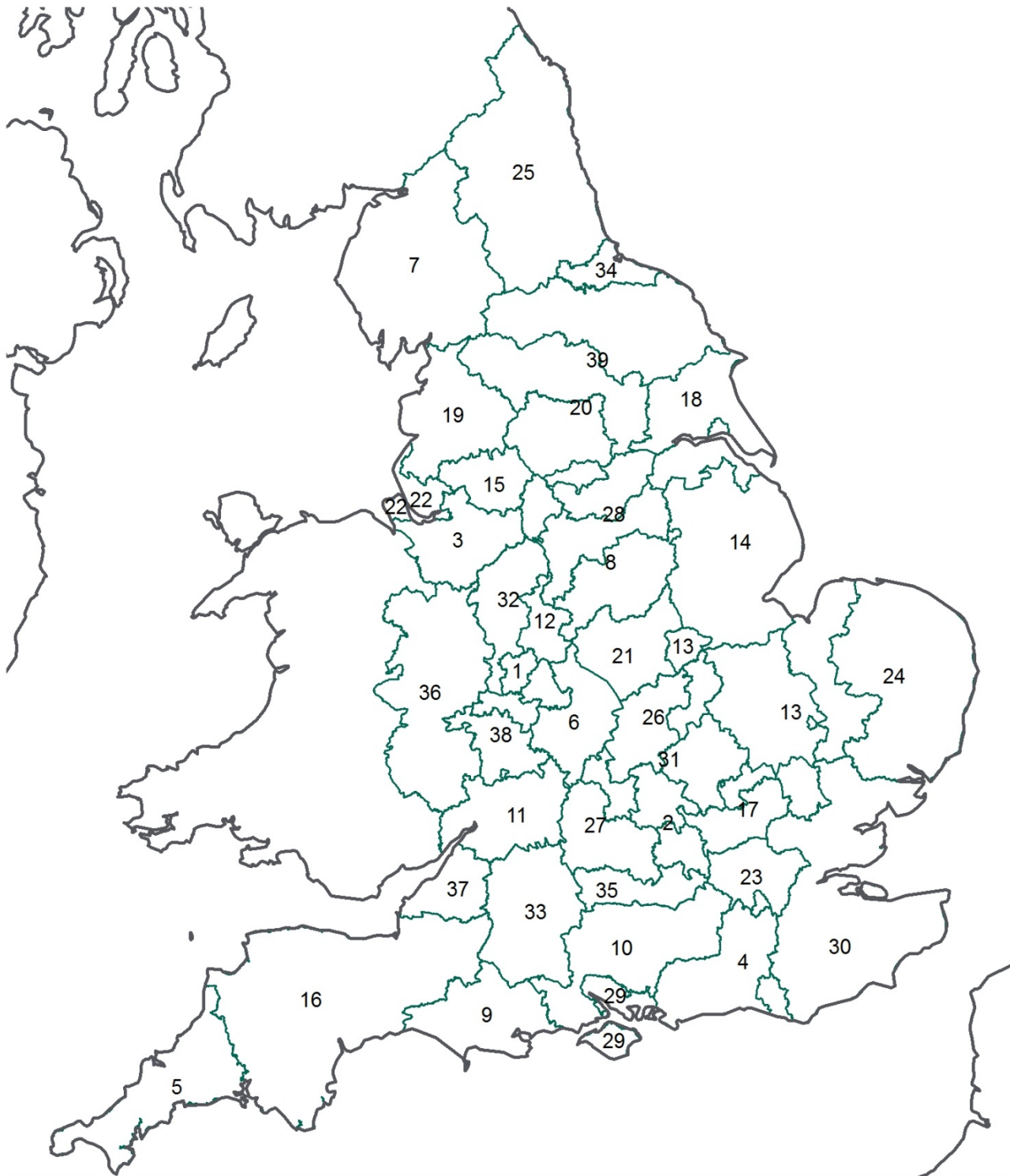
## 4. The Growing Importance of Knowledge-based Sectors

- The Strategic Economic Plans that have been developed by Local Enterprise Partnerships identify the growing importance of advanced manufacturing, professional services and technology sectors
- Knowledge-based Sectors include firms in these advanced manufacturing, digital and creative and professional and creative service sectors
- Together these Knowledge-based Sectors have experienced growth in recent years. Jobs in these sectors have grown at nearly three times the rate of job growth in other sectors
- Knowledge-based Sectors now account for 18% of all jobs, 23% of national output and 34% of exports
- Knowledge-based Sectors are forecast to grow further. By 2022 it is projected that job numbers will have grown by a further 40%
- Strategic Economic Plans' policies and programmes have been developed support the realisation of this growth

4.1 Given the extent and breadth of industrial activity across the country, the Government has taken notable steps to devolve responsibility for stimulating local growth to those best placed to understand the range of local circumstances that can influence the performance of the economy. Coupled with additional freedoms and influence over resources, Local Economic Partnerships (see Figure 7) have developed ambitious, multi-year Strategic Economic Plans. In these plans, Local Enterprise Partnerships have considered how to make use of the resources, funding and policy levers available to them, and to consider actions which:

- Demonstrate their commitment to growth
- Align or pool local government expenditure to deliver growth
- Provide effective collaboration across delivery agents on economic development priorities
- Maximise synergies with wider local growth programmes





**Key to Local Economic Partnerships**

- |  |  |                                  |   |
|--|--|----------------------------------|---|
| 1. Black Country                                     | 11. Gloucestershire                            | 21. Leicester and Leicestershire | 31. South East Midlands                   |
| 2. Buckinghamshire Thames Valley                     | 12. Greater Birmingham and Solihull            | 22. Liverpool City Region        | 32. Stoke-on-Trent and Staffordshire      |
| 3. Cheshire and Warrington                           | 13. Greater Cambridge and Greater Peterborough | 23. London                       | 33. Swindon and Wiltshire                 |
| 4. Coast to Capital                                  | 14. Greater Lincolnshire                       | 24. New Anglia                   | 34. Tees Valley                           |
| 5. Cornwall and Isles of Scilly                      | 15. Greater Manchester                         | 25. North Eastern                | 35. Thames Valley Berkshire               |
| 6. Coventry and Warwickshire                         | 16. Heart of the South West                    | 26. Northamptonshire             | 36. The Marches                           |
| 7. Cumbria   | 17. Hertfordshire                              | 27. Oxfordshire                  | 37. West of England                       |
| 8. Derby, Derbyshire, Nottingham and Nottinghamshire | 18. Humber                                     | 28. Sheffield City Region        | 38. Worcestershire                        |
| 9. Dorset  | 19. Lancashire                                 | 29. Solent                       | 39. York, North Yorkshire and East Riding |
| 10. Enterprise M3                                    | 20. Leeds City Region                          | 30. South East                   |   |

