Commuting Flows in the East Midlands

A report prepared for *emda*

Experian

April 2007

This document forms part of the *emda* Knowledge Bank

Commuting flows in the East Midlands

East Midlands Development Agency

April 2007

For and on behalf of Experian	
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Position:	Director of Research
Date:	13th April 2007

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Contents

Executive summary

- The East Midlands has a high, and rising, net outflow of commuters to other parts of the UK. This reflects substantial commuting outflows to surrounding regions which more than offset inflows (predominantly from the West Midlands and Yorkshire & the Humber). In 2001, 93,000 more people commuted out of the region to work than flowed into the region to work.

- There is a considerable volume of commuting within the East Midlands – almost 600,000 East Midlands residents work in a different district in the region than in which they live. The key urban centres of Nottingham, Leicester and Northampton attract the most people to work.

- The sizeable numbers that travel outside of the region to work tend to be concentrated in the nearby employment centres of Peterborough, Sheffield, Milton Keynes and East Staffordshire, as well as Birmingham, Coventry, Manchester, East Lincolnshire, Rotherham and London. Indeed, there has been a significant increase in the numbers of East Midlands' residents travelling to the South East and London to work.

- Certain groups of the population are more likely to commute than others. Indeed, commuting flows tend to be dominated by males aged between 30 and 44, those of higher socio-economic groups, those who work within managerial and professional occupations and people who are highly skilled.

- Commuting patterns are influenced by an array of different factors which collectively determine where people choose to live and work. The location, type and quality of employment opportunities is a key driver of commuting flows alongside population growth and the availability, affordability and quality of housing. Transport infrastructure plays a key role in facilitating and to some extent driving patterns of commuting in the East Midlands, but a small fraction of journeys to work in the East Midlands are undertaken using public transport, particularly outside of the region's two largest cities.

- Patterns of commuting have changed significantly over the past decade, with people more willing to travel further to access employment opportunities. While amended TTWAs based on the 2001 Census are yet to be released, provisional findings suggests that these are likely to be significantly larger that those identified a decade ago. Moreover, while the Housing Market Areas in the East Midlands are in broad alignment with travel to work areas, in some cases they do not represent self-contained labour markets and there are significant commuting flows between HMAs.

- Commuting flows have a significant impact on the economic geography of the East Midlands, redistributing incomes across space and influencing the overall efficiency, and output, from an economy. Indeed, analysis of inter-regional flows suggests a substantial net inflow of commuter incomes to the East Midlands from other regions and thus workplace GVA in the East Midlands is more likely to be equal to around 87 per cent of the UK level, rather than the 93 per cent implied by headline ONS estimates.

- Within the East Midlands, commuting has significant implications for the geographical distribution of employment incomes to residences. Much of the income from employment within the main urban centres, for example, flows out to households located elsewhere. On the other hand, commuting incomes make up a substantial proportion of total household incomes in many of the East Midlands' districts and the economic life of many parts of the region is highly dependent on these commuting flows.

Introduction

The East Midlands Development Agency (emda) required a research project investigating the size and nature of commuting, retail and leisure travel flows within, to and from the East Midlands region. The research has been split into two distinct phases. The objective of the first phase is to analyse commuting to work data, primarily from the Census 2001. This is to include GIS mapping of data, socio-economic profiling of commuters and an analysis of modal choice. The second phase is to analyse retail and leisure patterns in and around the region. This report brings together the analysis and mapping from the first phase of the research.

REPORT CONTENTS

This report analyses commuting flows at a variety of geographic levels. It starts by looking at the largest relevant geography, Government Office Region, in **chapter 1**. Analysis at this level of geography facilitates the use of time-series data from the Labour Force Survey whilst acknowledging the importance of inter-regional commuting. **Chapter 2** focuses on district level commuting and the movements that occur between districts in East Midlands as well as districts outside of the region. **Chapter 3** identifies areas of high commuting activity, which for the purpose of this report have been called 'hotspots'. Defining commuting hotspots, enables analysis of sub-district commuting flows data from the 2001 Census.

Chapter 4 brings together the district and hotspot analysis and identifies the characteristics of commuters in the East Midlands. Particular attention is focused on the socio-economic characteristics of commuters, as well as the typical mode and distance of travel. **Chapter 5** identifies the key drivers of commuting patterns. **Chapter 6** is concerned with travel to work areas and explores how these are likely to change in light of the 2001 Census results. **Chapter 7** focuses on the economic contribution of commuters.

HOW ARE COMMUTERS DEFINED?

Throughout this report commuters are defined as residents in employment travelling out of their area of residence to work. For example, in section 1, a commuter would be a resident of the East Midlands travelling outside of the region to work in another region such as the South East or London.

DATA SOURCES

For this phase of this research the primary data source is the Census 2001 origin-destination dataset. This contains a wealth of information on where people live and where they work. This information is collected from the Census 2001 form, where respondents provided details of both their home address as well as the address of their main place of work. The commuting flows data from the Census 2001 is available at a number of different geographic levels as well as for a number of variables, such as mode of travel, age/ gender, socio economic status, industry and occupation of employment and hours worked. The Census is the dominant source of data for this report but is supplemented with information from other official data sources such as the Labour Force Survey, Annual Survey of Hours and Earnings and house price data from the Land Registry as well as Experian's own data sources such as Mosaic and the National Business Database.

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1 Regional Commuting Patterns

1.1 INTRODUCTION

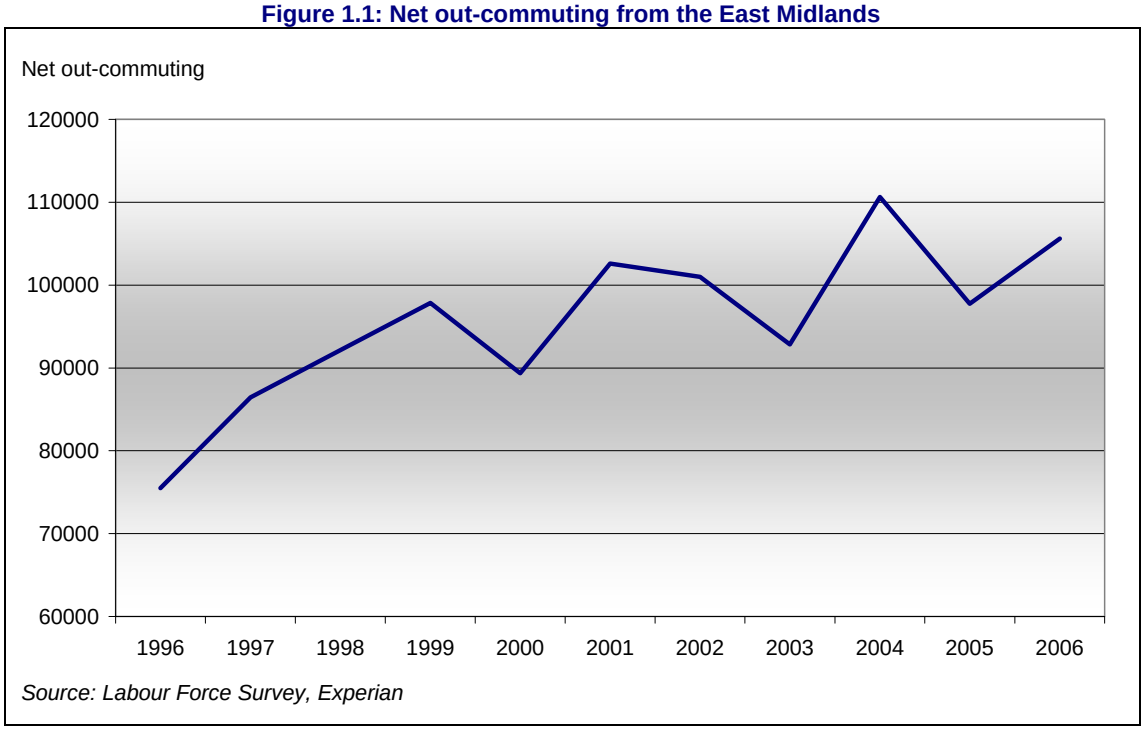
This section presents an analysis of commuter flows between the East Midlands and other UK regions. The analysis is based on data from the 2001 Census supplemented by estimates of commuting from the Labour Force Survey (LFS).

The East Midlands has a high, and rising, net outflow of commuters to other parts of the UK. This reflects substantial commuting outflows to surrounding regions which more than offset inflows (predominantly from the West Midlands and Yorkshire & the Humber).

1.2 NET COMMUTING

The East Midlands is a net exporter of workers to surrounding regions. In 2001 around 93,000 more residents commuted out of the region to work than people commuting from other regions into the East Midlands to work. In 1991 the figure was closer to 61,000, representing an increase of over 50 per cent in 10 years. Figure 1.1, based on data on inter-regional commuting flows derived from the ONS Labour Force Survey (LFS), shows a clear trend between 1996 and 2006 of increasing net out-commuting from the region. According to the Labour Force Survey, net out-commuting peaked in 2004 at around 110,000.

Figure 1.1: Net out-commuting from the East Midlands



Source: Labour Force Survey, Experian

1.3 COMMUTING OUT OF THE EAST MIDLANDS

Around 198,000 East Midlands residents in employment travelled outside of the region to work in 2001. This is equivalent to 11 per cent of all East Midlands residents in work. Figure 1.2 shows that this is the third highest share of residents in employment who work outside of their

dormitory region. This perhaps reflects the central location of the East Midlands region, where there are many large employment hubs located locally, but outside of the regional boundary. The South East and Eastern unsurprisingly top the table as the two regions together supply over 17 per cent of all workers in employment in London.

Figure 1.2: Percentage of resident workers in employment outside of their dormitory region

Region	Share of All Resident workers
East of England	15.4%
South East	13.1%
East Midlands	10.8%
Greater London	6.0%
Wales	5.7%
West Midlands	5.1%
South West	4.5%
Yorkshire & the Humber	4.3%
North East	3.7%
North West	3.3%
Northern Ireland	0.5%

Source: Census 2001

As might be expected, the regions that surround the East Midlands are the most popular destination for out-commuters from the region. The largest flows are to the West Midlands (24 per cent), followed by Yorkshire and Humber (22 per cent), Eastern (18 per cent) and the South East (15 per cent). In 2001, over 4,000 East Midlands residents worked outside of the UK. An additional 700 East Midlands residents were working on an offshore installation in 2001 according to the Census.

Figure 1.3: Flows of commuters outside of the East Midlands

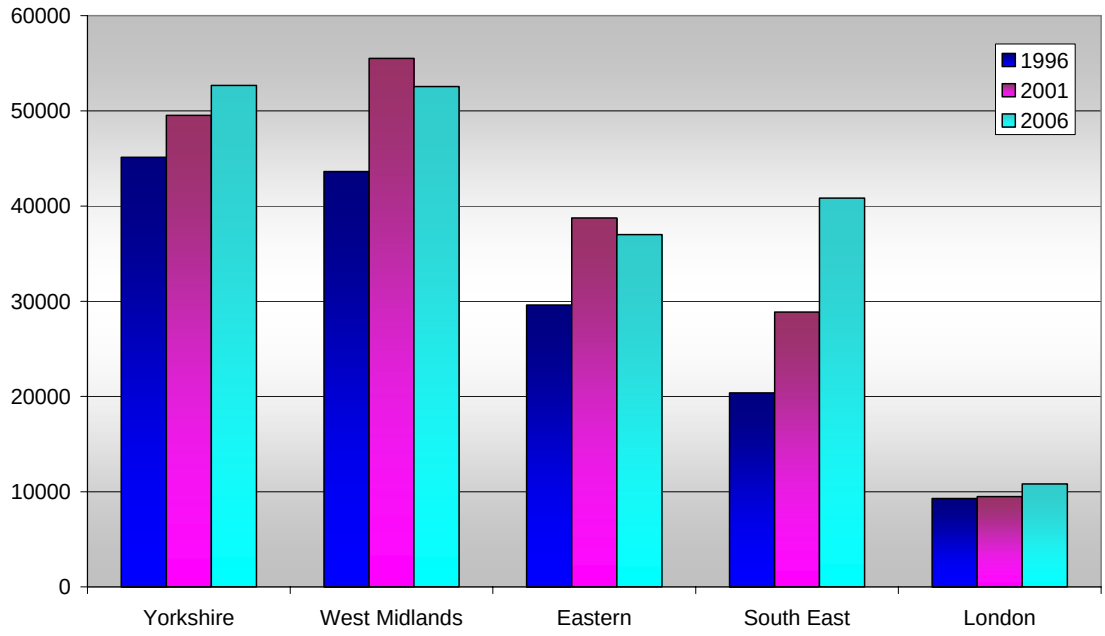
Region	Gross Flow	Share of total outflow
East of England	35,133	17.7%
Greater London	14,683	7.4%
North East	1,333	0.7%
North West	19,768	10.0%
Northern Ireland	108	0.1%
Scotland	1,068	0.5%
South East	30,055	15.2%
South West	2,972	1.5%
Wales	844	0.4%
West Midlands	47,945	24.2%
Yorkshire & the Humber	44,348	22.4%
Total Outflow	198,257	100%

Source: Census 2001

The increase in net out-commuting over the last 15 years identified in the previous section would suggest that increasing numbers of residents have been commuting out of the region (gross) over time. In 1991 around 133,000 residents commuted out of the region to work, which represented 9.3 per cent of all East Midlands residents in employment, however, by 2006 the flow out of the region stood at over 220,000 commuters. Evidence from the Labour Force Survey in (figure 1.4) shows that between to 1996 and 2001 increasing numbers of East

Midlands residents have been commuting to all the surrounding regions. However between 2001 and 2006 the gross flows of commuters from the East Midlands to the West Midlands and Eastern have marginally declined. These declines since 2001 have been offset by a shift in flows to the South East, which was the third most popular destination for out-commuters from the East Midlands in 2006.

Figure 1.4: Gross flows out of the East Midlands



Source: Labour Force Survey 1996, 2001, 2006

1.4 COMMUTING INTO THE EAST MIDLANDS

In 2001, around 108,000 people commuted into the East Midlands region to work. This is equivalent to 6 per cent of total employment in the region. This places the East Midlands as fourth largest importer of commuters as a proportion of total regional employment, as detailed in figure 1.5. London is an outlier with almost 20 per cent of total employment filled by workers who reside outside of the region[1].

[1] Figure 1.5 does not include flows to the East Midlands from Scotland as these are contained in a different Census dataset unique to Scotland. As such commuters from Scotland have been excluded from the analysis of Census 2001 data. For comparison, 427 people (or 0.4 per cent of all commuters into the East Midlands) commuted from Scotland to the East Midlands in 2001.

Figure 1.5: Proportion of regional employment filled by in-commuters

Region	Share of regional employment
Greater London	19.4%
South East	8.2%
East of England	7.4%
East Midlands	5.9%
West Midlands	4.9%
Yorkshire & the Humber	4.2%
North West	3.7%
South West	3.5%
Wales	3.1%
North East	2.1%
Northern Ireland	0.2%
Source: Census 2001	

As with flows out of the East Midlands, the surrounding regions are the most likely origin of in-commuters. However the share of inflows are more concentrated in the West Midlands and Yorkshire and the Humber than the destinations of out-commuters which are more evenly distributed across the surrounding regions.

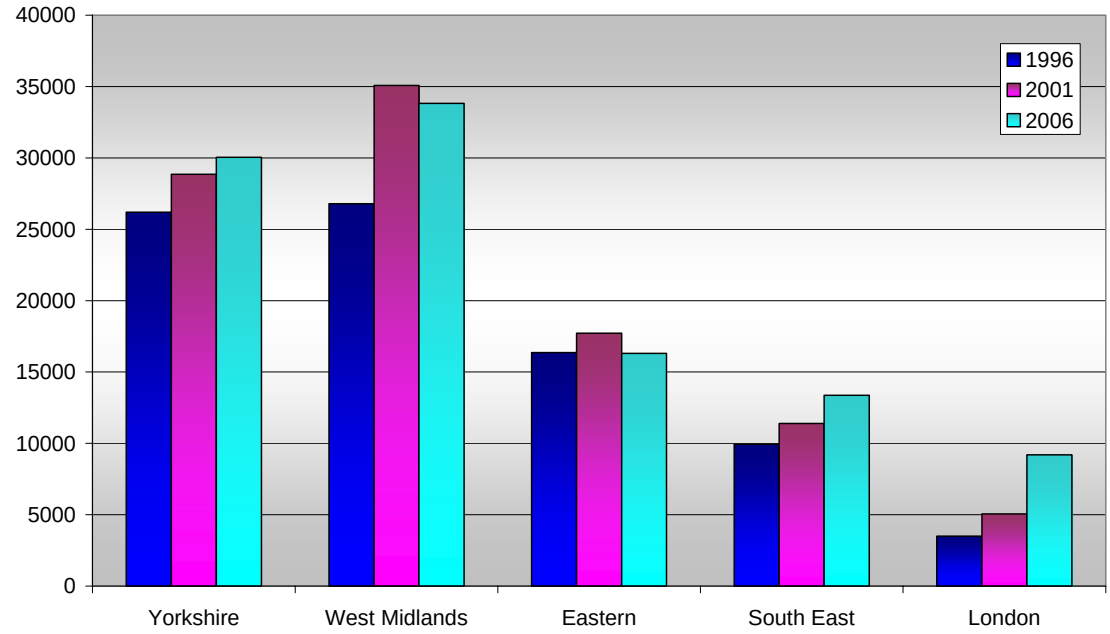
Table 1.6: Proportion of regional employment filled by in-commuters

Region	Share of inflows
West Midlands	33.8%
Yorkshire & the Humber	26.4%
East of England	13.6%
South East	9.7%
North West	7.9%
Greater London	3.4%
North East	1.9%
South West	1.8%
Wales	1.2%
Northern Ireland	0.2%
Source: Census 2001	

Inflows to the region have increased over the last 15 years. In 1991 just 72,000 commuters travelled into the East Midlands to work. In 2005 inflows to the region peaked at over 120,000. The origin of in-commuters has changed little over this time. In 1991, almost 35 per cent of all in-commuters were from the West Midlands and a further 29 per cent were from Yorkshire and the Humber – together the two regions accounted for 64 per cent of all in-commuting to the region. By 2001 the two regions accounted for 60 per cent of all in-commuting. The decline is largely accounted for by increased commuting from the Greater South East (South East, London and Eastern), which in 2006 accounted for 33 per cent of all in-commuting compared with 31 per cent in 2001.

Perhaps surprisingly, analysis of the Labour Force Survey suggests that commuting from London to the East Midlands has become increasingly popular over the last decade and is reflective of the increasingly mobile workforce. By 2006 almost 10,000 Greater London residents were working in the East Midlands. Interestingly, the proportion (and indeed the number) of East Midlands out-commuters travelling to London to work has remained stable at around 5 per cent (or 10,000 residents) over the last decade.

Figure 1.7: Regional gross flows into the East Midlands



Source: Labour Force Survey 1996, 2001, 2006

2 Commuting between Districts

2.1 INTRODUCTION

The 2001 Census contains origin-destination data which captures the analysis of the flows between where people work and where they live. Unless stated otherwise, the analysis in this chapter refers to the 2001 Census only.

Within the East Midlands 590,000 commute between districts, with Nottingham and Leicester attracting the most workers from elsewhere in the region by some margin. There are also a substantial number of commuters that live outside of the East Midlands, in fact making up 6 per cent of the region's workforce. More of these in-commuters work in Northampton than any other district, although with this exception the majority of flows are into districts on the East Midlands borders.

Commuting out of the region is focussed in a few East Midlands districts. A total of 200,000 people leave the region to work, the equivalent of 10 per cent of total residence based employment. Flows into Sheffield, Peterborough, Milton Keynes and East Staffordshire account for 30 per cent of all out-commuting.

2.2 NET COMMUTING PATTERNS

As was established in the previous chapter the East Midlands is a net exporter of commuters and following on from this the majority of districts within the region also have a net outflow of commuters. In fact only a quarter of districts record a net inflow of commuters, while the remaining 30 districts all see more workers travel out of their dormitory district to work than travel in.

Typically large cities and towns sustain the highest levels of employment and are therefore most likely to have net in-commuting. In the East Midlands this is certainly the case. Nottingham has the highest level of net in-commuting by some margin, with over 70,000 more people coming into the district to work than flow in the opposite direction. Leicester also has a significant net commuter inflow (43,134) while Derby, Northampton and Lincoln are the only other districts to have net inflows of more than 10,000.

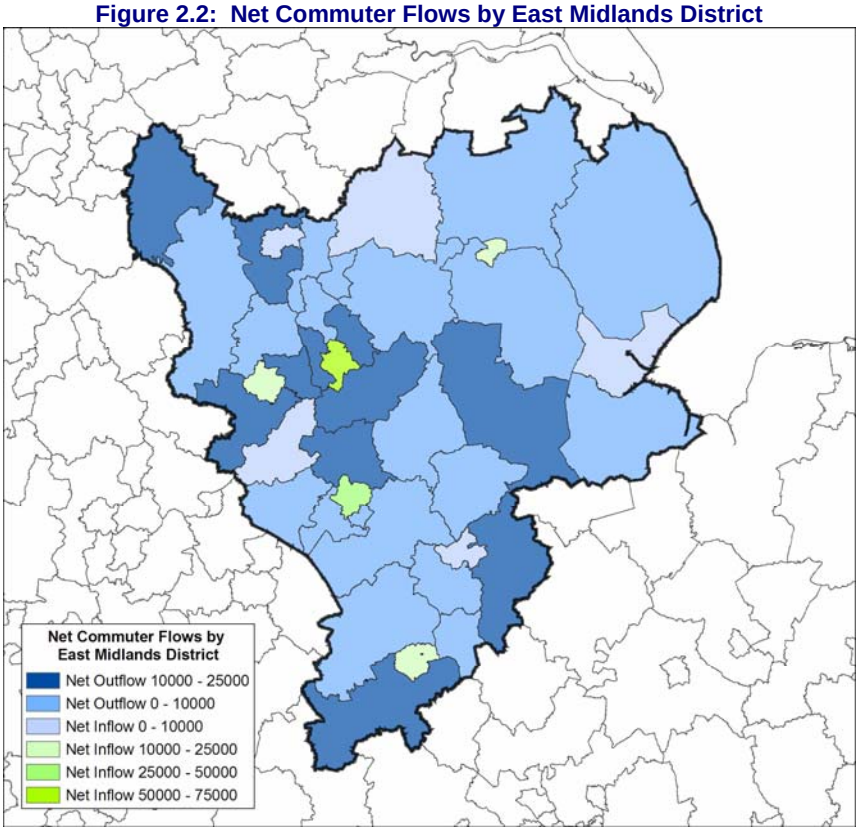
At the other end of the spectrum eleven East Midlands districts have net commuter outflows of 10,000 or more. The largest of these net outflows is in Gedling where nearly 35,000 people leave the area to work but less than 14,000 commute in.

Figure 2.1: Greatest Net District Commuter Flows

District	Commuter Inflows	Commuter Outflows	Net In Commuting
Nottingham	98,139	27,470	70,669
Leicester	70,739	27,605	43,134
Derby	37,895	22,615	15,280
Northampton	36,423	21,577	14,846
Lincoln	21,574	11,526	10,021
South Northamptonshire	10,467	24,240	-13,773
Broxtowe	16,944	32,929	-15,985
Rushcliffe	15,354	31,485	-16,131
North East Derbyshire	11,391	28,515	-17,124
Gedling	13,496	34,809	-21,313

Source: Census 2001

Figure 2.2: Net Commuter Flows by East Midlands District



2.3 COMMUTING BETWEEN DISTRICTS WITHIN THE EAST MIDLANDS

There are approximately 590,000 commuters within the East Midlands, defined as an East Midlands resident who lives and works in a different East Midlands district.

Nottingham and Leicester are the two largest employers in the East Midlands and this is reflected in the flows between districts, with 93,000 workers commuting into Nottingham and 67,000 into Leicester. These flows account for 16 per cent and 11 per cent of all commuters within the region respectively. No other district accounts for more than 5 per cent.

These large flows into Nottingham mean that it is more reliant on in-commuting to make up the workforce than any other district. Along with Blaby and Oadby and Wigston, in Nottingham more than half of the workforce are commuters from elsewhere within the East Midlands. Oadby and Wigston also sees more than half of it's population commute out to work, along with eleven other districts as detailed in figure 2.3.

Figure 2.3: Percentage of workforce made up by commuters from elsewhere in the East Midlands

District	Total Employment	Commuter Inflows	%
Nottingham	172330	93323	54
Blaby	41064	21050	51
Oadby and Wigston	19038	9545	50
Broxtowe	35266	16058	46
Leicester	154678	66548	43
Bolsover	21802	9336	43
Lincoln	47297	20213	43
Ashfield	44586	18633	42
Rushcliffe	35931	14620	41
Gedling	33040	13105	40
North West Leicestershire	45008	17042	38
Mansfield	36462	13470	37
Amber Valley	49100	16963	35
Wellingborough	33395	11523	35
Erewash	39813	13620	34

Source: Census 2001

Figure 2.4: Percentage of residents commuting out to elsewhere in the East Midlands

District	Total Residents	Commuter Outflows	%
Oadby and Wigston	26660	17531	66
Broxtowe	51251	32929	64
North East Derbyshire	44474	28515	64
Gedling	54353	34809	64
Blaby	47104	29061	62
Bolsover	29417	18116	62
South Derbyshire	40041	24394	61
Rushcliffe	52062	31485	60
South Northamptonshire	42138	24240	58
East Northamptonshire	38446	19968	52
Erewash	52456	26999	51
Harborough	39839	20319	51
Ashfield	48983	24232	49
Daventry	36849	17572	48
West Lindsey	35493	16705	47

Source: Census 2001

Gedling accounts for more out-commuting than any other district. However, it still only accounts for 6 per cent of total out-commuting which is distributed far more evenly across the East Midlands than in-commuting. As you might expect the bulk of this outflow is into a bordering district, in this case Nottingham, which attracts nearly 70 per cent of all Gedling's out-commuters. Similarly strong commuting flows exist from South Northamptonshire into Northampton (76 per cent of all outflows) and from Oadby and Wigston into Leicester (68 per cent of all outflows). However, in the case of South Northamptonshire a significant proportion

of residents travel outside of the region, mainly to Milton Keynes, to work and therefore are not included in this figure.

The largest single flow between districts is between Gedling and Nottingham (23,000). At 18,000 each the next largest flows are also into Nottingham but from Rushcliffe and Broxtowe. There are four other flows within the region that exceed 10,000 commuters, three of which are into Leicester, from Blaby, Charnwood and Oadby and Wigston and the last is from North Kesteven into Lincoln.

Figure 2.5 (overleaf) shows the movements of people from their place of residence to their place of work highlighting three main areas of commuter flows around Nottingham, Leicester and Northampton. It also clearly illustrates the trend for the largest commuter flows to be over relatively short distances.

Figure 2.6 (page 14) looks specifically at the number of people commuting between urban centres in and around the East Midlands. The most striking characteristic of these flows is that they are relatively small, especially within the East Midlands. The largest of these flows within the region is the 2,394 people who choose to make the journey from Derby to Nottingham to work, while 1,284 people commute in the other direction. Compared to other flows between urban centres Derby also sees relatively high numbers commute out to (1,788), and in from (1,987) East Staffordshire.

Outside of the region more than 3,000 workers travel in each direction between Coventry and Birmingham, but by far the largest commuter flows occur between Sheffield and Rotherham. More than 10,000 people live in Sheffield but work in Rotherham but even this number is dwarfed by the 23,000 people who travel in the opposite direction. Each of these cases illustrates the fact that distance appears to be by far the most significant driver of commuting between urban centres.

