

City Relationships: Economic Linkages in Northern city regions Sheffield City Region

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Moving Forward:
The Northern Way



The Northern Way
Stella House, Goldcrest Way, Newburn Riverside,
Newcastle upon Tyne NE15 8NY
Telephone: 0191 22 6200
Website: www.thenorthernway.co.uk

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Contents

	Summary	2
1:	Introduction	6
2:	Background	10
3:	Labour market relationships within the city region	17
4:	Firm links and supply chains	25
5:	Characterising links between Sheffield and neighbouring towns and cities	32
6:	Key findings and policy conclusions	40
	Annex A – Interviewees	45

Summary

This is one of seven reports published as part of the City Relationships research programme.

The research aimed to test a hypothesis derived from previous research that stronger and more complementary economic relationships between towns and cities in the North of England would generate higher levels of sustainable economic growth and development.

The project examined the economic relationships between the five most significant economic centres in the North – Leeds, Liverpool, Manchester, Newcastle and Sheffield – and selected cities and towns nearby, looking in particular at labour market linkages and the connections between businesses. It considered barriers to more complementary economic relationships and what public policy might do to foster them.

At a time when the public policy environment is focused on recovery from the current recession, and when there are emerging changes in the tools available to agencies and institutions at sub-national level working on economic development, the report aimed to generate insights about how these tools could secure better economic outcomes for places across the North of England.

The seven reports published through the research programme include:

- An overall synthesis report: City Relationships: Economic linkages in Northern city regions
- Five reports detailing our findings and conclusions for each of the city regions in this study
- A report on the Research Methodology

In addition, there are five supplementary data annexes supporting the five city region reports.

These reports are available on The Northern Way website at www.thenorthernway.co.uk/cityrelationships

Key findings and policy conclusions

Economic development in the Sheffield City Region

- Within the weakly monocentric Sheffield City Region, Sheffield is the key centre of employment for neighbouring cities and towns and the main driver of city region growth. Although Doncaster and Chesterfield are also important sources of economic growth within the city region, our analysis suggests that the city region as a whole would benefit from strengthening growth in Sheffield, the economic core, and that this will help spread benefits more widely. However, this also requires Sheffield to focus on attracting high value knowledge intensive employment and investment, enabling neighbouring areas to play to their strengths and attract alternative types of investment and employment.
- For Sheffield to develop its economy requires it to strengthen its economic links with neighbouring towns and cities. To maximise economic benefits from links with Sheffield, neighbouring towns and cities should recognise their roles within the city region and build on their distinctive assets. The types of links will vary according to the distinctive strengths and roles of each area, with some more 'dependent' areas such as North East Derbyshire needing to prioritise

transport and quality of housing, whereas Doncaster should work closely with Sheffield to identify ways in which to improve firm links.

- **An overarching priority across Sheffield City Region is to continue to improve the skills profile:** For areas like Rotherham, where lack of skills constrain residents from benefiting from growth in high value employment in Sheffield, equipping people with the appropriate skills is crucial if they are to access employment opportunities. Local authorities within the city region should simultaneously assess other potential barriers to employment, such as transport and information gaps. Integration of employment and skills services with other services may be an effective way to enable people to access employment. Consideration should be taken of the likely travel patterns to areas of employment for residents with lower level skills. For example, Bolsover's residents may be more likely to access employment opportunities in Chesterfield – a smaller but more local employment centre.
- **Sheffield and Rotherham**, having recognised the interdependencies between the two areas, are working together to further assess the nature of the relationship between the two economies and identify areas where they should collaborate. One example of collaboration has been the Sheffield/Rotherham Strategic Housing Market Area.

Draw of Economic Centre

- Compared to the other city regions in this study, **Sheffield is a relatively self contained city and labour market relationships with neighbours are less strong than for other economic centres.** Sheffield's smaller travel-to-work area is partly a reflection of the strength of its economy and its industrial legacy. 85% of residents live and work in the city taking 72% of jobs (compared to 73% and 31% in Manchester). Despite having less of an economic draw than other economic centres, however, Sheffield has the highest productivity within the city region and the highest employment in knowledge services – financial and business services in particular. Nonetheless, compared to Manchester and Leeds, Sheffield is relatively public sector dominated.
- In labour market and housing market terms **Sheffield City Region** is a fragmented economy, with Sheffield the strongest economic centre and increasingly interdependent with Rotherham. Sheffield City Region can best be characterised as **weakly monocentric**. There are other centres of employment, such as Rotherham and Chesterfield, but these are not as strong as Sheffield. This fragmentation, and the weakness of Sheffield as a centre, means that not all areas in the city region are benefitting from Sheffield's success.

Labour Market Relationships

- In labour market terms Rotherham is classified as having an 'interdependent' relationship with Sheffield, although it is close to the dependent family too. Rotherham and Sheffield clearly have the closest economic relationships within the city region – both in terms of commuting (23% of Rotherham's residents commute to Sheffield and 5% of Sheffield's residents commute to Rotherham) and supply chain links, particularly in manufacturing. Rotherham is positioned close to dependent, however, as it has a concentration of traditional industries and lower skills.





- With a strong Sheffield commuter belt in the north of the district, North East Derbyshire has a 'dependent' labour market relationship with Sheffield. 23% of residents in the local authority area commute to work in Sheffield, the majority of these from the towns in the north such as Dronfield, Eckington and Killamarsh. North East Derbyshire has a good quality of life offer for those working in Sheffield, although a more complementary relationship may be developed by strengthening the skills base.
- Barnsley is also classified as having a 'dependent' labour market relationship with Sheffield although it has a less strong relationship with Sheffield than North East Derbyshire. 11% of Barnsley's residents travel to work in Sheffield. The south of Barnsley has stronger links to Sheffield than the north of the local authority area, which looks more to the Leeds City Region (although overall links with Sheffield City Region are stronger than those with Leeds). Our analysis suggests that firm links with Sheffield are also currently limited.
- Our analysis suggests that Bolsover's labour market is 'isolated' from Sheffield's employment opportunities. Bolsover's labour markets links are strongest in the north of the local authority area, whilst the south has stronger links to Derbyshire. Overall, just under 6% of residents commute to work in Sheffield. There are also a relatively low number of jobs available in Bolsover, mainly concentrated in low value services, manufacturing and the public sector.
- Doncaster is a significant employment centre within the city region, but its labour market is characterised as 'isolated' from Sheffield as the commuting links between the two cities are weak. Only 3.4% of Doncaster's residents commute to Sheffield and 0.5% of Sheffield's residents to Doncaster. Doncaster is positioned close to being 'independent' but as employment is not high value, the city is less economically successful than some of the independent cities in other city regions such as York or Warrington.
- Manchester is classified as 'independent' from Sheffield. Manchester is a strong economic centre in its own right and there are very limited labour market links between the two cities. Only 0.4% of Sheffield's residents commute to work in Manchester. There is some potential for closer firm links between the two cities

given the changing sectoral specialisation of Sheffield, but evidence about the extent to which this is happening is limited. Labour market relationships are constrained to a large extent by communications across the Pennines.

Firm Relationships

- **Advanced Manufacturing and Metals** was historically the vital sector in SCR's economy and it continues to play an important role. Whilst employment levels have declined, productivity has increased because of technological innovation and there are a number of specialist facilities and research institutes dedicated to the sector within the city region. Analysis by Yorkshire Forward showed that the supply chains in the metals sectors are highly contained within the region. Interactions within the sector tend to be on a traded basis rather than non-traded. Manufacturing supply chain interactions are particularly strong between Sheffield and Rotherham, with Rotherham acting as a supplier of inputs into Sheffield. Improving transport links, information and investing in skills could facilitate improved economic relationships across the city region. The embeddedness of the sector provides a strong base on which to build global links.
- Within Sheffield City Region, **computing** is a key growth sector. Whilst the sector does not employ large numbers, the sector makes a significant contribution to economic output. The majority of employment in the sector, over 45%, is based in Sheffield. As a service-based sector, many companies have a limited number of suppliers, the majority of which are locally based, for example local printers. Face-to-face contact with clients remains important for ICT companies. For a number of companies, clients tend to be locally based within South Yorkshire, Nottinghamshire and Derbyshire. The travel-to-work pattern of staff working for ICT companies varies according to the size of the company, and where the company is located within the city region. For smaller companies, staff tend to travel less far (maximum of 10 miles), and personal contacts make recruitment easier. Improving information, attracting more large firms to increase career opportunities and identifying opportunities to link to Manchester are ways in which the city region could improve economic opportunities.

Economic Relationships

- *Sectoral specialisation* - Over recent years, changing patterns of sectoral specialisation mean that Rotherham, North East Derbyshire and Manchester have more potential to create complementary firm links with Sheffield. In contrast, Barnsley and Doncaster have presently less potential for complementary firm links.
- *Transport* – Sheffield City Region is reasonably well connected, although it can still be hard to travel without a car in parts of the city region. As a result congestion is higher than in other urban areas. Some former coal mining and manufacturing communities may be cut off from employment opportunities partly as a result of poor public transport links and affordability issues. External connectivity continues to be an issue for the city region. Rail services between Manchester and Sheffield are infrequent, and the Pennines is cited as a barrier to increased travel. Partnership beyond the Integrated Transport Authority would help to improve transport integration across the travel-to-work area.
- *Quality of life* – Overall, Sheffield City Region is perceived to have a good quality of life offer. The location of much of the city region in the Peak District means it offers a high quality of life and easy access to beautiful countryside and outdoor activities. However, despite pockets of higher quality housing, there is an issue about the quality of housing supply across the city region as a whole.

1: Introduction

For policymakers seeking to enhance the productivity of individual places it is vital to look beyond administrative boundaries. Local areas are open and dynamic. Their economies are shaped by economic relationships with other areas¹ - connections and flows of people to and from home, work and leisure, as well as firm relationships and supply chains.² These have the potential to generate benefits for both local areas, for example, in the Greater South East, London's success has benefited nearby cities and towns such as Reading.³

When local areas have economic relationships that create advantages for both areas we have defined them as **complementary economic relationships**: labour market and firm links between two urban areas that generate mutual economic benefit.

However, not all economic relationships are complementary; some places appear to be less likely to benefit from their links with one another. In the North of England, for example, there is a desire to understand why the success of, for example, Manchester, Newcastle and Leeds has not spread to neighbouring areas in the same way that the success of London has benefitted surrounding areas.⁴ This raises questions about the factors that contribute to more or less complementary economic relationships.

In response, The Northern Way and CLG have been supporting a partnership of the Centre for Cities, SURF and The Work Foundation to investigate relationships between cities in more detail. Building on City Links⁵ and our review of additional literature,⁶ our hypothesis is:

"Sustainable economic growth of places, a more highly skilled workforce, higher individual prosperity and reduced deprivation could be achieved in the North by strengthening the economic links between the economic centres of city regions and the towns and cities that surround them. These links could be supported through policies to improve integrated transport links, focus up-skilling of the working population, and foster innovation and investment in specific business clusters and their supply chains."

To test this hypothesis, the partnership has investigated the relationships between the five most significant economic centres in the North – Leeds, Liverpool, Manchester, Newcastle and Sheffield – and selected cities and towns nearby, seeking to answer the following questions:

What are the factors that contribute to complementary or non-complementary economic relationships between northern cities?

Can a focus on complementarity lead to higher and mutually beneficial economic spillovers within and around the city regions of the North?

Supplementary questions:

1. What supports complementary economic relationships between cities?
2. What are the barriers to complementary economic relationships developing between cities?
3. What can public policy do to support and develop complementary economic relationships between cities? Are there transferrable lessons from other cities that have successfully developed and supported complementary economic relationships?

805, London School of Economics: London.

- 2 Harding, A, Marvin, S. and Robson, B. (2006) 'A framework for city regions', Office of the Deputy Prime Minister, London, available at: <http://www.communities.gov.uk/publications/citiesandregions/frameworkfull>
- 3 Hall, P. & Pain, K. (2006) The Polycentric Metropolis: Learning from Mega-city regions in Europe: Earthscan
- 4 IPEG and CUPS, University of Manchester (2008) The Northern Connection: Assessing the comparative economic performance and prospects of Northern England: The Northern Way and Jones et al. (2007) How Can Cities Thrive in the Changing Economy?, The Work Foundation
- 5 Lucci, P and Hildreth, P (2008) City Links: integration and isolation, Centre for Cities, available at <http://www.centreforcities.org>
- 6 See scoping paper published in March 2009
- 7 Our focus is on economic growth of places but we note that Overman and Leunig's work suggests that there may be a tension between focusing on the prosperity of individuals and of places, as individuals may gain greatest individual benefit from moving to places offering the greatest economic opportunities. Our work hopes to contribute to insights about if and how prosperity of both individuals and places can be achieved.

Our methodology is summarised in Box 1 and set out in more detail in a Methodology Paper.

Box1: Summary of Methodology

We selected two sectors to focus on in each city region, enabling us to understand supply chains and business relationships in more detail.

We also selected six towns and cities in each city region, focusing on three local authorities that have strong commuting links with the economic centre, one 'boundary' local authority (a local authority at the edge of the city region), and two local authorities, each with a high concentration of employment in the selected sectors. These are set out in the table below. More details (including SIC codes) are available in the methodology paper.

The work started with background data analysis to help us test the hypothesis. This set out measures of economic performance, skills, individual prosperity, wages and deprivation for the economic centres of the city regions and selected towns and cities in the surrounding area.

We then analysed secondary data to review the relationships between the economic centre and the towns and cities which surround them, focusing on three main themes:

1. Economic scale and increasing returns;
2. Labour market links;
3. Transport links.

We also conducted a brief literature review and a series of interviews with selected policymakers and businesses. This was to help us understand more about two issues:

1. Business supply chains;
2. Other factors that might affect relationships between cities, for example the history of places and their relationships, cultural issues such as a preference for local working, and political and geographical challenges.