Note - some LEPs overlap with other LEP areas

**Figure 7: Local Enterprise Partnerships**

- 4.2 Strategic Economic Plans also describe how Local Enterprise Partnerships intend to create an environment which supports business confidence and makes their areas attractive for businesses to invest in. In doing so, and in-line with their strategic vision for their area, they often identify a range of industrial sectors that their Plans are intended to attract, foster or promote.
- 4.3 The role of a sector-based approach is to enable firms in different sectors to exploit fully the underpinning economic conditions in a way which generates maximum economic value. For example, it is important to consider economic, social and other drivers of growth and their relevance to the potential of individual sectors over the planning horizon. These drivers include:
- Rising household incomes and changes in the pattern of final demand
  - Changing business practices and new technology
  - Demographic and lifestyle changes
- 4.4 As shown in Table 4 the Strategic Economic Plans for city regions predominantly target growth in sectors, including:
- Advanced manufacturing
  - Professional and financial services
  - Technology e.g. digital and creative

City Region	Advanced Manufacturing	Financial and Professional Services	Digital and Creative
Bristol	✓	✓	✓
Birmingham	✓	✓	✓
Manchester	✓	✓	
Sheffield	✓	✓	✓
Leeds	✓	✓	✓
Newcastle		✓	✓
Liverpool	✓		
Derby/Nottingham	✓		✓
London	✓		✓

Table 4: Analysis of Strategic Economic Plans<sup>22</sup>

- 4.5 It is notable that as well as financial and professional services, the sectors identified by Strategic Economic Plans include the creative arts, as well as a range of high-value non-service sectors such as advanced manufacturing. Each of these are to an extent knowledge intensive sectors. For example, the creative arts sector includes the application of digital technology to television production and to computer game design and production, as well as the more traditional creative arts that have a clear value adding to the ‘amenity’ of a city. To further the analysis of past and projected changes to the structure of city region economies, a group of industrial sectors have been defined that collectively represent the priorities put forward in Strategic

<sup>22</sup> Data source: Steer Davies Gleave Analysis of Strategic Economic Plans

Economic Plans. These sectors are summarised in Appendix B. For the remainder of this report we use the term Knowledge-based Sectors to represent these industries. These Knowledge-based Sectors comprise firms in advanced manufacturing, digital and creative and professional and creative services sectors.

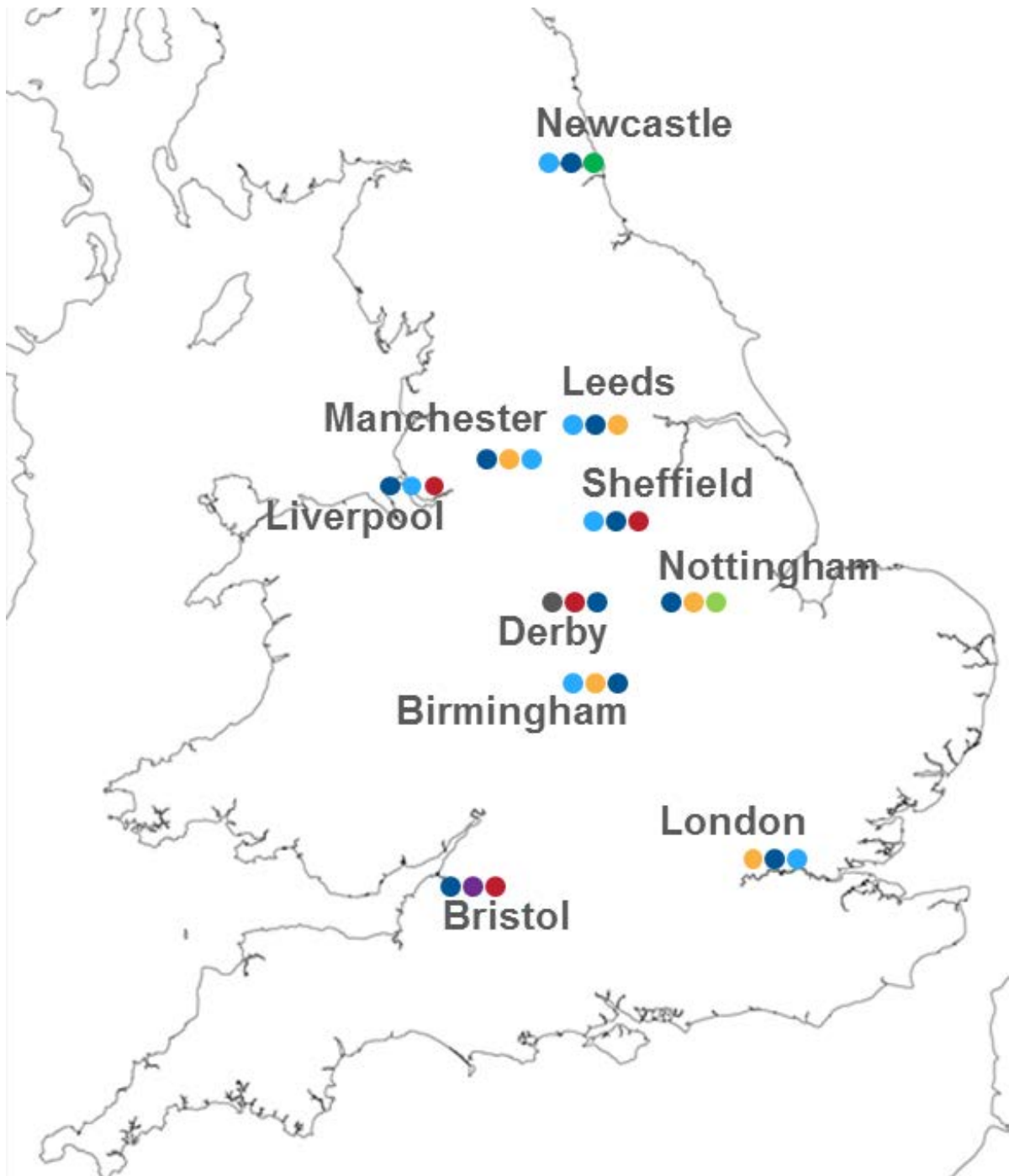
- 4.6 In defining Knowledge-based Sectors it should be noted that while sectors are a simple and coherent way of looking at the economy they cannot always capture the importance of particular activities, such as those based around emerging sectors or technologies. For example, low carbon, renewable and environmental goods and services cannot be easily identified in the data as they have no specific sector classification and cut across a range of sectors. This can lead to such activities being undervalued.
- 4.7 As suggested by the range of industries identified in Strategic Economic Plans, the geographical distribution of employment across sectors varies considerably<sup>23</sup>. In sectors such as retail, construction, and education employment it is relatively evenly spread across the country, reflecting the fact that these sectors tend to be situated close to the local population which they serve.
- 4.8 By contrast, employment in certain advanced manufacturing and other knowledge intensive sectors is concentrated in specific geographical locations. For example, employment in the aerospace sector is concentrated in the South West, North West and East Midlands, while the London area accounts for a large proportion of total employment in the financial services and professional business services sectors.
- 4.9 The city regions described in Figure 1 have different strengths in particular Knowledge-based Sectors. The map in Figure 8 shows the leading three Knowledge-based Sectors (by employment) for each City Region.
- 4.10 Knowledge-based Sectors have delivered strong long-term employment growth. As shown in Figure 9, since 1984 employment in Knowledge-based Sectors has grown at nearly three times the rate of other sectors.
- 4.11 Employment in Knowledge-based Sectors has grown from 3.1 million to 4.8 million, an average growth rate of 1.5 per cent per year. By contrast, over the same period employment in all other sectors grew from 20.1 million to 23.7 million, an average growth rate of just 0.6 per cent per year.
- 4.12 In 2014-15 Knowledge-based Sectors accounted for 18 per cent of all jobs. However, these sectors contributed disproportionately to the performance of the economy by:
  - generating 23 per cent of national output (£339bn out of £1,476bn)
  - supplying 34 per cent of exports (£170bn out of £503bn)
- 4.13 In addition to the direct employment and output generated by Knowledge-based Sectors, their growth also supports further growth in other sectors of the economy such as retail, leisure and hospitality. The latest in the series of Working Futures documents published by the Department for Business, Innovation and Skills projects that 1.8 million jobs will be created between 2012 and 2022<sup>24</sup>. Of that growth, nearly 40 per cent (or more than 700,000 new jobs) are expected to be created within Knowledge-based Sectors<sup>25</sup>. IT is projected to see the fastest jobs growth, at 31 per cent (280,000 jobs), and jobs requiring scientific and engineering skills will increase in importance (350,000 more jobs).