Figure 2.5: East Midlands district gross commuting flows

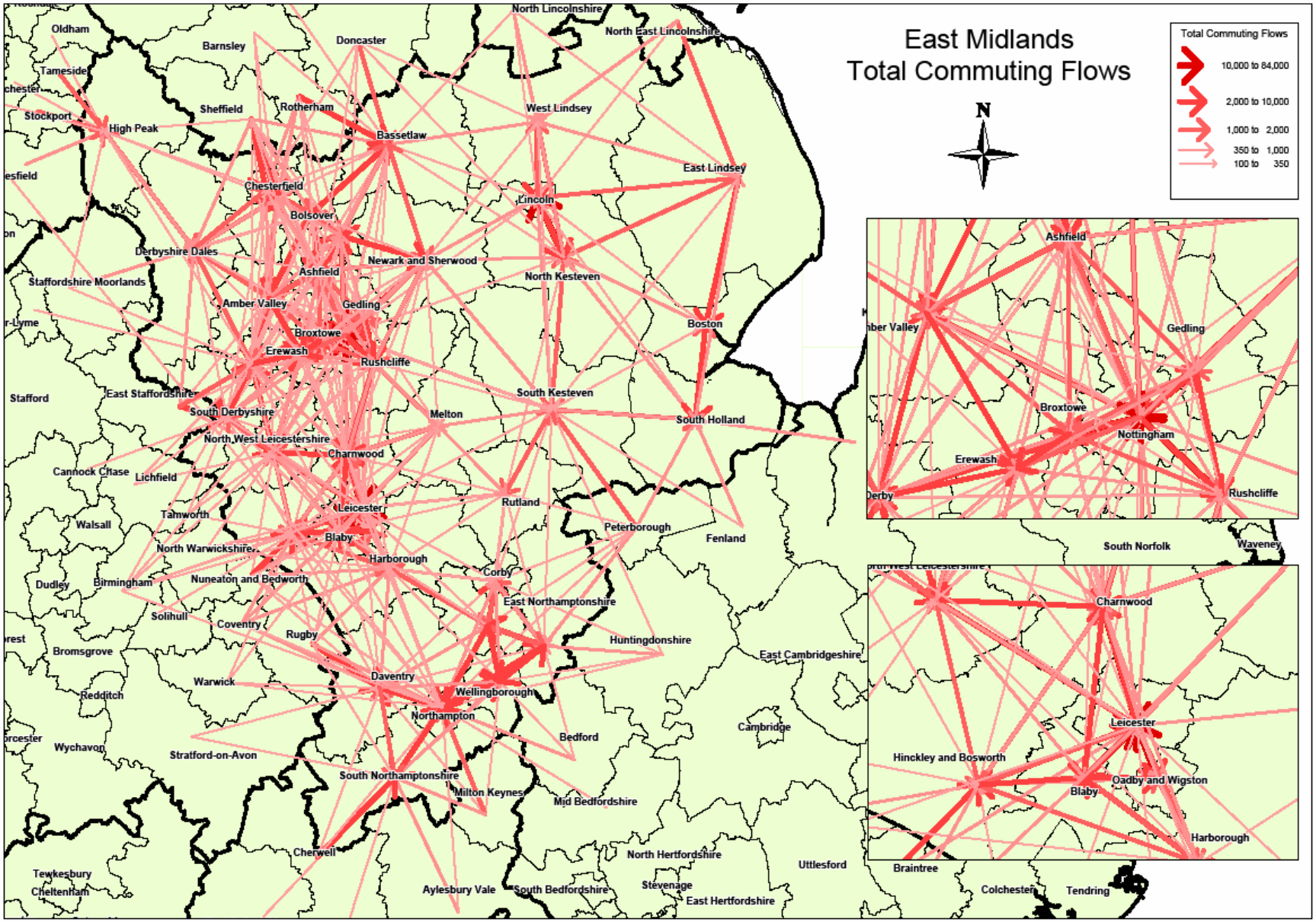


Figure 2.6: Commuting flows between urban centres

		Workplace													
		Derby	Leicester	Lincoln	Northampton	Nottingham	Birmingham	Coventry	East Staffordshire	Manchester	Milton Keynes	North East Lincolnshire	Peterborough	Rotherham	Sheffield
Residence	Derby		334	12	47	2394	453	95	1788	46	47	3	44	26	152
	Leicester	222		22	214	575	386	523	35	27	113	3	113	10	45
	Lincoln	13	35		10	122	25	12	0	6	4	110	60	26	46
	Northampton	15	198	3		42	243	270	6	25	3740	0	119	6	16
	Nottingham	1284	509	54	62		239	76	112	46	36	41	37	33	180
	Birmingham	193	257	3	143	258		3032	293	109	180	3	37	25	81
	Coventry	79	351	3	241	77	3882		50	23	178	3	19	3	10
	East Staffordshire	1987	75	0	23	231	991	74		27	22	0	0	12	25
	Manchester	53	17	3	6	39	73	26	12		29	0	9	19	119
	Milton Keynes	16	37	3	1334	35	165	121	6	43		0	63	3	14
	North East Lincolnshire	18	34	227	9	24	27	10	6	16	10		13	32	62
	Peterborough	38	94	11	136	70	46	23	9	15	76	3		9	15
	Rotherham	120	29	31	11	162	67	9	33	78	15	42	10		23136
	Sheffield	289	90	53	46	413	164	53	52	357	51	42	18	10027	

2.4 COMMUTING OUT OF THE EAST MIDLANDS

Nearly 200,000 people live in the East Midlands but travel out to work, this is equivalent to 11 per cent of the region's total residence based employment.

Sheffield is the destination that attracts the most out-commuters with 19,449 East Midlands residents working here. Peterborough (15,558), Milton Keynes (12,841) and East Staffordshire (10,694) are the only other districts that attract more than 10,000 workers and between them these four districts account for 30 per cent of all commuters that leave the East Midlands.

Unsurprisingly the majority of those who travel out of the East Midlands to work commute into the districts bordering the region as can be seen in figure 2.7. However, there are exceptions to this with Coventry, Birmingham and Manchester all attracting significant numbers of workers despite being a greater distance from the region.

Figure 2.7: East Midlands out-commuters by destination

Destination district	Commuter flows out of the East Midlands	Share of all commuter outflows
Sheffield	19449	9.9
Peterborough	15558	7.9
Milton Keynes	12841	6.5
East Staffordshire	10694	5.4
Coventry	6235	3.2
Cherwell	5980	3.0
Birmingham	5919	3.0
North East Lincolnshire	5499	2.8
Rugby	5369	2.7
Manchester	4506	2.3
Rotherham	4344	2.2
North Lincolnshire	4118	2.1
Stockport	4007	2.0
Bedford	3967	2.0

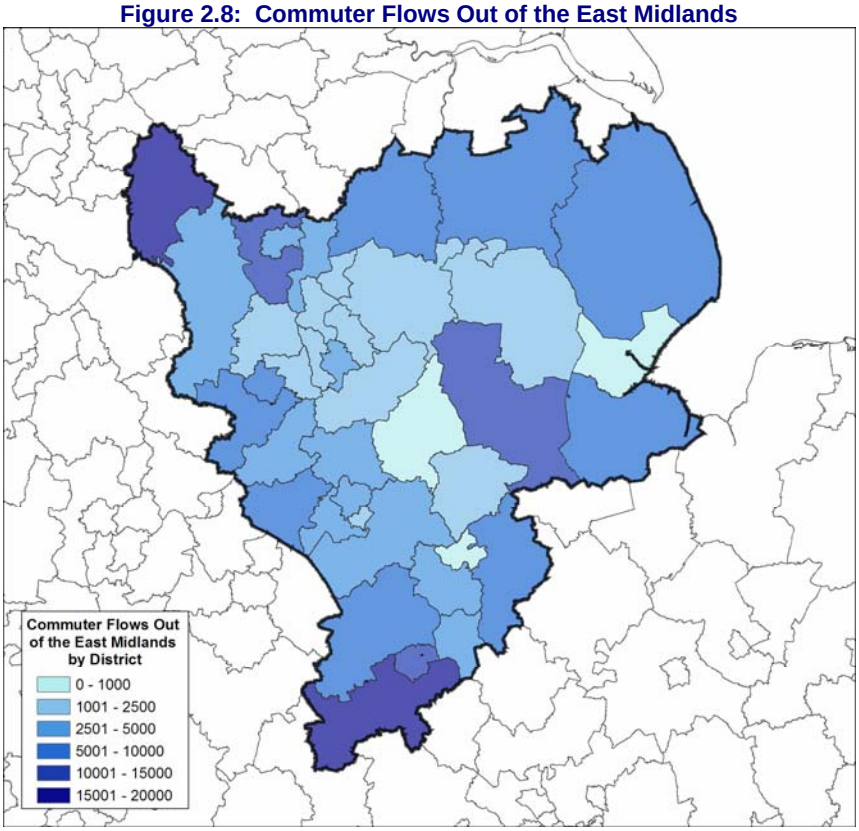
Source: Census 2001

Figure 2.8 shows the number of residents that commute out of the region from each district. It is immediately apparent that distance again is a major factor with few people travelling out from the centre of the region but many commuting from the outskirts.

High Peak and South Northamptonshire in particular stand out as areas people choose to live in while being employed outside of the region. In the case of High Peak this is motivated by the employment opportunities in Manchester, Stockport and Tameside all of which are only a short distance away. These three districts account for 65 per cent of all High Peak's out-commuters, surprisingly Sheffield only accounts for 4 per cent despite it's proximity. Most of the flows out of South Northamptonshire are into either Milton Keynes (33 per cent) or Cherwell (28 per cent).

It can also be seen in figure 2.8 that despite being large employers themselves and located someway from the regions border, Nottingham, Leicester, Derby and Northampton all still export a certain number of workers.

Figure 2.8: Commuter Flows Out of the East Midlands

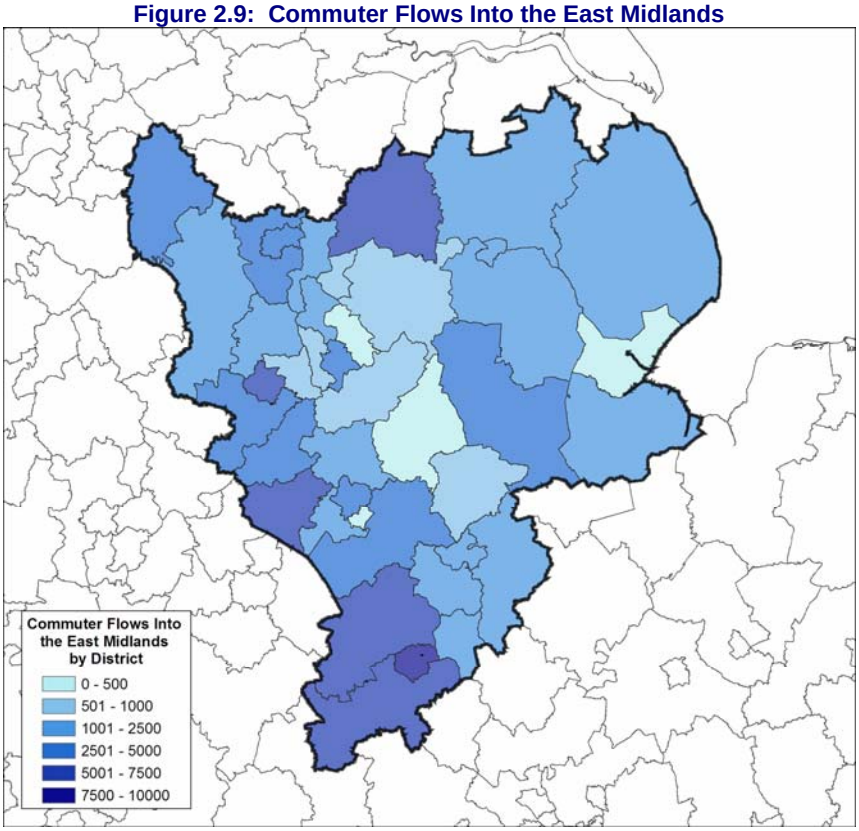


2.5 COMMUTING INTO THE EAST MIDLANDS

In total 1.82 million people are in employment in the East Midlands, of which 104,000 or 6 per cent are commuters from areas outside of the region. As with out-commuting, many of the largest cross border inflows are into districts on the region's outskirts such as Hinckley and Bosworth (8,410) and Bassetlaw (7,765). However, it is Northampton, which is not located along the boundary that attracts more workers from outside the region than any other district (8,034). This equates to 22 per cent of all commuters travelling into Northampton living outside of the East Midlands.

Of the other big employment centres Derby has the largest inflow from outside the region (5,758 or 15 per cent of in-commuters), Nottingham and Leicester both only draw approximately 5 per cent of workers from outside the East Midlands.

Figure 2.9: Commuter Flows Into the East Midlands



As you would expect Melton and Gedling with their central locations and Boston which lies along the coast have the fewest in-commuters, but overall the flow of workers into the region appears to be more balanced across districts than the flows out of the region.

Sheffield, as well as attracting the most workers from the East Midlands is also the largest source of commuter inflows, providing nearly 10 per cent of all workers travelling in. Only East Staffordshire comes close to this number providing 7.4 per cent. As can be seen from figure 2.10 Coventry and Birmingham are the only districts any distance from the region's border that supply a notable number of workers.

Figure 2.10: East Midlands in-commuters by residence

District of residence	Commuter flows into the East Midlands	Share of all commuter inflows
Sheffield	9989	9.6
East Staffordshire	7664	7.4
Nuneaton and Bedworth	5017	4.8
Rugby	4894	4.7
Rotherham	4704	4.5
Peterborough	4288	4.1
Doncaster	3452	3.3
Milton Keynes	3213	3.1
Coventry	2894	2.8
Cherwell	2525	2.4
North East Lincolnshire	2382	2.3
North Lincolnshire	2109	2.0
Birmingham	2097	2.0
Bedford	1709	1.6

Source: Census 2001

2.6 CHANGES SINCE 1991

The 1991 Census also contained commuting flows data. However, this data was based on a 10 per cent sample and as a result care should be taken when comparisons between the two census points are made.

Taking this into consideration, the number of commuters within the East Midlands has increased by 20 per cent over the ten years to 2001, from 490,000 to 590,000.

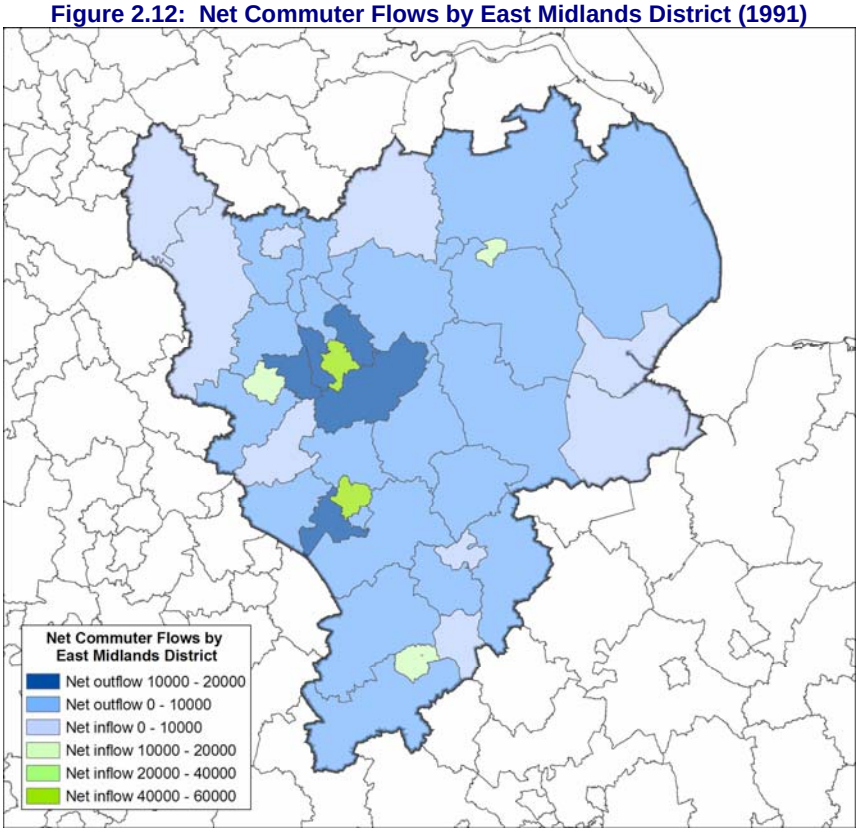
The ranking of districts with the greatest net commuter inflows and outflows in 1991 (figure 2.11) had changed very little by 2001 although in nearly all cases the net flow, either in or out, was greater in 2001.

Figure 2.11: Greatest Net District Commuter Flows (1991)

District	Commuter Inflows	Commuter Outflows	Net In Commuting
Nottingham City	81,470	20,240	61,230
Leicester City	66,300	18,050	48,250
Derby	27,900	12,960	14,940
Northampton	20,890	7,330	13,560
Lincoln	17,230	5,970	11,260
Blaby	14,050	24,270	-10,220
Rushcliffe	13,000	24,750	-11,750
Erewash	11,020	22,810	-11,790
Broxtowe	14,020	29,660	-15,640
Gedling	12,020	31,830	-19,810

Source: Census 2001

Figure 2.12: Net Commuter Flows by East Midlands District (1991)



Looking at the East Midlands as a whole in 1991 72,000 people commuted into the region, this number had increased by 44 per cent by 2001. Over the same ten year period the number of out-commuters had grown even more rapidly, from 133,000 in 1991 to nearly 200,000 in 2001, an increase of approximately 50 per cent.

3 Identifying Hotspots

3.1 INTRODUCTION

In the previous sections we have identified commuting patterns at regional and district level. Whilst these two geographies allow greater analysis of data, as they are standard administrative geographies, due to their size and nature of their boundaries, they may hide some of the commuting patterns inherent within and around the East Midlands. The Census 2001 provides origin-destination gross commuting data at a variety of geographic levels, including two sub-district level geographies: wards and output areas. There is limited data available at output area, as due to their small size there are potential disclosure issues. The flows at this level are also subject to SCAM (Small Count Adjustment Method) which means that small flows are subject to rounding. For these reasons, together with the greater coverage of data, we have chosen to identify areas of high commuting activity using the ward level origin-destination statistics. The wards are 2001 Census wards.

3.2 IDENTIFYING COMMUTING HOTSPOTS

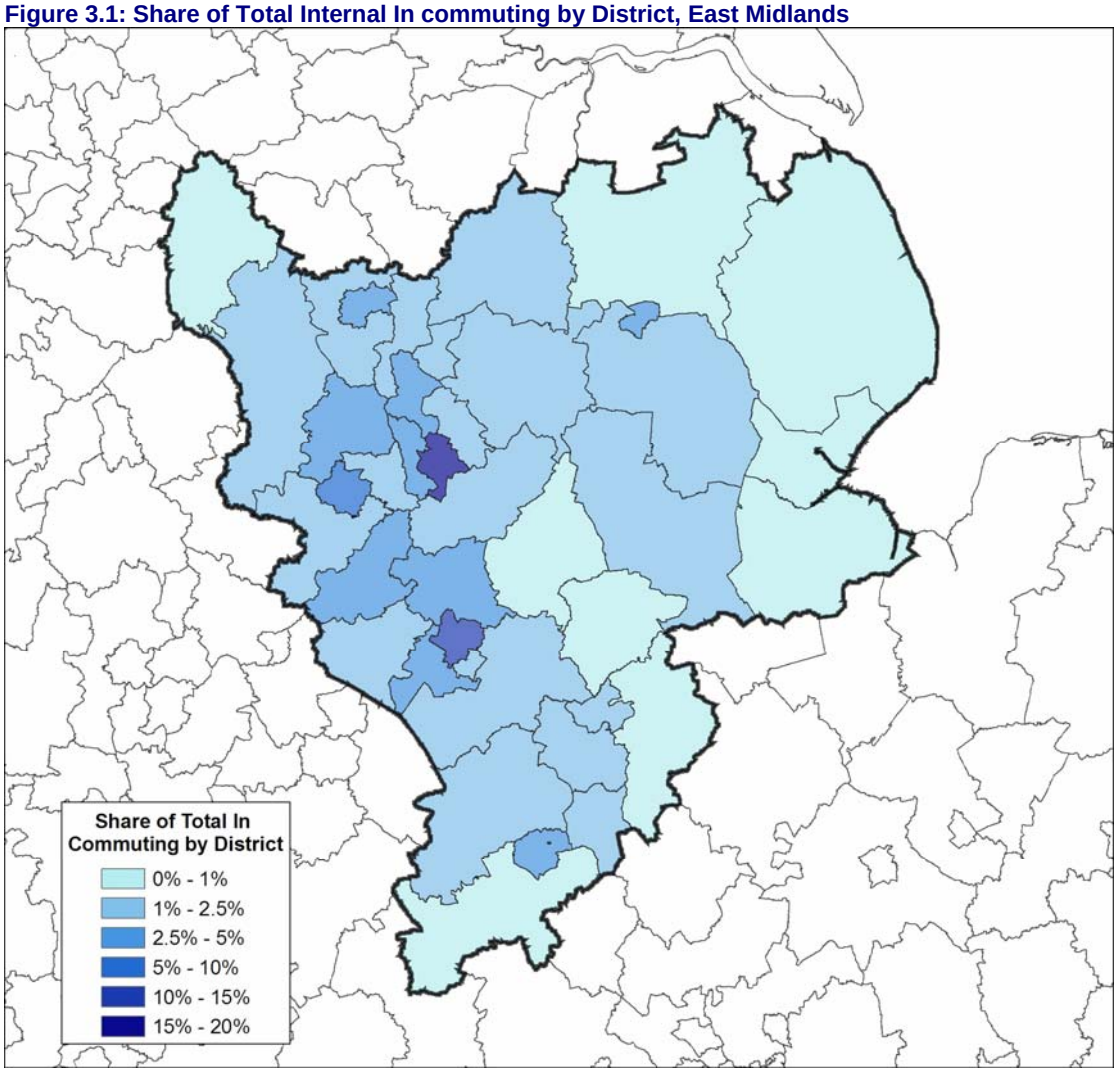
Analysing gross commuting flows data at ward level is complicated by the number of origins and destinations within the East Midlands and surrounding regions. We therefore need a methodology to simplify the analysis and identify areas of high out and in-commuting activity. Here we will analyse the ward level data by choosing a target destination which our previous analysis has identified as popular destination for commuters both within and outside of the region. For simplicity we have chosen districts as the destinations.

3.3 WHERE ARE THE COMMUTING HOTSPOTS?

Previous analysis has identified a number of key destinations within the East Midlands (for both East Midlands residents and non-residents) and outside of the East Midlands. The four destinations identified within the East Midlands as shown in figure 3.1 are:

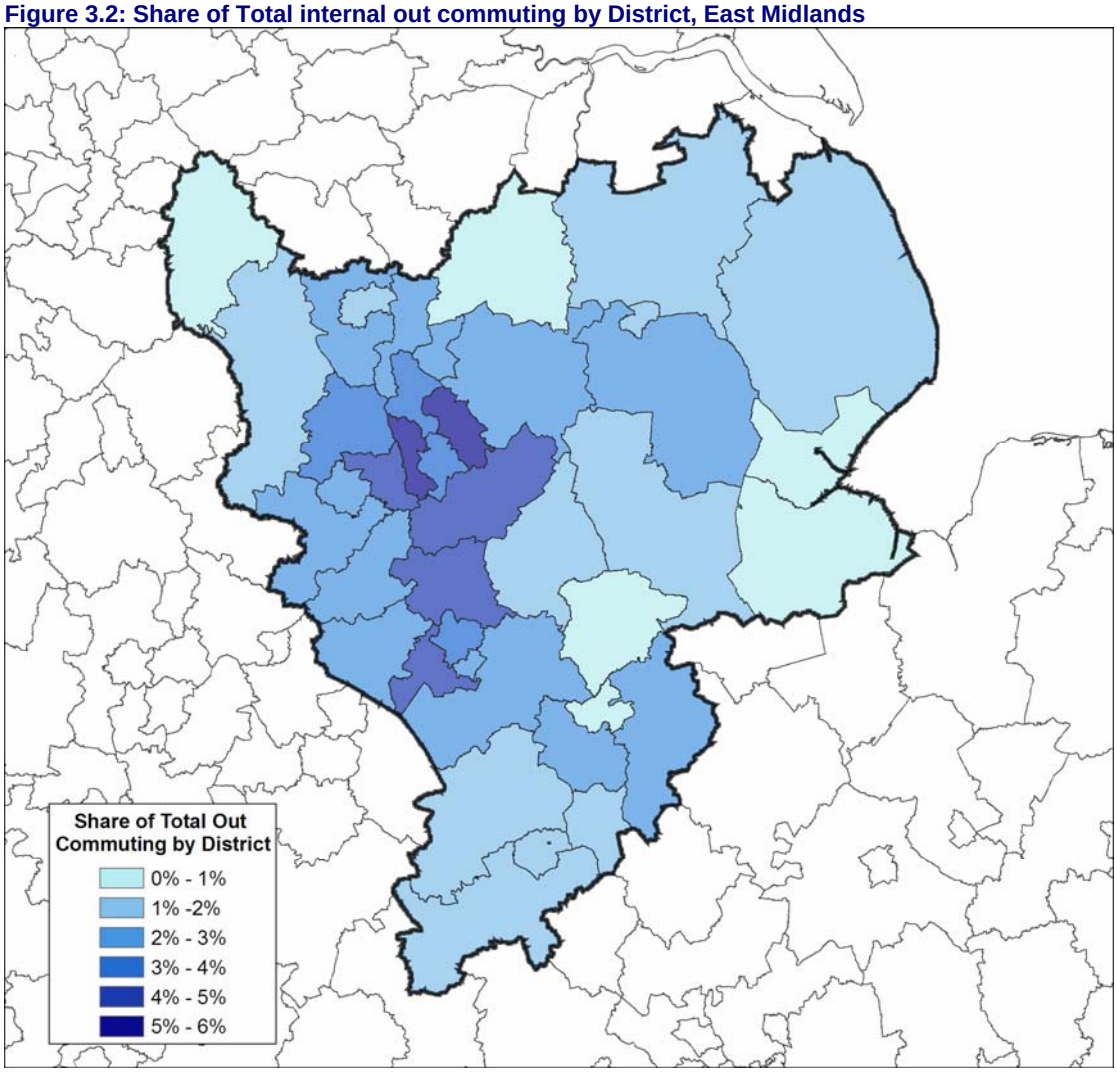
- Nottingham (responsible for 15.8% of East Midlands internal in commuting);
- Leicester (11.3%);
- Derby (5.4%);
- Northampton (4.8%); and
- Lincoln (3.4%)

Figure 3.1: Share of Total Internal In commuting by District, East Midlands



As expected the districts responsible for the highest proportions of internal out commuting are those located nearest to our three East Midlands hotspots. Notably Gedling, Broxtowe and Rushcliffe bordering Nottingham, Charnwood and Blaby bordering Leicester and Erewash bordering Derby. This is shown in figure 3.2 below.

Figure 3.2: Share of Total internal out commuting by District, East Midlands



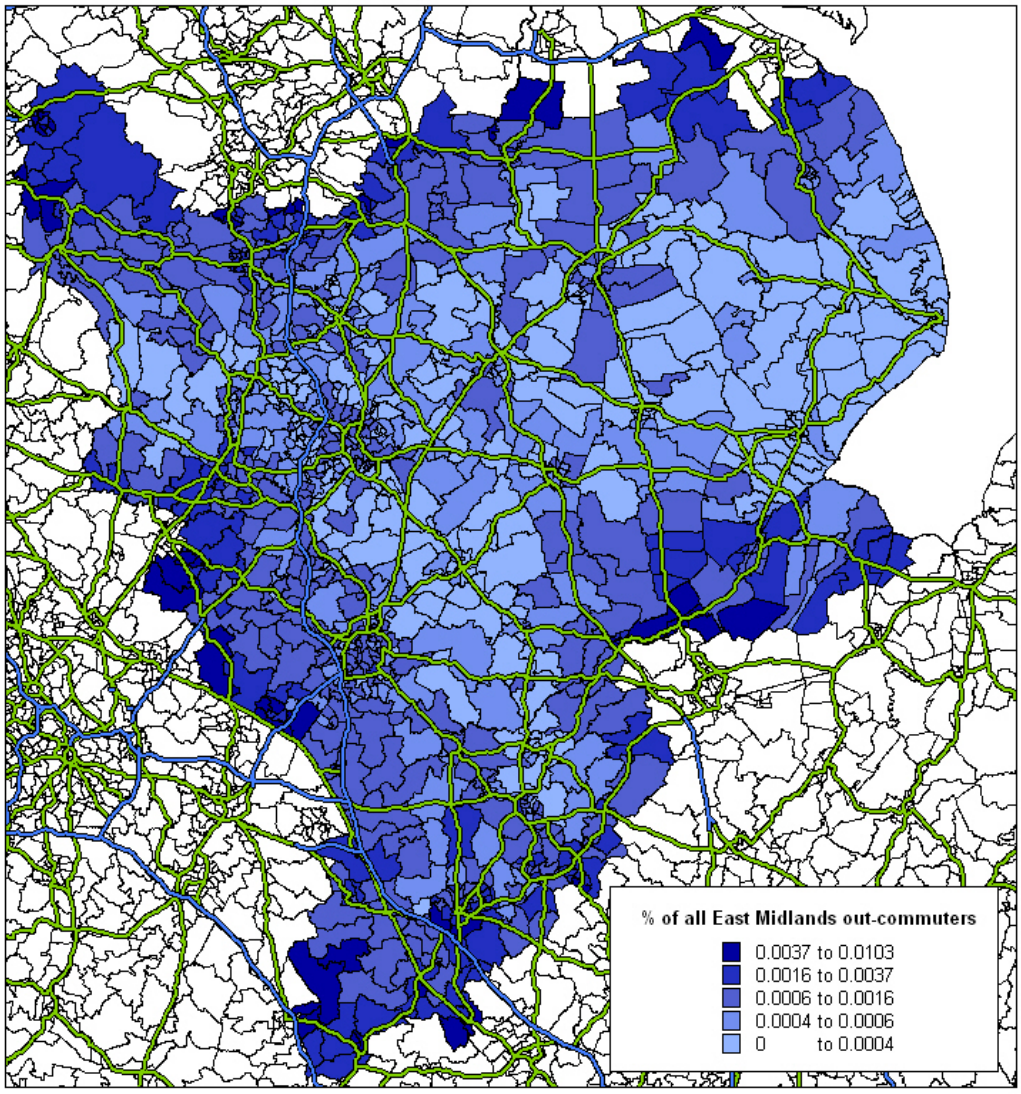
The destinations outside of the East Midlands have been identified as:

- Peterborough
- Sheffield
- Milton Keynes
- East Staffordshire
- Birmingham
- Coventry
- Manchester
- East Lincolnshire
- Rotherham
- London

London has been included in the analysis to identify if there is pattern of out-commuting from the East Midlands as 10,000 people make the commute on a daily basis. Unlike the other hotspot destination London has been included as a region. This is because the majority of people who leave the East Midlands to work in the capital, work in the centre which is itself a agglomeration of districts.