2. Overman, H. et al (2007) Economic Linkages Across Space, CEP Discussion Paper No 805, London School of Economics: London.
3. Harding, A, Marvin, S. and Robson, B. (2006) 'A framework for city regions', Office of the Deputy Prime Minister, London, available at: <http://www.communities.gov.uk/publications/citiesandregions/frameworkfull>
4. Hall, P. & Pain, K. (2006) The Polycentric Metropolis: Learning from Mega-city regions in Europe: Earthscan
5. IPEG and CUPS, University of Manchester (2008) The Northern Connection: Assessing the comparative economic performance and prospects of Northern England: The Northern Way and Jones et al. (2007) How Can Cities Thrive in the Changing Economy?, The Work Foundation
6. Lucci, P and Hildreth, P (2008) City Links: integration and isolation, Centre for Cities, available at <http://www.centreforcities.org>
7. See scoping paper published in March 2009
8. Our focus is on economic growth of places but we note that Overman and Leunig's work suggests that there may be a tension between focusing on the prosperity of individuals and of places, as individuals may gain greatest individual benefit from moving to places offering the greatest economic opportunities. Our work hopes to contribute to insights about if and how prosperity of both individuals and places can be achieved.



Table 1: Overview of case study cities and sectors

City Region	Top commuting LAs	Boundary LAs	Sector LAs
Leeds City Region	1. Wakefield 2. Bradford 3. Kirklees	4. York	5. Calderdale – Financial Services 6. Harrogate – Retail
Liverpool City Region	1. Sefton 2. Knowsley 3. Wirral	4. Chester	5. St Helens – Maritime ('Liverpool Super Port') 6. Halton – Digital and Creative Industries
Manchester City Region	1. Stockport 2. Trafford 3. Bury	4. Blackburn	5. Oldham – Advanced manufacturing 6. Warrington – ICT, Digital/Communications ⁸
Sheffield City Region	1. Rotherham 2. North East Derbyshire 3. Barnsley ⁹	4. Doncaster	5. Bolsover – Advanced manufacturing and metals 6. Manchester – ICT
Tyne & Wear City Region	1. North Tyneside 2. Gateshead 3. Sunderland	4. Durham	5. Easington – ICT / Digital 6. Derwentside ¹⁰ – Manufacturing

8 Warrington can look both east and west, to Manchester and to Liverpool, and we have considered this as part of our analysis.

9 Barnsley can look both south to Sheffield and north to Leeds, and we have considered this as part of our analysis

10 Data analysis conducted as part of the research was carried out prior to the 2009 local authority boundary changes. Local authorities affected as part of the 2009 Local Authority boundary changes include Easington and Sedgfield (part of Durham Unitary Authority), and Chester (part of Cheshire West and Chester Unitary Authority)

1.1 This paper

The work aims to inform the development of economic development strategy at a number of levels: the Northern Way's strategy, regional strategies, sub-regional and city regional development plans; and the work of CLG and other Government departments in the development of Multi-Area Agreements (MAAs), city region Economic Prosperity Board pilot schemes and prioritising infrastructure projects for the post 2014 budget. In addition this work aims to provide insights to inform the way that city regions respond to recession, prepare for recovery and work together in the context of tough spending decisions that will be required to be made by Government over the next few years.

This analytical paper focuses on the results of our analysis for the **Sheffield City Region**. It is accompanied by an overarching paper setting out our overall findings and papers on the other four city regions: Leeds, Liverpool, Manchester and Tyne and Wear. These are all available at www.thenorthernway.co.uk/cityrelationships.

This paper on Sheffield City Region sets out our findings in the following sections:

First, we provide a summary of the current position in the city region. It briefly sets out the context for, and the history of, relationships within that city region and then focuses on the characteristics of Sheffield as the economic centre – e.g. its economic performance and how this affects relationships within the city region.

Secondly, we review how these individual labour market relationships affect relationships at the city region level, focusing on 'life choices' (migration, jobs and homes), career development, and the relationships between housing, workplace, skills and transport.

Thirdly, we review firm links in the city region: presenting the findings about specific sectors within the city region, assessing how supply chains work and how relationships between different towns and cities operate. In the Sheffield City Region these sectors are advanced manufacturing and computing.

In the fourth section, we draw together our findings about the linkages and relationships within the city region between places, using the analytical model which has been developed through this study, across the five city regions in which we have been working. Given our findings about the importance of labour market linkages to the economic relationships between places, the main focus for this model is on the labour market linkages. In this section, we apply our spectrum of different types of labour market relationships to the Sheffield City Region, and explain why we characterise each place in the way that we do. This sets out information about commuting patterns, skills, earnings, economic performance, transport and house prices for each city or town we reviewed.

Finally we highlight the key findings and policy conclusions that this research raises for the current and future relationships between Sheffield and the neighbouring towns and cities.

2. Background

Box 2: Literature

This study builds on existing literature on the city region's economic geography. Key background documents to this report include: CASE Sheffield City Report (2007), South Yorkshire Creative and Digital Industries Study (2007), South Yorkshire Spatial Study (2003), Quality of Place: The North's Residential Offer, Sheffield City Region Case Study (2006), South and West Yorkshire Multi-Modal Study (2006), Productivity Benefits of Transport Investment in South Yorkshire (2008), The Sheffield Rotherham Economic Study (2007), and the Index of Economic Resilience: Sheffield City Region Report.

The Sheffield City Region (SCR) is located 40km south of Leeds and spans South Yorkshire, North Derbyshire and North Nottinghamshire. It includes nine local authority areas: Sheffield City Council, Barnsley, Rotherham and Doncaster Metropolitan Borough Councils in Yorkshire and the Humber, and Chesterfield, North East Derbyshire, Bolsover, Bassetlaw and Derbyshire Dales District Councils in the East Midlands. The city region Partnership also includes Nottinghamshire and Derbyshire County Councils and the Peak District National Park.

Figure 2.1: Sheffield City Region Case Study Area



Over the last decade, Sheffield City Region's economy has been transforming. Between 2000 and 2006, Sheffield City Region (SCR) had the second highest GVA growth rate (behind Bristol) of all the core city regions, with an average annual growth rate of 3.3%.¹¹ To achieve this, the local economy has had to diversify from its historic roots as a major centre for coal, steel and manufacturing, responding to the change and decline in these sectors since the 1980s. Whilst manufacturing, particularly steel, still forms an important part of its economy, the last ten years has seen above average growth in knowledge intensive industries and significant growth in other services. The location of much of the city region in the Peak District means it offers a high quality of life and easy access to beautiful countryside and outdoor activities.

Yet despite significant improvements over the last ten years, SCR still lags behind other UK city regions in terms of economic success. Output per head remains lower than the national average at £15,149¹² and, despite improvements, its unemployment rate lies above the national average. The city region has lower proportions of managers and professionals, and higher numbers of 'elementary workers' amongst the resident population than both Manchester and Leeds City Regions. The Sheffield City Region as a whole has a relatively weak skills profile: 21.4% of the working age population have degree level qualifications compared to the national average of 29%. Its most productive sectors, the knowledge intensive economy,¹³ look very different from Manchester or Leeds. SCR is much more public-sector dominated, high-tech manufacturing accounts for a larger proportion of employment and it has a smaller business services sector. The impacts of industrial change are still very apparent across the city region with pockets of high unemployment.

2.1 Partnership working in Sheffield City Region

Collaboration between the 12 local authorities in Sheffield City Region is a relatively new development, although the local authorities to the north and south of the regional boundary have a shared history of joint working. In the north, Sheffield, Rotherham, Barnsley and Doncaster districts previously formed the South Yorkshire County Council. More recently, leaders in South Yorkshire worked together to produce a Single Programming Document for the 2000 Objective 1 Programme period. The document set out an holistic response to the distinctive social and economic problems facing South Yorkshire as a product of industrial decline. European Union Structural Funding has been a fundamental component of the region's regeneration budget in recent years.

In the south, North East Derbyshire has a historic relationship with Bolsover and Chesterfield within Derbyshire County Council. These authorities also form part of the Alliance Sub-Regional Strategic Partnership, which brings together the East Midlands authorities. The relationship between authorities across the regional boundary in the East Midlands and South Yorkshire has formed over the past three years.

The momentum for all 12 of the local authorities to work together emerged from the work conducted by the Northern Way and the impetus created by the Sub National Review. Yet the towns and cities within the Sheffield City Region are operating within a fragmented economy. The main economic centre is Sheffield and its economy overlaps strongly with that of Rotherham in particular. Yet whilst in the north part of the city region local authorities may look to Sheffield, the southern areas look to Derby and the East Midlands. Barnsley also looks north to Leeds (it is in both Leeds and Sheffield City Regions). The regional boundary creates particular



11 The Northern Way (2006) Sheffield City Region Development Programme. Available from <http://www.thenorthernway.co.uk/downloaddoc.asp?id=277>

12 In 2007 the city region was worth £26.6m, 2.4% of national output

13 The knowledge intensive sectors include: high tech manufacturing, transport and communications, finance, business services, high tech services, cultural and sporting, and health and education-



challenges for Sheffield City Region as the regional development agencies do not always share the same agenda. For example, more recently the East Midlands Development Agency opposed Sheffield City Region's bid to become an Economic Prosperity Board.¹⁴

2.2 Current relationships are shaped by history

The current arrangements are influenced by historic relationships between local authorities and by the regional boundaries.

Sheffield has a global reputation as 'the steel city', but there are deep rooted historical relationships across the area that led to its position as a global leader in steel production in the early 20th century. The production of cutlery can be traced back to the 14th century, owing to the close proximity of fast flowing rivers from the Pennines for water power, iron ore, the location of nearby coal fields and the millstone grit used for grinding wheels. Over the following centuries industrial hamlets, using the water to turn water wheels, sprang up in the west of the region. Mass steel production was later made possible by the contributions of Huntsman and Bessemer in the 18th and 19th centuries, an early example of innovation through agglomeration. The expansion of this industry led to further extraction of coal in east Rotherham, Barnsley and Doncaster, connecting places and people in the region. Steel production was concentrated in the Don Valley in the east of Sheffield and west of Rotherham, linking city and town ever since. The invention of stainless steel and the importance of metal production during World War 2 were particularly important to the growth of the economy in this region during the twentieth century. During this interconnected industrial history, Sheffield drew on surrounding labour from towns and countryside.

However, the onset of large scale deindustrialisation in the late 1970s contributed to other distinctive similarities in the region. Economic restructuring hit coal mining and steel production equally hard. The 'dependence' on these local industries led to large scale unemployment (between 1981 and 1991 deep coal mines shed 73% of their work force and iron and steel industries shed 62%).¹⁵ Between 1979 and 1983, 25000 and 30000 jobs were lost in the steel industry in Rotherham and Sheffield respectively. This has been translated into specific spaces of exclusion and marginalisation in the city region. Places such as Maltby, in the east of Rotherham, have become isolated. Public transport connections have been eroded, due to the closure of the local coal mine. People in local labour markets have become less mobile. In response, since 2000, the region has worked collaboratively through the Objective 1 programme. However, social and economic disadvantage continues to be a shared characteristic, with South Yorkshire having one of the highest rates of people not in education, employment or training in the UK. Some strategies, such as the development of Meadowhall in Sheffield, have had a negative impact on the economic success of surrounding town centres.¹⁶

Sheffield and Rotherham agreed a concordat to work together on economic development in 2006 and have progressed joint initiatives since then, including housing market renewal.

Within Derbyshire, North East Derbyshire, Bolsover and Chesterfield have a history of working together.

14 Peak District (2009) National Park Authority Meeting 27 March 2009. Available from <http://resources.peakdistrict.gov.uk/ctte/authority/reports/2009/090327Item10-2.pdf>

15 Dabinett, G. (1997) 'The EU Community Initiatives and the Management of Industrial Change in the UK'. In Bachtler, J. and Turok, I. *The Coherence of EU Regional Policy: contrasting perspectives on the Structural Funds*, Jessica Kingsley Publishers, London.

16 Rotherham Metropolitan Borough Council (2004) *Regeneration, Rotherham Borough Council: Rotherham*. Available at <http://www.rotherham.gov.uk/nr/moderngov/Published/C00000288/M00003007/A100006258/AppendixARegeneration.pdf>

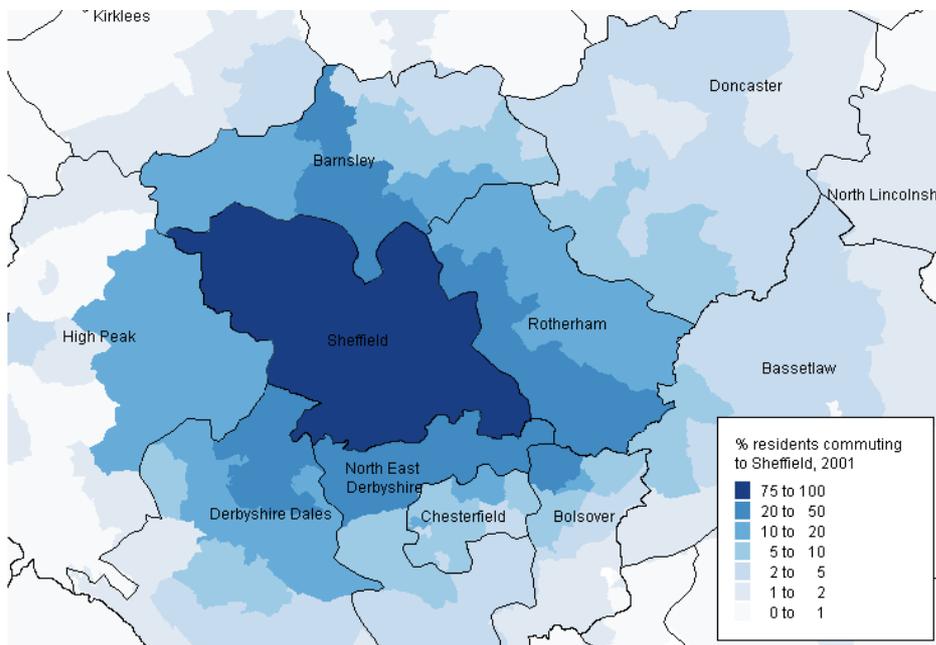
Bolsover has a similar industrial structure to places in South Yorkshire, having been predominantly a coal mining town, but relationships with Sheffield City Region are complicated by the fact it is a second-tier authority within the Derbyshire County Council area (the County Council is not a member of the city region), as well as being in the East Midlands region. Bolsover is aligned to more than one sub region, with the south part of the district having closer links to Mansfield, North East Lincolnshire, Derby and Nottingham.