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<sup>23</sup> ONS (2012) The Geographical Concentration of Industries [http://www.ons.gov.uk/ons/dcp171766\\_272232.pdf](http://www.ons.gov.uk/ons/dcp171766_272232.pdf)

<sup>24</sup> Working Futures (BIS)

<sup>25</sup> Data source: Office for National Statistics Business Registration and Employment Survey, UK National Accounts (ONS) and Working Futures (BIS)



- Architectural and engineering
- Auxiliary services to financial and insurance
- Computer programming and consultancy
- Financial services (excluding insurance and pensions)
- Head offices; management consultancy
- Legal and accounting activities
- Manufacture of other transport (i.e. non motor vehicles)
- Telecommunications

Figure 8: Top Three Current Knowledge-based Sector Industries in each City Region (measured by jobs)<sup>26</sup>

<sup>26</sup> Data source: Office for National Statistics Business Registration and Employment Survey



Figure 9: Historic Growth in Employment 1984 to 2014<sup>27</sup>

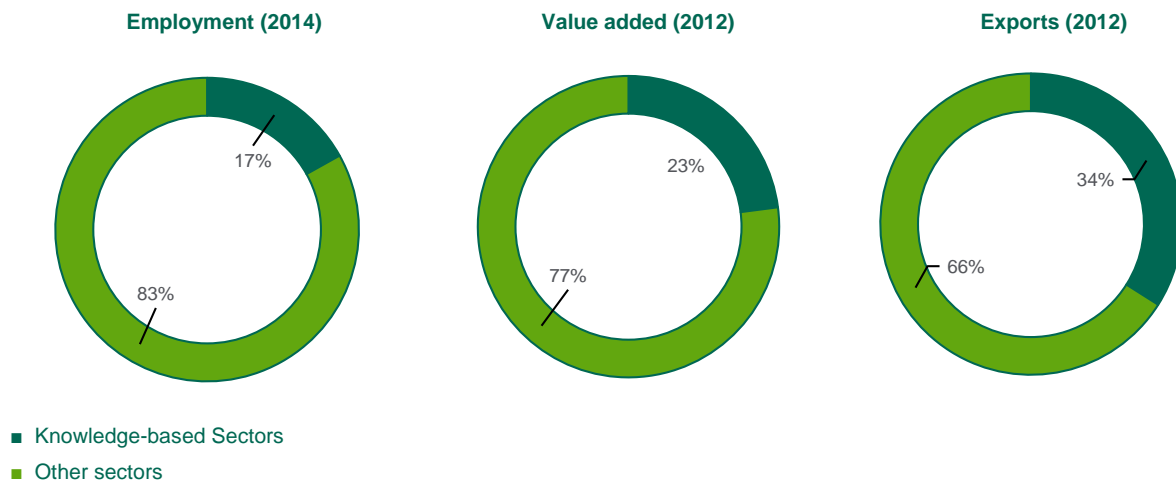


Figure 10: Contribution of Knowledge-based Sectors to the Economy<sup>28</sup>

<sup>27</sup> Data source: Office for National Statistics Business Registration and Employment Survey

<sup>28</sup> Data source: Office for National Statistics Business Registration and Employment Survey, UK National Accounts (ONS)

## 5. Face-to-face Interactions are Key

- Knowledge-based Sectors provide goods and services which support firms across all sectors of the economy
- Face-to-face interactions are particularly important for the growth and development of firms in Knowledge-based Sectors
- Knowledge-based Sectors employ a high proportion of individuals in managerial, professional and technical occupations that have a high propensity to travel by rail
- Managerial, professional and technical occupations account for over 70 per cent of total rail passenger miles
- Growth in Knowledge-based Sectors will lead to growth in the demand for business travel
- There is already a high volume of business travel on the intercity corridors that will be served by HS2. Even with committed investment, there is a projected shortfall in future capacity. If left unaddressed these capacity constraints will place a limit on the ability of firms in the growing Knowledge-based Sectors to do business

- 5.1 All sectors of the UK economy are, to some degree, directly or indirectly connected. This is because the outputs produced by one sector are used by others, either as an input of production or an enabler of economic activity. These include new ideas, knowledge, technology, infrastructure, products or business services. At the company-level, these linkages manifest themselves in the form of customer supplier relationships, and some large companies may have supply chains comprising several thousands of firms active in a large number of sectors.
- 5.2 The interdependencies which exist mean that barriers to the provision of goods and services in one particular sector or location may hamper economic activity in other parts of the economy. It follows that having good access to suppliers and customers in different places and across sectors is particularly important for those sectors which rely on other parts of the economy to produce and deliver goods and services.
- 5.3 Knowledge-based Sectors provide goods and services which support firms across all sectors of the economy. Over £1.4 trillion of business-to-business transactions were completed in 2012. Firms in Knowledge-based Sectors contributed disproportionately to this total, selling output valued at £400 billion (or 30 per cent of the total) to other businesses, of which £170 billion was to other firms within Knowledge-based Sectors<sup>29</sup>.