The top four hotspot districts outside of the region share a border with the East Midlands. Similarly figure 3.3 shows the Wards responsible for the highest proportions of all out commuters from the East Midlands are situated on the regions land locked boundaries.

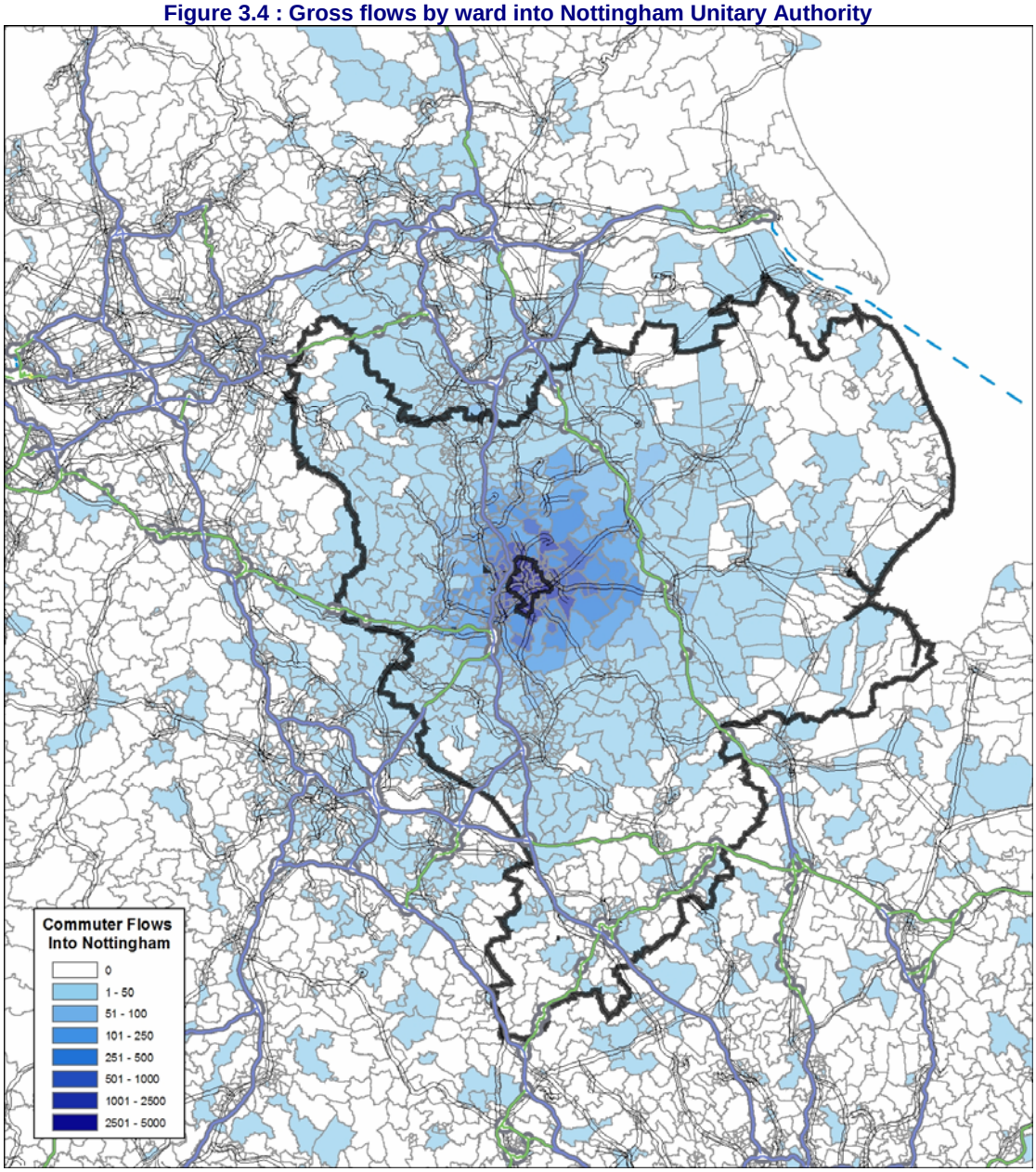
Figure 3.3: Share of all out commuter from the East Midlands to surrounding regions



3.3.1 Hotspot destination within the East Midlands

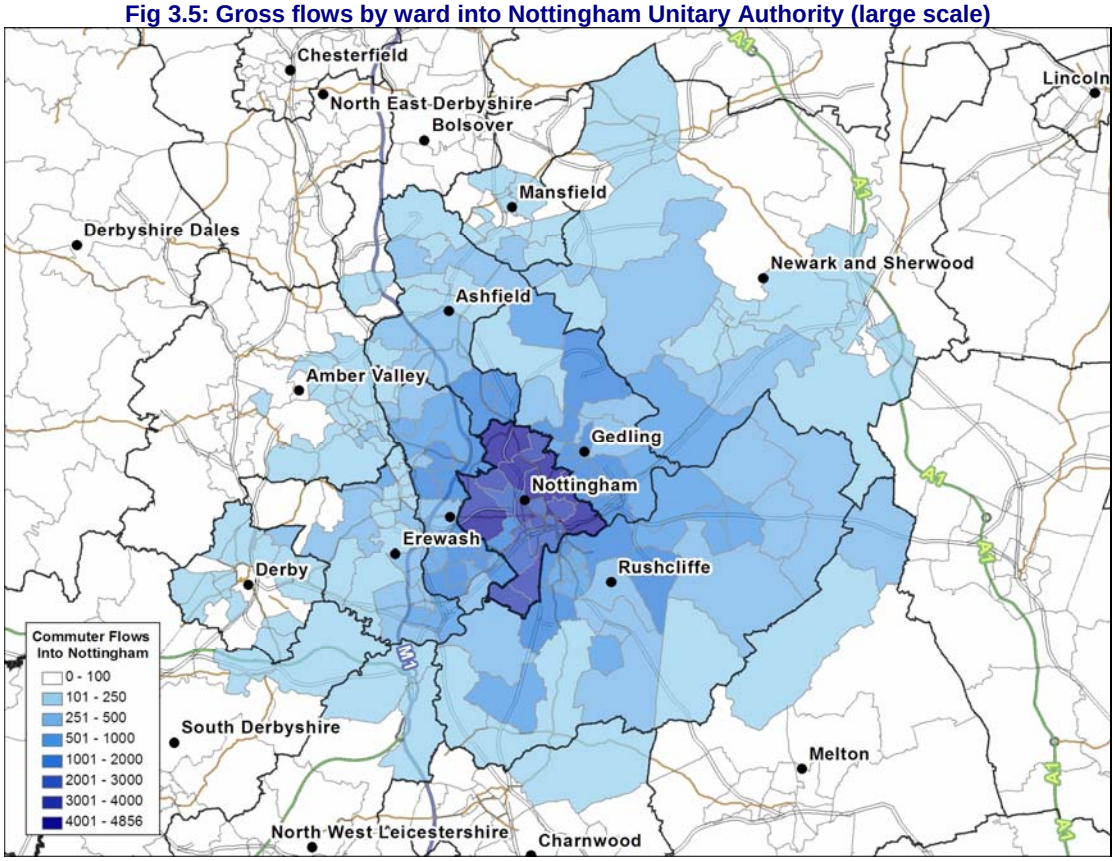
3.3.1.1 Nottingham

Figure 3.4 : Gross flows by ward into Nottingham Unitary Authority



Nottingham UA attracts over 98,100 commuters from outside of the district a figure which constitutes approximately 57 per cent of total employment in the area. The origin of these commuters is broadly spread across the East Midlands region as well as a minority residing outside of the region. Only 4,810 of commuters to Nottingham live outside the East Midlands. Figure 3.4 shows the gross flows of commuters into Nottingham by ward of residence. The bulk of commuters reside around the district with a degree of bias towards the Eastern side of the district. Figure 3.5 shows this core area at a larger scale.

Fig 3.5: Gross flows by ward into Nottingham Unitary Authority (large scale)



3.3.1.2 Leicester

Commuters comprise approximately 46 per cent of total employment in Leicester, over 70,700 people travel into Leicester to work. The origin of these commuters is concentrated in the south west part of the region as well as a small number coming from the West Midlands. A total of 4,200 commuters come from outside the region. Figure 3.6 shows the gross flows of commuters into Leicester by ward of residence. Figure 3.7 shows this core area at a larger scale.

Figure 3.6: Gross flows by ward into Leicester Unitary Authority

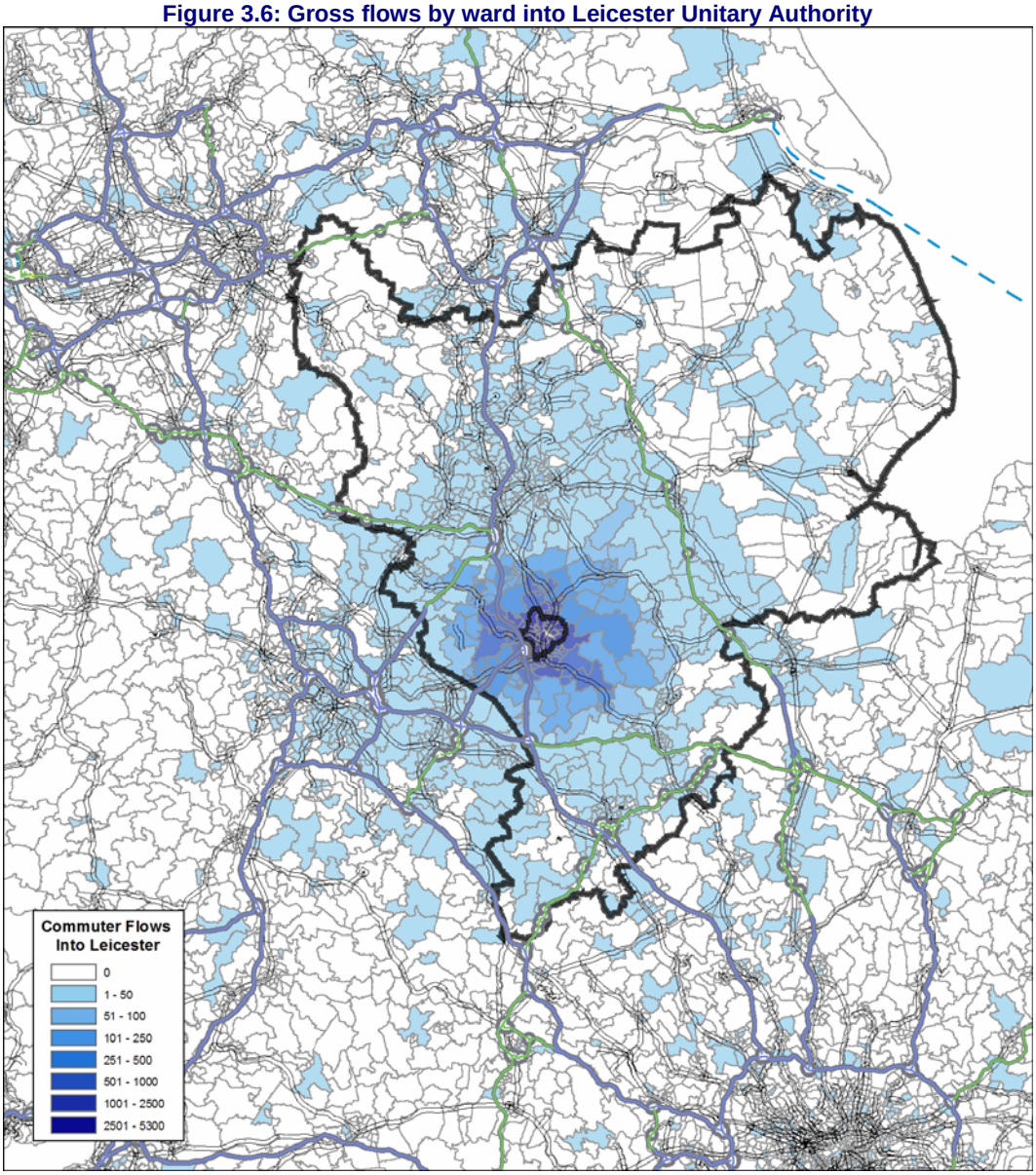
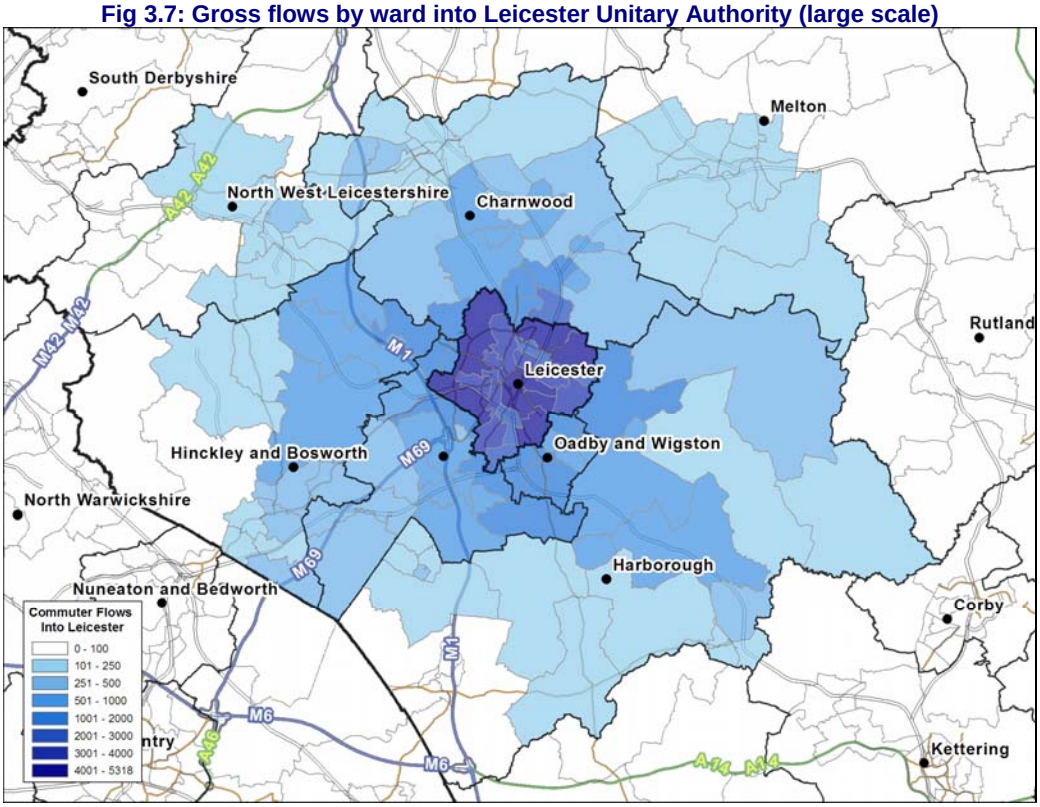


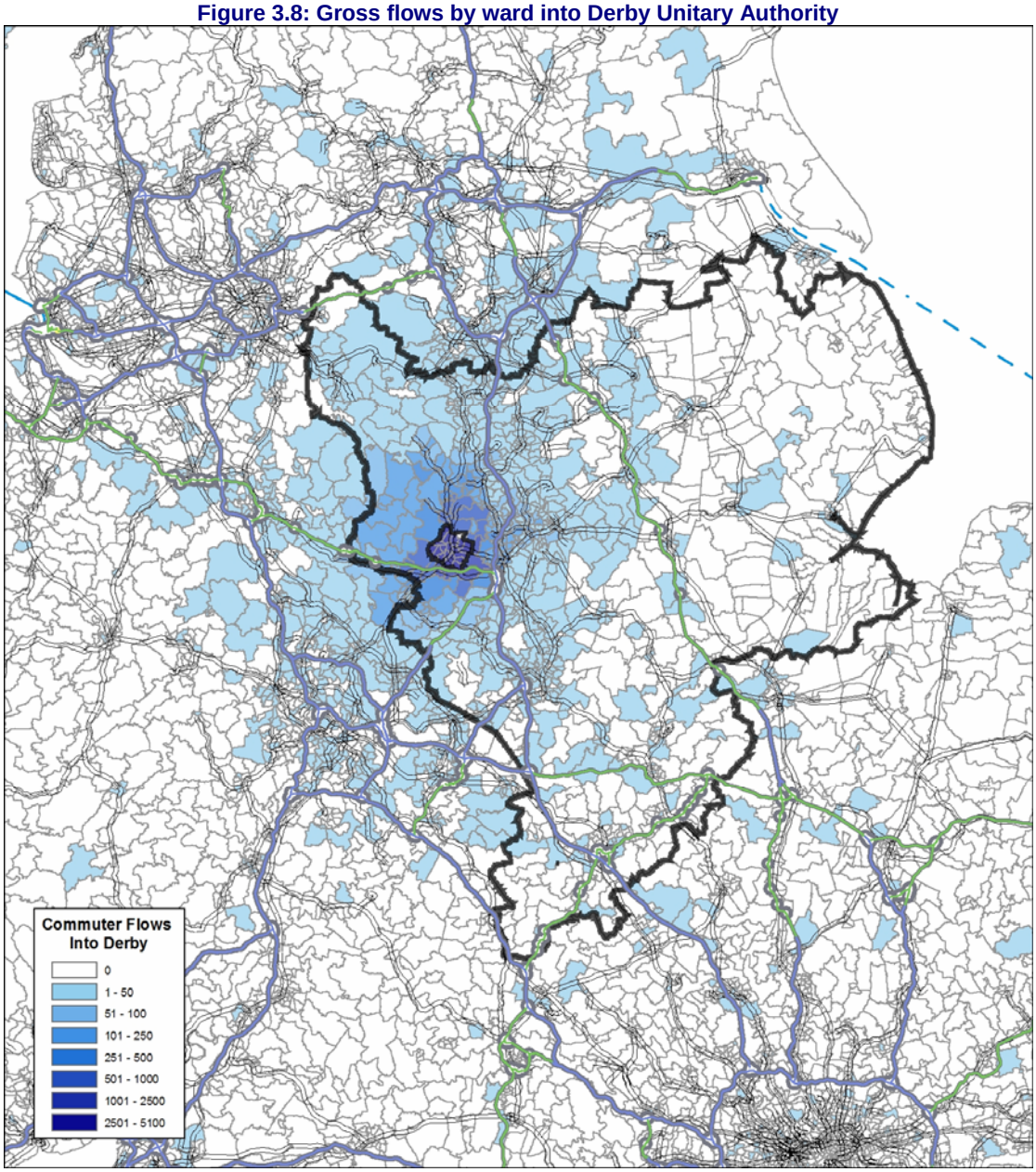
Fig 3.7: Gross flows by ward into Leicester Unitary Authority (large scale)



3.3.1.3 Derby

Derbys commuters reside mainly in the surrounding wards in the north western part of the region. Approximately one third (34.2%) of Derbys workforce is comprised of commuters. Of these, 5,800 travel from bordering regions outside of the East Midlands. Figure 3.8 (overleaf) shows there is clearly more commuting from South Yorkshire and Staffordshire than southern and eastern parts of the East Midlands.

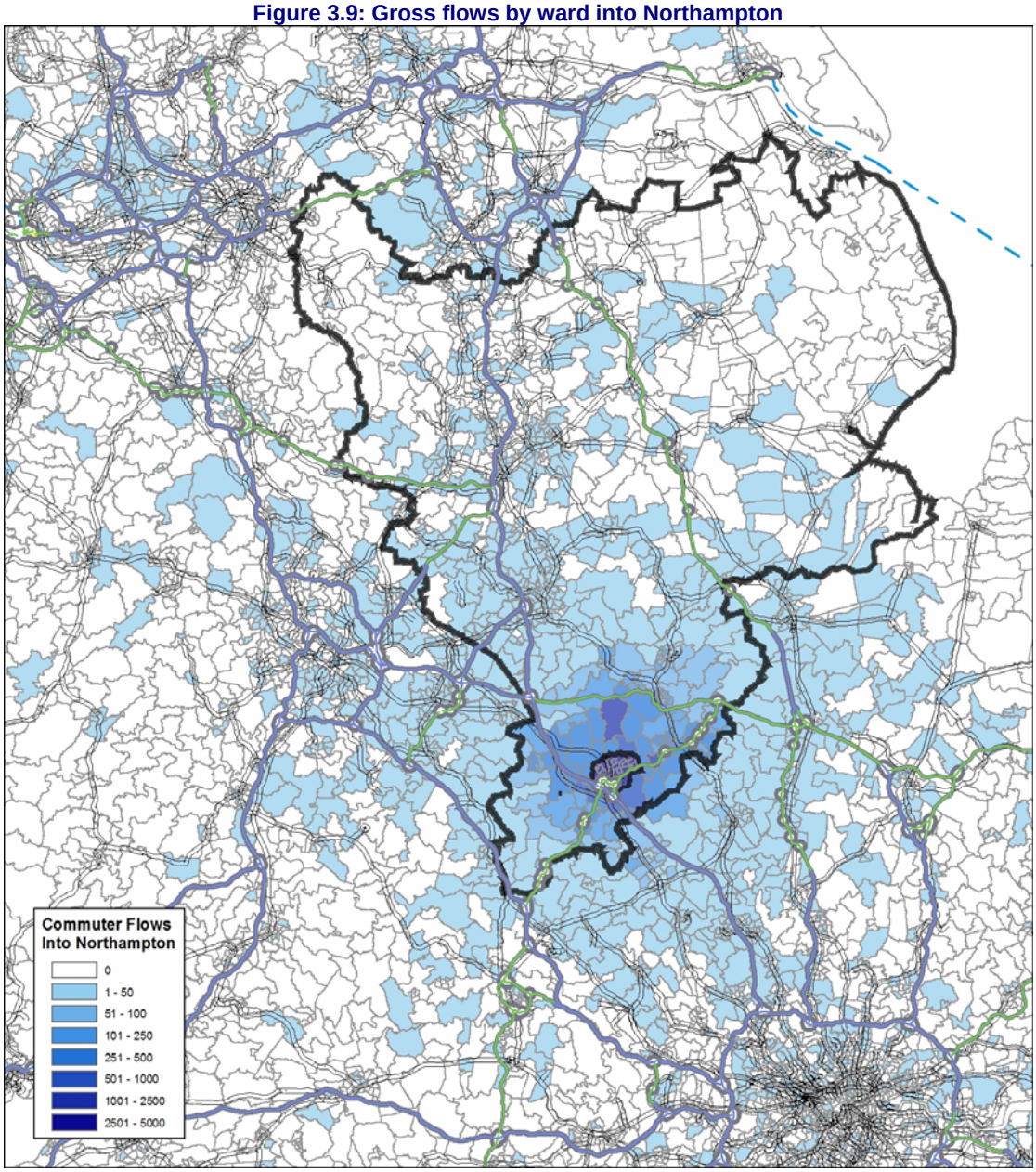
Figure 3.8: Gross flows by ward into Derby Unitary Authority



3.3.1.4 Northampton

Northampton attracts over 36,400 commuters from outside of the district a figure which constitutes approximately one third (33%) of total employment in the area. The origin of these commuters is broadly spread across the south of the East Midlands region as well as substantial flows of commuters travelling in from the East of England, along the M1, and from the West Midlands. Figure 3.9 shows the gross flows of commuters into Northampton by ward of residence.

Figure 3.9: Gross flows by ward into Northampton



3.3.2 Hotspot destination outside the East Midlands

3.3.2.1 Peterborough

Wards within South Kesteven, South Holland, East Northamptonshire and Rutland all have a high number of residents working in Peterborough. In total 15,560 East Midlands residents commute to the district, comprising 17 per cent of Peterboroughs total workforce. The majority commute into Peterborough from the south eastern corner of the region.

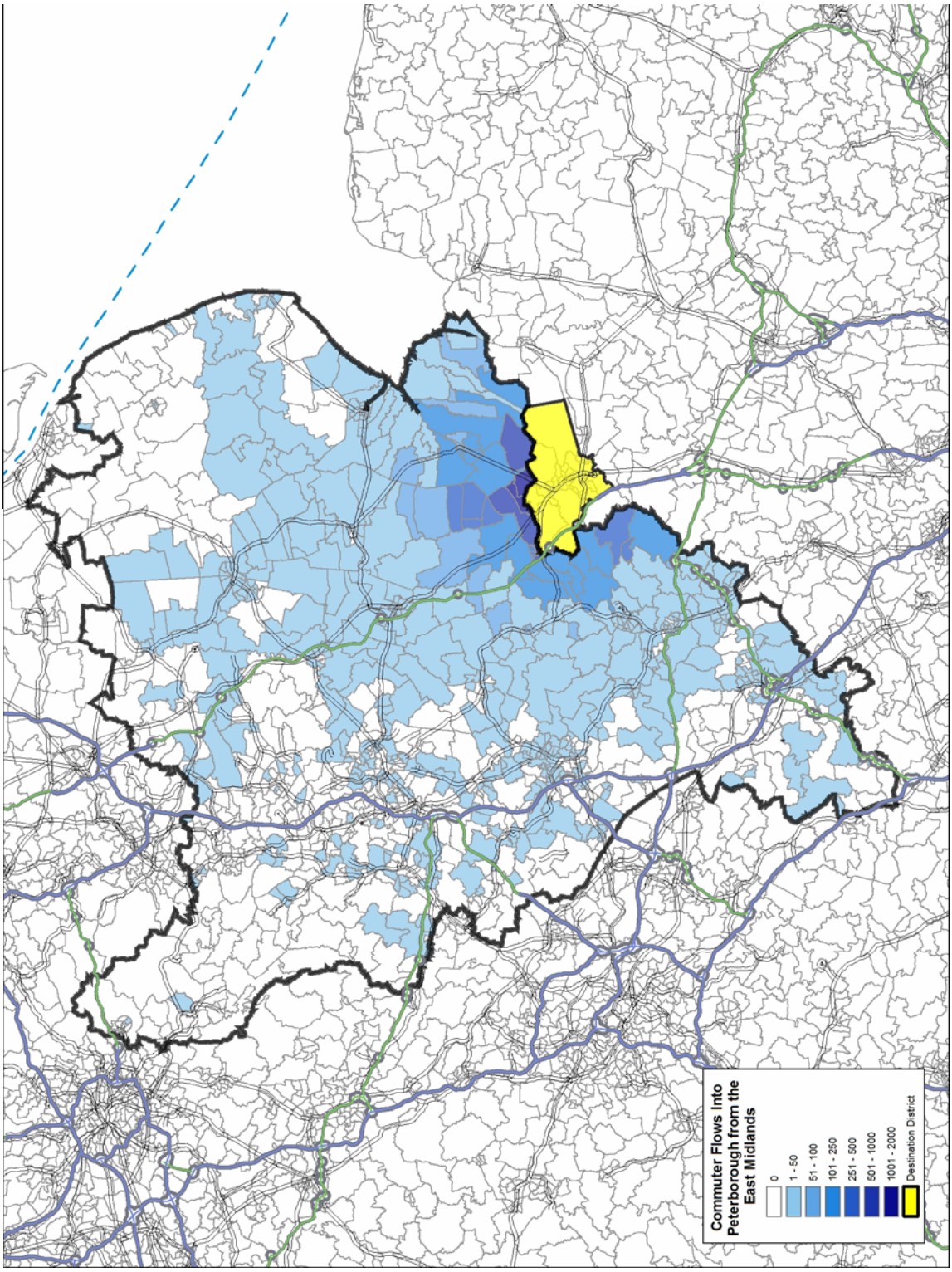


Figure 3.10: Gross flows by ward from the East Midlands into Peterborough

3.3.2.2 Milton Keynes

The Milton Keynes workforce is comprised of 12,840 East Midlands residents concentrated in the southern tip of the region and extending north along the M1. South Northamptonshire and Northampton combined supply approximately 9,000 commuters. The East Midlands contributes over ten per cent of the Milton Keynes workforce.