Doncaster was involved in the pilot city region status bid and the introduction of the city region, but it has historically seen itself as an independent economy.

2.3 Sheffield is the centre of employment opportunities in the city region

The population of the city region is orientated towards Sheffield as the major urban area and Sheffield is the economic core of the city region. Sheffield is also the principal employment centre and is growing as a net importer of labour and an employment site for residents living in districts in Yorkshire and the Humber, and the East Midlands.

Figure 2.2: Sheffield's travel-to-work area, 2001 (ward level)



Source: 2001 Census, ONS

Sheffield has the highest employment in knowledge services – financial and business services in particular¹⁷ – in the city region and draws the largest number of knowledge workers from across the city region. In addition to financial and business services, key sectors in Sheffield include advanced manufacturing (medical and metals technology) and the digital and creative sectors.¹⁸ Steel production, with a long history in Sheffield, is now much more capital intensive than labour intensive. Labour market links are particularly strong with Rotherham, which has become an increasingly important employment centre as Sheffield and Rotherham have started to operate as one functional economic area. Labour market links are also strong with North East Derbyshire and Barnsley.

17 Defined as senior managers, professionals and associate professionals

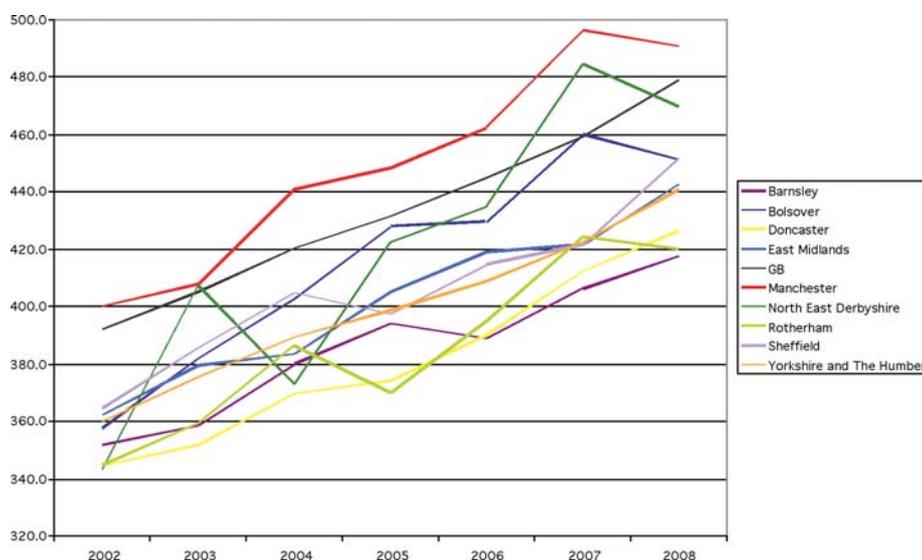
18 See <http://www.creativesheffield.co.uk/DevelopInSheffield/SheffieldFacts/Economy/>

Compared to other core cities, however, Sheffield is a relatively self contained city. 85% of residents live and work in the city, taking 72% of jobs (compared to 73% and 31% in Manchester). This means that the labour market relationships with neighbouring cities are less strong than is the case for other core cities such as Manchester and Leeds. This partly reflects the fact that Sheffield is very well-bounded. Commuting into Sheffield is more likely to involve knowledge workers, reflecting the available employment opportunities and the fact that highly skilled workers are more mobile. The highest movement in and out of the city is amongst those aged 20-24 years (likely to be university students).

This smaller travel-to-work area reflects the fact that Sheffield's economic draw is relatively weak. With average workplace-based earnings at £452 in 2008 (94% of the Great Britain average) Sheffield is a relatively attractive place to work within the local area, as higher value employment is more concentrated in Sheffield compared to elsewhere in the city region. However, Sheffield City Region is very near to the stronger economic centres of Manchester and Leeds, which may be more attractive to mobile workers as they offer higher wages. Other key performance indicators include:

- Sheffield has low skills compared to the national average, although it has the highest concentrations of graduates within the city region – 28% of Sheffield's residents have degree level qualifications, compared to the national average of 29%.
- Resident and workplace earnings (£451 and £452 respectively) exceed the regional average (£444 and £441) but fall below the national average (£479). The similarity between resident and workplace earnings is indicative of the level of self-containment within Sheffield.
- Sheffield has areas of high deprivation – 36.3% of LSOAs are within the top 20% most deprived LSOAs – largely concentrated in the east of Sheffield around the Lower Don Valley.

Figure 2.3: Change in workplace earnings in Sheffield City Region, 2002-2008

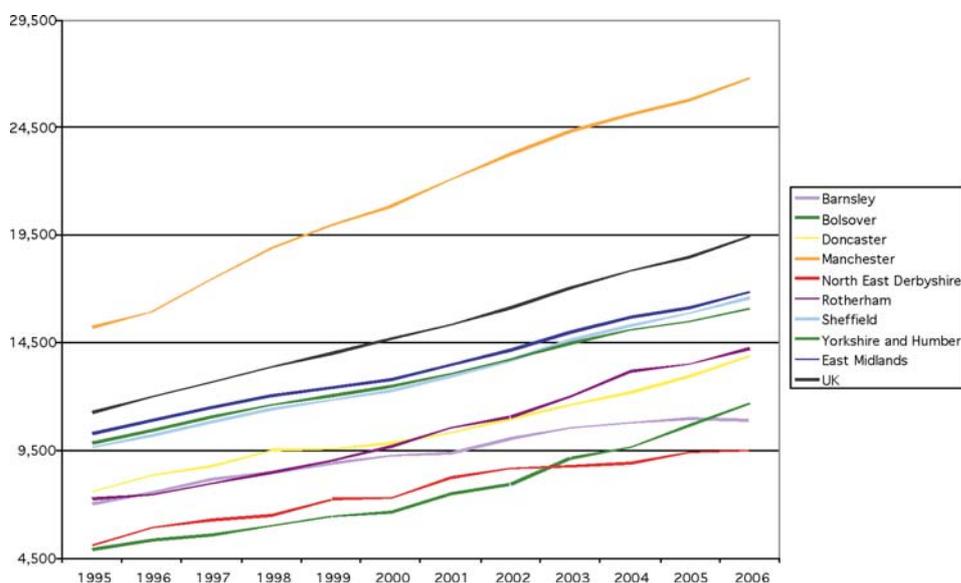


Source: Annual Survey of Hours and Earnings, 2009

2.4 Sheffield remains the economic driver of the city region

"After a decline of Sheffield's traditional industries, Sheffield has experienced economic revival in the last six years, driven by strong local authority leadership and a number of special purpose bodies. It has been one of England's fastest growing major city economies".¹⁹ Within the city region, Sheffield has the highest resident earnings and mean tax take, and has a relatively high percentage of graduates (although less than the national average).

Figure 2.4: Gross Value Added per capita, 1996 to 2006



Source: The Work Foundation derived from ONS 2009

Despite having less of an economic draw than other economic centres, Sheffield has the highest productivity within the city region (see Figure 2.4 above). However, its GVA is 62% of Manchester's and it has grown at a slower rate between 1995 and 2006 (72% compared to 76% in Manchester).

2.5 Sheffield's sectors and economic relationships

Sheffield has several long standing sectoral specialisations and these, together with its more recent patterns of sectoral specialisation, have the potential to facilitate or discourage firm relationships with its neighbours.²⁰ Longer standing sectoral specialisations in Sheffield include metals manufacturing and the manufacture of related products. More recent specialisations are insurance, data processing, call centre activities and higher education.

With just 56 four digit SIC code sectors employing over 500 people in 2007; Sheffield has a less diverse pattern of sectoral specialisation than other city region cores. A less diverse economic base makes the city more vulnerable to economic decline in specific industries. However, Sheffield has moved towards becoming a service economy in a way that surrounding areas have not as yet, and so still acts as a higher order centre for many of its neighbouring towns and cities, offering accountancy, business and legal services. Most of the sector specialisations are 'agglomeration sensitive', meaning they derive above average benefits from being located in or near a big city. Sheffield scores higher than the national average for



19 Rt Hon Tony Blair MP (2007) Callaghan Memorial Speech (11 April 2007). Available at: <http://www.number10.gov.uk/Page11472>

20 As evidenced by Graham's (2006) work, we would expect to find that surrounding towns and cities with higher levels of employment within the service industries (particularly the creative industries, business and financial services, and transport services) and within some manufacturing industries (radio, TV and communication and printing and publishing) will have stronger complementary relationships, but that high levels of employment in the primary sector will mean that economic relationships are weaker. McCann's (2008) work suggests that higher levels of employment in knowledge intensive services in the selected neighbouring towns and cities will also strengthen economic relationships.



employment in sectors that are more responsive to agglomeration and well below the national average for sectors that respond negatively to agglomeration. Sheffield has the lowest score in the city region for employment in sectors that do not benefit from agglomeration. However, Sheffield's score for employment in agglomeration sensitive sectors is far lower than Manchester's.²¹

Business links with neighbouring cities and towns are predominantly across industries, with Sheffield acting as a centre providing business services for industries, such as manufacturing in Doncaster. There are also links within the city region's advanced manufacturing industries, although links are more limited within creative industries. Section four looks in more detail at business links within the advanced manufacturing and metal sector and computing.

As discussed in section three, business links are shaped by the price of business space, which is the UK average in Sheffield but considerably lower in most of the other second-tier centres in the city region. This has led to a concentration of small and medium enterprises (SMEs) and spin-offs locating in the local authority areas surrounding Sheffield.

This overview of the evolution of Sheffield City Region offers an insight into the history and spread of the functional economy and it suggests how the local authority administrative areas are economically inter-linked. The next three sections of this report aim to look more closely at these connections – looking in particular at the linkages between businesses within the two selected sectors, and the movements of people to and from the six selected local authority areas, to understand more about the roles of different places in the functioning of the city region's economy and to help inform the future strategy of the city region.

21 For more information about the 'agglomeration sensitivity' of Sheffield and neighbouring areas see Table 15 in the Annex.

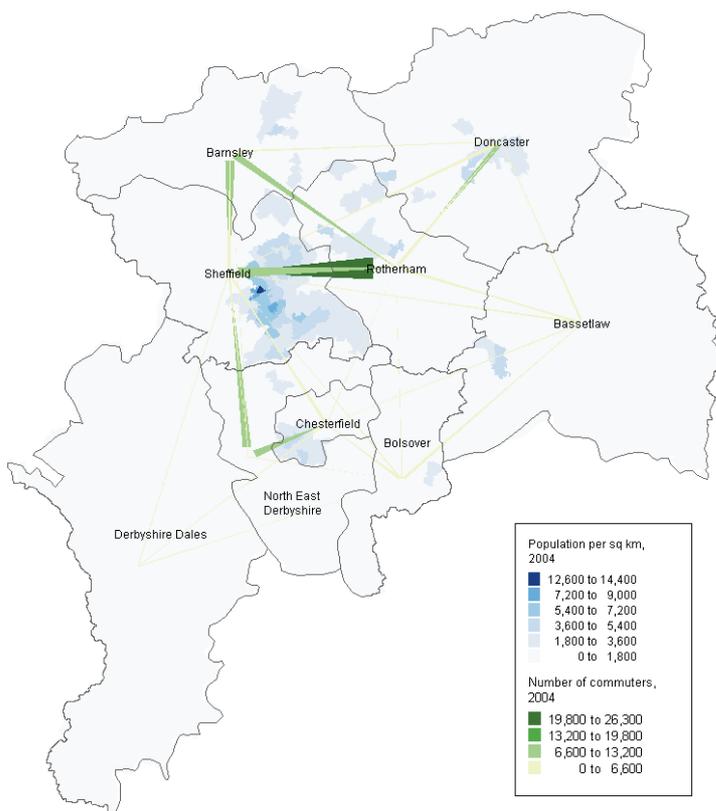
3. Labour market relationships in the city region

3.1 Wider commuting patterns

The Sheffield City Region is not only characterised by the relationships that Sheffield has with its neighbouring towns and cities but also by the relationships these cities have amongst each other. Doncaster's labour market, for example, might be relatively isolated from that of Sheffield, but Doncaster has commuting relationships with Rotherham.

Figure 3.1 below depicts these wider commuter movements within the Sheffield City Region and confirms some of the points made earlier about historic relationships and their continued importance. It shows that Sheffield's catchment lies to a large extent outside South Yorkshire. A third of those travelling from within the city region to Sheffield live in parts of the East Midlands. The strongest relationship is between Rotherham and Sheffield, reflecting the contiguous built up area and the inter-relationships of their economies.

Figure 3.1: SCR's continuous built up area and travel-to-work patterns



Source: Annual Population Survey and Neighbourhood Statistics

Figure 3.1 also shows that there are other important employment centres within Sheffield City Region, such as Chesterfield and Doncaster, although these are smaller and lower value than Sheffield and have fewer knowledge-intensive industries. Chesterfield pulls in significant numbers of commuters from North East Derbyshire and Bolsover, 19% and 12% respectively. The majority travelling to work in Doncaster live in Rotherham, Bassetlaw and North Lincolnshire. Within the city region, there is also a significant proportion (7%) of workers travelling from Barnsley to Rotherham.

This illustrates that in labour market and housing market terms Sheffield City Region is a fragmented economy, with Sheffield the strongest economic centre and increasingly interdependent with Rotherham. There are other connections across the city region too, albeit on a relatively low level. Interconnectedness is strongest within the local authority areas bordering Sheffield and is not restricted to South Yorkshire. There are some parts of the city region that have very low level labour market connections to Sheffield or to some of the secondary centres such as Rotherham or Chesterfield, and therefore may not be benefitting from their economic growth.