<sup>29</sup> Data source: UK National Accounts (ONS)

- 5.4 Regardless of its monetary value, output from Knowledge-based Sectors is necessary to remain competitive within the modern economy. For example, outputs from firms that provide telecommunications services, computer programming services and financial services are critical for the operation of other sectors.
- 5.5 Given the importance of business-to-business transactions for firms within Knowledge-based Sectors, and the often complex nature of the products and services being provided, there is a need for them to build strong relationships with an extended network of other companies. Even with the growth of electronic communication and all the opportunities this brings, evidence suggests that face-to-face interactions are particularly important for firms in Knowledge-based Sectors.
- 5.6 In this regard, the independent academic study “Business Travel: The Social Practices Surrounding Meetings (Lyons, 2013)”<sup>30</sup> provides a useful summary of the relevant literature. It notes that “Arnfolk and Kogg (2003)<sup>31</sup> and Denstadli et al (2012)<sup>32</sup> contend that the medium of communication is determined by the nature of information to be communicated – more complex information requiring higher ‘bandwidth’ media (notably face-to-face) and straightforward information requiring only a low-density medium (e.g. email). An important distinction must be made between the transmission of codifiable information with ‘stable meaning’ and of ‘complex tacit knowledge’ (Storper and Venables, 2004)<sup>33</sup>. Face-to-face [communication] lends itself strongly to the latter.”
- 5.7 Knowledge-based Sectors employ a high proportion of individuals in occupations that travel more by rail for business, commuting and leisure<sup>34</sup>.
- 5.8 Figure 11 illustrates the average annual distance travelled by individuals across a range of occupations. Those in managerial (1,161 miles), professional (1,428 miles) and technical (1,174 miles) occupations travel approximately twice the national average distance by rail in a year (625 miles). In 2013 these three groups accounted for over 70% of total rail passenger miles<sup>35</sup>.
- 5.9 Figure 12 illustrates that, as a proportion of the total workforce, Knowledge-based Sectors employ almost twice as many individuals in managerial, professional and technical occupations as other sectors.
- 5.10 Face-to-face interactions are important for the growth and development of Knowledge-based Sectors. As we have demonstrated in section 3 of this report, there is already a considerable volume of rail business-related travel between city regions that will be served by HS2.
- 5.11 Given that the further growth of Knowledge-based Sectors in city regions is forecast, this in turn will lead to further growth in the demand for intercity travel. As set out in the West Coast Main Line Demand and Capacity Annex published alongside this report, there is projected to be a shortfall in capacity on what are currently the busiest intercity routes for business travel. This will be the case even with committed investment. If left unaddressed, these capacity constraints will place a limit on the ability of firms in the growing Knowledge-based Sectors to do business. On top of

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<sup>30</sup> Business Travel: The Social Practices Surrounding Meetings (Lyons, 2013)

<sup>31</sup> “Service transformation-managing a shift from business travel to virtual meetings,” Journal of Cleaner Production, (Anfolk and Kogg, 2003)

<sup>32</sup> “Impacts of videoconferencing on business travel: the Norwegian experience,” Journal of Air Transport Management, (Denstadli et al, 2012)

<sup>33</sup> “Buzz: face-to-face contact and the urban economy”. Journal of Economic Geography, (Storper and Venables, 2004)

<sup>34</sup> Data source: National Travel Survey and Business Registration and Employment Survey

<sup>35</sup> Data source: National Travel Survey

this there are clear benefits to all businesses of being able to complete their business-related travel in the shortest possible time.