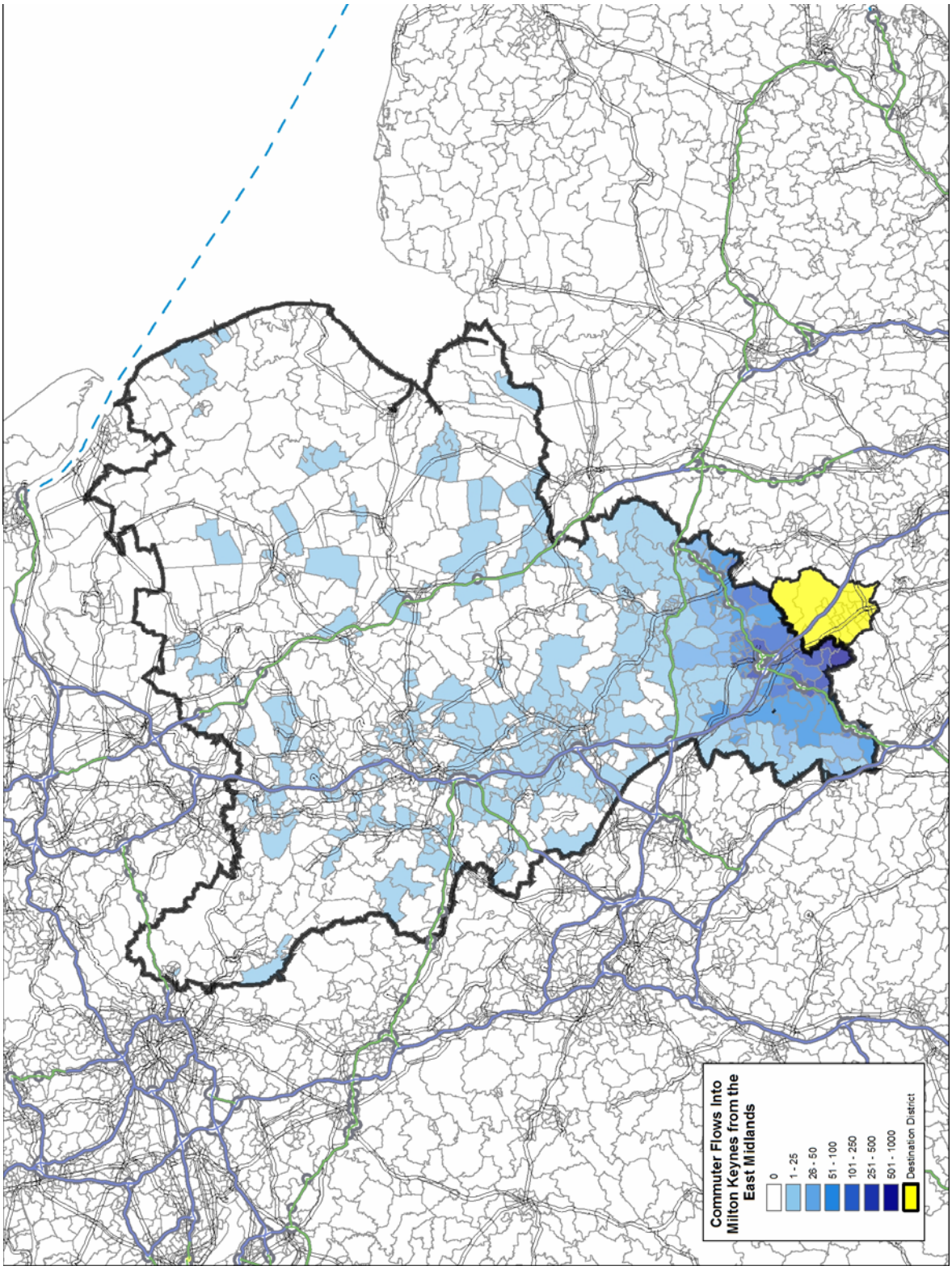


Figure 3.10: Gross flows by ward from the East Midlands into Milton Keynes

3.3.2.3 Sheffield

Wards within North East Derbyshire, Chesterfield and Bassetlaw of the East Midlands districts supply the highest number of commuters for Sheffield employers. In total 19,450 East Midlands residents work in Sheffield, comprising eight per cent of the total workforce. The residents are based in the north west corner of the region, again stretching South along the M1 corridor.

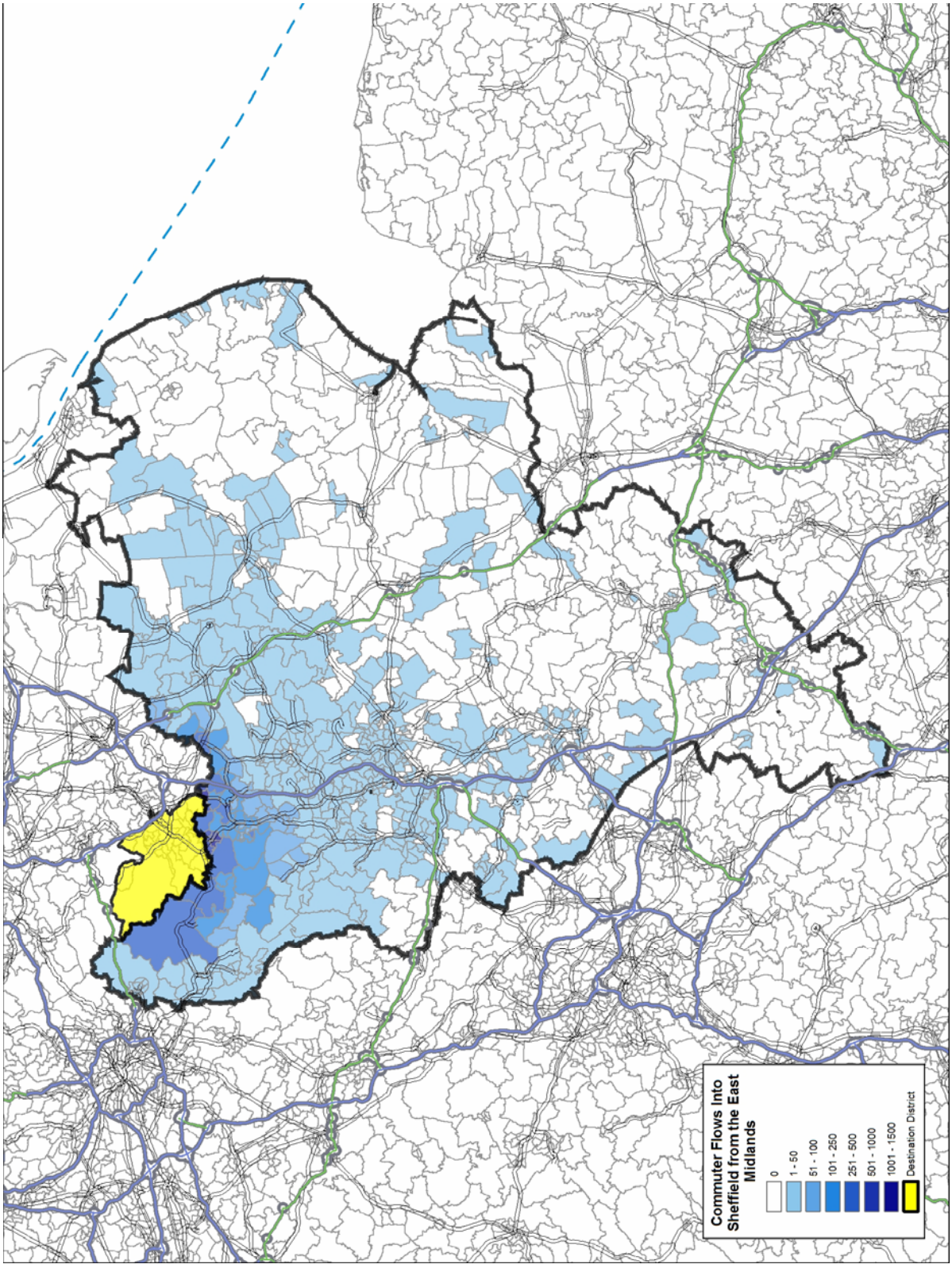


Figure 3.10: Gross flows by ward from the East Midlands into Sheffield

3.3.2.4 East Staffordshire

Wards within the northern districts of the East Midlands, specifically South Derbyshire and Derby supply the highest number of commuters to East Staffordshire. The region as a whole accounts for 10,690 commuters or over 20.7 per cent of the East Staffordshire workforce.

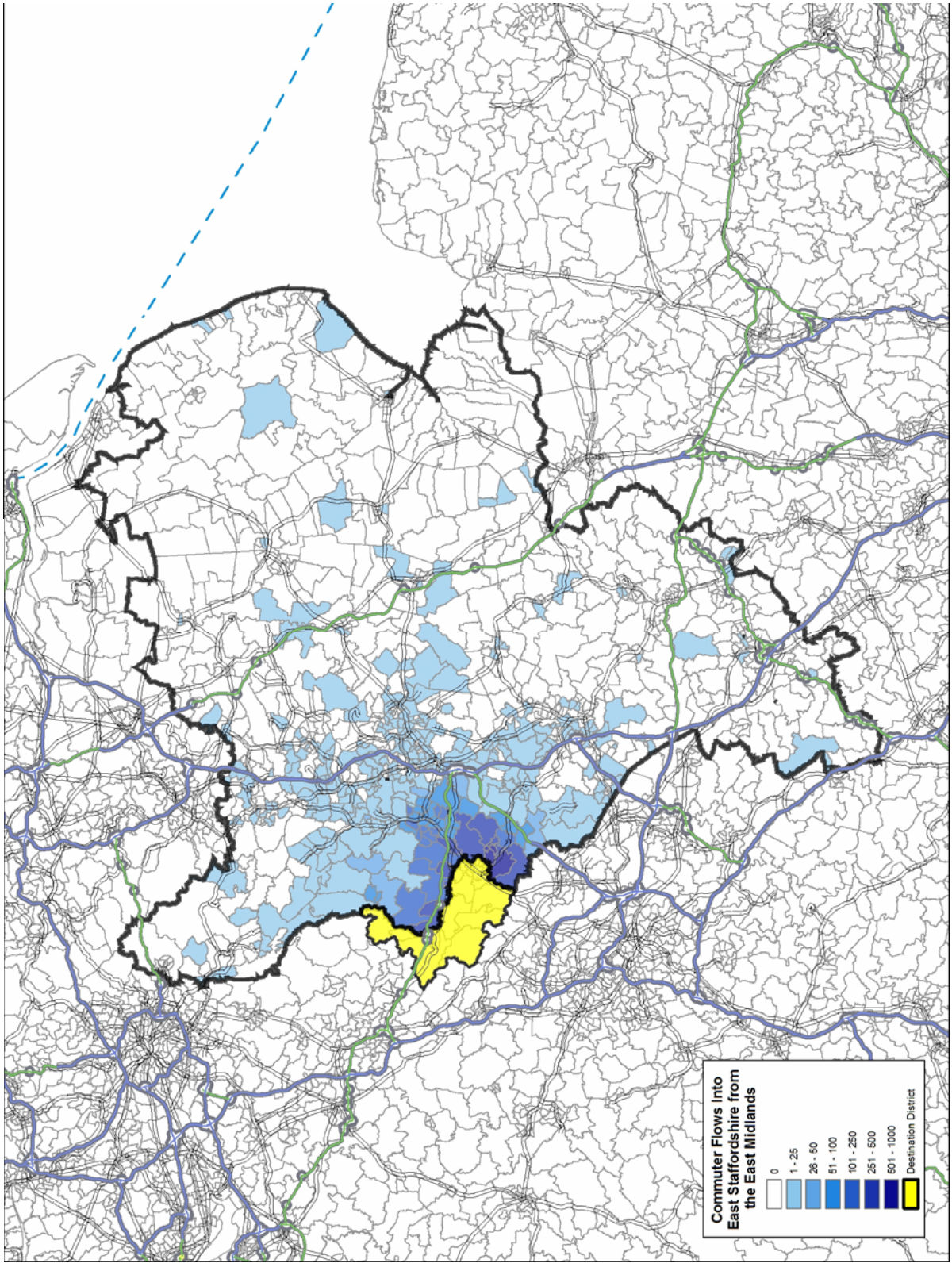


Figure 3.10: Gross flows by ward from the East Midlands into East Staffordshire

3.3.2.5 Birmingham

Birmingham is the second biggest city in the UK and as such attracts commuters from across the a broad area of the East Midlands, but most of the commuters are located in the south west of the region, particularly in wards located on the far western fringe of the region. As with flows into Coventry there is a clear pattern of residency along access routes to the M6 and M69.

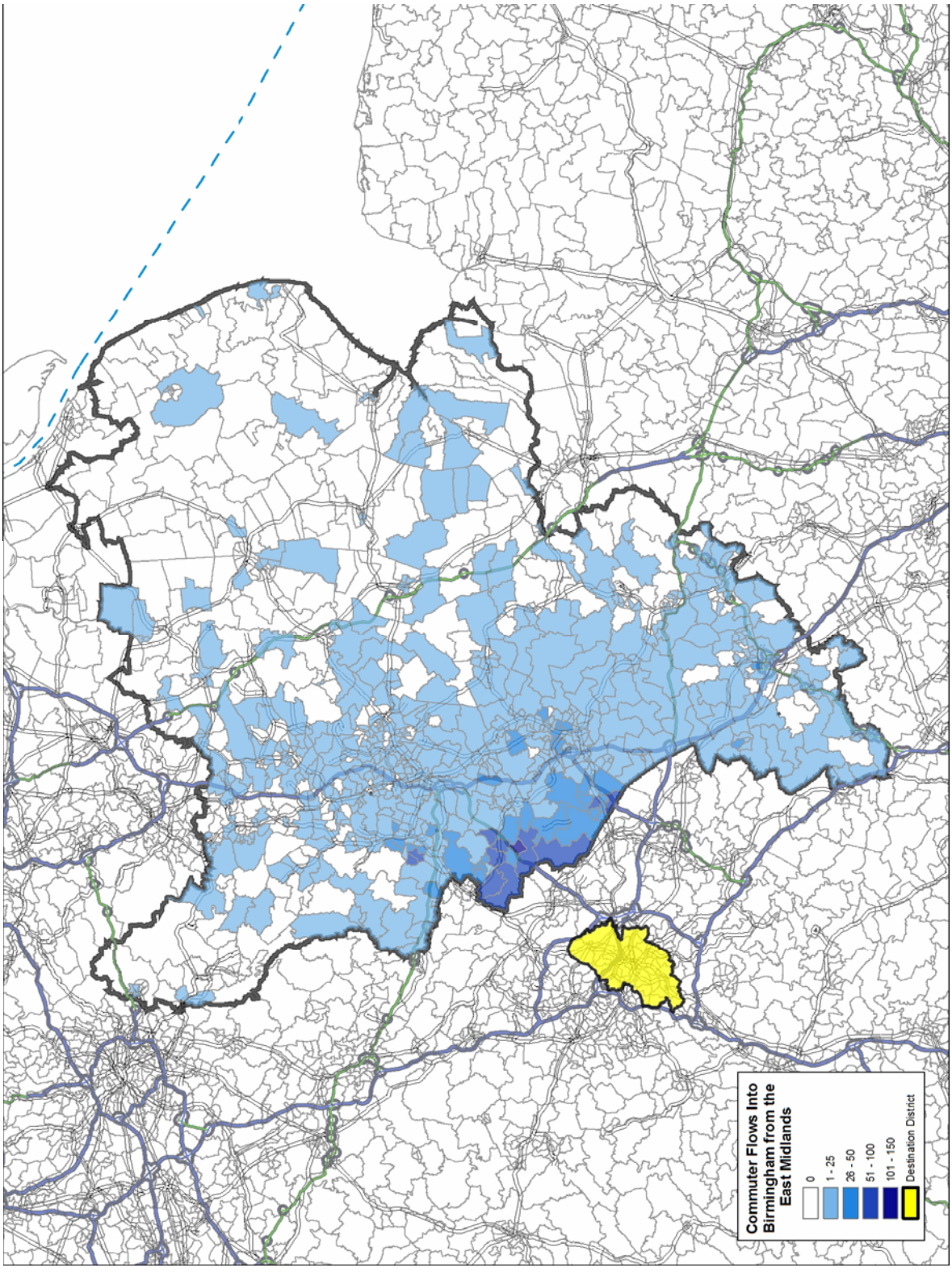


Figure 3.11: Gross flows by ward from the East Midlands into Birmingham

3.3.2.6 Coventry

Commuters into Coventry from the East Midlands appear to live in the wards well serviced by the major roads between the two areas. There are clear hotspots around access to the M69, which links Derby to Coventry and along the M6. In total over 6,000 East Midlands residents travel to Coventry to work.

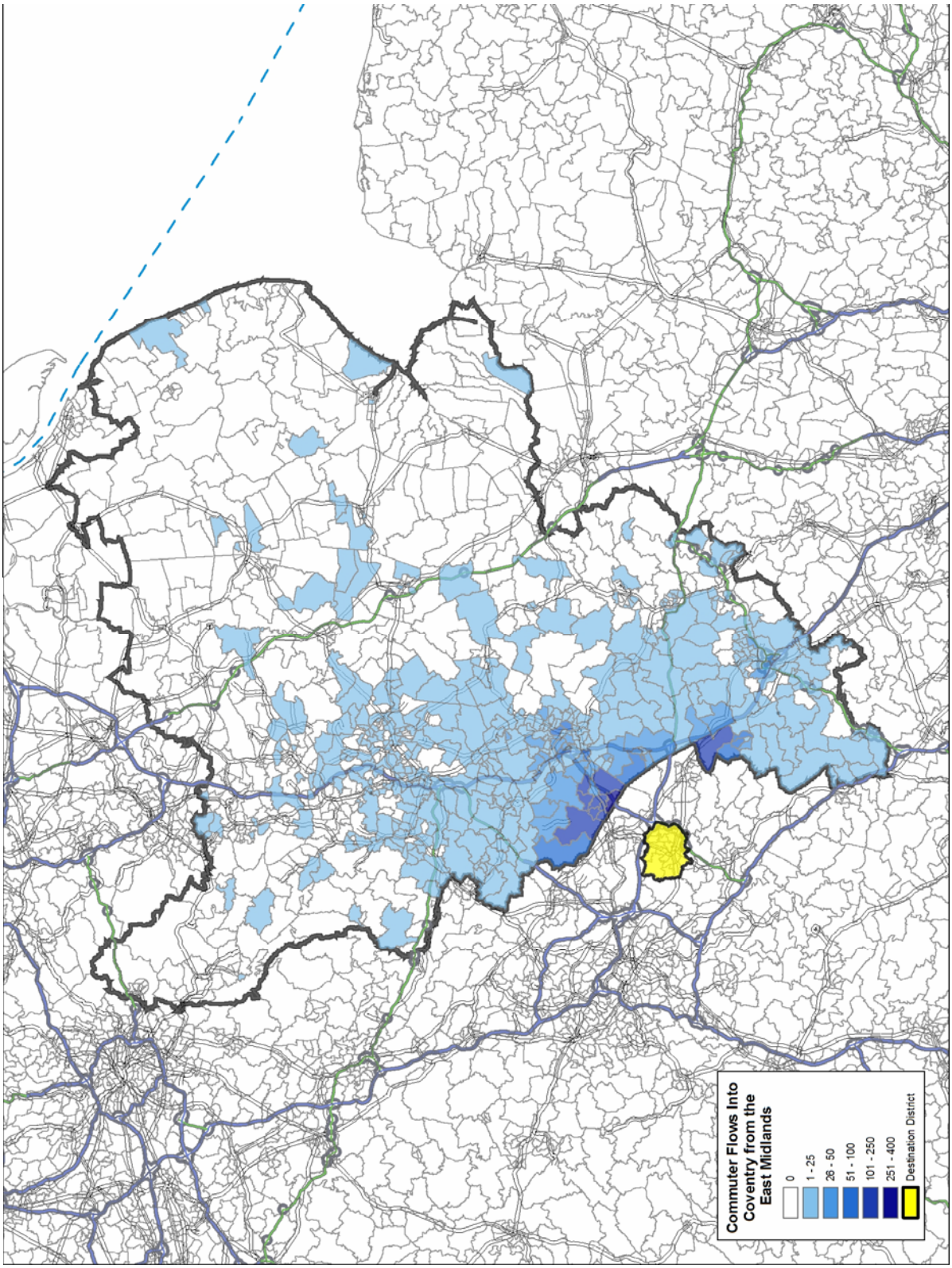


Figure 3.12: Gross flows by ward from the East Midlands into Coventry

3.3.2.7 Manchester

Given the relative proximity of Manchester to the East Midlands the flows between the two areas are lower than one might expect. In 2001, 4,0500 East Midlands residents worked in Manchester, and the majority are located in the far north western corner of High Peak. There is a clear pattern of commuting into Manchester from the East Midlands along the M67.

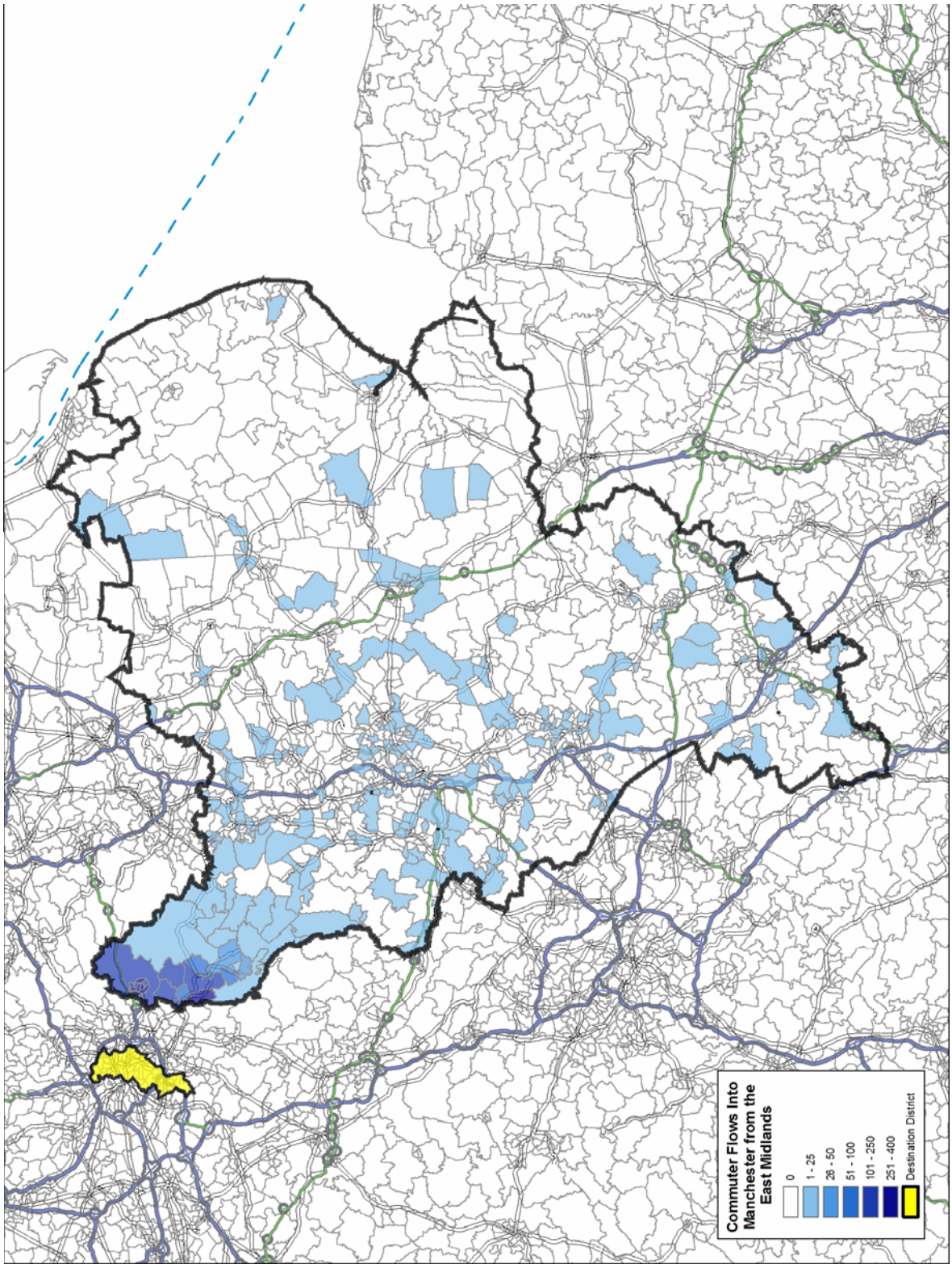


Figure 3.13: Gross flows by ward from the East Midlands into Manchester

3.3.2.8 North East Lincolnshire

North East Lincolnshire is a Yorkshire and Humber district bordering the far north-eastern corner of Lincolnshire. Grimsby is the main urban centre employing many East Midlands residents in many sectors, predominantly in the health and education, wholesaling and retailing and manufacturing sectors. The district attracts commuters from across the north of Lincolnshire but the majority of commuters are located on the far eastern coastal corner of East Lindsey and the far east of West Lindsey, immediately bordering North East Lincolnshire.

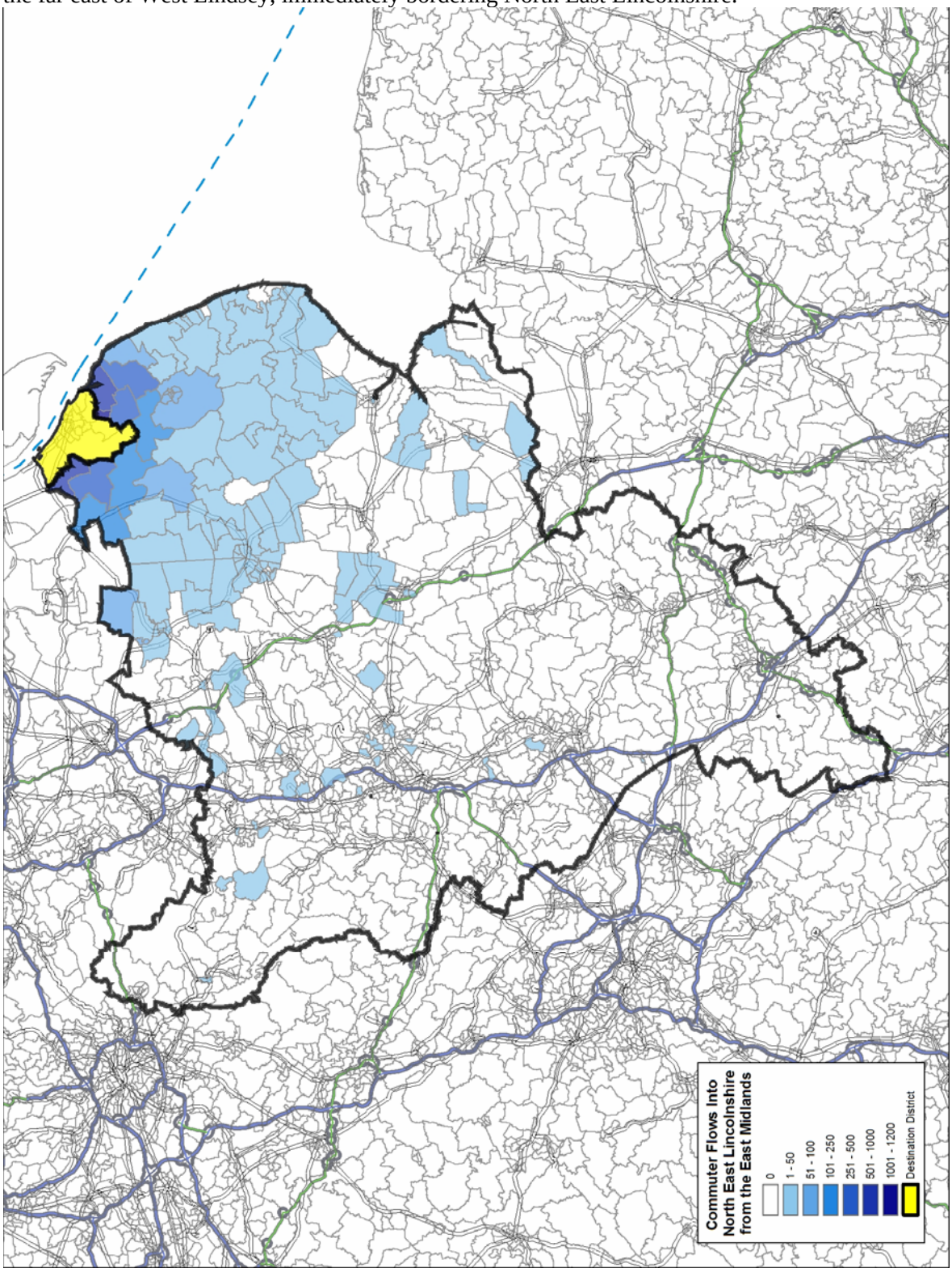


Figure 3.14: Gross flows by ward from the East Midlands into North East Lincolnshire

3.3.2.9 Rotherham

Rotherham is part of the Sheffield City region and is located next to Sheffield on its' eastern side. The district is well served by major roads and as such appears to attract East Midlands regions from major routes such as the M1 and A1(M) and the A631. Again the majority of East Midlands resident commuting to Rotherham live in wards touching the Rotherham district boundary.