While polycentricity has been identified as one of the key strengths of the Greater South East (P. Hall) and monocentricity has led to economic benefits in the Manchester City Region, Sheffield City Region can best be characterised as weakly monocentric. It is not classed as polycentric because Sheffield is not a strong enough centre to be having an impact on neighbouring areas, but it is only weakly monocentric because not all areas in the city region are benefitting from Sheffield's success.²²

3.2 House prices, quality of life and business rates

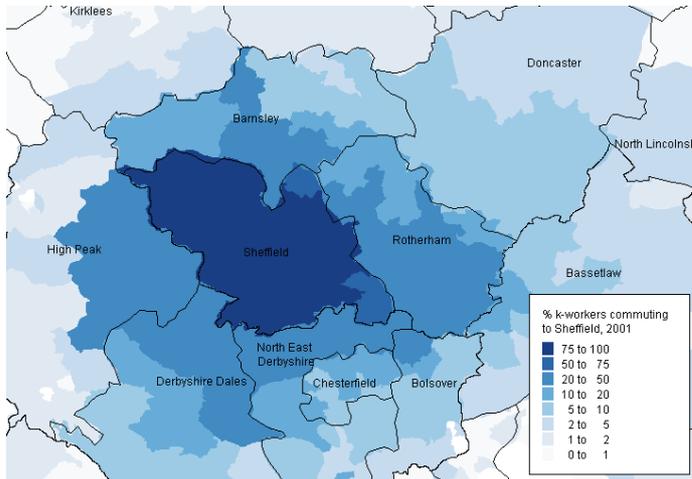
Labour market links are not only influenced by socio-economic characteristics but also by the characteristics of the built environment, the quality of life offer and the quality of transport links. Skilled workers themselves base their location decisions not only on job opportunities but also on the availability of adequate housing and amenities. Understanding local and regional imbalances in housing and workplaces, and how this affects location decisions, is critical to understanding how cities and neighbouring cities and towns interact with each other. These place attributes will affect both commuting patterns and migration patterns across the city region.

People links are shaped by the price and availability of different types of housing, quality of life and business space - while quality of life in itself depends on the quality of public services and housing. People at different ends of the income ladder make different life choices.

Figure 3.2 on the following page depicts commuter inflows of knowledge workers into Sheffield in 2001 on a ward level basis. Compared to figure 2.2, depicting the overall level of in-commuting into Sheffield, this map shows a slightly wider economic footprint of Sheffield. It illustrates the fact that people on higher incomes tend to be willing to commute longer distances to access the housing and quality of life they desire. However, affluent neighbourhoods to the west of the Sheffield city are hemmed in by the protected Peak District National Park and Sheffield did not experience middle class flight on a comparable scale to many other British cities like Manchester and Leeds. Nonetheless, the desirability of locating in the Peak District and areas such as Derbyshire Dales is reflected in the commuting patterns.

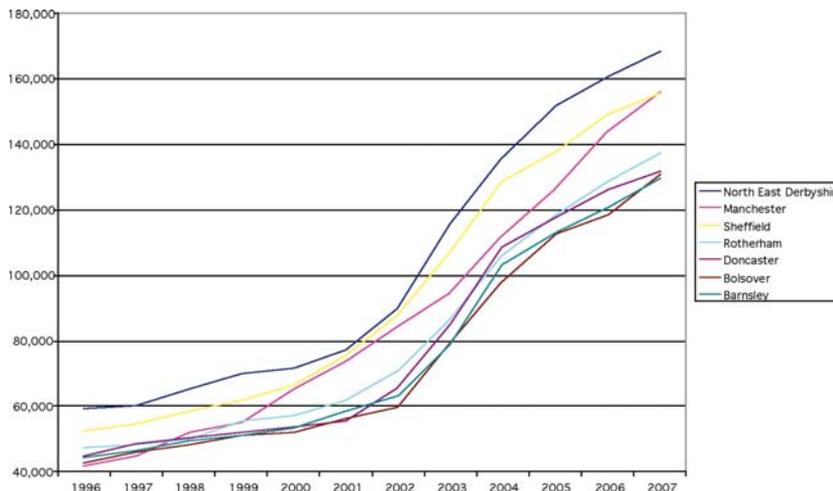
22 See overview paper for more detailed definitions

Figure 3.2: Knowledge workers commuting to Sheffield (ward level), 2001



These life choices have impacted on house prices in the city region. Whilst the majority of the city region has relatively low average house prices, areas closer to the Peak District including North East Derbyshire have higher house prices (see Figure 3.3 below). High and growing house prices attest to its residential appeal.

Figure 3.3: House prices 1996-2007



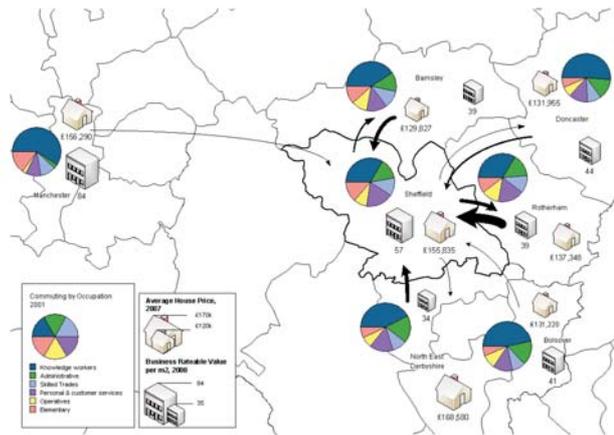
Source: Land Registry, 2009

House prices and commuting linkages are only part of the picture. Transport linkages, job opportunities and the cost of business space also have an important role to play in shaping economic relationships between cities. The map on the following page highlights these interdependencies. It depicts 2008 business rateable values per square metre, 2007 average house prices and 2004 commuting movements into and out of Sheffield together with the 2001²³ occupational split of those commuting into Sheffield. This, together with our interviews and data analysis, highlights a series of key findings about how life choices impact on economic relationships within Sheffield City Region.

23 The 2001 data comes from the last Census, the latest available data on the occupational split of commuters.



Figure 3.4: Skills/housing/workplace triangle



Source: 2001 Census, Annual Population Survey, Land Registry 2009

Sheffield has an impact on different areas in different ways

Sheffield and Rotherham's economies are 'interdependent' but, as illustrated by Figure 3.4, it is clear that Sheffield has developed as the economic centre. The higher average value of business space in Sheffield reflects the city's growing firm productivity and higher house prices reflect demand for housing. Nonetheless, a relatively high proportion of lower skilled workers (who have a lower propensity to commute) travel from Rotherham to work in Sheffield, further demonstrating the overlap between the two labour markets. Sheffield, with a higher skilled resident population, sends more knowledge workers to work in Rotherham.

Elsewhere, North East Derbyshire and Barnsley, where the predominant direction of commuter travel is into Sheffield, have benefited differently. North East Derbyshire attracts knowledge workers to live within the district and commute to Sheffield. Further away from the economic centre, in Doncaster and Bolsover, the total numbers commuting to Sheffield drop but there are higher proportions of knowledge workers commuting. The average value of business space in Manchester is significantly higher than in Sheffield reflecting the relative productivity of Manchester's firms. Of the few that do travel to work in Sheffield from Manchester the majority are knowledge workers.

The quality of housing needs to be improved in Sheffield City region

In general, housing is more affordable in Sheffield City Region than in other parts of the UK, although some areas, particularly around the Peak District, are less affordable.²⁴ Of the sample local authority areas the highest proportion of detached housing is found in North East Derbyshire. There is a perception within the city region that people will move to areas of the Peak District as they move up the housing ladder. Whilst the quality of the housing offer influences knowledge worker location decisions, disparities within the local authority areas means that there is no clear pattern of this happening at district level.

Despite pockets of higher quality housing in areas such as Whirlow and Hallam in Sheffield, there is an issue about the quality of housing supply across the city region as a whole. In Sheffield, over a third of Sheffield's housing is in need of 'market renewal'. Overall there is a housing supply and demand mismatch. Sheffield has the

24 For example, housing affordability (lower quartile house price: lower quartile earnings) is 6.19 in North East Derbyshire and 4.99 in Bolsover.

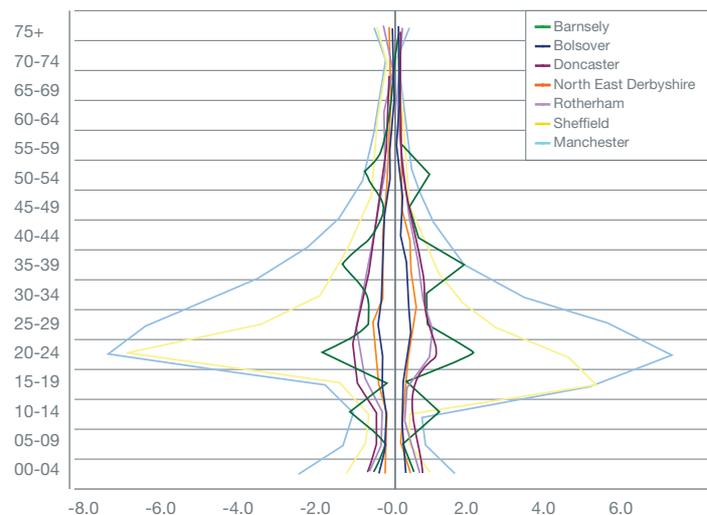
highest proportion of social housing (29%) in the city region, which compares to a regional average of 20%. Bolsover in particular also has a high proportion of poor quality of housing.

3.3 Patterns of Migration

Patterns of migration are the observed outcome of residents ‘voting with their feet’ and reacting to differences between places in, for example, their quality of life and housing offer. Migration patterns help identify the role different places within the city region play, and identify ways in which these places can maximise the potential of their links with Sheffield.

Overall, the largest movements between places in Sheffield City Region are in and out of Sheffield and Manchester, linked to the transient university populations. The chart below shows the in- and out-flows of different age groups at different life stages in more detail.

Figure 3.5: Sheffield City Region Migration



Source: NHSCR

Patterns of migration confirm Sheffield’s role as a centre for employment

Sheffield has higher out-commuting and a loss of population overall, with the largest outflows being for people aged between 20 and 24. This is likely to be linked to graduate retention – the city has traditionally struggled to retain graduates – and perceived lack of employment opportunities in Sheffield. In contrast, there is very little movement in or out of Bolsover.

Of those who move in Sheffield City Region, 80.4% move within the city region boundary. Residents within rural districts are less likely to stay within the district – perhaps moving due to employment opportunities. Residents within Doncaster and Sheffield are less likely to move out of the district.

Life choices impact on house prices and are influenced by them

Migration patterns and house prices are interlinked. Residential choices affect house prices, such as seen in the rural areas of the city region. However, in many cases life choices are influenced by house prices - which serve as a tipping point for workers considering commuting further or relocating. Recent studies have shown that Sheffield

is an attractive option for graduates, and the expansion of urban living options alongside significant investment in the public realm is likely to make the city more desirable. Sheffield, however, has the highest prices in the city region. This has led graduates to locate in the surrounding areas of Doncaster, Rotherham and Barnsley, where average house prices are lower, and commute in to Sheffield to work.²⁵

3.4 Career Development

Data on migration patterns helps us understand net population in- and out-flows, but it cannot give us information on the origin or destination of migration movements. Local knowledge, as well as information obtained in interviews with local businesses on career development, can help shed more light on some of the patterns we observe. The following examines career development opportunities within the region in our two case study sectors; advanced manufacturing and metals and ICT. Section five will then discuss firm links in more detail.

Career development within Advanced Manufacturing and Metals

In Advanced Manufacturing and Metals, the city region's industrial legacy has an impact on the labour market mobility of its residents, both in terms of occupational and geographic mobility. Those who worked in former mining and heavy industries often lived very locally and this has influenced the distance that people are prepared to travel to employment opportunities.²⁶ The small number of employer interviews we conducted suggested that labour markets were relatively local, with those wishing to work in advanced manufacturing and metals tending to locate near to Sheffield. The Advanced Manufacturing Park is seen to provide an important source of jobs and opportunities for career development. The prospect of a housing development near the Advanced Manufacturing Park is regarded by a number of our interviewees as potentially being very helpful in future recruitment.

Employers we interviewed in the advanced manufacturing sector commented that the market for skilled labour is strong and this is regarded as being the case across the city region. The strengths of the universities in this area, as well as the industrial legacy, are both identified as helping to ensure a deep pool of specialist labour.²⁷ The Institutes at the Advanced Manufacturing Park, and their links across companies, and internationally, are also identified as providing opportunities to grow companies, develop career opportunities and work with talent.

However, it was less clear if individuals moved to the area primarily to develop their career or for other reasons. Two interviewees noted that their reason for returning to the area as a mature business person was that they had grown up there, a pattern also identified in the Leeds City Region as helping to attract more experienced workers later in life. Ongoing opportunities to recruit, retain and grow the business were regarded as reasons for staying in the area rather than moving elsewhere,²⁸ although more work would be needed to confirm if this was a wider pattern.

The Advanced manufacturing sector is a strength across Sheffield City Region, with different types of businesses locating in different areas.²⁹ However, as wages can vary, there are few incentives to travel far to employment for lower wage workers in this sector.³⁰ Higher value work tended to be located in Sheffield and Rotherham and the strengths of the relationships between these two centres appear to be creating opportunities for those working in the sector. The lower levels of labour market links between, for example, Doncaster and Sheffield, may be creating barriers to advancement in this sector but this could not be confirmed from our interviews. Interviewees did, however, identify some labour market barriers, such as transport (the

25 Stakeholder interview

26 Stakeholder interviews, supported by evidence from other city regions

27 See Jones, A et al (2007) Priorities for Sheffield City Region in the Knowledge Economy, The Work Foundation: London

28 Stakeholder interviews

29 See Data Annex

30 This pattern is also reflected in Manchester, Tyne & Wear and Leeds City Regions

need to improve bus links and minimise congestion) and information (having a common place in which to advertise for well qualified workers in advanced manufacturing).³¹

Career development within Computing

Interviews in this area suggest that much of the recruitment in the Computing sector in Sheffield City Region relies on word-of-mouth and that information barriers (lack of awareness about career opportunities available) are inhibiting companies recruiting the appropriate skills. Smaller companies tend to recruit more locally, whilst larger companies can employ staff with much longer commuting distances, particularly if they promote themselves to areas going beyond the Sheffield City Region.