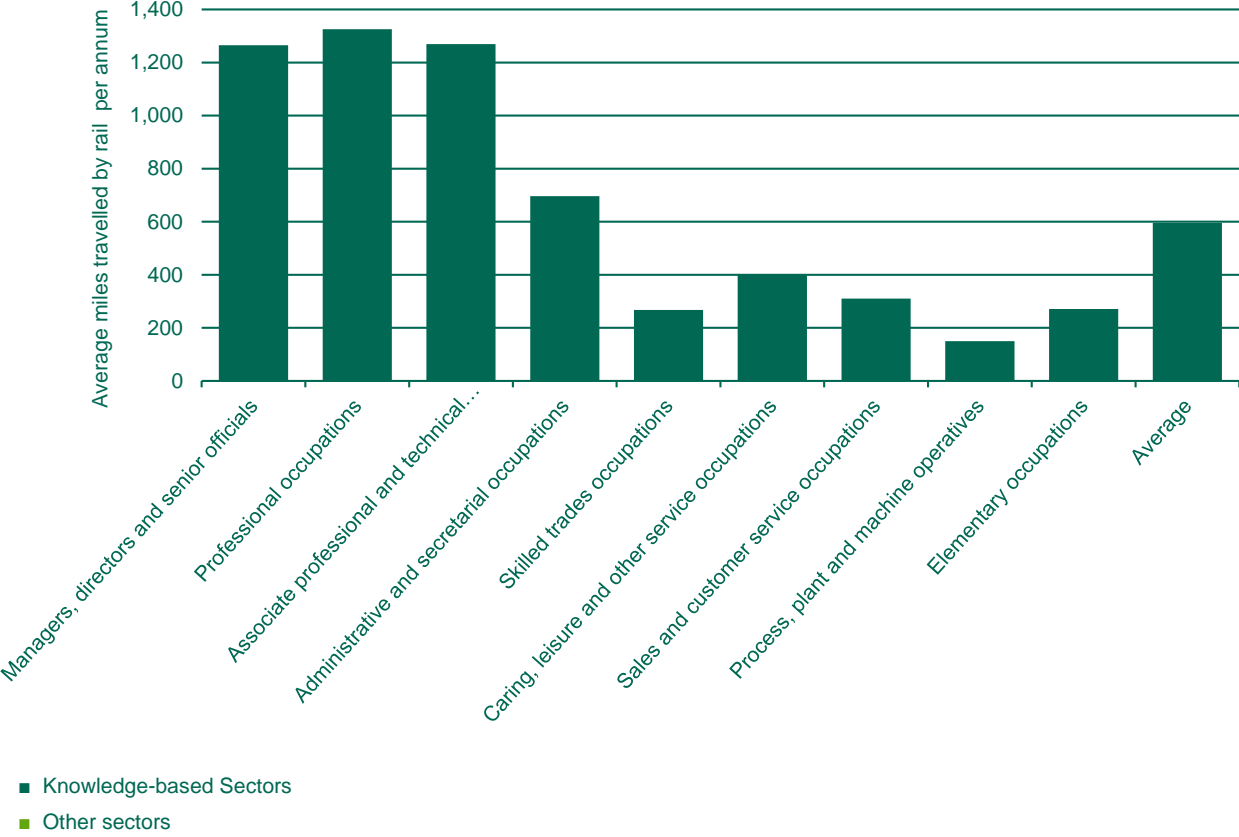


Figure 11: Rail Miles Travelled per year (2014) by Occupation<sup>36</sup>

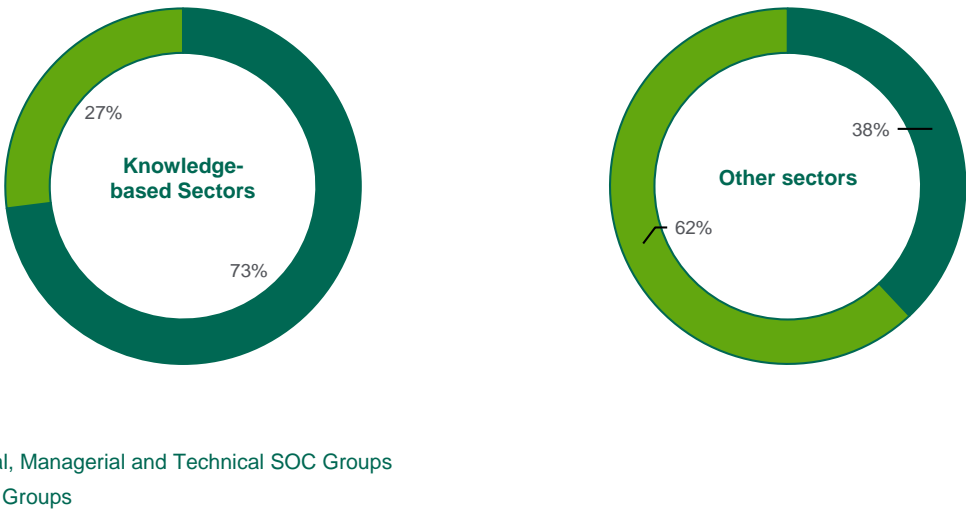


Figure 12: Ratio of Managerial, Professional and Technical Standard Occupational Classifications (SOCs)<sup>37</sup>

<sup>36</sup> Data source: National Travel Survey 2014

<sup>37</sup> Data source: National Travel Survey and Business Registration and Employment Survey



## 6. What HS2 will deliver for businesses

- HS2 will deliver significant improvements to rail journey times between city regions. It will offer greater seating capacity, improvements to reliability and a high-quality travelling environment
- Together, this will reduce the barriers to trade between city regions and improve linkages between staff and suppliers, customers and competitors
- HS2 has the potential to deliver improvements to the functioning of the labour market, business productivity and competitiveness. This will support economic growth

6.1 HS2 will deliver significant improvements to journey times between London and the city regions in the North and the Midlands (as shown in Figure 13 below). It will also shorten journey times between city regions in the North and the Midlands. In combination with other complementary enhancements, HS2 will provide an even greater step change in connectivity.

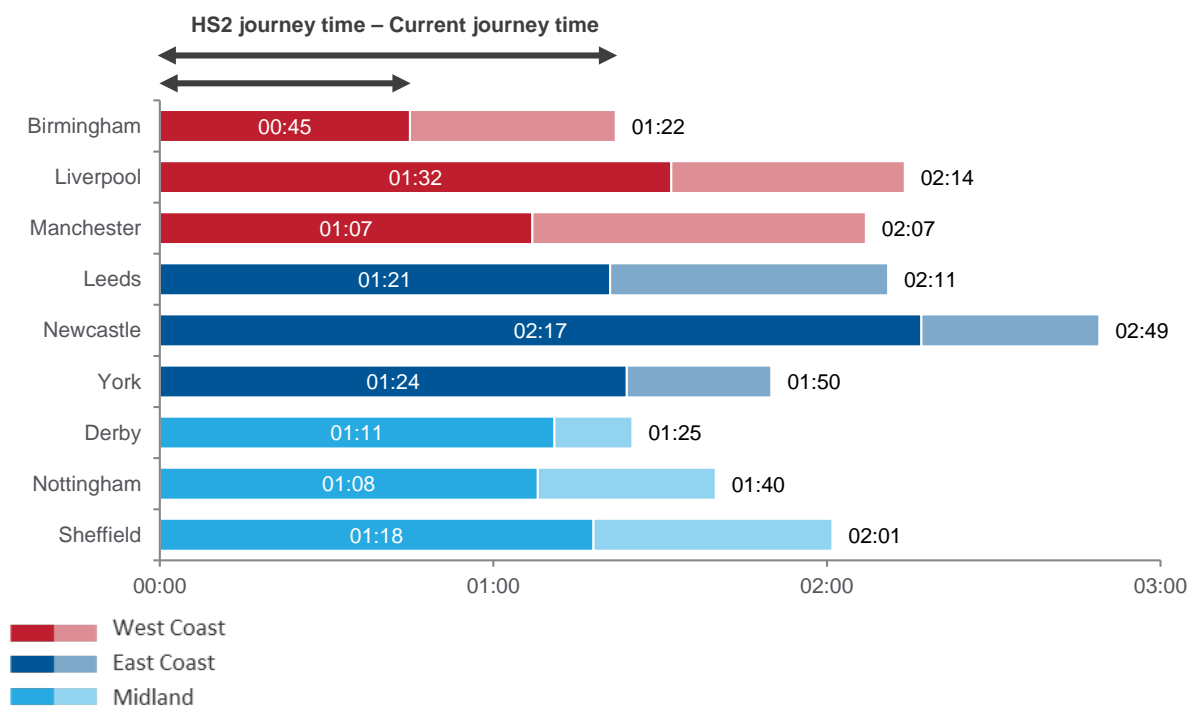


Figure 13: City Centre Journey Times to/from London with and without HS2<sup>38</sup>