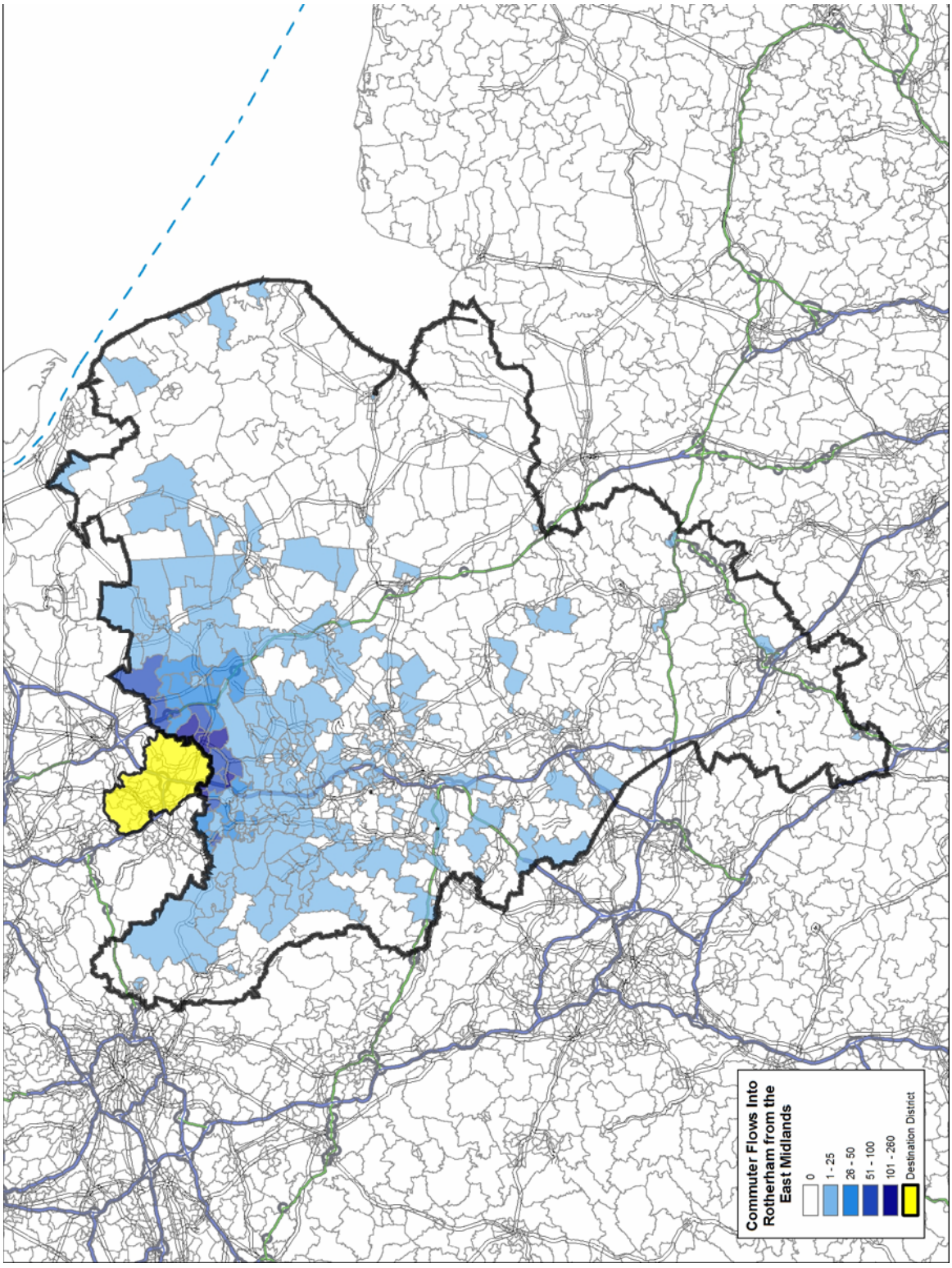


Figure 3.15: Gross flows by ward from the East Midlands into Rotherham

3.3.3 London

Over 10,000 people commute out of the East Midlands to the capital, and whilst this is by no means the largest flow from the East Midlands to another region, it is significant that so many people travel a relatively long distance to work. Figure 3.16 shows that the distribution of London bound commuters is widespread across the region, but with a degree of bias towards the southern fringe of the region. Despite the apparent distance involved, rail times from some of the more popular origins are within 1-2 hours (Northampton 59 mins, Leicester, 1hr17m, Grantham 1hr17m and Nottingham 1hr46m).

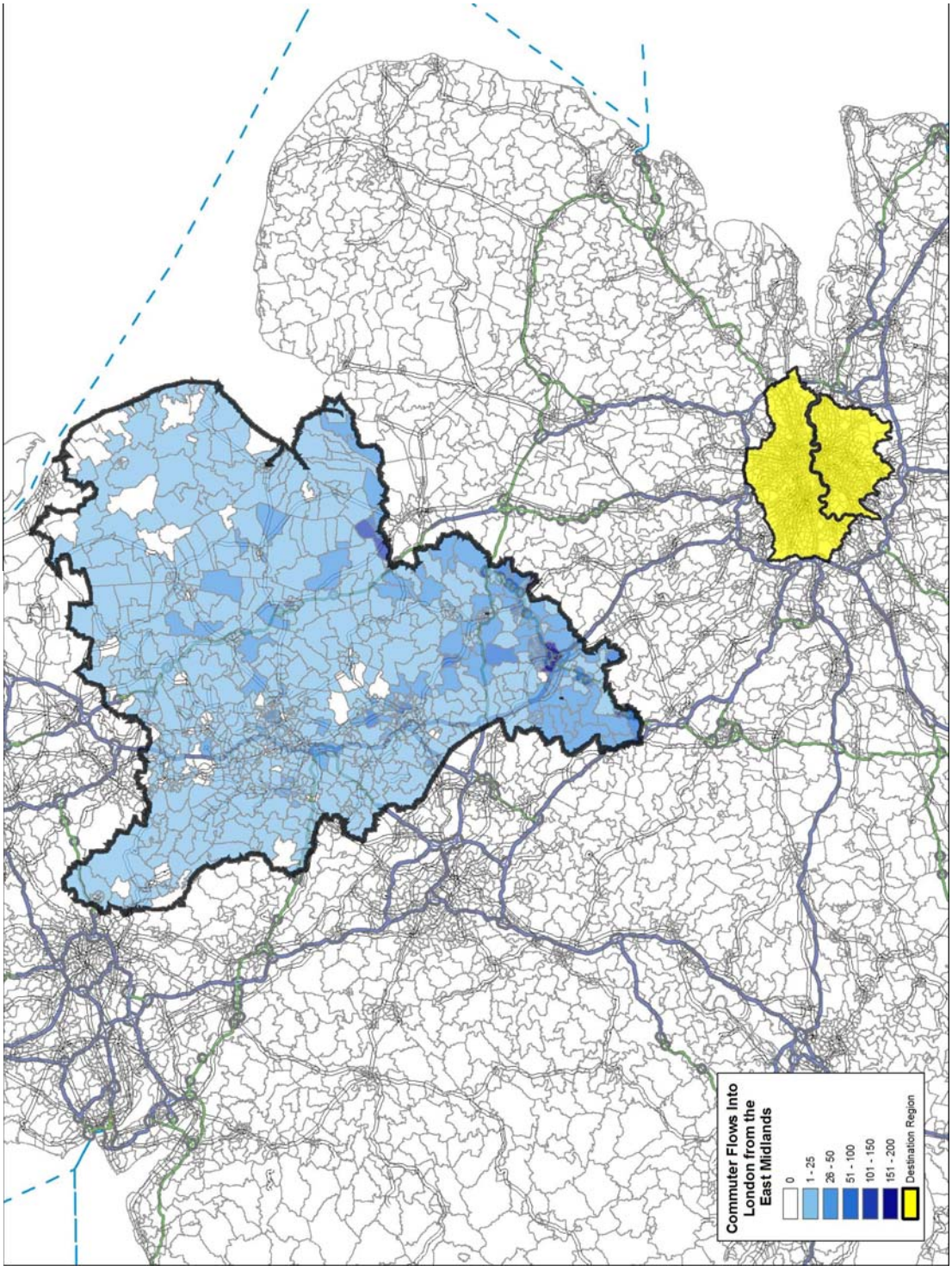


Figure 3.16: Gross flows by ward from the East Midlands into London

4 Characteristics of Commuters

4.1 INTRODUCTION

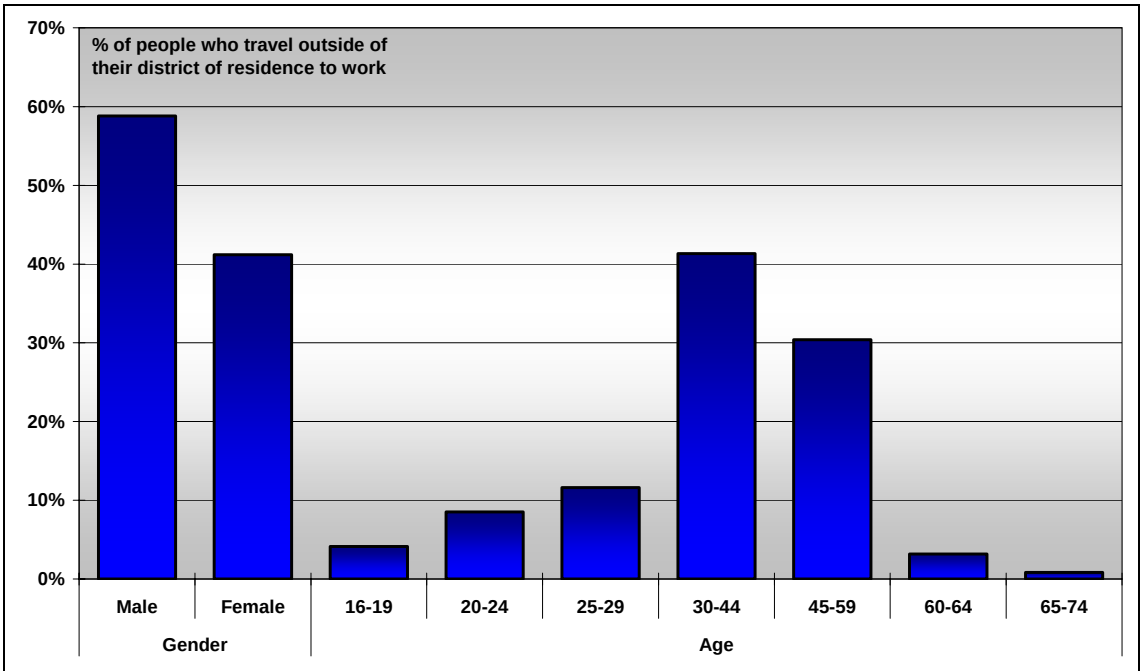
In the previous chapters we reviewed the commuting flows in and around the East Midlands at a district level and identified commuting hotspots, both within and outside of the region. In this section we interrogate information from the 2001 Census further, to assess the socio-economic characteristics of commuters and the types of jobs individuals typically commute to access.

4.2 AGE, GENDER AND FAMILY STATUS

Evidence from the Census suggests that females are less likely to travel outside of their district to access work. Indeed as figure 4.1 illustrates, 41 per cent of people in the East Midlands who commute out of their district to work are female and 59 per cent are male. This is potentially a reflection of the fact that females are more likely to work part time and earn less than males given hours of work and earnings are key drivers of commuting.

The age distribution of those who commute out of their East Midlands district of residence for work (illustrated in Figure 4.1) shows that the peak age group for out commuting are those aged between 30 and 44, which account for 41 per cent of those who commute out of their district for work. A further 30 per cent of out commuters are aged between 45 and 59, and 12 per cent are 25 to 29 years old.

Figure 4.1- Gender and age of those who commute out of their district of residence for work, East Midlands[2]



Source: Census 1991, 2001

[2] ONS Crown Copyright, Census 2001

Figure 4.2 illustrates the profile of those commuting into the five East Midlands hotspots. The gender profiles for Northampton, Derby and Lincoln are broadly in line with that of the East Midlands as a whole.

Meanwhile, in Leicester and Nottingham, females comprise a greater proportion of in-commuting compared to the region as a whole. This is a likely reflection of the fact that while the region as a whole is dominated by manufacturing companies, a largely male dominated industry, Leicester and Nottingham offer more service based employment opportunities with the retail trade and financial services sector, within which females are more evenly represented.

There is little variation in the age profile of commuters in each of the hotspots.

Figure 4.2: Age and Gender profile of those commuting into the four hotspots

	East Midlands	Derby	Leicester	Northampton	Nottingham	Lincoln
Gender (%)						
Male	59	62	51	57	51	49
Female	41	38	49	43	49	51
Age group (%)						
16-19	4	4	4	4	4	6
20-24	9	8	8	9	9	7
25-29	12	12	11	11	13	9
30-44	41	43	41	42	41	38
45-59	30	31	32	31	29	35
60+	4	3	5	4	4	5

Source: Census 2001

Moreover, the gender and age profile of those who commute out of the East Midlands into the eight hotspots just outside the region (Peterborough, Sheffield, East Staffordshire, Milton Keynes, Birmingham, Coventry, North East Lincolnshire and Nottingham) is similar to that of commuters into the East Midlands hotspots.

4.3 SOCIO-ECONOMIC CHARACTERISTICS

National Statistics Socio Economic Classification data (NS-SEC) allows us to build a picture of the socio economic profile of those residents in the East Midlands who travel outside their district of residence for work (Figure 4.3).

The group which accounts for the highest number of people commuting out of their district of residence is lower managerial and professional occupations, which account for over 240,000 commuters. The second largest group is intermediate occupations which accounts for over 100,000 commuters. The group which accounts for the smallest number of out commuters is small employers and own account workers. This may be due to high rents in the cities forcing small businesses out of cities centres to the peripheries and the higher incidence of home-working amongst this group.

Figure 4.3: NS-SEC profile of those resident in the East Midlands who commute out of their county of residence.

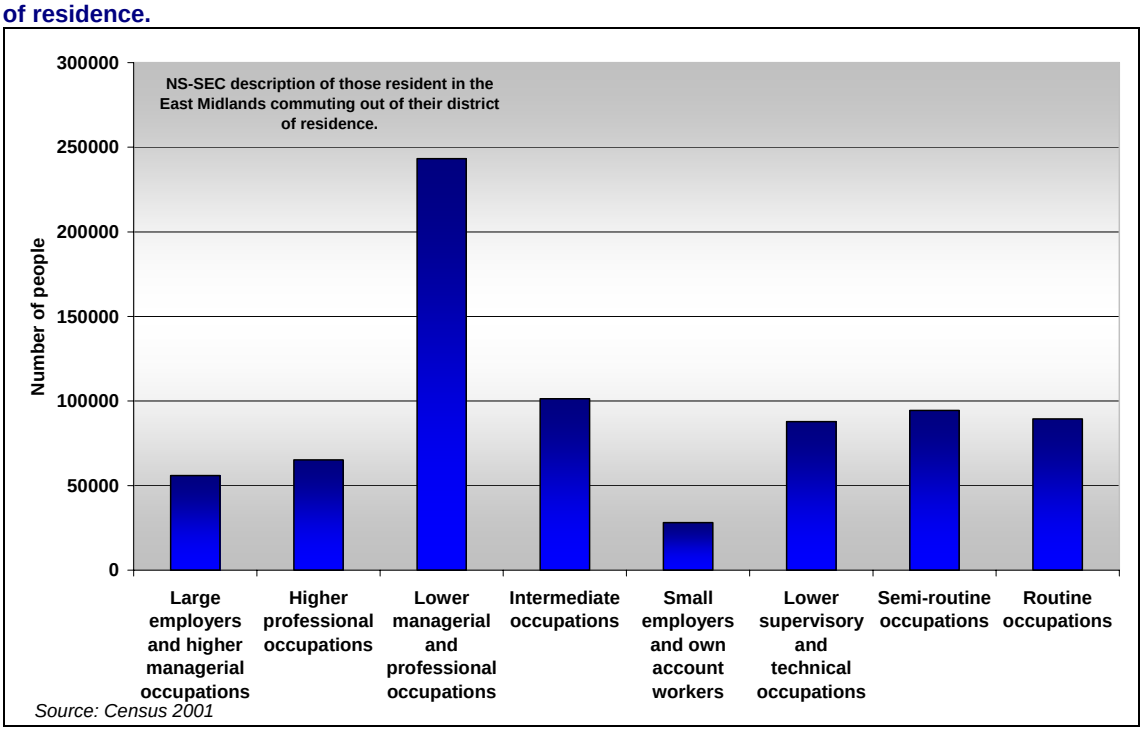


Figure 4.4 presents the NS-SEC profile of those who commute into the five regional hotspots (from the East Midlands and elsewhere) and suggests that those commuting into the hotspots tend to be from higher socio-economic groups, particularly those working in Leicester and Nottingham.

Figure 4.4: NS-SEC profile of those commuting into the four East Midlands hotspots (% of all commuters).

	East Midlands	Derby	Leicester	Northampton	Nottingham	Lincoln
Large employers and higher managerial occupations	7	9	6	8	7	5
Higher professional occupations	8	14	9	9	12	8
Lower managerial and professional occupations	31	32	34	34	34	34
Intermediate occupations	13	12	18	15	17	17
Small employers and own account workers	4	3	4	3	3	3
Lower supervisory and technical occupations	12	12	10	10	9	10
Semi- routine occupations	13	11	11	10	11	15
Routine occupations	13	7	9	11	8	8

Source: Census 2001

The socio economic profile of those who travel out of the East Midlands to the commuting hotspots outside of the region is broadly similar to that of those commuting into the East Midlands hotspots. There is a significantly higher proportion of 'large employers and higher managerial occupations' commuting into Birmingham and Coventry which comprise 16 per cent and 15 per cent of inflows respectively compared to a range of between 6 and 8 per cent in the East Midlands hotspots. Milton Keynes also has a slightly higher proportion of commuters in this socio economic group.

Higher professionals are over-represented amongst commuting flows from the East Midlands to Manchester, comprising over 21 per cent of commuters. Birmingham and Coventry also have

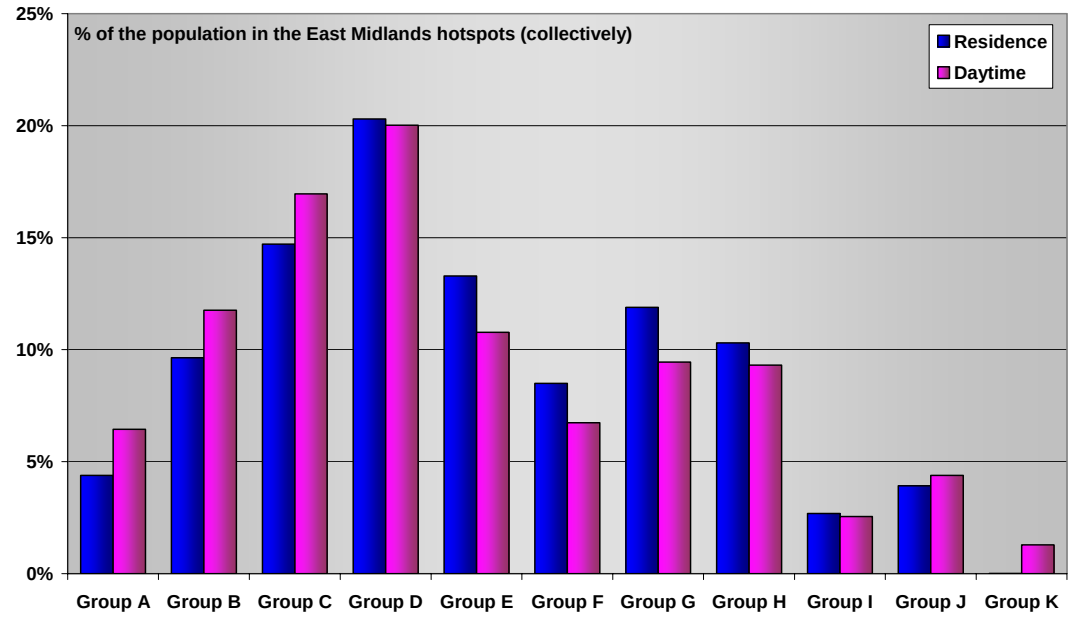
high proportions of commuters within this socio economic group- 18 per cent of in commuters to these areas compared to between 8 and 14 per cent of those commuting into the East Midlands hotspots. These patterns are again a likely reflection of the employment opportunities on offer in these areas and the relative 'pull' of higher skilled and paid occupations on offer in these areas.

Experian's Mosaic and Mosaic Daytime classification offer added contextual definition concerning the characteristics of those commuting into the East Midlands hotspots.

Figure 4.5 compares the Mosaic profile of the resident population of the East Midlands hotspots collectively (Northampton, Nottingham, Leicester, Derby, Lincoln) to that of the population prevalent in these areas in the daytime and suggests that there is some degree of in-commuting from those resident in rural areas.

Moreover, as suggested by our analysis of the NS-SEC profile of in-commuters to these areas, a commuting patterns are dominated by those from higher socio-economic groups (groups A to C), with significant inflows of career professionals living in sought after locations, younger families in newer homes and older families living in suburbia.

Figure 4.5: Mosaic and Daytime Mosaic profile of the East Midlands hotspots (collectively)



Experian, 2007

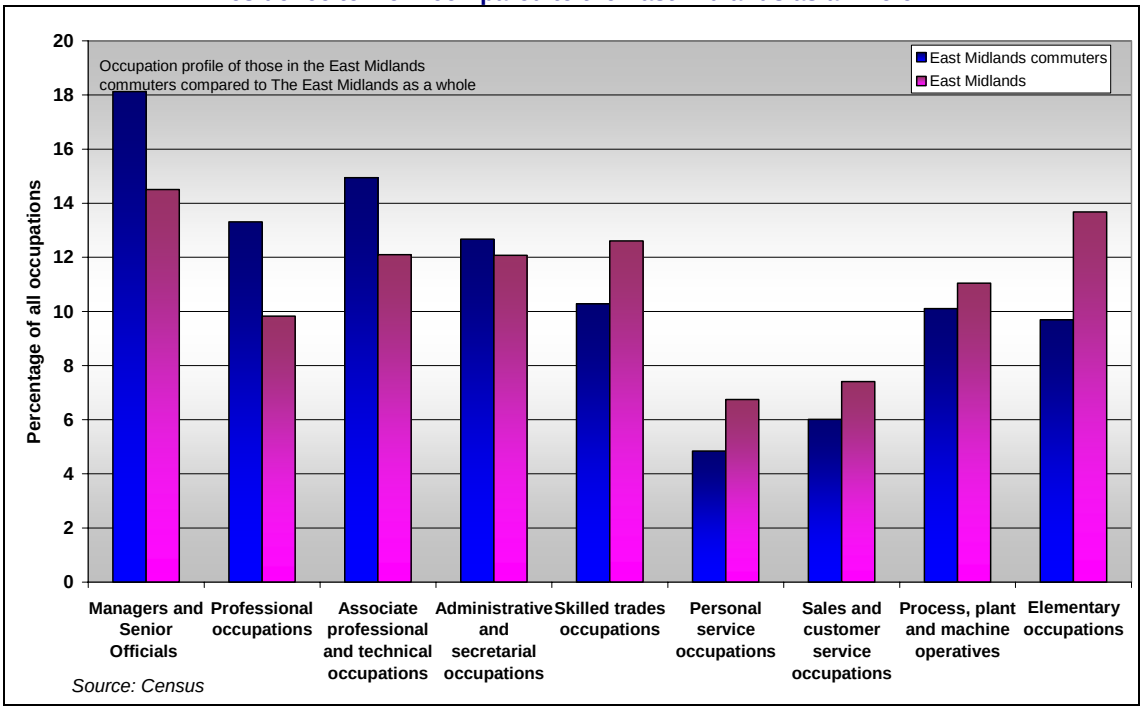
A	Career professionals living in sought after locations	G	Low income families living in estate based social housing
B	Younger families living in newer homes	H	Upwardly mobile families living in homes bought from social landlords
C	Older families living in suburbia	I	Older people living in social housing with high care needs
D	Close-knit, inner city and manufacturing town communities	J	Independent older people with relatively active lifestyles
E	Educated, young, single people living in areas of transient populations	K	People living in rural areas far from urbanisation
F	People living in social housing with uncertain employment in deprived areas		

4.4 OCCUPATIONS

Indeed as highlighted in the previous section, people who travel out of their district of residence for work generally tend to be more highly skilled and are largely concentrated in managerial, professional, associate professional and technical, and administrative and secretarial occupations.

Figure 4.6 illustrates the occupational profile of East Midlands' residents who commute out of their district of residence to work using Standard Occupational Classification (SOC) codes. Over 18 per cent of those who commute out of their district of residence in the East Midlands are employed as managers and senior officials and almost 15 per cent work within associate professional and technical occupations. Professional occupations account for the third largest proportion of commuters in the region with over 13 per cent of those who commute out of their district to work employed within professional roles.

Figure 4.6: Occupation profile of East Midlands residents who commute out of their district of residence to work compared to the East Midlands as a whole.



The occupational profile of those commuting into the East Midlands hotspots differs from the profile of all East Midlands' residents who commute out of their district to access employment opportunities. As highlighted by Figure 4.7, those working within more highly skilled occupations generally account for a larger proportion of commuters into the hotspot areas than for the East Midlands as a whole.

Figure 4.7: Occupational profile of those commuting into the East Midlands hotspots

	East Midlands	Derby	Leicester	Northampton	Nottingham	Lincoln
Managers and senior officials	17	19	17	22	17	14
Professional occupations	13	19	13	13	15	12
Associate professional and technical occupations	14	17	17	15	17	18
Administrative and secretarial occupations	13	12	17	15	17	16
Skilled trades occupations	11	10	9	8	8	8
Personal service occupations	5	4	5	4	4	6
Sales and customer service occupations	6	6	7	6	8	10
Process, plant and machine operatives	11	8	8	9	6	7
Elementary occupations	11	6	7	9	8	9

Source: Census 2001

Moreover, this trend is largely prevalent for the hotspots outside of the region. That said, Birmingham perhaps stands out as having a relatively high proportion of in commuters from the East Midlands who are managers and senior officials, accounting for 34 per cent of those commuting in from the East midlands. This is compared to figures of between 14 and 21 per cent in the East Midlands hotspots. These workers are also over-represented amongst those commuting from the East Midlands to Coventry and Milton Keynes.

Conversely, East Staffordshire stands out as having a relatively low proportion of in commuters from the East Midlands who are in higher level occupations and a relatively higher proportion in commuters working in lower level occupations relative to the East Midlands hotspots.