The fact that some companies have found it hard to expand because of skills shortages suggests that, at present, there are not sufficient career opportunities in the city region to stimulate a strong labour market in the area. This conclusion is supported by the findings in Liverpool City Region that a lack of career opportunities in the area, combined with strong competition from Manchester and London for graduate talent, can make it challenging for firms located in the area. This suggests that a virtuous circle could be created if the city region could attract larger firms to the city region.

Evidence from our interviews suggests that career development in the Computing sector in Sheffield City Region is not being affected by economic relationships between cities and that there is no clear spatial hierarchy emerging. ICT and Digital businesses are located in different parts of the city region but all have similar challenges in recruiting. It appears that proximity to universities can be an advantage. Improving information about opportunities and working closely with universities are regarded as particularly important routes to improving career opportunities in the city region.³²

3.5 Transport

Transport is a key enabler of labour market movements within the city region, with people at the lower end of the labour market commuting mostly by bus and people at the higher end commuting to work by train or by car.

Congestion and overcrowding impact at the higher end of the labour market

Overall the city region is well connected. To the north of Sheffield, the M1 provides good road connections from Barnsley to Sheffield. Doncaster's fast growing transport interchange is at the heart of the road and rail links connecting to Sheffield, although there is perhaps opportunity for increasing connectivity from Sheffield to Robin Hood Airport. To the south of Sheffield, North East Derbyshire has relatively fast road and rail links, although there are problems with congestion travelling into Sheffield at peak times. Whilst journey times to Sheffield from Rotherham are short, there are capacity issues on the rail line between the two.

A higher proportion of journeys are made by road in Sheffield City Region than in other city regions and as a result congestion is higher than other urban areas (apart from Manchester). It takes 4.12 minutes to travel a mile (compared to 4.02 in London and 4.10 across all areas). This makes it more challenging for neighbouring towns and cities to have strong labour market links with Sheffield, both making an integrated transport system more important and making it less attractive for people to work in Sheffield but live elsewhere. This is likely to be a contributing factor to the high proportion of people who both live and work in Sheffield.



31 Stakeholder interviews

32 Stakeholder interviews



External connectivity to other cities including Manchester continues to be an issue for the city region. Travel times between Sheffield and Manchester by rail – along the Trans-Pennine route – are highly variable with some journeys taking nearly an hour and a half. Transport connections from Sheffield to Manchester are also infrequent, with two fast trains per hour (in comparison to four per hour from Leeds to Manchester). The Pennines remains a challenge in increasing connectivity between the two cities.

Transport integration matters at the lower end of labour market

Access to employment by public transport has improved across SCR and concessions are available for those who work for certain employers, such as hospitals. Job Centre Plus also funds the first week of travel costs for those entering employment (low income/job seekers) as it is recognised as a barrier to entering employment.

Yet it can still be difficult to travel without a car in parts of the city region, limiting labour mobility. Former coal mining and manufacturing communities across the city region, in particular, may be cut off from employment opportunities, education and training provision and other services by poor transport links as well as low skills and other barriers. Within South Yorkshire, deprived areas in the south east of Sheffield, the west and east of Barnsley and north of Doncaster have limited access to bus services and public transport in general.³³ Improvements to bus services across the city region would increase access to employment for those residents living in areas outside South Yorkshire that are characterised by low jobs density.

Integration still remains a challenge to the city region. South Yorkshire has an Integrated Transport Authority but this does not cover the whole of the city region. Conversations have been held about working across the regional boundary with Nottinghamshire County Council and Derbyshire County Council, and there have been changes to the membership of the Integrated Transport Authority as a result, although changes to the geographic boundaries of the Integrated Transport Authority seem unlikely. Partnership and collaboration – for example through the Joint Issue Board for Transport – are more likely options for improving transport integration.

Affordability is also an issue. Sheffield City Region has an extensive range of tickets for every mode of transport, with individual modes setting the prices (mainly trams and buses), making the ticketing system complex. Integrated ticketing only covers South Yorkshire. However, within South Yorkshire there are Travel Master products that cover a range of modes, from one district to the whole of South Yorkshire.

Transport underpins complementary relationships

Within the Sheffield City Region transport facilitates economic links in some cases, and impedes them in others. Table 26, within the Annex, details the average travel times from different places to Sheffield. As a recent study of SCR transport infrastructure found, decent transport networks underpin complementary economic relationships but they are not the only condition on which complementary relationships depend.³⁴ Complementary relationships are also affected by wage differentials, job offers or patterns of sectoral specialisation.

More highly skilled workers, for example, often find a way to overcome transport barriers if they need to, while merely providing transport links will not necessarily improve the local economy. For transport improvements to be most effective, they should therefore go hand-in-hand with other policy initiatives strengthening local demand for labour or fostering the quality of local supply chains.

33 See South Yorkshire Local Transport Plan available at <http://www.southyorks.gov.uk/index.asp?id=186>

34 South Yorkshire LTP Partnership (2008) Productivity Benefits of Transport Investment in South Yorkshire

4. Firm links and supply chains

The other key feature of the economic relationships between Sheffield and its neighbouring towns and cities are the linkages developed by firms as they undertake their business activities.

As Sheffield's economy has transformed, employment in the city region has become increasingly dispersed. There has been increased investment in office accommodation across Sheffield City Region. Since the decline of traditional manufacturing industries in inner city areas, new business parks have tended to locate on out of town sites. These business parks and units were strategically targeted near transport hubs, for example the airport and stations, although they were predominately seen as car-based sites near motorways. Within Sheffield, office space is limited. Because of the legacy of its industrial past, 44% of business space is factory space. The city has the lowest proportion of office space of the core cities – 16% of business space is office space whereas 35% is office space in Manchester.

Availability of office space in Sheffield has led some companies to locate elsewhere in the city region. The cost of office space is an issue for small businesses in Computing in particular, as evidenced by one of the interviewees: *"we scoped out a lot of places before locating here. There is lots of business space in Sheffield but it comes down to cost and they wanted too much money"*. Lifestyle businesses have also chosen to locate outside of Sheffield nearer to the Peak District where there is a strong quality of life offer. Across the city region, business location has also been driven by grant regime boundaries, as well as transport corridors.

Analysing firm links

One way of examining current complementarities is by examining how patterns of sectoral specialisation have changed over time and assessing progress that has been made.³⁵ This section examines patterns of sectoral specialisation and employment in our seven Local Authority areas (Barnsley, Bolsover, Doncaster, North East Derbyshire, Rotherham, Manchester and Sheffield) to assess where there is greater potential for complementary links. For example, if an area has become increasingly specialised in those advanced producer services or producer services likely to have supply chain relationships, this suggests there is potential for the two areas to enable stronger economic relationships.

However, focusing only on sector specialisation does not capture those firm relationships which may exist because a centre does not have a UK specialisation but is a specialist centre within the city region. Where our research has highlighted these city region specialisms we have noted them accordingly.

Even using analysis of sector specialisation and specialisms within the city region, we cannot definitely demonstrate that these links exist, which is why we have investigated two sectors in more detail through interviews. These sectors were chosen in consultation with the city regions and according to several criteria, such as potential future growth or importance in terms of employment.³⁶ In the Sheffield City Region the two sectors are advanced manufacturing and metals and computing.³⁷

Understanding firm links and supply chains remains challenging because of the lack of data on these often intangible relationships. Nonetheless, our view is that the combination of sector specialisation analysis, highlighting any specialist roles within the city region and more detailed interviews in two sectors, can enhance understanding of where city regions could focus their efforts to enhance complementary links between firms.

35 This section draws on Tables 8-14 in the Annex that detail 4-digit SIC code sectors in which each of the seven local authorities had over 500 employees at three distinct points in time. They also indicate if the local authorities were specialised (compared to the GB average) in that sector at that point in time.

36 For a full description of our sector selection process please see Methodology Paper

37 Manufacturing was defined as SIC code D and the ICT and digital sector was defined as SIC codes 22, 30, 32, 64 and 72

4.1 Sector specialisation

Based on sector specialisation, Rotherham, North East Derbyshire and Manchester are increasing the potential for complementary links

Rotherham has traditionally had strong firm links with Sheffield and these have strengthened in recent years. Shared specialisation in manufacturing sectors such as manufacture of tools has been retained and it is likely that there are links between Rotherham's general mechanical engineering specialism and Sheffield's manufacture of medical and surgical equipment. More recently Rotherham has specialised in call centres at the same time as Sheffield. In addition, Rotherham has become more specialised in further education at the same time as Sheffield's specialisation in higher education has strengthened, suggesting potential for complementary links.

North East Derbyshire has not historically had strong complementary firm relationships with Sheffield, but has increased the potential for complementary links with Sheffield through the growth of further education as a specialisation. Its increased specialisation in bars may reflect its role as an area that provides a place for people to live and spend their leisure time, although this is not regarded as a complementary sector to Sheffield, under our definition of complementarity.

The industrial profiles of Manchester and Sheffield have become increasingly similar over the past ten years, with Sheffield increasing its proportion of non-life insurance, call centre activities and higher education. This parallels industrial changes in Manchester's economy. This suggests that there are more opportunities for links between the two economic centres than ten years ago. The Joint Economic Study: Manchester and Sheffield found that whilst the financial and professional services (FPS) are key growth centres in both cities, FPS trade between the two cities is "*relatively modest, largely reflecting the historic growth of different sub-sectors and the natural linkages between advisers and clients*".³⁸ Similarly both cities have historic strengths in manufacturing and have retained specialisms in advanced manufacturing, although the sector is diverse and the cities have distinctive specialisms between which there are minimal links.

Barnsley and Doncaster have not increased the potential for complementary links

Doncaster has increased its specialisation in logistics and transport-related sectors, as well as some higher order services such as justice and judicial activities and non-life insurance. However, whilst some of Doncaster's specialisations may feed into Sheffield's (for example, manufacture of plastic plates and sheets), and Doncaster's role as a centre of logistics is likely to benefit firms in Sheffield, it is difficult to quantify this or to identify where there is potential for complementarity from its sector specialisations.

Despite increased specialisation in some higher order services, such as regulation of healthcare and management of real estate, Barnsley has traditionally been non-complementary in its pattern of sectoral specialisation to Sheffield. Over the past decade this has not changed considerably.

Bolsover has retained, but not strengthened, its potential for complementary relationships with Sheffield

Bolsover has retained its specialisation in aircraft and pharmaceutical wholesale, likely to have links to Sheffield's specialisations in advanced manufacturing and its higher education sector. Over the past ten years its specialisations have not changed in a way that increases complementarity with Sheffield.

38 EKOS Consulting (2008) Joint Economic Study: Manchester and Sheffield, EKOS Consulting: London.

From all of these sectors, as in all our case study city regions, we have chosen two sectors that we examined in further detail. In the Sheffield City Region, the two sectors are advanced manufacturing and metals and computing. Within each of these sectors we have held several business interviews with the aim of understanding current business linkages better and gaining a more detailed understanding of the external business environment.

4.2 Computing in Sheffield City Region

Within Sheffield City Region, computing is a key growth sector. Whilst the sector does not employ large numbers within the city region – 1.4% of the workforce are employed in computing – the sector makes a significant contribution to economic output.

The majority of employment in the sector, over 45%, is based in Sheffield. There are also high concentrations of employment in Rotherham, Chesterfield and Bolsover. From the late 1990s, Sheffield pursued an explicit strategy around cluster development in the computing sector. Without a significant existing market or supplier base in the city, plans to develop the sector were ambitious. The extent to which initiatives have been successful in encouraging the growth of the sector has been varied. The Creative Industries Quarter (CIQ) has been criticised for “*not creating high and sustained growth patterns expected*”³⁹ and that businesses located there were “*fragile*” and “*many could not survive without public support*”.⁴⁰ The CIQ has however helped to develop the local skills base. Targeted marketing led to some ICT companies locating in the city, although many have been smaller firms (less than ten employees) and where they have attracted larger ICT companies they have tended to base lower value activities, such as customer care or call centres in the city.⁴¹ Growth has been supported by a number of other projects across the city region, including Sheffield Digital Campus, Digital Knowledge Exchange Doncaster and the Digital Media Centre in Barnsley.

As with other sectors, the location of ICT businesses has also been influenced by the development of business parks. In North East Derbyshire, for example, the growth of computing businesses has been closely related to M1 Junction 30 developments. This pattern of development has similarities to that in Tyne and Wear because of the influence of local authority led investment on business location. However, the importance of city centre networks also suggests some similarities to the development of the sector in Liverpool City Region and creates opportunities for Sheffield City Region to capitalise upon its economic geography to attract more ICT companies into the area.

As a service-based sector, many companies in the computing sector have a limited number of suppliers, the majority of which are locally based.

The majority of companies in the computing sector use suppliers that are locally based, for example local printers. Computing businesses may partner with other companies to complete projects or contract work out to freelancers who are based within the city region. More established companies, which have clients outside the city region, still work with suppliers in Sheffield, including animators and artists. Businesses located in Sheffield value being amongst other creative businesses, and informal networks allow them to access suppliers, although there does not appear to be the level of established networks (formal or informal) comparable to those in Manchester. This is largely due to the size of the sector in Sheffield. Sheffield also supplies professional services – legal services and accounting – to businesses based across the city region.



39 Dabinett, G. (2005) 'Competing in the Information Age: Urban Regeneration and Economic Development Practices in the City of Sheffield, United Kingdom', *Journal of Urban Technology*, Vol. 12, pp. 19-38. London; Routledge.

40 Demos (1999) *The Independents*, London: Demos

41 Dabinett, G.



Face-to-face contact with clients remains important for computing companies. For a number of companies, clients tend to be locally based within South Yorkshire, Nottinghamshire and Derbyshire.⁴² Businesses tend to grow their customer base on a referral base, which influences the location of clients. Proximity to clients is important for these businesses as it helps to facilitate face-to-face contact with customers. For a number of computing firms based in the city region, the public sector is an important source of business. Earlier studies have raised the potential over reliance of the city region's sector on public funding. Whilst companies may have since diversified their client base, for some anticipated public funding cuts raise difficult challenges around sustainability.