<sup>38</sup> Data Source: Department for Transport

- 6.2 As well as substantial journey time reductions, HS2 will lead to a doubling of seats between London and Birmingham and London and Manchester, as well as substantial increases in the seats available for other intercity journeys. HS2 will improve reliability and will provide a high quality travelling environment.
- 6.3 Improvements to journey times, greater seating capacity, improvements to reliability and a high-quality travelling environment will reduce the barriers to trade between city regions and improve linkages between staff and suppliers, customers and competitors. The connectivity enhancements that HS2 will bring will support further growth in Knowledge-based Sectors. These sectors are targeted by city regions' Strategic Economic Plans.
- 6.4 The recent study for the Department for Transport by independent academics Venables, Overman and Laird (2014)<sup>39</sup> considers the link between Transport Investment and Economic Performance. It finds that transport investments “can deliver economic benefits over and above conventionally measured benefits to transport users” because:
- “Transport fosters intense economic interaction that raises productivity, both within narrowly defined areas or more widely by linking areas”
  - “Transport shapes the level and location of private investment, potentially leading to higher levels of economic activity in some areas”
- 6.5 Given the considerable enhancements to intercity journeys within and to/from the North and Midlands along with the opportunities it will create for enhanced connectivity for commuters on the classic network, HS2 has the potential to deliver improvements to the functioning of the labour market, business productivity and competitiveness. Earlier work published by HS2 Limited looked at these potential benefits by examining how improvements in connectivity would increase competitiveness of areas outside of London and change the future pattern of growth. These effects are expressed in two ways:
- Businesses becoming better connected to one another – businesses are better able to connect with potential suppliers, enabling them to access higher quality and/or lower cost inputs; closer to competitors, with opportunities to learn from each other and pressure for increased efficiency; and better able to connect with potential customers, enabling them to supply markets further afield
  - Businesses becoming better connected to labour – individuals are able to access more jobs, whilst businesses are able to draw on a wider and deeper pool of potential workers
- 6.6 This work suggested that all five regions shown in Figure 14 will experience connectivity improvements proportionately more than, although not at the expense of, London<sup>40</sup>.

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<sup>39</sup> Transport Investment and Economic Performance (Venables, Overman and Laird, 2014)

<sup>40</sup> Source: HS2: The Regional Economic Impact (KPMG, 2013)

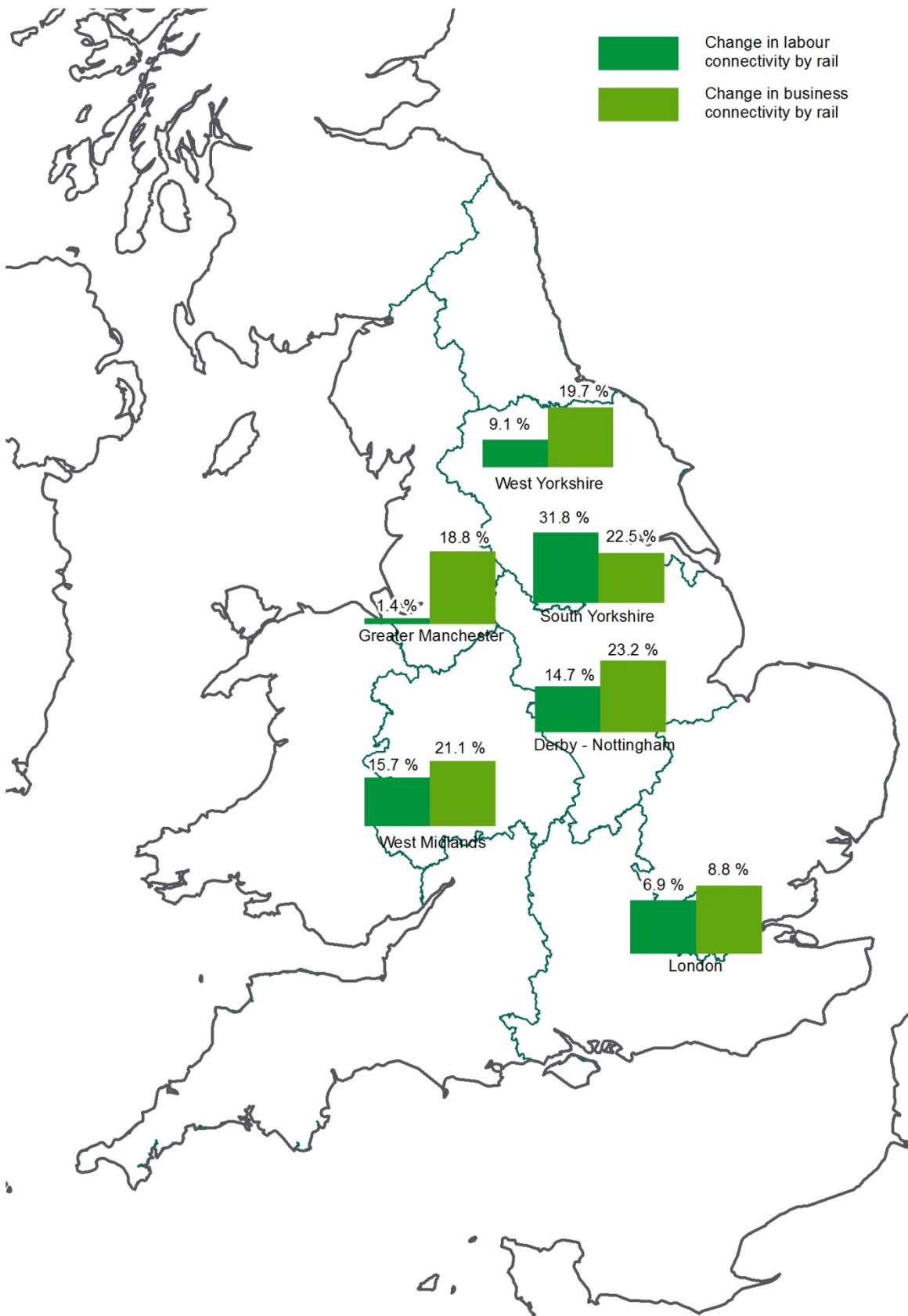


Figure 14: Improvements in Rail Connectivity for Business and Labour<sup>41</sup>