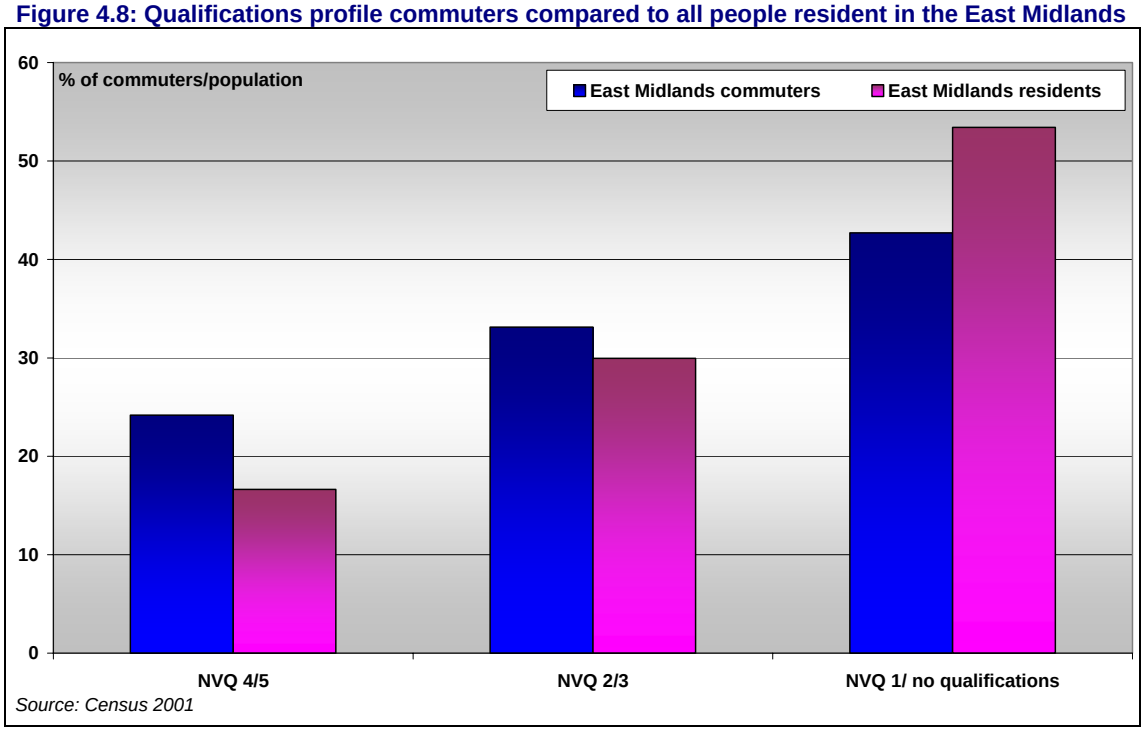
4.5 QUALIFICATIONS

Using data from the Census concerning the occupations that commuters typically work within and the qualifications that these workers typically hold we are able to estimate the qualification profile of those that travel outside of their district to access employment opportunities.

Figure 4.8 illustrates the qualifications profile of those in the East Midlands who travel outside of their district of residence for work compared to the qualifications profile of all East Midlands residents.

Those that are highly qualified are more likely to commute outside their district to work. Indeed, a higher proportion of commuters hold degree level qualifications than is average amongst all East Midlands' residents and a lower proportion are qualified at level 1 or below. It is important to consider that this is connected to the evidence that those in higher level occupations account for a large proportion of commuters, given higher level occupations tend to require higher level skills.

Figure 4.8: Qualifications profile commuters compared to all people resident in the East Midlands



Source: Census 2001

The qualifications profile of those commuting into the hotspot areas differs from that of people who commute into the East Midlands as a whole. Figure 4.9 presents qualifications profile of in-commuters for each of the five hotspot areas and for the East Midlands.

Those who commute into the five hotspots are comprised of a larger proportion of people with NVQ level four and above than people in the East Midlands as a whole and a lower proportion of people with NVQ one or no qualifications.

Of the hotspots, Derby has the highest proportion of commuters who have NVQ level 4/5 and the lowest proportion of commuters who have either NVQ 1 or no qualifications. Nottingham also has a relatively high proportion of commuters who have NVQ 4 or 5 while the levels for Leicester and Northampton are only slightly above that of the East Midlands as a whole.

Table 4.9: Qualifications profile of those commuting into the four hotspots (% of total commuting)

	East Midlands	Derby	Leicester	Northampton	Nottingham	Lincoln
NVQ 4/5	23	29	25	25	28	23
NVQ 2/3	33	32	34	35	34	36
NVQ1/no qualifications	44	40	41	41	44	42

Source: Census 2001

Looking at the qualifications profile of those commuting from the East Midlands into the non East Midlands hotspots, again the profile is broadly similar. Manchester stands out as having a higher proportion of in-commuters with NVQ levels 4 or 5, accounting for 38 per cent of commuters, coupled with relatively few commuters with NVQ 1 or no qualifications. This trend is also prevalent amongst commuters to Birmingham and Coventry.

Conversely, East Staffordshire has a slightly lower proportion of those with NVQ 4 or 5 than the East Midlands hotspots, although this is still higher than the percentage for all East Midlands commuters. Similarly, East Staffordshire, Rotherham and North East Lincolnshire also have a higher proportion of commuters qualified to NVQ 1 or below than both the East Midlands' hotspots and East Midlands commuters as a whole.

4.6 INDUSTRIAL PROFILE

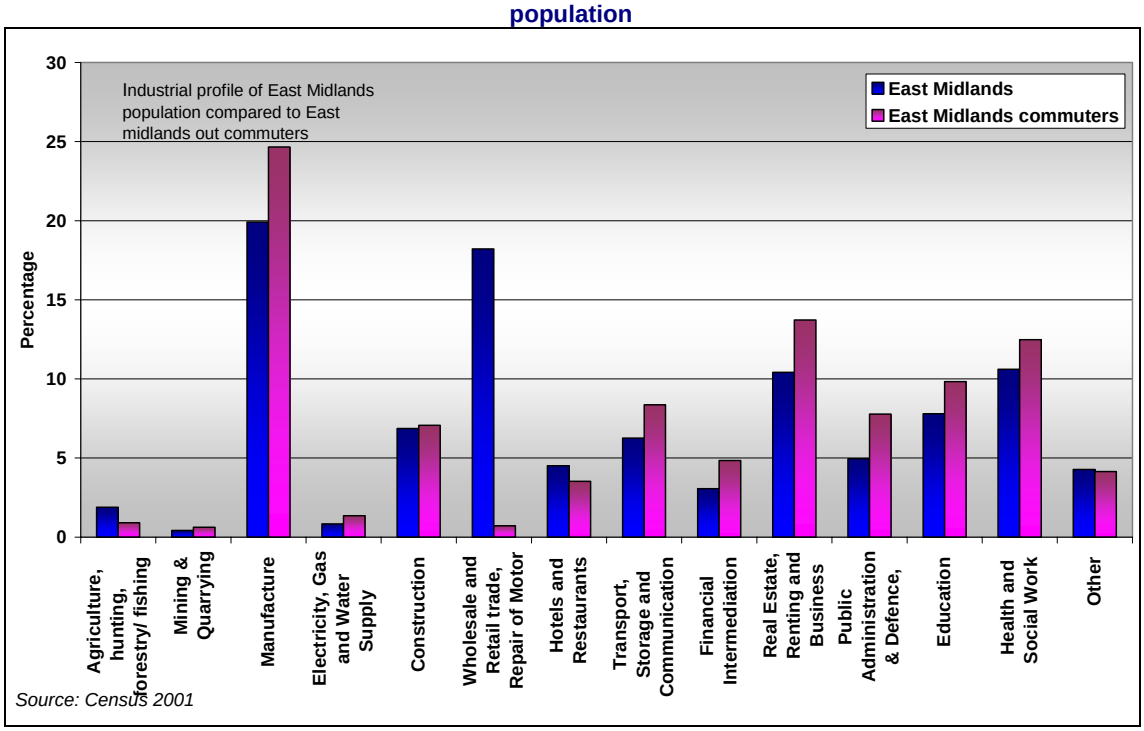
Data from the Census provides us with information on the types of industries those who commute out of their district of residence for work are most likely to be employed within.

Previous sections suggest that commuters tend to be working in industries which require higher level skilled workers, but that the extent of commuting and profile of commuters is heavily influenced by the sectoral makeup of the regional and sub-regional economy.

Indeed, the industry which accounts for the highest proportion of commuters is manufacturing, within which 24 per cent of commuters are employed (Figure 4.10). Other industries which account for large proportions of commuters are real estate, renting and business activities, accounting for almost 14 per cent, and health and social work accounting for over 12 per cent of commuters.

While this will to some extent reflect the sectoral make-up of the East Midlands economy, when compared to the industry profile in the East Midlands as a whole, commuters account for a relatively high proportion of those in the manufacturing industry. This perhaps suggests that middle and higher level managers in the manufacturing industry tend to live further from their place of work than other workers in the industry. Commuters also account for a relatively high proportion of those in the real estate, renting and business activities, transport, storage and communication, and health and social work.

Figure 4.10: Industry profile of East Midlands commuters compared to the East Midlands population



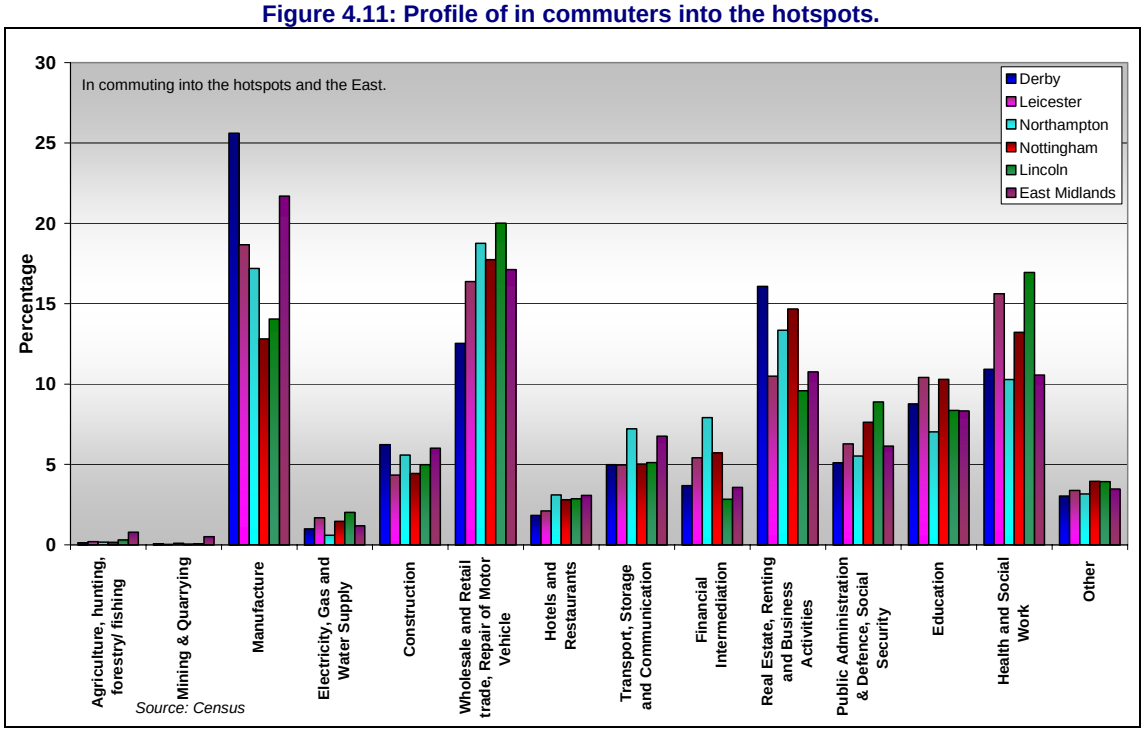
Source: Census 2001

The industrial profile of those who commute into the hotspots, illustrated in Figure 4.11, is broadly in line with expectations given the characteristics of commuters considered in earlier sections. Generally, compared to commuters into the East Midlands as a whole, a larger proportion of commuters into the hotspots are employed within the financial and business services sector and a lower proportion are employed within the manufacturing industry.

The proportion of commuters into the hotspots in the manufacturing industry is notably lower in three of the five hotspots than is average across all East Midland's residents that commute. However, in Derby 26 per cent of in-commuters are employed in the manufacturing sector, significantly higher than is average amongst all East Midlands commuters (almost 22 per cent). This perhaps reflects the presence of large manufacturing employers in the area, including the Toyota manufacturing plant which employs almost 5,000 people.

Industries which account for a relatively large proportion of commuters into the hotspots are real estate, renting and business activities, financial intermediation, and health and social work. Considering the characteristics of commuters into the hotspots so far, it is these types of industries which would be expected to account for large proportions of commuters into the hotspots, given the concentrations of professional, relatively well paid workers in these sectors.

Figure 4.11: Profile of in commuters into the hotspots.



The industries of employment of those that commute to hotspots outside of the East Midlands are broadly similar to those of commuters into the East Midlands hotspots.

Milton Keynes has a relatively high proportion of commuters employed within the wholesale and retail trade sector (21 per cent) illustrating the large retail base in the city. This is also the case for East Staffordshire, where just over 20 per cent of in-commuters from the East Midlands are employed within this sector.

East Staffordshire also has a higher proportion of in-commuters accessing employment opportunities in manufacturing than the East Midlands hotspots. Conversely, Manchester has a relatively low proportion of in-commuters employed within manufacturing, but a relatively high proportion working within the education sector.

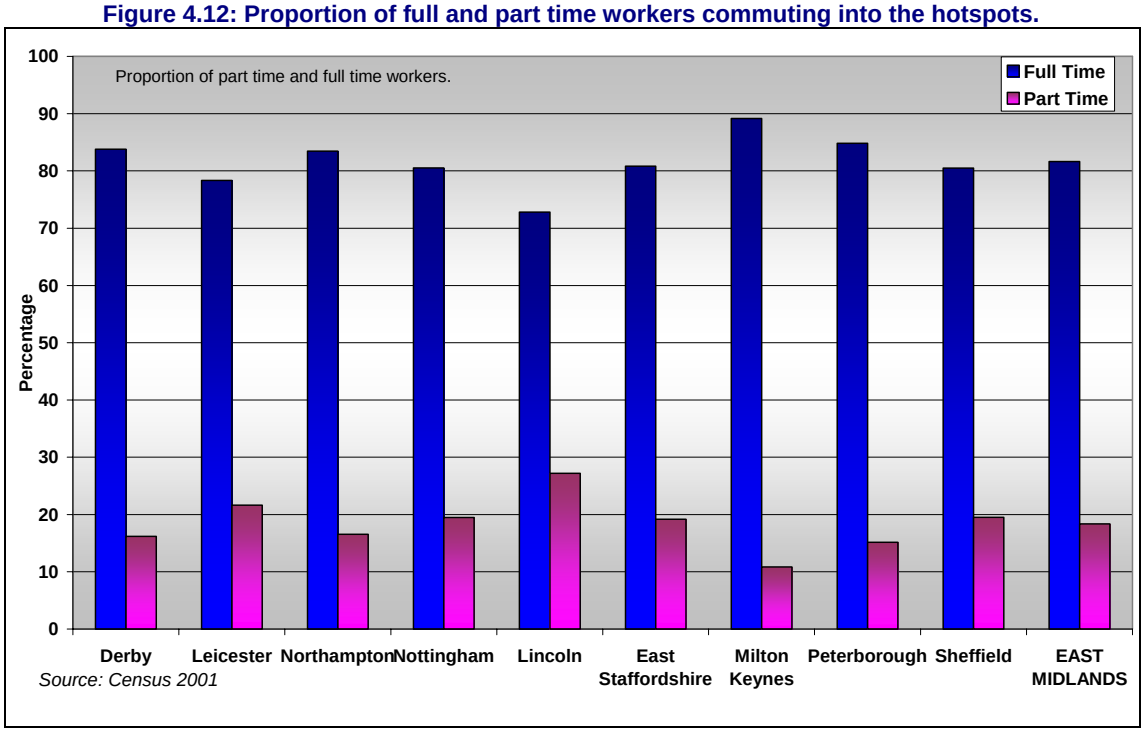
Peterborough, Birmingham, Coventry and Milton Keynes all have a relatively high proportion of its commuters from the East Midlands in financial intermediation (ranging between 8 and 12 per cent) compared to between 4 per cent and 8 per cent for in-commuters to the East Midlands hotspots, again representing the concentrations of these types of businesses in the area.

4.7 HOURS WORKED

Those in full-time employment are likely to travel further to access employment opportunities than part-time employees- a likely reflection of the differing earnings of full-time and part-time workers, where lower wages narrow the confines within which travel to work is financially viable.

Figure 4.12 illustrates the proportion of commuters who work full time and part time for each of the hotspots both within and outside of the East Midlands, relative to all East Midlands residents who commute outside their district to access employment. It illustrates that between 78 per cent and 89 per cent of commuters work full time and between 11 per cent and 22 per cent work part time. There is little variation in the employment status of those travelling into each of the East Midlands and non-East Midlands hotspots.

Figure 4.12: Proportion of full and part time workers commuting into the hotspots.



Source: Census 2001

5 Understanding the Drivers of Commuting

5.1 INTRODUCTION

Commuting patterns are influenced by people's decisions on where to work and where to live, as well as factors that facilitate commuting such as transport infrastructure. That said an individual's decision on where to live and work is in turn influenced by a whole host of factors including employment opportunities and quality of employment, housing, transport and other locational factors such as quality of life, access to good schools and so on.

This chapter considers the primary factors that are driving patterns of commuting in the East Midlands, drawing on data and intelligence on employment opportunities, wages, population growth, housing and transport.

The chapter also looks forward to consider how these factors may change, in order to build a view of how commuting patterns may change in the future. Ultimately, however, the picture is complex and forecasting commuting patterns is difficult. The chapter concludes by presenting net commuting forecasts for the East Midlands sourced from the emda/Experian Scenario Impact Model.

5.2 WHERE PEOPLE WORK

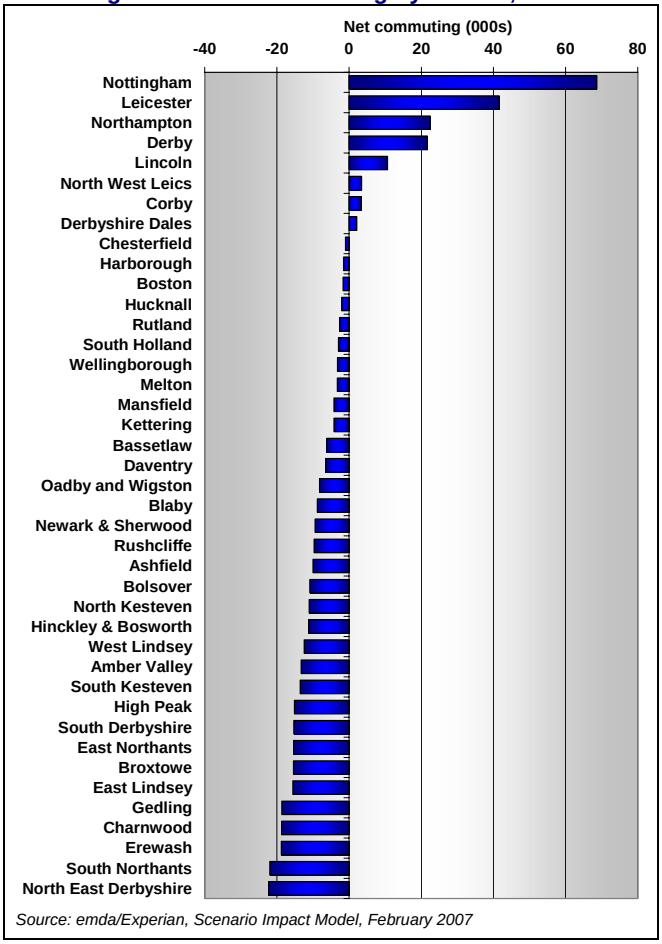
5.2.1 Employment opportunities

The pattern of jobs is a significant driver of commuting patterns, as ultimately people are travelling to access employment opportunities. As figures 6.1 and 6.2 illustrate, districts that are subject to the most significant net in-commuting tend to be those with the highest job density.

Indeed, the commuting hotspots in the East Midlands have amongst the greatest number of jobs relative to the working age population in the region. That said, other areas with high rates of job density witness relatively little net in-commuting, highlighting that considering **net** commuting potentially masks significant **gross** commuting flows into and out of areas.
Indeed, Chesterfield, for example, offers substantial employment opportunities but is subject to a slight net outflow of workers. Evidence from the Census suggests that there exists significant commuting between Chesterfield and the rest of the East Midlands, as well as to and from Sheffield.

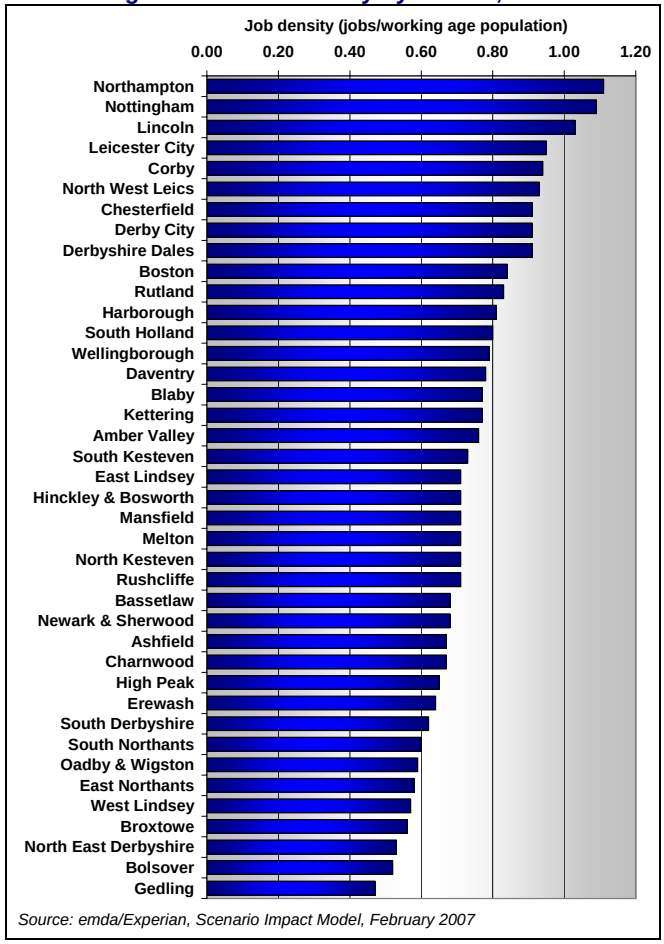
Conversely, areas that witness the greatest net out-commuting, such as North East Derbyshire and South Northamptonshire, tend to have fewer jobs relative to the working age population.

Figure 5.1- Net commuting by district, 2006



Source: emda/Experian, Scenario Impact Model, February 2007

Figure 5.2 - Job Density by district, 2006



Source: emda/Experian, Scenario Impact Model, February 2007

Looking forward, employment in the commuting hotspots of the East Midlands is forecast to grow over the next decade. Job growth is expected to be particularly strong in Northampton, with the workforce expected to expand by 0.6 per cent on average per annum - equivalent to around 1,000 additional jobs each year.

Conversely, job creation in the three cities is expected to lag behind many other parts of the East Midlands and will be slower than the regional average. This will have important implications for commuting flows into these areas.

Employment in commuting hotspots outside of the region is also forecast to grow over the next decade, particularly in Milton Keynes and Peterborough where average annual employment growth between 2005 and 2015 is expected to reach over 1.1 per cent. This indicates that commuting from the East Midlands into these areas is likely to continue to increase over the next decade.

The nature of employment opportunities will also be a key determinant of commuting patterns. Jobs are increasingly concentrated in key employment centres (and their peripheries) as firms operating in sectors such as financial and business services tend to cluster together and other supporting services such as retail and leisure tend to develop around them.

That said, growth of the service sector and continued development in ICT (falling costs of hardware and broadband, increased use of Blackberries etc) is also likely to facilitate greater

atypical working practices such as tele and home working. While past research[3], has found that there is limited use of ICT to facilitate atypical working, further technological developments could have implications for commuting patterns going forward. This is the subject of further research recently commissioned by the East Midlands Development Agency (*emda*).

5.2.2 Wages

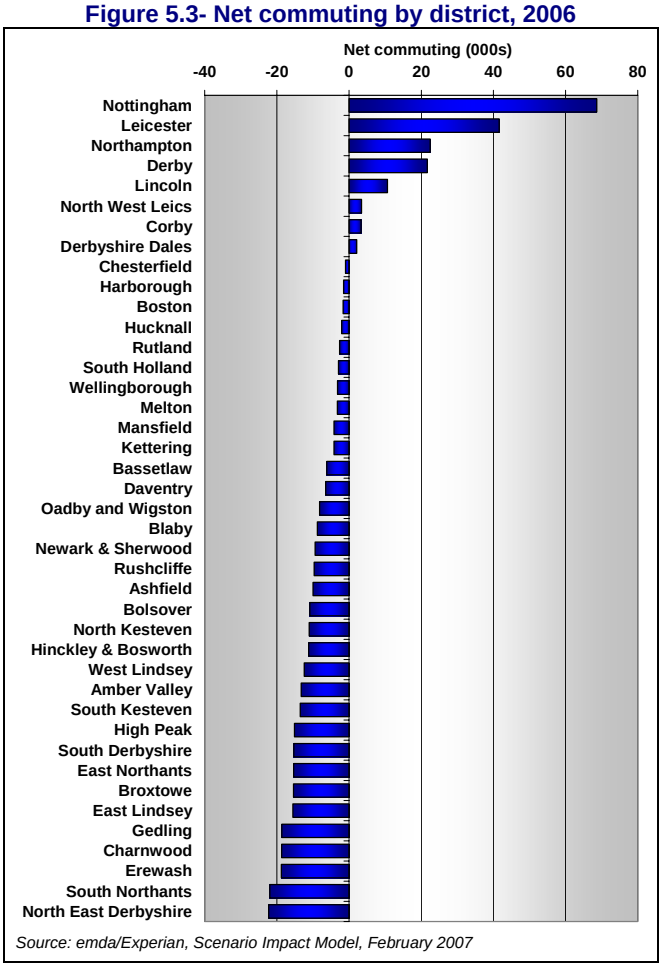
While the concentration of jobs is certainly a key driver of commuting patterns, it is also important to consider the quality of jobs, particularly the wages on offer. Workers are more likely to commute to access employment opportunities that are better paid than those available locally and will compensate for the financial burden of commuting.

Evidence from the Annual Survey of Hours and Earnings (ASHE) illustrates that workplace-based gross weekly wages are often higher in areas that are subject to significant net-inflows of workers. Indeed, wages on offer in Derby are higher than in any other district in the region and are significantly above the East Midlands average and the wages on offer in the other commuting hotspots of Northampton and Nottingham. Conversely, with workplace based earnings of £392 on average per week, average weekly earnings on offer in Leicester fall below the East Midlands average (£404). This may reflect the sectoral mix of the city's economy, which is highly concentrated amongst low skills, low wage activities.

Figure 5.4 highlights the significant differentials that exist between the earnings of those that work in an area and those that live there. In the three cities, the residence based earnings are significantly lower than workplace based measures, suggesting significant in-commuting of higher earners. The differential is, however, most prominent in areas such as Derbyshire Dales which is home to significant numbers of lower managerial and professional workers, many of which are employed within Derby, Chesterfield and Amber Valley. This is also the case for Daventry, which is an important residential location for workers employed within these occupations in Northampton, Rugby and Milton Keynes.

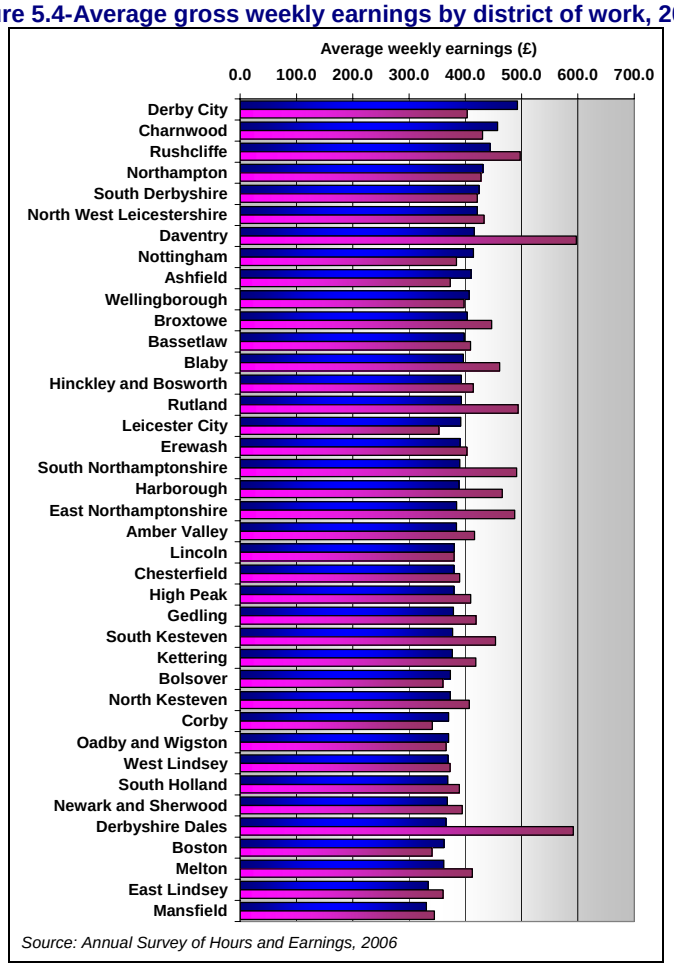
[3] "City Flight Migration Patterns" Centre for Urban and Regional Development Studies (CURDS) for *emda*, forthcoming

Figure 5.3- Net commuting by district, 2006



Source: emda/Experian, Scenario Impact Model, February 2007

Figure 5.4-Average gross weekly earnings by district of work, 2006[4]



Source: Annual Survey of Hours and Earnings, 2006

5.3 WHERE PEOPLE LIVE

5.3.1 Population and household growth

Figures 5.5, which is based on the ONS Mid Year Population Estimates, illustrates the expansion of the population in the East Midlands seen over the past decade. The figure suggests that the areas that have seen greatest expansion of the population tend to be rural areas and districts that border centres of economic activity including the East Midlands hotspots.