Some more mature companies work with clients based elsewhere in the UK and internationally. As these companies grew and developed, their client base would expand outside the local areas: *"Our client base was initially 80-90% local but the company is changing and we're working with the bigger boys now. The majority of our work is now in London and we work with some companies in Bristol, Birmingham and Leeds"*. As a relatively new specialism in the city region, less well established than in Manchester City Region, this suggests that there is a potential risk of companies relocating elsewhere unless they can be more embedded into the city region.

Recruitment

The travel-to-work patterns of staff working for companies in the computing sector vary according to the size of the company and where the company is located within the city region. For smaller companies, staff tend to travel less far (maximum of ten miles) and personal contacts make recruitment easier. For other companies staff may travel from over 40 miles away.

A company located in Barnsley pulled in employees from Leeds and York but initially had difficulties finding the appropriate staff. The company overcame these recruitment difficulties by raising its profile – *"[it was] easier than we would have thought to recruit staff as we have overcome where we are by aggressively marketing ourselves and we are now identified as a business to watch by trade magazines/organisations"*. This suggests that improving information flows can have a significant impact upon recruitment within the city region.

Some companies based in Sheffield have found it hard to expand because of their specific skills requirements, a problem they felt they would not have if they were based in a larger city like London. The universities were viewed as an important source of high skilled labour and employers were keen to make the most of this resource within the city region.

Transport does not play a crucial role for the computing sector

The ICT industry does not have a supply chain in the traditional sense and therefore depends much less on transport in this respect. Nevertheless, transport connectivity matters for the industry's employees given the city region's greater reliance upon the car than the average, and the tendency for the industry to be located in out-of-town business parks.

4.3 Advanced manufacturing and metals in Sheffield City Region

Manufacturing was historically the vital sector in SCR's economy and it continues to play an important role. Whilst employment levels have declined, productivity has increased because of technological innovation (in Sheffield and Rotherham between

2000 to 2005 employment decreased by 17% whilst output increased by 8.5%). Employment in advanced manufacturing and metals (AMM) accounts for about 7% of the city region's workforce. Employment in the AMM sector is particularly high in absolute numbers in Sheffield and Rotherham, and in terms of percentage of jobs in North East Derbyshire and Bolsover.

There are a number of specialist facilities and research institutes dedicated to the advanced manufacturing sector within the city region. The advanced manufacturing Park – based on the M1 Strategic Economic Zone on the Sheffield-Rotherham border – is home to Castings Technology International, nCode International and Corus. The advanced manufacturing Research Centre – a partnership with Boeing and the Faculty of Engineering at the University of Sheffield – is also located within the Park. The two Universities have extensive higher education offerings in Advanced Manufacturing disciplines. The University of Sheffield is graded as excellent and internationally recognised with leading research centres for mechanical, aeronautical and engineering industries.

Supply chains

The extent to which supply chains are locally embedded varies across sub sectors within Advanced Manufacturing. A Yorkshire Forward study of the economic relationships within the region examined the proportion of business purchases that are made locally, looking at the level of containment of supply chains within the city region across different sectors. The study highlighted the differences within the manufacturing sector with regard to supply chains. Of the manufacturing sub sectors, the metals sector has the highest level of regional containment; 30% of purchases are contained regionally.

The concentration of different manufacturing specialisms across the city region influences supply chains within the city region. For example, specialisation in Sheffield and Rotherham in metals manufacturing means that the districts have close supply chain relationships, whereas supply chains are less strong with Doncaster as it specialises in food manufacturing and food robotics.

Manufacturing supply chain interactions are particularly strong between Sheffield and Rotherham, with Rotherham acting as a key supplier of inputs into Sheffield. The top 11 sectors in Sheffield that purchase most intensively from suppliers in Rotherham are all metals-based manufacturing sectors. One company explained that they could source materials from overseas but chose to use local suppliers: *"it's more convenient for us to buy locally because of the time difference and different languages. We've got historic suppliers and it's easy to knock on their door and build up trust over time"*.

A number of studies have examined the supply chain relationships amongst firms in the metals sectors in Sheffield and the surrounding area. Watts et al. found that the geographical concentration of the metals sector in the area was accompanied by *"intense local interaction through traded relationships"*.⁴² In the study of 70 small firms with less than 50 employees, 'local' was defined by survey participants as South Yorkshire and north Derbyshire (an area extending 30-40km from Sheffield). In contrast, larger firms have tended to define 'local' as an area as large as an English planning region. Excluding service linkages, the survey showed that, on average, 50% of suppliers were local. Typically a third of material expenditure went to the main supplier and 40% of these main suppliers were based locally.

42 Watts, H. D. et al. (2006) 'Owner-managers, clusters and local embeddedness: small firms in the Sheffield (UK) metal-working cluster', *Entrepreneurship and Regional Development*, May 2006, pp. 185-205

Interviews conducted as part of this study concur with these findings. A small start up located in Sheffield explained: *“we work locally because of the ease of working with people, the fact that it enables us to produce small volumes of products for trials, and because there are a lot of good engineering companies”*. As the company grows and scales up the volume of production they will approach new suppliers but continue to work with smaller local suppliers to *“build, test and innovate”*. Local supplier relationships are often based around product development and *“firms rating themselves as users of high technology processes had significantly higher levels of local expenditure on material supplies”*.⁴⁴

Further distinctions can be made between large and small firms in the sector in the city region in terms of their supplier base. Jefferson found in a study of large employers in the advanced manufacturing and Metals sector (employing 37% of the South Yorkshire AMM workforce), that they are far less likely to procure material inputs locally: 12% of purchases were from South Yorkshire suppliers.⁴⁵ In some cases, local sourcing had recently declined due to loss of suppliers from closures and uncompetitive prices.

There are also cross-sector supply chains that operate across the city region. For example, Doncaster businesses will use professional service firms within Sheffield as there is the perception that expertise does not exist within the local area.⁴⁶

Customer base

Within the advanced manufacturing and metals sector, firms' customer base again varies according to specialism and size, as well as owner-manager and firm characteristics. For some their customer base is predominately local, for others customers are based internationally stretching across Europe and North America. The study of smaller firms in the area found that for just under a third of firms their main customer was locally based and the majority sell to other firms rather than end users.⁴⁷ For the majority (70%), at least one local large company featured in their customer base, but their importance as a customer should not be overstated as the proportion of output sold to these large companies was relatively small.

Many smaller companies, long established in the area, take a more parochial approach to customer relations and have tended to rely on word of mouth marketing. Larger companies, particularly multi-nationals or companies relocating in the area, tend to be more outward-looking in terms of their market base. A subsidiary of a company based in the Norway for example, has customers based in Spain and North America.

Historic specialisation in the sector means that there is a deep pool of specialised labour in the area

The availability of a skilled workforce was found to be major factor in many firms' decision to either locate or remain based in the area: *“we are spoilt for choice in terms of engineers. We could go anywhere but we might have skilled labour issues so that's a good reason for being here”*. As a result, travel-to-work patterns in the sector remain relatively local.

There are concerns, however, that the pool of skilled labour in the city region is declining, with a shortage of young people entering careers in the sector as older employees retire.⁴⁸ This is a challenge for the wider manufacturing and engineering sectors in the UK. Several initiatives have been launched in the city region aiming to address skills shortages in the sector including the National Metals Technology

44 ibid

45 Jefferson, B. A. (2004) Clusters and cluster policy: the advanced metal and manufacturing cluster in South Yorkshire, PhD Dissertation, University of Sheffield.

46 Stakeholder interview

47 ibid

48 Jefferson, B. A. (2004) Clusters and cluster policy: the advanced metal and manufacturing cluster in South Yorkshire, PhD Dissertation, University of Sheffield.

Centre's (NAMTEC) Education Intervention Programme and Graduate Development Programme.⁴⁹

Training amongst the existing workforce has also been identified as an issue. Whilst many working in the industry have specialist engineering skills, many owner-managers of smaller companies originally from Sheffield did not stay in education past 16 years old.⁵⁰ There may be scope to develop business and managerial skills within the sector; although funding training is a challenge particularly for smaller firms in the industry in the current economic climate. Skills shortages have implications for the resilience and future growth of advanced manufacturing and metals industry in the city region.

Collaboration and networks

In addition to supplier and customer relationships, a number of firms have formal and informal relationships with a range of actors within the sector. Co-location of the Advanced Manufacturing Park has facilitated a number of relationships between organisations. For example, the Welding Institute and Castings Technology International complement the activities of smaller firms based on the Park, providing analysis and technical testing services. The Welding Institute also has an explicit technology transfer strategy.⁵¹ Some firms may also collaborate with the Sheffield universities and other research institutions. These R&D facilities are regarded by many firms as key to ensuring Sheffield City Region's competitiveness in the metals industry.⁵²

Again there appear to be differences between large and small firms in the sector and the extent to which they engage in local non-traded interactions. Amongst larger firms, 39% were found to have links with local institutions. Watts et al. found that owner-managers of smaller firms were less likely to see benefits of engaging with sector-related institutions. Two thirds of the respondents reported no involvement with local business institutions, such as the Chamber of Commerce or a relevant trade organisation. Owner-managers who had previously worked in large firms were found to value these non-traded interactions to a greater degree, as did firms using high technology processes. There may be the opportunity here to strengthen the linkages between smaller firms in the sector and institutions based in Sheffield. Policy makers may be able to play a greater role in facilitating greater interaction between the two by plugging information gaps.

Transport

Advanced manufacturing and metals firms, due to necessary material inputs, are more reliant on the local transport system than the computing firms. Whilst many employees tend to be more locally based, the sector is also reliant on the transport system to access skilled labour. Respondents highlighted congestion and the lack of transport integration as challenges.



49 NAMTEC (2008) High Level Skills. Available at http://www.namtec.co.uk/uploads/docs/1235402190NT_news_15.pdf

50 Watts, H. D. et al. (2006) 'Owner-managers, clusters and local embeddedness: small firms in the Sheffield (UK) metal-working cluster', *Entrepreneurship and Regional Development*, May 2006, pp. 185-205

51 See <http://www.twi.co.uk/content/techtransfer.html>

52 *ibid*

5. Characterising links between Sheffield and neighbouring towns and cities

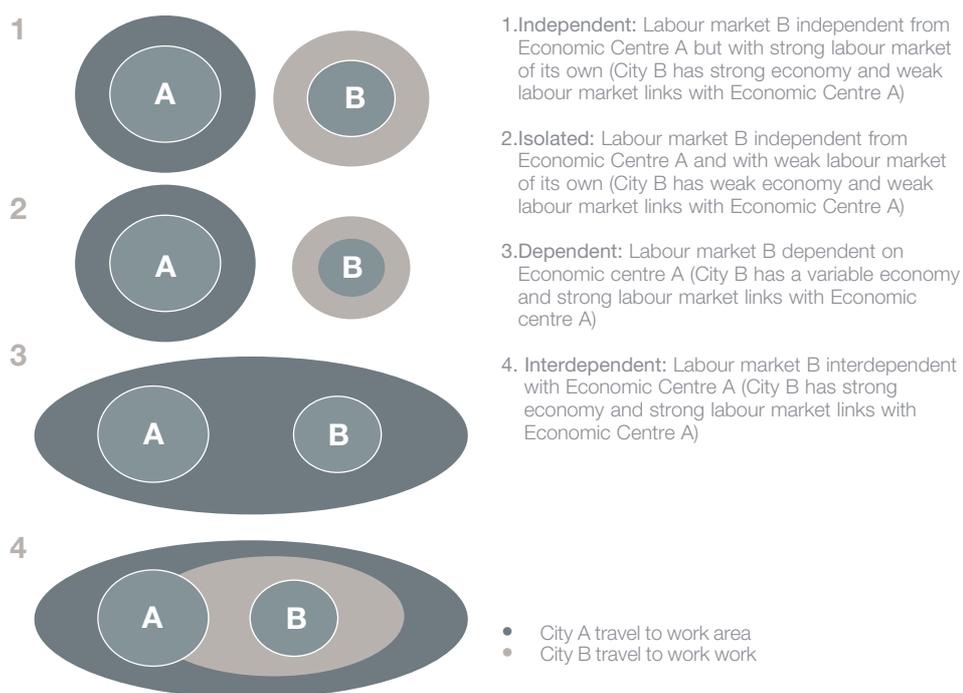
5.1 Overview of city typologies

Across this research programme, our analysis of economic relationships within the 5 city-regions has identified four typologies of places within a city region, based in particular on their labour market relationships with the economic centre.

These typologies are helpful in understanding how places currently relate to each other economically within a city-region context and what some of the factors are which influence the nature of these relationships. This analysis helps to shape thinking about how future economic development strategy could build more effective and complementary economic relationships between places.

The broad typologies are illustrated in the diagram below.

Figure 5.1: Roles of Cities: Labour Markets and “City Typologies”



These typologies, which focus particularly on labour market relationships, enable us to capture two characteristics of places. First, the roles which places play in a city region based on their relationship with the economic centre. Places are described as being in one of the four typologies based on: commuting patterns; skills; earnings (resident and workplace); sectoral mix; and house prices.

Second, the typologies provide a way of assessing the extent to which places benefit from their economic relationships by identifying different categories within the four typologies. For example, areas such as North East Derbyshire, with higher levels of skills, are likely to have more mutually beneficial economic links with their economic centres than lower skilled areas such as Barnsley because individuals' mobility (both geographic and occupational) is influenced by their skills and qualifications.

The typologies are based upon local authority areas, despite the arbitrary nature of administrative boundaries, because this is the level at which policy is often developed. We recognise, however, that typologies based on local authority areas are by necessity a simplification: characteristics often differ within, as well as between, local authority areas. The fact that places are constantly evolving further compounds this complexity. Nonetheless, consultation with stakeholders suggests that, despite these caveats, understanding the roles of different local authority areas can provide valuable insights to support the development of city region strategies.

5.2 Sheffield City Region - City Typologies

The wheel below positions our case study cities and towns within the Sheffield City Region according to the above typologies.