<sup>41</sup> Map source: HS2 Strategic Case, Figure 5.5

# 7. Comparator City Regions

- Elsewhere in Europe groups of towns and cities operate as single economic areas. These are more productive per capita than comparable city regions in the UK. They are characterised by efficient and effective transport systems
- Enhancing transport connectivity is at the heart of the Northern Transport Strategy and the vision for reinvigorating the North's economy
- HS2 is an integral part of the shared vision between Government and Transport for the North. It will transform journeys between London, the Midlands, Scotland and the North's key growth areas

- 7.1 HS2 is part of a wider vision to improve the nation's transport networks. It will deliver faster, more frequent and more comfortable trains to connect our city centres to each other and it will add to capacity, both directly and by releasing capacity on the existing rail network, so that people and goods will be better connected to city regions by rail. In doing so, it will contribute to our city regions emulating models elsewhere in Europe where single economic areas have efficient and effective transport systems. Examples include the Randstad in the Netherlands and the Rhine-Ruhr in Germany.
- 7.2 The Randstad is one of the largest metropolitan areas in Europe and includes the four most populous cities in the Netherlands (Amsterdam, The Hague, Rotterdam and Utrecht), and their surrounding areas. Its population is almost eight million people and it generates around half of the Netherlands' output (£210 billion in 2011).
- 7.3 Cities within the Randstad are between 30 and 50 miles apart. They are served by an extensive road network and fast and frequent rail services (typically every 15 minutes). These intercity links are supported by local rail, tram and bus connections. The Randstad is served by Europe's largest seaport (Rotterdam), and one of Europe's largest hub airports (Schiphol).
- 7.4 Rhine-Ruhr is the largest metropolitan area in Germany and includes the five cities of Dortmund, Dusseldorf, Duisburg, Essen and Cologne. It has a population of ten million and accounts for 13% of Germany's output (£250 billion in 2011). The region has a network of fast intercity rail services and is linked by an extensive Autobahn network.
- 7.5 In comparison to well-connected regions in Europe, journey times between city regions in the North and Midlands are long. The 2014 One North report suggests poor journey times as one reason why the cities embodied by the Northern Powerhouse lack the cohesion of the Randstad and Rhine-Ruhr regions. Poor connectivity, in turn, is cited as a limit on their ability to deliver consistent economic

growth<sup>42</sup>. Figure 15 highlights the difference in the economic performance of the Northern city regions and the performance of comparator regions in Europe.

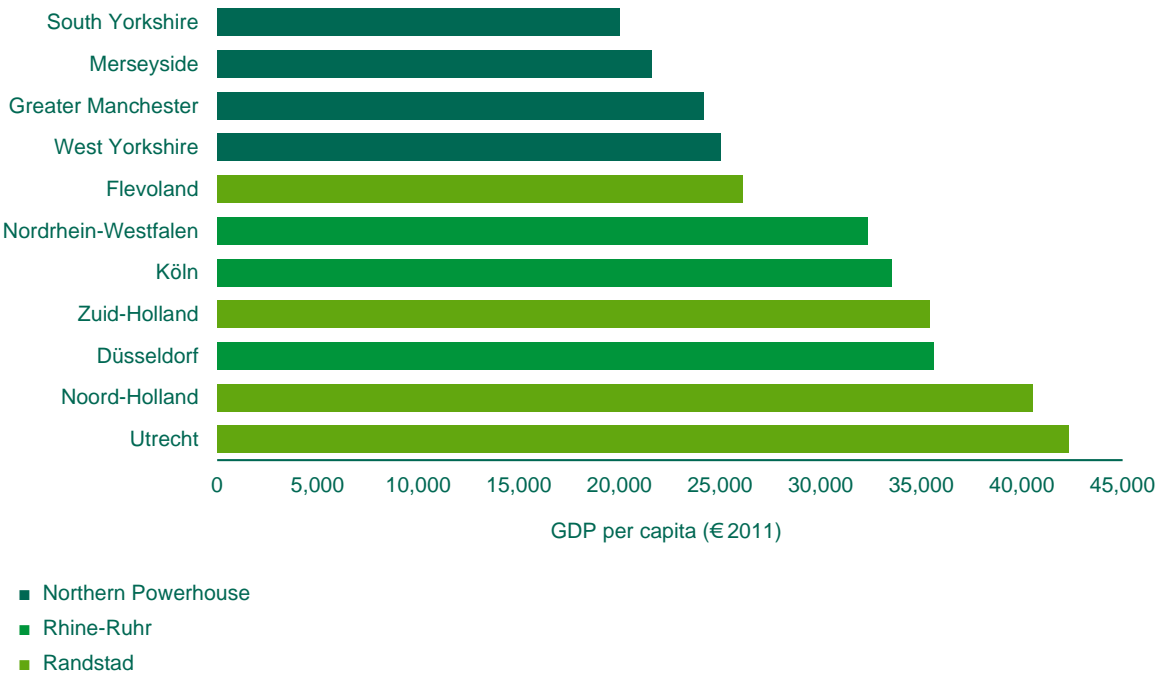


Figure 15: GDP per Capita (€2011)<sup>43</sup>

- 7.6 HS2 Phase 2 will deliver significant journey time improvements between city regions outside of London and the South East, in particular along the corridors linking Birmingham and the East Midlands to Manchester and Leeds. The combination of HS2 and the realisation of the aspirations set out in the March 2015 Northern Transport Strategy (“The Northern Powerhouse: One Agenda, One Economy, One North”) will lead to a step change in intercity journey times, bringing them closer to those delivered in the Rhine-Ruhr and Randstad regions.
- 7.7 The Northern Transport Strategy places transport connectivity at the heart of its vision for reinvigorating the North’s economy. It identifies the economic stimulus that will come from transforming connectivity by providing:
  - Better connections between economic centres allowing clusters to develop, even where companies are located apart
  - Better commuting opportunities to the centres of economic activity, allowing businesses to access ever more of the skills that they need to have a competitive advantage
  - Better travel information and ticketing systems that can expand travel horizons for businesses and individuals<sup>44</sup>
- 7.8 HS2 is an integral part of the shared vision between Government and Transport for the North. It will transform journeys between London, the Midlands, Scotland and the North’s key growth areas.