Research considering 'city flight' migration patterns has found that the high skilled groups are more likely than other groups to leave England's larger cities. The result is the relatively high proportion of commuters in high skilled occupations as discussed in the previous chapter. The report found particularly strong patterns of migration to rural areas from Leicester and Nottingham. In examining the potential reasons for this urban-rural migration, the report emphasised that people are increasingly moving out of cities as the differences in urban and rural living have in some ways become blurred, with many of the positive aspects of city life such as accessibility to amenities and leisure facilities now being increasingly available in rural areas.[5]

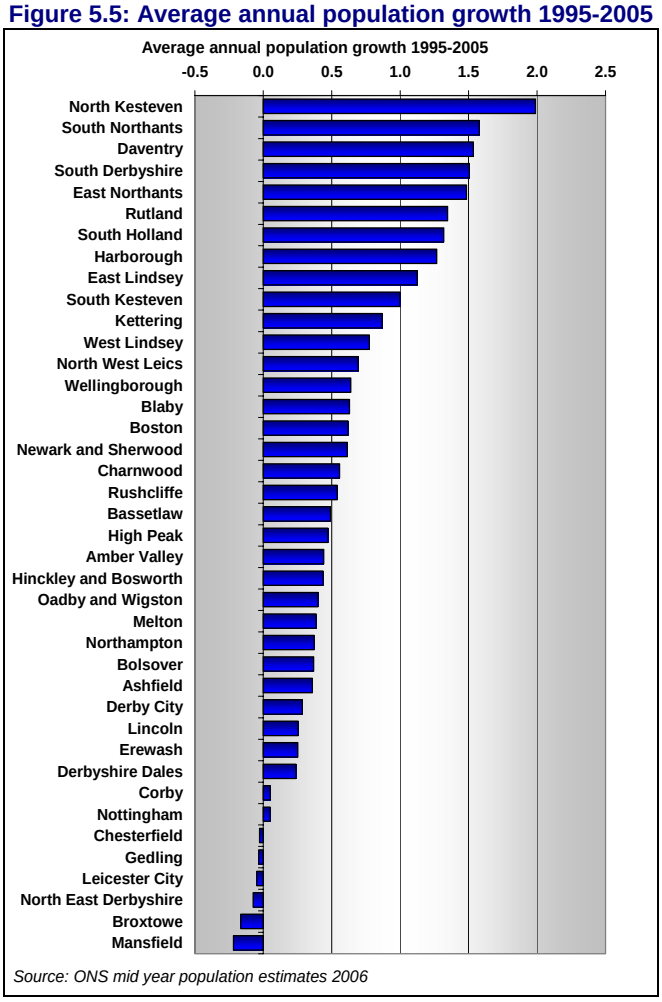
[4] ONS Crown Copyright, Annual Survey of Hours and Earnings 2006, sourced from NOMIS. Data for North East Derbyshire have been suppressed as they are statistically unreliable.

[5] "City Flight Migration Patterns" Centre for Urban and Regional Development Studies (CURDS) for *emda*, forthcoming

The rural areas of North Kesteven, which borders Lincoln, and to a lesser degree South Northamptonshire and Daventry, in close proximity to Northampton, have seen the most rapid expansion of the population over the past decade. In contrast, the population in the urban centres themselves has remained largely static and in Leicester the population has declined. The exception to this is Northampton, which has witnessed an expansion of the population in line with the areas "growth area" status and substantial house building underway in the area.

This ongoing trend of "city flight" will have important implications for commuting patterns with commuting from sub-urban and rural areas to the cities likely to continue to increase.[6]

Figure 5.5: Average annual population growth 1995-2005



Source: ONS mid year population estimates 2006

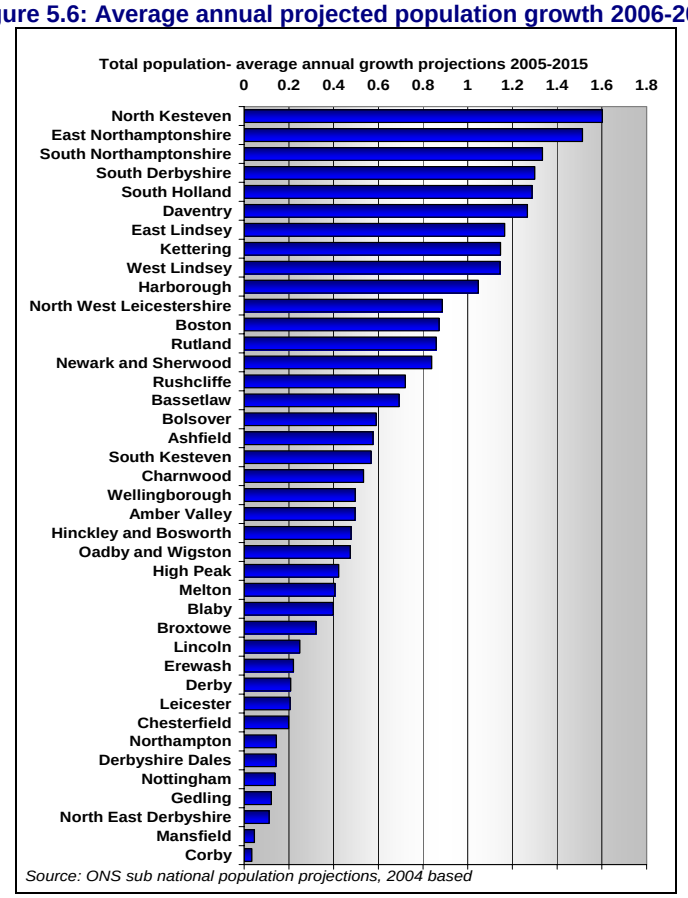
The ONS Sub-National Population Projections suggest that these trends will continue in the future. Indeed, expansion of the population living in the commuting hotspots is projected to be amongst the lowest of all districts in the East Midlands, with the four hotspots ranking within the bottom 10 of all districts (Figure 5.6). Over the last 10 years growth in the working age population in these areas was relatively high compared to many other districts. Future projections suggest, however, that growth in the working age population in these areas will slow down, with the commuting hotspots again ranking amongst the bottom 15 districts. This reflects the changing demographic profile of the region's population, with the proportion of the population of pensionable age increasing significantly over the next decade.

Conversely, employment projections for the commuting hotspots suggest continued expansion of employment opportunities in these areas, particularly in Northampton where the workforce is

[6] "City Flight Migration Patterns in the East Midlands" Centre for Urban and Regional Development Studies (CURDS) on behalf of *emda*, forthcoming.

expected to grow by 0.6 per cent on average per annum over the next decade. Together, these projections suggest that as the number of jobs continues to increase, the number of working age people resident in the hotspots to take these jobs will increase at a much slower rate, indicating that increasing numbers of people will be commuting into these areas to fill the growing numbers of jobs.

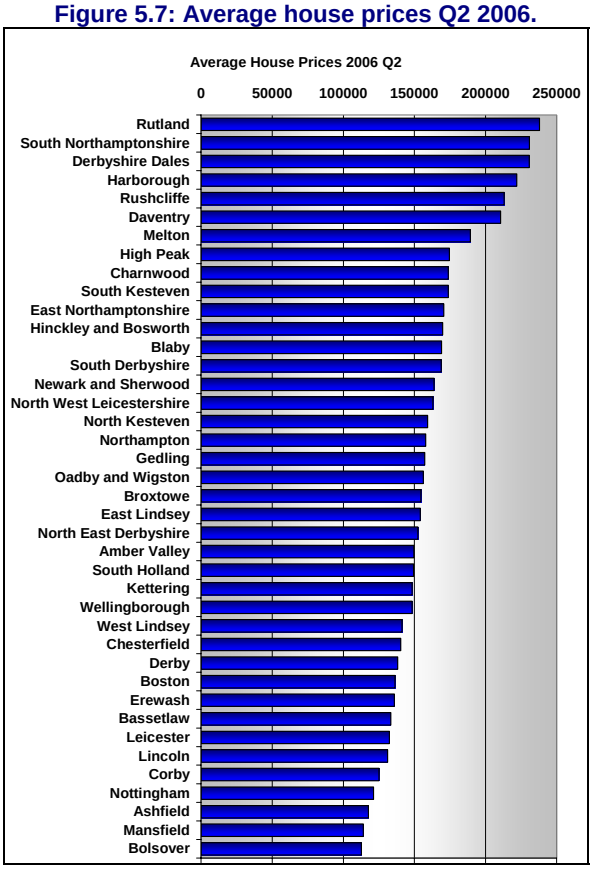
Figure 5.6: Average annual projected population growth 2006-2016



5.3.2 Property prices and housing stock

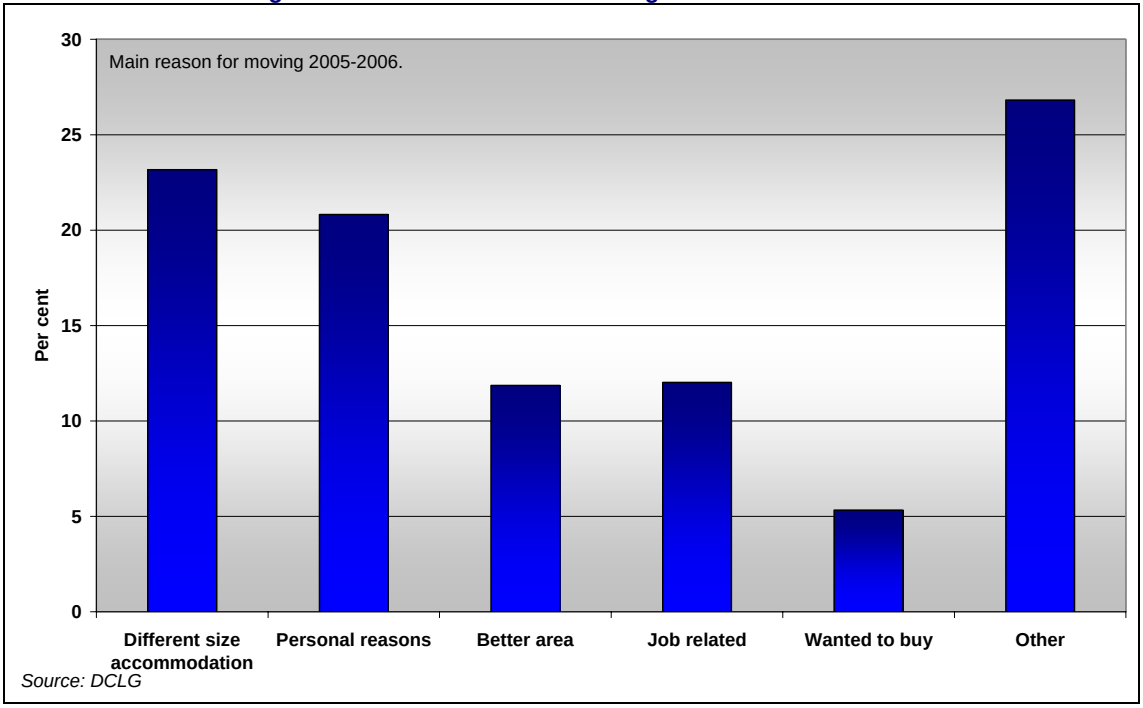
Property prices are another key driver of commuting patterns. Figure 5.7 illustrates the average house price in each of the East Midlands districts in quarter two of 2006. Districts in which house prices are highest are Rutland, South Northamptonshire, and Derbyshire Dales. Conversely, with the exception of Northampton, the commuting hotspots are ranked in the lowest 11 districts. Northampton is ranked in the top half of districts for house prices.

Figure 5.7: Average house prices Q2 2006.



Although it might be expected that the commuting hotspots have amongst the highest house prices, pushing people out of the city centres to the suburbs, this is not the case suggesting that people are attracted to the suburbs and rural areas for other reasons. Previous Experian research has found that people's choice of where to live is shaped by a range of preferences including size and quality of home, privacy and safety, and access to green space. The hotspots are likely to fair less well against these wider environmental factors and negative factors such as noise pollution, busy roads and so on might 'push' people to live outside of the hotspots of economic activity themselves. Indeed, the research also found that in most cases, being close to work is not of primary importance when choosing where to live, so long as work and home are within broad parameters of accessibility and this is again evidenced by the DCLG General Household Survey illustrated in Figure 5.8.

Figure 5.8: Main reasons for moving house in 2005-2006.

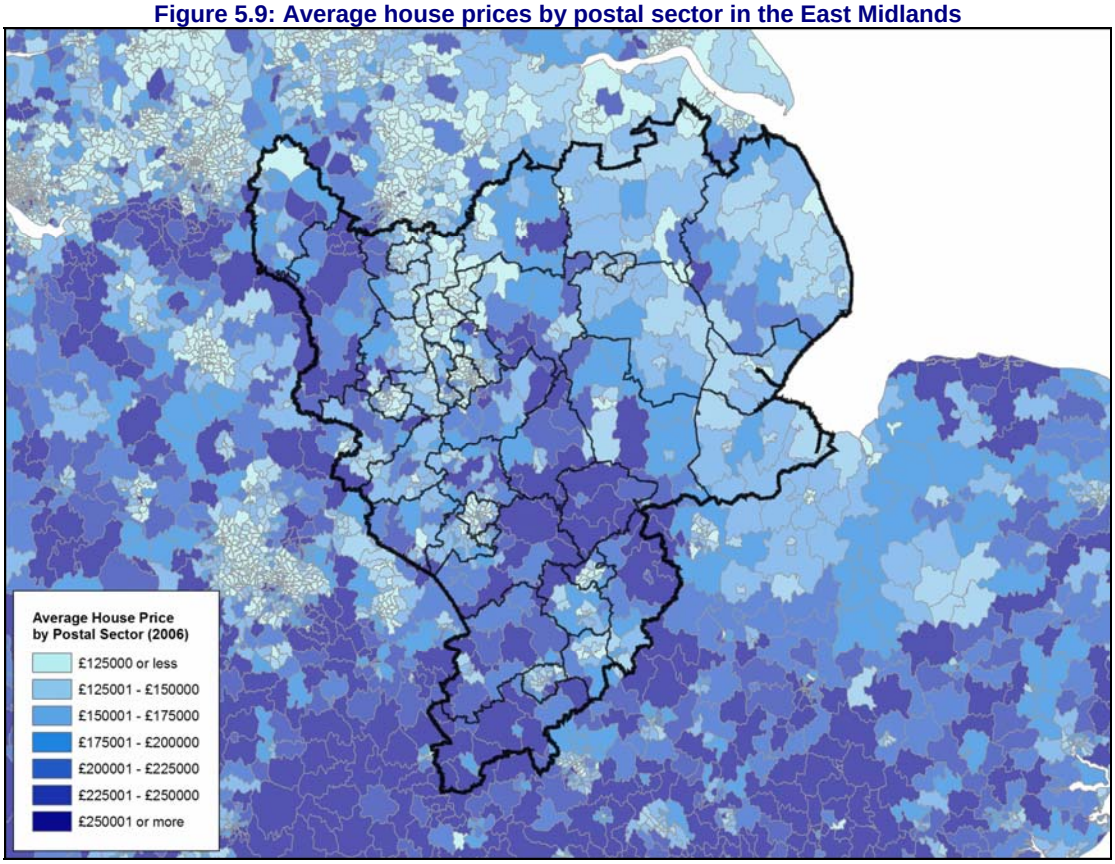


Source: DCLG

While the hotspots themselves do not necessarily have the highest average house prices, areas which are adjacent to, or are within commutable distance from, the hotspots do have amongst the highest house prices in the region.

Indeed, Figure 5.9 illustrates the average house price in each of the postal sectors of the East Midlands. Those areas where the average house price is over £250,000 are shown in dark blue and these dark blue postal sectors generally cluster around the commuting hotspots in and around the East Midlands.

Figure 5.9: Average house prices by postal sector in the East Midlands



The six districts which have the highest house prices, as shown in Figure 5.7, all directly border one of the eight commuting hotspots:

- Rutland, the district with the highest average house prices, borders the commuting hotspot of Peterborough.
- South Northamptonshire, the district with the second highest average house prices, borders the commuting hotspot Milton Keynes.
- Derbyshire Dales, the third highest average house price district, borders the hotspots of Sheffield and East Staffs.
- Harborough is located close to Nottingham.
- Rushcliffe also borders Nottingham
- South Derbyshire has a border with East Staffordshire.

This is in contrast to the districts with the lowest house prices. The majority of the 10 districts at the bottom of the average house price chart (Figure 5.7) are not bordered or close to the hotspots. This suggests a clear relationship between average house price and proximity to a commuting hotspot, although the hotspots themselves generally don't have the high house prices.

The pattern of areas with the highest house prices being located next to the hotspots shows that demand to live close to the hotspots is high. However, as the house prices in these areas are very high, people may be pushed to live further away from the hotspots, to areas where house prices are lower, thus increasing the amount, and journey time, of commuting.

A potential reason why average house prices in the hotspots are not as high as expected when compared to other districts may be the differences in the types of dwellings in cities than in more suburban or rural areas.

Figure 5.10 shows that, compared to the East Midlands as a whole, a higher proportion of properties in the hotspots are terraced housing or flats, which are generally lower in price than other types of housing such as detached which account for a smaller proportion of houses in the hotspots. The difference is particularly notable in Leicester, where only 12 per cent of houses are detached compared to 36 per cent in the East Midlands, 42 per cent of houses are terraced compared to 23 per cent in the East Midlands, and 16 per cent of all occupied household spaces are flats, maisonettes, or apartments compared to 9 per cent in the East Midlands. The availability of larger, often detached, houses with gardens is a key influence on the residential location decisions of higher-paid workers. This is particularly so for families with children. Attracting such workers back into cities may require substantial changes to the housing stock in urban areas.

Figure 5.10: Dwelling types in the East Midlands hotspots.

	East Midlands	Derby	Leicester	Nottingham	Northampton
% of total houses which are detached	36	27	12	20	26
% of total houses which are terraced	23	26	42	39	40
% of all occupied household spaces which are flats, maisonettes or apartments.	9	11	16	20	13

Source: Census 2001.

5.4 DRIVE TIMES, PUBLIC TRANSPORT AVAILABILITY AND DISTANCE TRAVELLED.

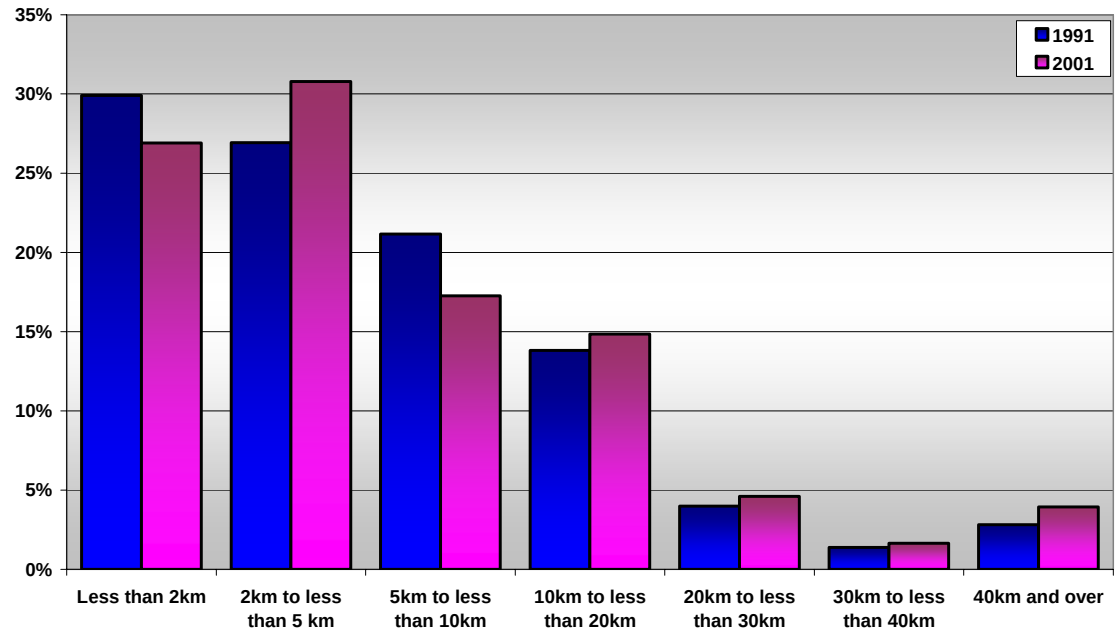
Clearly the transport infrastructure plays a key role in facilitating and to some extent driving patterns of commuting in the East Midlands. This section considers the distance people travel to access employment opportunities, how this varies across the East Midlands commuting hotspots and the mode of transport used by those commuting.

5.4.1 Distance travelled

The Department for Transport's National Travel Survey suggests that across Great Britain there has been a general increase in the distance people are willing to travel to access employment opportunities. In 2005, the average trip to work entailed travelling 8.7 miles, compared to 8.2 miles ten years previously.

Evidence from the Census suggests that this trend is also evident in the East Midlands. In 2001, 10 per cent of people working in the East Midlands travelled in excess 20 miles, compared to 8 per cent in 1991 (Figure 5.11).

Figure 5.11- Distance travelled to work, East Midlands[7]



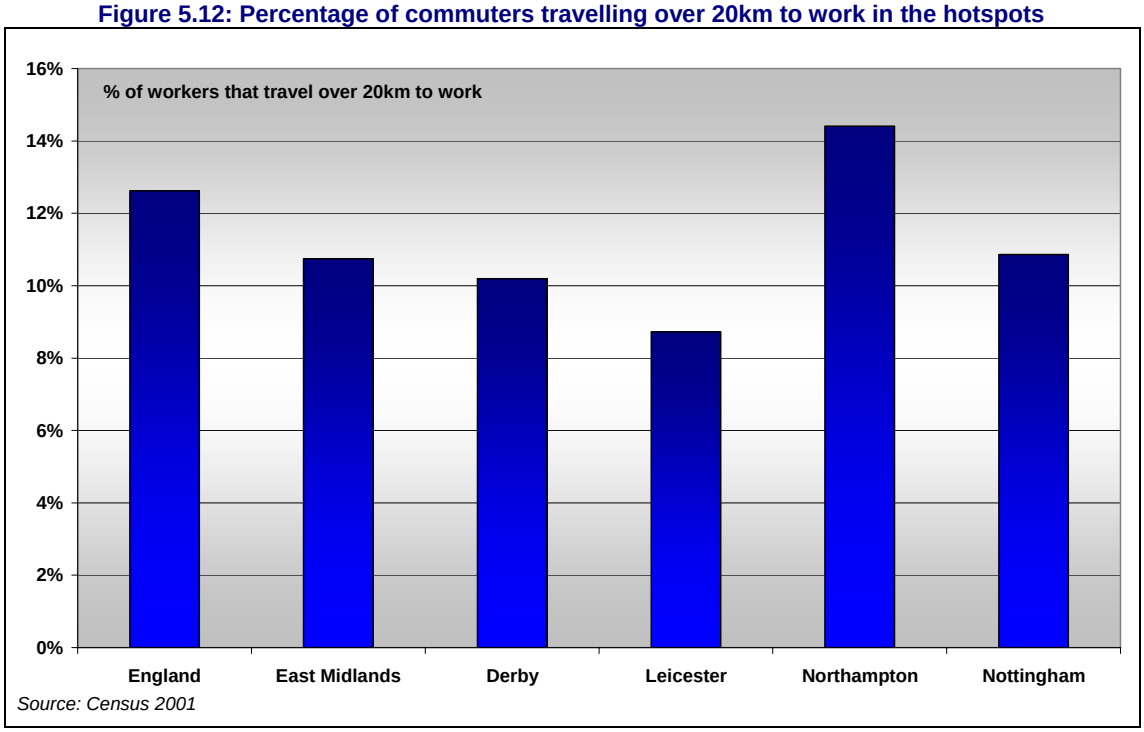
Source: Census 1991, 2001

Considering how travel to work varies by gender, evidence from the Census suggests that males are more likely to commute longer distances to work than females – around 11 per cent of males travel between 20 and 40 km to work in the East Midlands compared to around 6 per cent of females. Similarly, almost 30 per cent of females travel less than 2km to work while only around 18 per cent of men travel less than 2 km to work.

Figure 5.12 illustrates the proportion of the workforce in the hotspots who travel further than 20km to their place of employment. Interestingly, the proportion of in-commuters to Derby and Nottingham who travel over 20km to get to work is similar to the East Midlands as a whole at around 10 per cent. In Leicester a relatively smaller proportion of commuters travel over 20km to work, while in Northampton almost 15 per cent of the workforce travel over 20km. This is likely to be, in part, because the occupational profile of Northampton shows higher proportions of the higher level occupations than other regions, and this in turn indicates that the workers are higher paid and so are more willing to travel further to work.

[7] ONS Crown Copyright, Census 1991 and 2001 sourced from NOMIS. Census 1991 date is based on a 10 per cent sample.

Figure 5.12: Percentage of commuters travelling over 20km to work in the hotspots



Source: Census 2001

Distance travelled to work is, however, heavily influenced by the time taken to access key employment centres. Drive times data shows the time it takes to drive into the hotspots from other points in the region. Figures 5.13 and 5.14 show the areas in the region from which it takes 15, 30, 45 and 50 minutes to drive into Nottingham and Leicester (respectively).

The pattern indicates that it takes longer to travel to Nottingham from areas to the East of the city than it does to travel to Nottingham from areas to the west of the city, suggesting that the area potentially receives more commuters form the East than the West. It also appears that commuting times into Nottingham are shorter when travelling from the South than the North.

Like Nottingham, drive times into Leicester appear to be slightly shorter when driving in from the West than from the East. Unlike Nottingham, drive times appear to be shorter when travelling into Leicester from the North than form the South.

Figure 5.13- Drive times to Nottingham

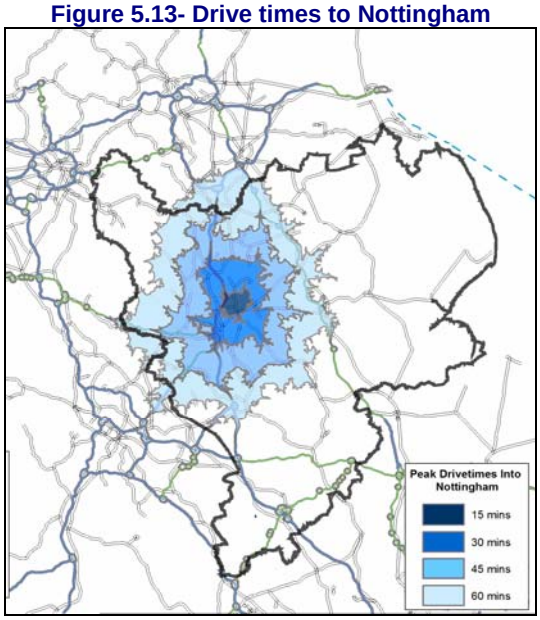
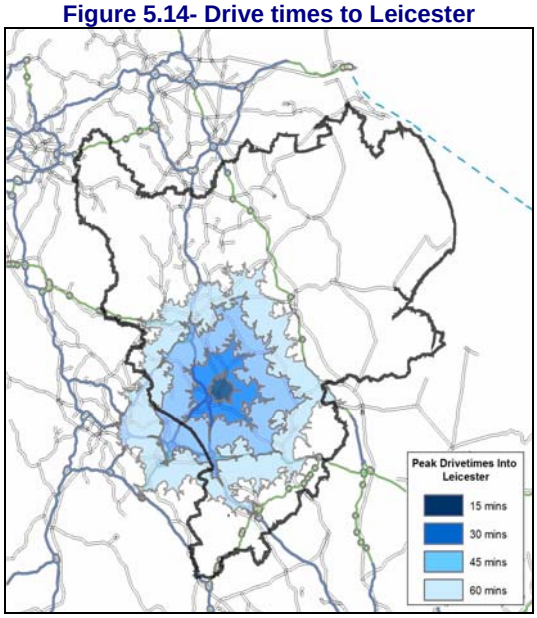


Figure 5.14- Drive times to Leicester



Source: Integrated Transport Information Services (ITIS) Drivetimes, Experian 2007

5.5 MODE OF TRAVEL

Data from the Census allows us consider the mode of transport used by commuters and how usage of these types of transport has changed between 1991 and 2001 (Figure 5.14).