Sheffield is the economic centre of the city region

Sheffield is a centre of employment for residents of its neighbouring towns and cities, but it is not the only centre of employment within the city region, with towns such as Chesterfield, which was not investigated as part of this study,⁵³ also being important centres of employment. The relative weakness of Sheffield as an economic centre can be seen in the wheel by a relatively even distribution of cities and towns across the four quadrants, compared to the wheel for Manchester City Region which has a stronger cluster of relationships in the left of the circle.

The wheel classifies Rotherham as interdependent, North East Derbyshire and Barnsley as dependent, Bolsover and Doncaster as isolated and Manchester as independent.

The following section explains why cities and towns are positioned where they are, looking beyond labour market patterns at other characteristics that lie behind the typologies.⁵⁴

53 This was based on consultation with stakeholders within the city region. However, this framework could easily be applied to other areas within the city region.

54 The data used in these explanations is summarised in Tables 2-18 and Figures 1-3 and Map 1 in the Annex. Data on sectoral specialisations refers to sectors employing 500 employees or more and a location quotient higher than 2. This identifies sectors in which a Local Authority area specialises in compared to the English and Welsh average – rather than sectors with a large number of employees per se. Tables 8 to 14 in the Annex detail 4 digit sectors with 500 or more employees in each of the Local Authority areas.

5.3 Why did we characterise each city in the way that we did?

North East Derbyshire

North East Derbyshire (population 98,000) is largely dependent on Sheffield for employment and provides little employment for Sheffield's residents. 23% of North East Derbyshire's residents commute into Sheffield, with only 0.6% of Sheffield's residents commuting back to North East Derbyshire.

Within North East Derbyshire, there is a strong commuter belt to the south of Sheffield. Dronfield, Eckington and Killamarsh are residential areas for commuters to Sheffield. Areas in the south of North East Derbyshire – Claycross and Stretton – are less well connected to Sheffield.

North East Derbyshire has a very distinct geography. The west of the district, which is more affluent, lies on the edge of the Peak District National Park and therefore boasts some fine scenery and countryside. The bulk of deprivation is in the south of the district, part of the former coal mining area, and there are pockets of high deprivation around Clay Cross, Grassmoor, Holmwood and Morton.

With a history of manufacturing, coal mining and steel production, North East Derbyshire's economy is now more diverse although there is still significant employment in manufacturing and a relatively high dependency on the public sector.

Box 3: Dependent places

Our research found three types of 'dependent place' depending on an area's level of skills and earnings, its sectoral composition, average house prices and levels of deprivation.

- 1) Places with traditional industries are often characterised by low levels of skills and earnings, house prices and poor deprivation scores. They benefit less from their relationship with the centre than other dependent areas.
- 2) Places with a mix of industries often have medium levels of skills and earnings, medium house prices and mixed deprivation scores. They benefit to some degree from their dependent relationship with the centre.
- 3) Places with a more complementary pattern of sectoral specialisation have higher levels of skills, resident earnings and house prices. Their deprivation scores tend to be good and their workplace based earnings medium level. They are the dependent places that benefit most from their relationship with the economic centre.

North East Derbyshire falls into the second category of dependent places, which do benefit from links with the economic centre but have potential to benefit more:

- The skills profile is not strong and there has been a decline in graduate numbers.
- The local authority area only accounts for 0.1% of national employment as it is predominantly rural. The public sector is one of the main employers in the area. Sector specialisms in the private sector include: food manufacture, hospitality and construction.
- The area has relatively high average house prices, reflecting the rural nature of the district and the quality of life it can offer residents.

- The district has relatively low levels of deprivation – 9.5% of LSOAs are in the top most deprived (largely concentrated in the south of the district) and 23.8% are in the top least deprived.
- North East Derbyshire has the lowest GVA per capita within the city region, although this may be skewed by the rural nature of the district. Workplace earnings are relatively high however, and resident earnings have grown at a relatively fast rate. The high workplace earnings seem to reflect the small number of high value jobs in the area, partly because of the importance of the public sector.

Barnsley

Barnsley (population 224,600) depends to some extent on Sheffield for labour market opportunities and has significant numbers commuting to Sheffield in a range of occupations. 11% of its residents commute to Sheffield, with only 2% commuting back. However, these numbers are much lower than North East Derbyshire because of its skills profile, low average earnings and the industrial profile suggesting that firm links are low. It should also be noted that Barnsley looks north to Wakefield and Leeds as well as south to Sheffield, although labour market links are stronger between Sheffield and Barnsley.

Historically, Barnsley was a major centre of coal production (employing 22% of the workforce in 1981). In 2007, a significant proportion were still employed in manufacturing (16%). Barnsley has a large public sector and a concentration of employment in low value services such as retail and distribution.

The western part of the Borough is more rural than the east; 40% of the population live in the Barnsley urban area. The eastern part of Barnsley is more deprived owing to the economic restructuring of the 1980s. To the west of the Borough, in the rolling foothills of the Pennines, is the small market town of Penistone which is more affluent.

Geography also plays a role in labour market links, with links between Barnsley and Sheffield much stronger in the south than the north of the local authority. Levels of commuting drop off in the most deprived areas in the east of the district.

Barnsley falls into the first category of a dependent place:

- Barnsley has a weak skills profile (20% are graduates, 17% have no qualifications). Those who do commute to Sheffield work in a wide range of occupations.
- Barnsley specialises in manufacturing, distribution, construction and some business services, including legal, architecture, real estate management and recruitment.
- House prices are low: average house prices in Barnsley are £129,827 compared to £155,835 in Sheffield.
- Barnsley has high levels of deprivation – 38.1% of LSOAs are in the top most deprived and 1.4% are in the top 20% least deprived.
- Barnsley has low workplace earnings and low GVA per capita, with slightly higher resident earnings.

Doncaster

Doncaster (population 291,100) is a centre of employment in its own right and the labour markets of Sheffield and Doncaster are not well connected. As a result we have classified Doncaster as being 'isolated' from Sheffield in labour market terms, although close to the independent family of cities.





Historically, Doncaster grew due to the presence of a large coal seam and its waterways system, making it an industrial centre in the 18th and 20th centuries. Doncaster's transport connections shape its economy today. Doncaster is very well connected with great rail, road and air links. The Robin Hood airport has been successful and the railway station is served by the largest number of train operators in the UK. Coupled with availability of land, Doncaster's transport links mean that it has become an ideal location for logistics and distribution. Compared with the national average, Doncaster also has a relatively high proportion of employment in public services.

Just 3.4% of Doncaster's residents commute to Sheffield and less than 0.5% commute from Sheffield to Doncaster. The majority of the small number commuting to work in Sheffield are knowledge workers – managers or senior professionals. Instead, Doncaster's catchment area and market influence tends to be located in Lincolnshire and East Yorkshire. Doncaster is close to independent because it has a significant number of jobs, but these are not particularly high value meaning that the city is less economically successful than some independent cities such as York or Warrington.

Those commuting to Sheffield tend to live in areas in the west of the district in Conisbrough, Braithwell and Tickhill, although numbers still remain low: just 6% of the residents in these areas commute to work in Sheffield.

Doncaster is classified as isolated from Sheffield, close to independent, within our city typologies:

- Of the areas we are looking at within Sheffield City Region, Doncaster has the lowest proportion of graduates (16%), a higher percentage than average of people with NVQ level 1 and 2 and 16% with no qualifications.
- Doncaster specialises in different types of manufacturing, transport and distribution, retail and construction. Most of its jobs are not high value jobs and demand for skills is relatively low.
- House prices are relatively low: £131,955 in Doncaster compared to £155,835 in Sheffield.
- Doncaster has relatively high levels of deprivation – 37.8% of LSOAs are in the top 20% most deprived and 1.6% are in the top 20% least deprived.
- Both workplace (£427) and resident based earnings (£433) are below national and regional averages.

Bolsover

Bolsover's labour market is relatively isolated from that of Sheffield and instead has stronger labour market links with other neighbouring areas, reflecting the weakness of Sheffield as an economic centre. Only 5.9% of Bolsover's 74,200 residents commute to Sheffield and none of Sheffield's residents commute to Bolsover. Barlborough and Clowne, in the north of the district, have the strongest labour market links with Sheffield. Areas south of Bolsover town tend to look further south for employment and to have stronger links with Derbyshire.

Bolsover is a semi-rural district, with Bolsover (a small market town) being the administrative centre. Bolsover boasts many sites of historical significance including Bolsover castle, Hardwick Hall (to the south) and Creswell Crags (a leading archaeological site in the UK). Tourism is therefore very important to the district. There is also a concentration of employment in distribution (Shirebrook being a key employment site) and lower value services.

Bolsover is characterised as isolated from Sheffield in our typologies because:

- Its skills profile is relatively weak compared to regional and national averages (19% graduates and 15% no qualifications).
- There are a relatively low number of jobs available in Bolsover, mainly concentrated in low value services, manufacturing and the public sector. GVA, although it has increased in recent years, is relatively low compared to Sheffield, reflecting the industrial profile of the district.
- House prices are relatively low: average house prices are £131,220 in Bolsover compared to £155,835 in Sheffield.
- Just below a third of all LSOAs are within the top 20% most deprived but none of Bolsover's LSOAs fall within the top 20% least deprived.
- Resident earnings are low (£430). Workplace earnings are higher than the regional average which may be a result of public sector employment.

Manchester

Manchester (population 458,100) is a strong economic centre in its own right. It has the highest level of in-commuting of the core cities in the north and its travel-to-work area stretches well beyond its contiguous area into Lancashire, Derbyshire, Merseyside and Cheshire. Almost 70% of Manchester's employment is in the knowledge-intensive industries, a significant number of company head quarters are based in the city and it is the main regional centre for public services.

As a result Manchester was classified as 'independent' from Sheffield's labour market. 2004 commuting data showed that 0.4% of Sheffield residents travel to Manchester, likely to be attracted by the job opportunities there. There is no recorded travel in the other direction, with the Pennines often cited as a barrier to linkages.

Box 4: Independent places

Our research found **two types of 'independent place'** depending on an area's level of skills and earnings, its sectoral composition, average house prices and levels of deprivation.

- 1) Places with diverse industries⁵⁵ are often characterised by a high level of skills, earnings, house prices and good deprivation scores. These are the areas with the strongest economic performance and with the most opportunities for residents.
- 2) Places with a mix of industries are often characterised by a medium level of skills, earnings, house prices and mixed deprivation scores. These areas are slightly less economically successful than their more diverse 'independent' counterparts.

Manchester is an economic centre in its own right, falling mainly into the first category of an independent city:

- Manchester's skills are polarised: 30% of its residents are graduates and 19% have no qualifications (Sheffield has fewer people with no qualifications). Manchester is, however, a net importer of labour, pulling in skills from surrounding areas to fill its higher level jobs.
- There is some degree of complementarity between industrial profiles of the cities and the growth in professional and business services. Manchester's industrial specialisms include creative industries, higher education, head office activities, legal, finance and insurance, transport and clothing and textiles. Manchester and Sheffield's economies have grown at a relatively similar rate over the last ten years but Manchester's economy is far larger than Sheffield's.

⁵⁵ A city with diverse industries can be distinguished from a city with a mix of industries according to two criteria: a diverse city specialises in a wider breadth of industries and has a smaller percentage of employment in traditional industries than a city with a mix of industries.

- Manchester has very high levels of deprivation – 66.8% of LSOAs are in the top 20% most deprived and none are in the top 20% least deprived. This reflects the city's dependence on neighbouring areas for skills.
- The reliance on commuters for skills is reflected in earnings. The strength of Manchester's economy means that workplace earnings are high compared to Sheffield's, at £491. Resident earnings, on the other hand, are far lower, at £428.

Rotherham

In labour market terms, Rotherham (population 253,400) is classified as having an interdependent economic relationship with Sheffield – having a two way flow of labour – although it is very close to the dependent typology.

Rotherham and Sheffield have the closest economic relationships within the city region, both in terms of commuting and supply chain links (particularly in manufacturing). Over 26,000 commute between the two areas and they are regarded as forming one contiguous built up area: *"an almost unbroken chain of economic activity links the two centres"*.⁵⁶ 23% of Rotherham's residents travel to Sheffield and 5% of Sheffield's residents commute to Rotherham. The west and south parts of the district have the strongest commuting links with Sheffield. Over 30% of residents in Harthill commute to Sheffield.

Proximity means that Rotherham's residents are commuting to work in a range of occupations, although a slightly higher percentage of commuters work in administrative jobs. This may be because of travel costs, lower living costs in Rotherham or demonstrating an integrated labour market. Sheffield's contribution to the Rotherham labour market is centred on the provision of higher skilled workers. The interdependence of the two economies is illustrated by the fact that Rotherham's GVA is similar to – although below - that of Sheffield and has followed the same growth pattern.

Rotherham comprises a mix of urban areas and villages. The diversity of the landscape is compounded by the diverse economic activities that took place over the last century, with mass scale steel production to the west and coal extraction in more rural settlements in the east (such as Maltby). Although deindustrialisation had detrimental effects across the district, it continues to be a leader in advanced manufacturing (with companies such as Corus). The Meadowhall and Valley Centertainment developments of Sheffield have had negative consequences for Rotherham town centre, but there has been recent regeneration with a number of successful initiatives to transform former industrial sites, such as the Magna Science Centre.

Box 5: Interdependent places

Our research found two types of 'interdependent place', which can be distinguished according to an area's level of skills and earnings, its sectoral composition, average house prices and levels of deprivation. These two types look very similar to the two types of 'independent places':

- 1) Places with complementary industries are often characterised by a high level of skills, earnings, house prices and good deprivation scores. These areas benefit significantly from interdependent relationships with the economic centre.
- 2) Places with a mix of industries are often characterised by a medium level of skills, earnings, house prices and mixed deprivation scores. These areas benefit to some degree from interdependent relationships with the economic centre.