<sup>42</sup> A Proposition for an Interconnected North (One North, July 2014)  
<sup>43</sup> Data source: Eurostat, (2011)  
<sup>44</sup> The Northern Powerhouse: One Agenda, One Economy, One North (HM Government and Transport for the North, March 2015)

## 8. Growth Strategies

- The requirements for maximising the impact that HS2 will have on the economy include:
  - good connectivity into and out of HS2 stations
  - the integration of HS2 stations into the cities and surrounding areas
- Responding to the recommendation of Lord Deighton’s HS2 Growth Task Force, city regions are developing HS2 Growth Strategies
- Reflecting that the first phase of HS2 will link London and Birmingham, the Greater Birmingham and Solihull Local Enterprise Partnership has led the development of a HS2 Growth Strategy for the West Midlands. A Growth strategy for Old Oak Common has also been produced
- This work has developed ambitious yet realisable plans to support redevelopment and regeneration around the proposed HS2 stations, as well as to spread the benefits of HS2 throughout the local economy with a package of targeted connectivity enhancements

8.1 Complementary and viable plans are being developed to maximise the transformative economic benefits that HS2 will bring. In June 2013, the Government established the HS2 Growth Task Force to provide advice on how the economic benefits of HS2 could be maximised. The Task Force looked at local, regional and national growth opportunities including the potentially transformative economic benefits that HS2 could bring both in the vicinity of the stations that it will serve and across wider city regions<sup>45</sup>.

8.2 In their March 2014 report “High Speed 2: Get Ready (2013)”<sup>46</sup>, the Task Force, chaired by Lord Deighton, made a number of recommendations that were subsequently accepted by Government. These included that for each HS2 station a HS2 Growth Strategy be established. These Growth Strategies should:

- Identify the regeneration, development and growth potential around the HS2 station
- Assess local infrastructure needs. This should cover both physical and social infrastructure, including connectivity and consider how such infrastructure would be delivered and its costs
- Identify funding, including local funding and potential private investments

<sup>45</sup> See: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/229820/hs2-task-force-tor.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229820/hs2-task-force-tor.pdf)

<sup>46</sup> See: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/294851/hs2-get-ready.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/294851/hs2-get-ready.pdf)

- Inform plans such as Local Transport Plans and Strategic Economic Plans
- Be clear about how risks will be managed
- Set out the role for a locally-owned delivery body, reflecting the Task Force's recommendation that such a body would offer the greatest potential to fully realise the economic benefits of HS2 by offering strong local leadership, greater collaboration between existing funding streams and create the opportunity for rapid progress

## The West Midlands HS2 Growth Strategy

8.3 The Greater Birmingham and Solihull (GBS) Local Enterprise Partnership (LEP) published its HS2 Growth Strategy in July 2015<sup>47</sup>. Reflecting Lord Deighton's Task Force recommendations, the Growth Strategy has five elements:

- A skills strategy which looks at secondary and tertiary education and builds on the opportunity offered by the National College for High Speed Rail (NCfHSR), which will have a base in Birmingham
- A supply-chain and business support initiative, which includes a recognition of the opportunities that HS2 offers for Small and Medium Enterprises (SMEs)
- A Masterplan for the redevelopment and regeneration of the area around the Curzon Street station in the centre of Birmingham. As well as proposals for new areas of public realm and open space, this identifies key development opportunities for commercial, retail and residential development, as well as community facilities to be delivered in the period leading to the completion of Phase one of HS2 in 2026 and the subsequent 20 years. An Urban Regeneration Company has been established to deliver the Curzon Street Growth Strategy
- A Masterplan for "UK Central", the immediate area around the proposed Birmingham Interchange Station ('the Hub'), as well as Solihull town centre, north Solihull and the Blyth Valley. Development plans for the Hub include office space, light industrial/R&D units focussed on advanced manufacturing, construction, utilities and information, communication and technology (ICT), as well as retail and residential development and new public open space. There are plans to set up a locally-led regeneration body for the Hub by the end of this year
- A Connectivity Strategy, which through interchange with the HS2 stations and enhancements to the West Midlands' public transport networks, will spread the benefits of HS2 throughout the West Midlands

## Old Oak Common Growth Strategy

8.4 As a future rail super hub, Old Oak Common is one of the Mayor for London's key opportunity areas. The Mayor established a mayoral development corporation (Old Oak & Park Royal Development Corporation) in April this year which is spearheading the Greater London Authority's growth ambitions for the area, using its plan making powers. Earlier this year the development corporation finalised its HS2 Growth Strategy, which sets out the strategy for delivering its ambition of creating over 55,000 jobs and 24,000 homes over the next 30 years. The Mayor has recently approved the Old Oak Opportunity Area Planning Framework, which provides detailed planning guidance on the area.

<sup>47</sup> See: <http://centrefenterprise.com/wp-content/uploads/2015/07/Midlands-HS2-Growth-Strategy.pdf>.

# Appendix A

City	City Region	Local Authority Districts
Birmingham	West Midlands	Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall, Wolverhampton
Bristol	Avon	Bath & North East Somerset, Bristol, South Gloucestershire, North Somerset
Derby	Derby	Derby
Leeds	West Yorkshire	Bradford, Calderdale, Kirklees, Leeds, Wakefield
Liverpool	Merseyside	Knowsley, Liverpool, St. Helens, Sefton, Wirral, Halton
London	Greater London	Barking and Dagenham, Barnet, Bexley, Brent, Bromley, Camden, City of London, Croydon, Ealing, Enfield, Greenwich, Hackney, Hammersmith and Fulham, Haringey, Harrow, Havering, Hillingdon, Hounslow, Islington, Kingston upon Thames, Lambeth, Lewisham, Merton, Newham, Redbridge, Richmond upon Thames, Royal Borough of Kensington and Chelsea, Southwark, Sutton, Tower Hamlets, Waltham Forest, Wandsworth, Westminster
Manchester	Greater Manchester	Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, Wigan
Newcastle	Tyne and Wear	Gateshead, Newcastle upon Tyne, North Tyneside, South Tyneside, Sunderland

**Table A1: Definition of City Regions**



# Appendix B

Broad Category	Industry Sector (two digit Standard Industrial Classification)
Advanced Manufacturing	26 : Manufacture of computer, electronic and optical products
	30 : Manufacture of other transport equipment
Digital and creative	90 : Creative, arts and entertainment activities
	59 : Motion picture, video and television programme production, sound recording and music publishing activities
	58 : Publishing activities
	60 : Programming and broadcasting activities
	61 : Telecommunications
	62 : Computer programming, consultancy and related activities
	63 : Information service activities
	64 : Financial service activities, except insurance and pension funding
Professional and financial services	65 : Insurance, reinsurance and pension funding, except compulsory social security
	66 : Activities auxiliary to financial services and insurance activities
	69 : Legal and accounting activities
	70 : Activities of head offices; management consultancy activities
	71 : Architectural and engineering activities; technical testing and analysis
	72 : Scientific research and development
	73 : Advertising and market research
74 : Other professional, scientific and technical activities	
75 : Veterinary activities	

**Table B1: Definition of Knowledge-based Sectors**