Rotherham falls into the second of the two types of interdependent places set out in Box 5 above, and is close to the dependent labour market relationship:

- Net commuting patterns are an indicator of the strength of Sheffield's economy compared to Rotherham. Sheffield is a net importer of labour and Rotherham is a net exporter.
- The commuting patterns are reflected in the skills profile. Rotherham has a poor skills profile – 18% graduates and 18% no qualifications – although it is improving.
- Rotherham's industrial specialisms are manufacturing, retail, construction, hospitality, with a low proportion of employment in sectors that benefit from agglomeration.
- House prices are below those of Sheffield: average house prices in Rotherham are £137,348 compared to £155,835 in Sheffield.
- Rotherham has high levels of deprivation – 31.9% of LSOAs are in the top 20% most deprived and 5.4% in the top 20% least deprived.
- Resident and workplace earnings are far lower than Sheffield and are well below regional and national averages, and resident earnings have fallen against other areas, although from a high base

These individual relationships have an impact on the dynamics across the city region as a whole, and are affected by the characteristics of the built environment, the quality of life offer and the quality of transport links.



6. Key findings and policy conclusions



6.1 The economic geography of the Sheffield City Region has clear characteristics that impact on the development of complementary economic relationships between places

The Sheffield City Region is a weakly monocentric city region surrounded by city regions with stronger economic centres (Leeds and Manchester). Several neighbouring cities and towns benefit from Sheffield as a centre of employment. Sheffield is growing as a driver of economic growth within the city region. The advanced manufacturing and metals sector is highly productive and strongly embedded in Sheffield, and “*Made in Sheffield*” is a globally recognised brand. The city’s historic manufacturing strengths are still evident in the types of business space available in the centre and the limited supply of office space in the city may need to be addressed but rising office rents are testament to the significant inward investment in Sheffield over recent years.

However, Sheffield is not yet sufficiently economically strong to spread economic benefits more widely and the city region as a whole will need to continue to diversify its economy to ensure it is less vulnerable to economic shocks. Over reliance on the public sector and low firm productivity highlight that more progress is needed. Skills, unemployment and deprivation are also key issues across the city region. Whilst Sheffield has moved towards a more service based economy, surrounding areas have made a slower transition in this direction. This places constraints on Sheffield’s growth because of lower demand for the city’s professional services from neighbouring firms. In addition, there is less availability of skilled labour across the city region, which also impacts on the level of demand for the city’s cultural and retail offer from the city region’s residents.

6.2 Understanding how existing links between places work is important to realising the economic and social potential of places within Sheffield City Region

A useful way of assessing if neighbouring cities and towns have benefitted from Sheffield is to look at gross value added (GVA) per capita over time (see also Figure 2.4). Over the last decade productivity has increased in all of our sample Local Authority areas.

Unlike some of the other city regions, the productivity gap between Sheffield and some of the surrounding cities and towns has narrowed. The gap between Sheffield and Rotherham, Doncaster, Bolsover and North East Derbyshire narrowed between 1996 and 2006, with the largest increase in productivity being seen in Bolsover. In Rotherham and Doncaster the gap between their respective economies and Sheffield began to narrow in 2002, whilst Bolsover and North East Derbyshire saw a continued narrowing of the gap over the last decade. North East Derbyshire also saw the highest increase in workplace earnings.

In Barnsley the productivity gap widened; in 1996 GVA per capita stood at 73% of Sheffield’s GVA per capita and in 2006 the comparable figure was 66%. Following this trend Barnsley also saw the largest decline in workplace earnings.

The resident earnings gap between Sheffield and the surrounding areas has narrowed, perhaps reflecting growing labour market relationships within the city region. The one exception is Rotherham. This suggests that whilst levels of labour market interaction have increased between Sheffield and Rotherham, Rotherham’s residents may not be benefitting from the increased number of high value

opportunities in the economic centre. Instead the skills profile of Rotherham means that the area continues to predominantly supply labour for lower skilled jobs and has lower resident wages associated with this.

Our classification of areas in Sheffield City Region as dependent, interdependent, independent or isolated raises some interesting questions about the link between labour market relationships and productivity gains. The increases in economic performance in Rotherham and North East Derbyshire may be as a result of their increasingly close relationships with Sheffield. However, for Rotherham it also raises questions about how to make the most of this opportunity to develop a more complementary 'interdependent' relationship with Sheffield. As highlighted above, this is likely to involve enabling Rotherham's residents to access employment opportunities in the economic centre and increasing business interactions between firms to promote knowledge transfer and increase productivity. For North East Derbyshire there are opportunities associated with enhancing its labour market links with Sheffield, particularly its role in the supply of knowledge workers, within the 'dependent' category. This relationship would enable North East Derbyshire to play to its strengths around quality of life and benefit through residents accessing higher wages in Sheffield.

Our analysis suggests that growth in productivity in Doncaster has not been fuelled primarily by Sheffield's growth but by other factors (likely to be linked to the strength of its transport links and growth of the airport). For the city region as a whole to punch its economic weight, however, and for Doncaster to become more economically successful, there are likely to be benefits from enhancing economic links with Sheffield, particularly through reviewing opportunities to enhance firm links.

Barnsley's declining productivity is likely to be a result of industrial re-structuring and the significant skills challenges it faces. However, the fact that it has stronger labour market links with Sheffield than with Leeds suggests that there are opportunities associated with strengthening these commuting links to Sheffield, potentially through a residential offer to highly skilled individuals who may live in the area and work in Sheffield or Leeds. For Bolsover, there may be opportunities to broaden the travel horizons of its residents and develop links with Sheffield.

There are also opportunities associated with links between other places within the Sheffield City Region; for example, Doncaster has strong links with Rotherham and Bassetlaw.

6.3 How can the city region benefit more from complementary relationships in the future?

Overall our analysis highlights the importance of taking opportunities to link neighbouring towns and cities within the city region to generate stronger agglomeration economies within the city region. In the Sheffield City Region past decisions seem to have increased complementarities between Sheffield and its neighbouring towns and cities – and in many areas there could be opportunities to further influence relationships to help ensure neighbouring cities and towns derive the maximum economic benefit from the economic centre. However economic relationships do not stand still, but are constantly evolving. Changes in economic relationships are caused by choices both residents and firms make. People make decisions about how far to commute, where to live and whether to migrate into or out of the city region, while firms make location decisions or change their supply chains.

Our research suggests that future improvement could be possible through investment in skills, housing, transport, firm relationships and quality of life – but these policy instruments will vary in importance depending on a place's location within our four typologies.

Policy intervention needs to balance investment in the growth of Sheffield with maximising the economic benefits to neighbouring areas

Partnership working will be vital to responding to the recession and thriving in recovery, particularly in a city region as bounded as Sheffield City Region. Partnership can enable the area to gain critical mass and strengthen the local economy.

The major question for decision makers going forward will therefore be how to balance the need for a strong Sheffield – the most likely way to generate economic growth for the city region as a whole - with the wider goal of improving the performance of other places. Within the Sheffield City Region, Sheffield is the key centre of employment for neighbouring cities and towns and the main driver of city region growth. However, Sheffield needs to be a stronger economic centre to generate wider benefits for neighbouring towns and cities. As can be seen in Leeds and Manchester, this can have the effect of benefitting neighbours through second-round investment, as well as strengthening Sheffield to attract more investment. Sheffield City Region as a whole can benefit from working together to promote growth in Sheffield as the economic core and strengthening links between Sheffield and neighbouring towns and cities, to enable Sheffield to access consumers and labour and offer neighbouring residents greater employment opportunities.

This requires Sheffield to improve its ability to compete for high value knowledge intensive investment, and for neighbouring centres to seek to complement the offer. It also requires Sheffield to aim for higher value employment opportunities, with neighbouring centres aiming to develop complementary labour markets, through promoting their distinctive assets and their proximity to Sheffield.

Local authorities need to evaluate the mutual benefits of working together in partnership and the different roles that each area plays within the city region to enable cities and towns to realistically build on their assets. *Sheffield and Rotherham*, having recognised the interdependencies between the two areas, are working together to further assess the nature of the relationship between the two economies and identify areas where they should collaborate. One example of collaboration has been the Sheffield/Rotherham Strategic Housing Market Area. *Doncaster and Sheffield* – two cities with different identities and different strengths – should work closely to establish how their firm links might be strengthened and how they might better complement each other for mutual benefit.

The city region needs to work across the regional boundary to ensure joined up working.

The cross boundary nature of the city region requires the collaboration of the two RDAs, Yorkshire Forward and East Midlands Development Agency, working alongside policy makers in the city-region to maximise the impact of interventions at the scale of the functional economy.

An overarching priority for the city region is to address skills and worklessness, particularly in the immediate context of recession and recovery.

For areas like *Rotherham*, whose residents have not benefitted from Sheffield's growth in high value employment, equipping people with the appropriate skills is crucial – even more so in the current economic climate – if they are to access employment opportunities. Training provision will be most successful if it meets the needs of both the individuals and local employers and if supply-demand matching is carried out across functional economic areas. Local authorities within the city region should simultaneously assess other potential barriers to employment, such as transport and information gaps. Integration of employment and skills services with other services may be effective in enabling people to access employment.

Investment in a more integrated public transport will be vital for sustainable growth.

Policy makers should consider how public transport could potentially strengthen relationships and support sustainable economic growth across the city region. The Joint Issue Board for transport should assess how a more integrated transport system can be developed beyond South Yorkshire to include towns and cities within the travel-to-work area, particularly to areas like *North East Derbyshire* where large commuting flows cause high congestion on the road infrastructure.

Work to connect isolated communities, within *Barnsley* and the south east of *Sheffield* for example, by public transport should be developed as part of an integrated approach with policies to address other barriers such as low skills.

The quality of life that areas of the city region have is an asset which needs protection.

Areas in close proximity to the Peak District National Park, a unique asset in the city region, should continue to promote the quality of life these areas have to offer. Areas within *North East Derbyshire and Sheffield* are attractive to knowledge workers for exactly these reasons. Increasing the supply of high quality housing whilst maintaining the area's quality of life offer will help to ensure that Sheffield's knowledge intensive firms are able to access the skills they require.

Rotherham, Doncaster and Barnsley offer more affordable housing, which complements the housing offer in other parts of the city region. However, these areas would benefit from further investing in their housing and quality of life 'offer' for highly skilled and affluent workers. These areas should also review how to make the most of transport links to Sheffield as this could provide residents of all skills levels living in *Rotherham, Doncaster and Barnsley* with access to wider job opportunities and the cultural amenities the city has to offer.

Working with the geography

One of the challenges facing Sheffield is its position between Manchester and Leeds, both stronger economic centres. An opportunity for the future is not just strengthening economic relationships between Sheffield and neighbouring towns and cities, but also strengthening relationships with *Manchester* and *Leeds* to improve firm links and offer a larger pool of career opportunities to help attract and retain highly skilled workers. Improving transport links to Manchester and Leeds could be one way of doing this, as could improving quality of life and the housing offer for graduates, which should help to attract and retain talent living within the city region and moving around the North as a whole to access career opportunities.

Enhancing growth in computing and advanced manufacturing and metals

Initiatives to support the growth of the *computing sector* in the city region have had only limited success to date. The sector remains small and for some firms, a large proportion of revenue comes from the public sector. As access to skilled labour is a priority for many businesses in these sectors, it may be more beneficial to focus on the quality of life the city region has to offer in order to attract and retain young professionals in the industry. Of course, critical mass of firms in the sector is also important. Attracting businesses to locate in the city region may be best achieved by concentrating on enabling factors such as city centre business accommodation, transport and broadband infrastructure.

The *advanced manufacturing and metals sector* is more embedded in the city region but faces different challenges. Low skills is an issue for the sector, as is the offshoring of certain manufacturing activities. Upskilling the existing workforce and providing owner-managers with more business and managerial training may help to ensure that the sector is more resilient in the future. Whilst there are significant traded interactions between firms at the city region level, there has been limited growth and even closures amongst smaller firms. There may be opportunities to support smaller businesses in particular to capitalise on the sector's global reputation. It may also be beneficial to facilitate greater interaction between smaller, less innovative firms and sector-based institutions at a local level to encourage the transfer of knowledge and innovation.

Annex A – Interviewees

Our thanks go to the following interviewees for their time and insights:

Name	Position	Organisation
Chris Worrall	Managing Director	Arrow Technologies
John Lewis	Chief Executive	Barnsley and Rotherham Chambers of Commerce
Paul Johnson		Barnsley Development Agency
Debbie Platt	Neighbourhood Research Officer	Barnsley Metropolitan Borough Council
David Eccles	Head of Regeneration	Bolsover District Council
Matthew Southgate	Senior Economic Development Officer	Chesterfield
Philippa Hedley	Business Development Manager	Creative Sheffield
James Wilson	Investment Manager (CDI and Bio)	Creative Sheffield
George Cowcher	Chief Executive	Derbyshire and Nottinghamshire Chamber of Commerce
Alan Dale	Managing Director	Disenco
Daniel Fell	Head of Policy	Doncaster Chamber of Commerce and Industry
Emma Butler	Policy and Partnership Officer	Doncaster Metropolitan Borough Council
Ann Brennan		JobMatch at Sheffield AMP
Ian Swain	Regional Research Manager	Learning and Skills Council
Alison Westray-Chapman	Economic Development	North East Derbyshire District Council
Phillip Spurr	Director, Sustainable Development	North East Derbyshire District Council
Matt Brunt	Assistant Director	PTEG
Miles Crompton	Research Co-ordinator	Rotherham Metropolitan Borough Council
Neil Rainsforth	Economic & Development Services	Rotherham Metropolitan Borough Council
Maria Ala-Kauppila	Research Co-ordinator	Sheffield City Region Executive Team
Helen Rama		Sheffield Chamber Commerce
Nigel Tomlinson	Chief Executive	Sheffield Chamber of Commerce
Edward Highfield	Economic Strategy Manager	Sheffield City Council
Karen Ramsey	Economic Policy Officer	Sheffield City Council
Costas Georgiou	Head of Research and Strategy	Sheffield City Region
Sylvia Yates	Executive Director	Sheffield City Region Executive Team
Ben Still	Director of strategy	SYPTE
David Brown	Director General	SYPTE
Gordon Dabinett	Professor for Regional Studies	The University of Sheffield
Nigel Guy	Project Manager	Yorkshire Cities
Rebecca Horwood	Project Officer	Yorkshire Cities
Andrew Sharp	Strategy Manager	Yorkshire Forward
Patrick Bowes	Chief Economist	Yorkshire Forward