Car or van is the most popular mode of travel by commuters within the East Midlands, with 60 per cent of commuters using these means to travel to work. Compared to England, this is relatively high, and growth in car use in the East Midlands has also been higher than that in England since the last Census in 1991.

The next most popular form of travel is on foot, with 11 per cent of people walking to work which is also a slightly higher proportion than for England as a whole. However, the proportion of people walking to work in the East Midlands has decreased slightly since 1991, in line with the trend seen more widely across England. Generally, public transport has been less popular in the East Midlands than in England as a whole, both in 1991 and 2001.

Moreover, evidence from the Department for Transport survey of PSV and Tram Operators suggests that there has been a decline in the total number of bus and light rail (tram) passenger journeys over the period 1995/96 to 2005/06. Bus journeys in East Midlands decreased to its lowest level over the period in 2004/05, although this is could potentially reflect a substitution of the bus for light rail journeys in Nottingham after the tram was introduced in 2004.

That said, the increase in the proportion of commuters using a car or van as a mode of transport to travel to work could also be contributing factor to the lack of growth in bus and light rail passenger journeys in the East Midlands.

Finally, the data on the number of people working from home may have implications on the number of commuters. The proportion of workers working from home has increased by a significant amount, both in England and in the East Midlands where the proportion of people working form home has almost doubled from 5 per cent to 9 per cent over the past decade in both cases.

Figure 5.14- Mode of travel to work, East Midlands and England[8]

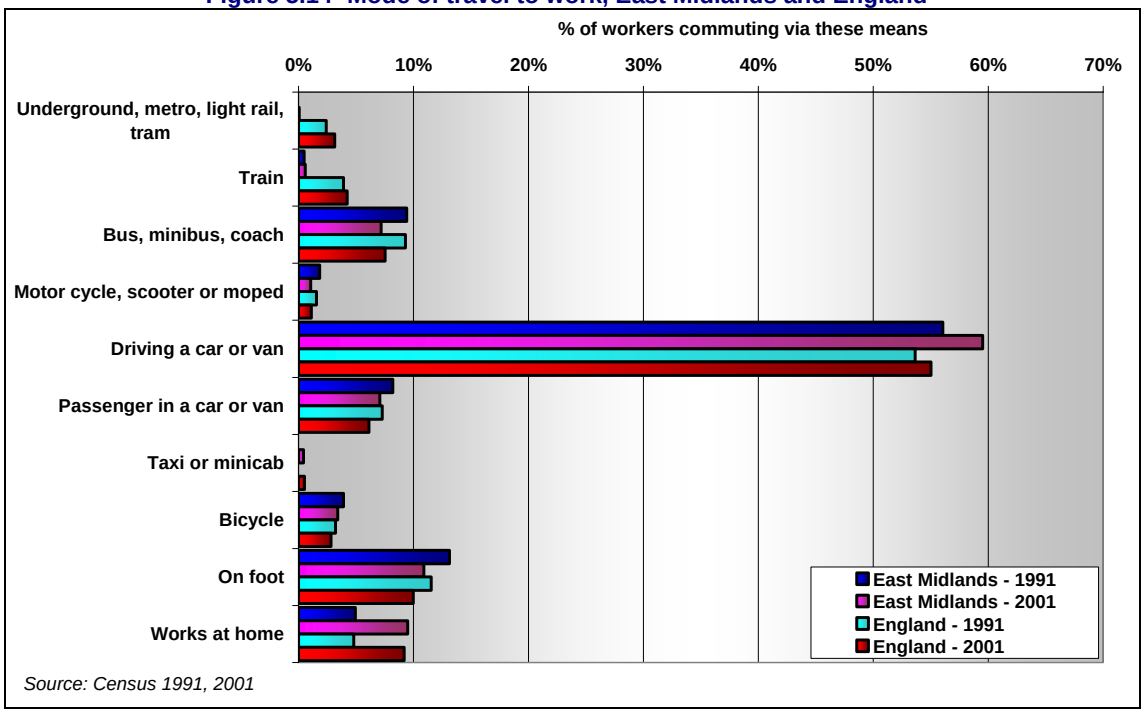
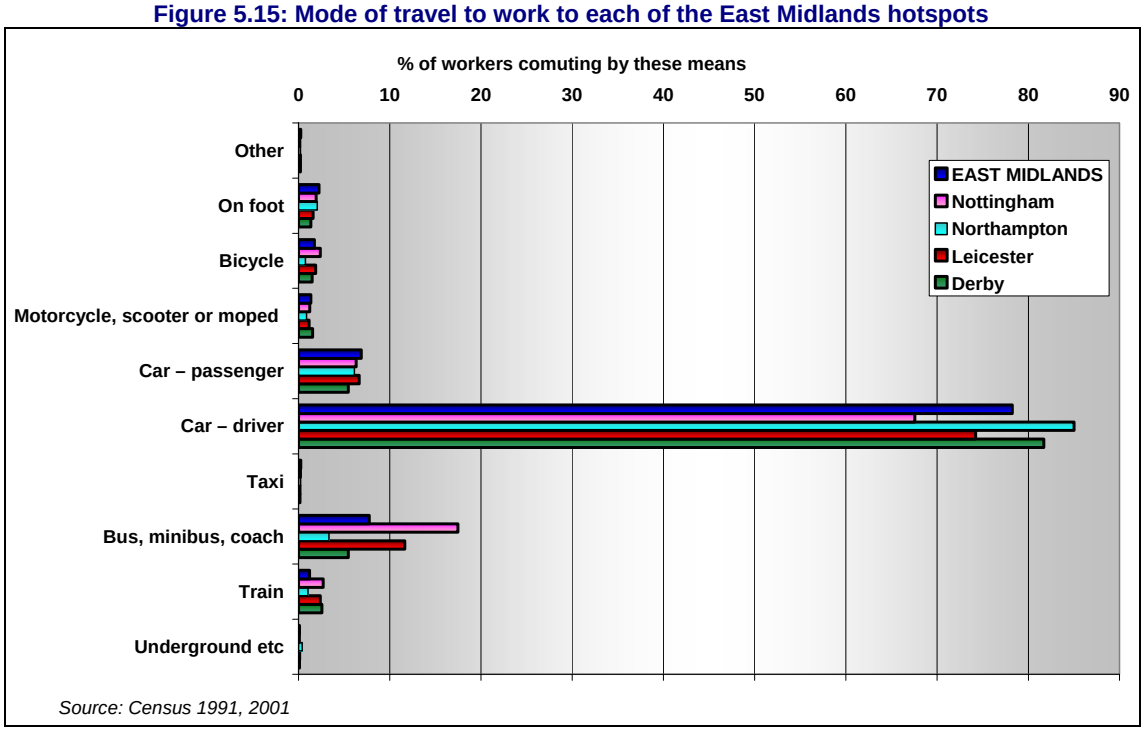


Figure 5.15 looks at the mode of travel of people commuting into the hotspots, suggesting some degree of variation. In Northampton and Derby, a higher proportion of workers travel to work by car than is average for all East Midlands commuters, while in Nottingham and Leicester the proportion is lower than the East Midlands. This could be related to the better availability of public transport in these areas.

Figure 5.15: Mode of travel to work to each of the East Midlands hotspots



[8] ONS Crown Copyright, Census 1991 and 2001 sourced from NOMIS. Census 1991 date is based on a 10 per cent sample.

Indeed, the use of trains and buses to travel to work is most prevalent in Nottingham and Leicester than in other parts of the region as illustrated by figures 5.16 and 5.17.

In Nottingham, the area with the lowest proportion of people travelling to work by car, the proportion of people using the bus and train is the highest of all the hotspots and above the East Midlands proportion suggesting good availability of public buses and trains.

The use of public transport outside of the region's two largest cities is limited. Indeed, even in Northampton and Derby a fraction of commuting flows are undertaken using buses of trains.

Figure 5.16- Commuting flows via Bus

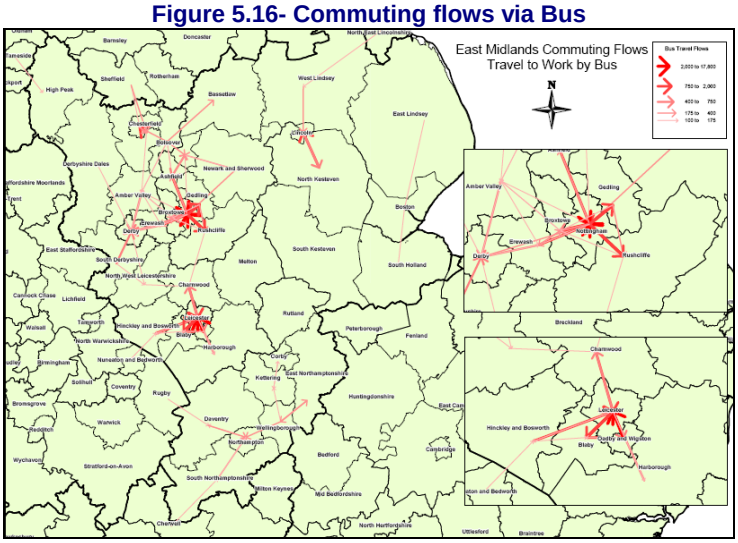


Figure 5.17- Commuting flows via train

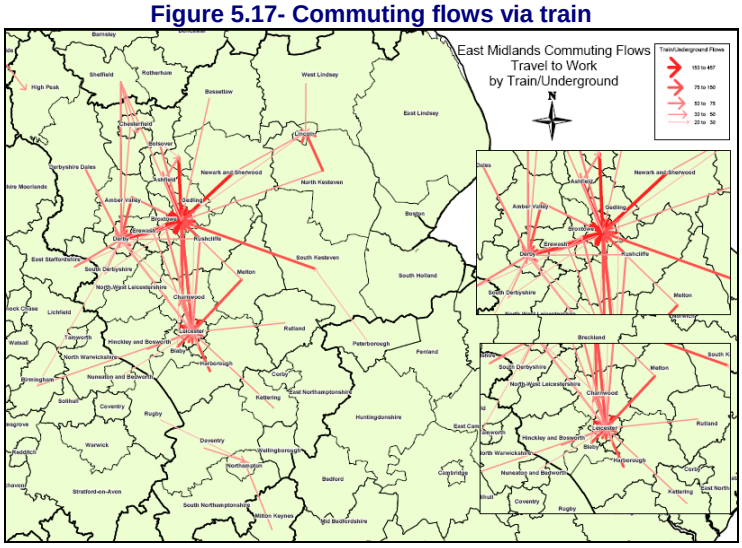
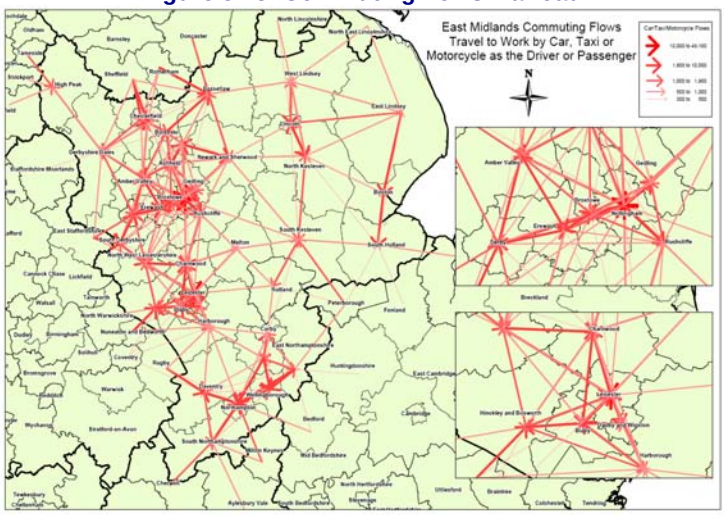


Figure 5.18- Commuting flows via road



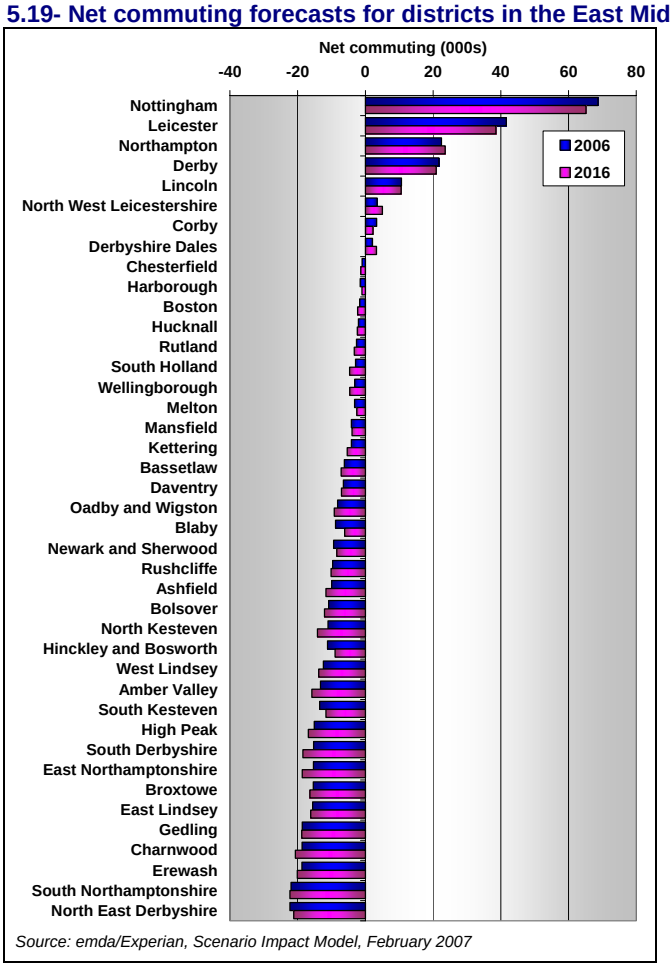
5.6 NET COMMUTING FORECASTS

As highlighted in the previous sections, commuting patterns are influenced by a variety of different factors and therefore forecasting commuting patterns is a highly complex process. Evidence from the *emda*/Experian Scenario Impact Model suggests that current net commuting patterns in the East Midlands are largely expected to continue into the future. The East Midlands' two largest cities will continue to be subject to the most substantial net in-commuting, followed by Northampton and Derby (Figure 5.18).

That said, net in-commuting to the three cities is forecast to drop back slightly over the next decade, as employment rates in these areas increase towards the national average. Conversely, net in-commuting to Northampton is expected to increase, given the substantial population and job growth forecast as part of the MKSM sub-regional strategy.

Commuting flows out of the region into the neighbouring commuting hotspots of Milton Keynes, Sheffield, Peterborough, and East Staffs is forecast to increase as employment growth in these areas continues.

Figure 5.19- Net commuting forecasts for districts in the East Midlands



Source: emda/Experian, Scenario Impact Model, February 2007

6 Labour Market Areas

6.1 INTRODUCTION

This report primarily focuses on the flow of commuters between two areas. So called gross flows data, or origin-destination data allows detailed analysis of the characteristics of commuters, how far they travel and by what mode of transport. However, commuting flows data is complex to analyse, mainly due to the sheer volume of data involved. As such, it is useful to try and define labour market areas which capture where the majority of people who live in an area work and where the majority of those who work in area live. Such an exercise was completed in 1998 to create travel to work areas based on gross commuting flows data from the 1991 Census.

The release of gross commuting data from the 2001 Census presents an opportunity to update the 1998 travel to work areas. The Centre for Urban & Regional Studies (CURDS) have already completed some work examining the potential of using the 2001 Census to create new travel to work areas and also examining what they may look like. In this section we review the 1998 travel to work areas, and analyse how the areas may have changed in light of results from the 2001 Census. This section therefore comments on the provisional analysis of TTWAs based on the 2001 Census which has been completed by CURDS and supplemented by some research undertaken by Experian for this project. Finally, this section presents a brief comparison of TTWAs with Housing Market Areas (HMAs) and looks at commuting flows between HMAs based on the 2001 Census.

6.2 1998 TRAVEL TO WORK AREAS

Travel to work areas are designed to simplify analysis of flows data by grouping smaller geographic areas to form larger areas that are more manageable. ONS originally created travel to work areas using 1991 gross commuting flows data at ward level (1991 wards). Travel to work areas are defined based on two self-containment criteria: that at least 75 per cent of working residents work within the area; and at least 75 per cent of all workers live within the area. The initial 1991 travel to work areas were revised following consultation and were finalised as 1998 travel to work areas. In essence, the methodology for creating travel to work areas involves starting from a central area (generally a city or town) and progressively add small local areas (wards or Census output areas) until two self-containment rules are met. These rules set minimum levels for the proportion of workers who live in the area and the proportion of residents who work in the area. In general, however, these criteria do not define a unique set of TTWAs, since some local areas may belong to two or more TTWAs by these criteria. Some adjustment is therefore required to ensure that all local areas belong to one, and only one, TTWA. The 1998 travel to work areas in and around the East Midlands are presented in figure 6.1[9].

Accordingly, in 1998 there were a total of 27 travel to work areas defined for the East Midlands region. Key points to note are the coverage of the key urban centres in the region – Nottingham, Leicester, Northampton and Lincoln all have a representative TTWA. Also It is interesting to note the evidence of inter-regional of commuting patterns evident in the 1991 Census flows data. Indeed, the TTWAs of Sheffield and Rotherham, Manchester, Burton-on-Trent, Coventry, Banbury and Peterborough all cross the regional boundary into the East Midlands. Interestingly, there is little evidence of East Midlands travel-to-work areas encroaching into other regions.

[9] The boundaries presented are representative of the 1998 Travel to Work Areas based on Census 1991 data. The boundaries have been created from postal sectors rather than 1991 wards.

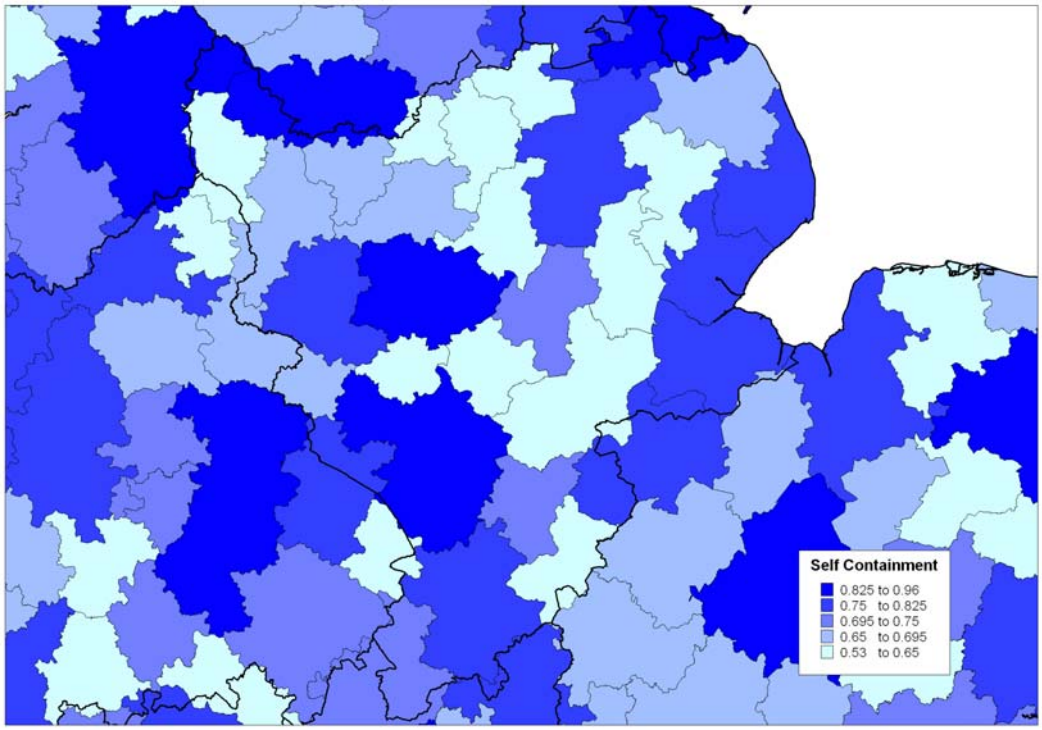
Given the analysis of 2001 Census data presented earlier in this report, this is perhaps not surprising as the East Midlands is a relatively large net exported of workers to surrounding regions.

Figure 6.1: 1998 travel to work areas in and around the East Midlands

The release of the Census 2001 origin-destination statistics presents an opportunity to revisit the 1998 travel to work area boundaries and determine if they still meet the self-containment measures based on flows from the 2001 Census. Figure 6.2 presents self-containment measures for 1998 travel to work areas based on gross commuting flows at ward level from the 2001 Census. In line with work conducted by CURDS[10] we have found that 15 of the 1998 travel to work areas no longer meet the 75 per cent self-containment criteria. Of these, seven are below the minimum threshold of 65 per cent set for the 1998 travel to work areas. It tends to be rural areas where the self-containment criteria are no longer met. We have seen in earlier analysis in this report that the average distance that commuters travel to work has increased in the decade between the last two Censuses and this is the principal reason why self containment measures have fallen between 1991 and 2001.

[10] Travel to Work Areas and the 2001 Census: initial research; Centre of Urban & Regional Studies (CURDS), June 2005

Figure 6.2: Self-containment of 1998 travel to work areas using Census 2001 flows data



6.3 CREATING 2001 TRAVEL TO WORK AREAS

The above analysis suggests that the 1998 travel to work areas require updating in light of the 2001 Census results. ONS are currently updating the areas and these should be available in Spring 2007. These will be more comprehensive than in the past and include TTWAs for sub-groups of the labour market such as gender, age and occupation[11].

CURDS[12] have undertaken some initial research exploring the impact the 2001 Census data has had on the 1991 based travel to work areas and the feasibility of creating revised areas based on the 2001 Census. We present and use some of this research in the following section.

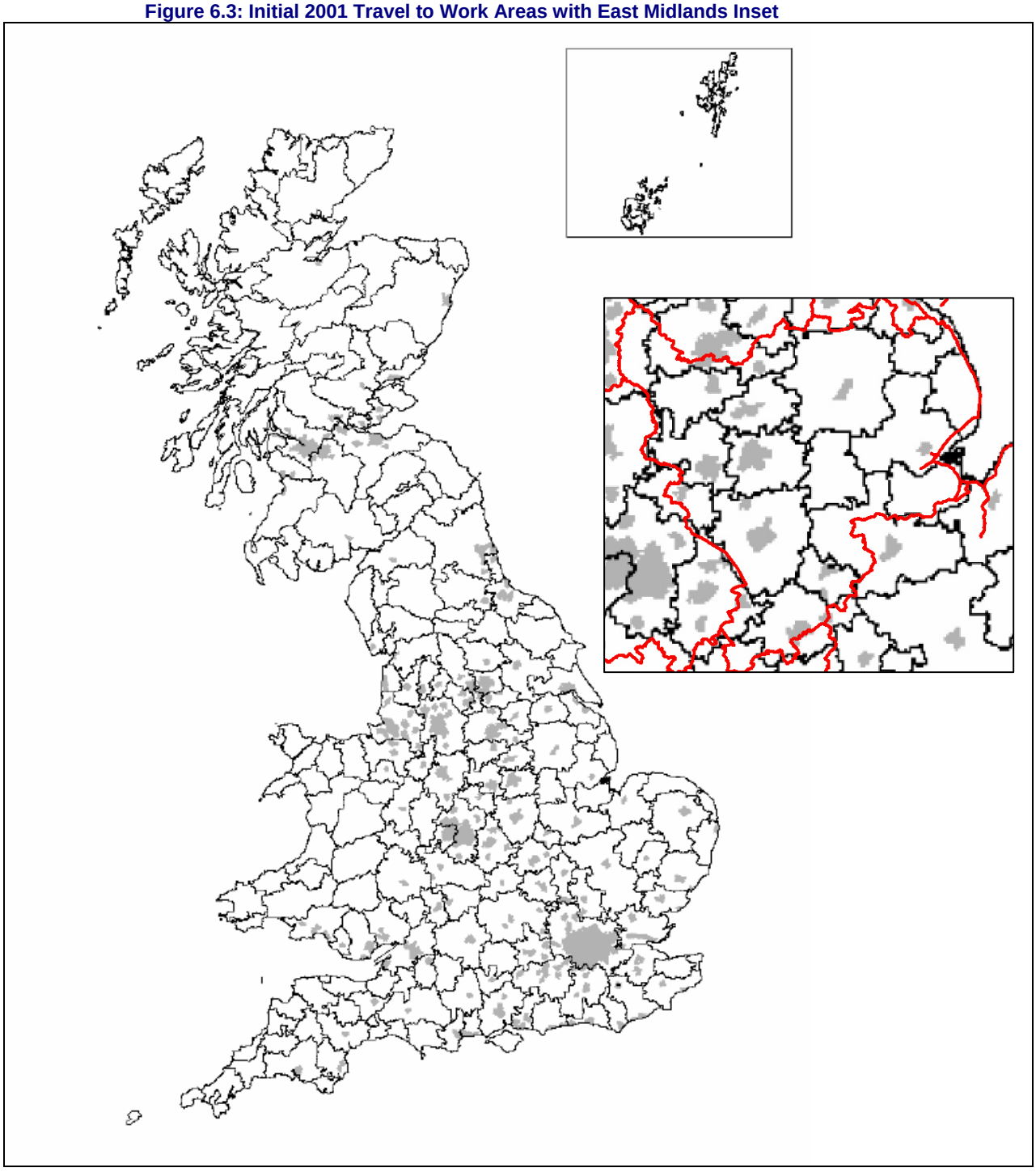
Figure 6.3 shows the initial results from the CURDS attempts to create revised TTWAs based on the 2001 Census results. The map shows an inset of the East Midlands region overlaid with an approximation of the regional boundary. What is immediately striking is the larger size of the new travel to work areas compared with the 1998 areas. The 2001 based TTWAs for Lincoln and Leicester are perhaps the most notable in this respect. This mainly reflects how much further people are now willing to commute to work, as presented earlier in this report . For the East Midlands this change in size meant that there are just 13 travel to work areas based on the 2001 Census compared with 27 in the 1998 boundaries. It should be noted however that the original analysis of 1991 Census data identified 22 TTWAs within the East Midlands. An additional 5 TTWAs were created in the region following the consultation period. It is perhaps more representative to compare the results from the 2001 exercise with those from the draft 1991 results suggesting that the region had 9 fewer TTWAs in 2001 than a decade earlier.

Another important factor to note is that there is no requirement for travel to work areas to fit within administrative boundaries. We have seen throughout this report that a large proportion of

[11] Source http://www.statistics.gov.uk/geography/ttwa.asp
[12] Travel to Work Areas and the 2001 Census: initial research; Centre of Urban & Regional Studies (CURDS), June 2005

East Midlands resident workers commute out of their dormitory region to work. We have also seen that many of these out-commuters live on the periphery of the region, typically near to urban economic centres in other regions. For this reason you would expect travel to work areas to cross regional boundaries and as such many parts of the East Midlands administrative region belong, in labour market terms, to other surrounding regions. This was evident in the 1998 areas, but appears to be even more significant for some areas for the initial 2001 travel to work areas. For example, the Peterborough area now extends well into the East Midlands boundary. Other areas appear to have a similar distribution as before with Sheffield and Rotherham, Manchester and Burton-on-Trent appearing to cover a similar area of the East Midlands as was apparent in the 1998 boundaries.

Figure 6.3: Initial 2001 Travel to Work Areas with East Midlands Inset



6.4 LABOUR MARKET AREAS AND OCCUPATIONS

So far we have investigated how Census commuting flows data can be used to define self-contained labour market areas and how these may have changed given the rise in commuting flows that have been observed between the two Censuses in the East Midlands. This analysis is based on all residents in employment travelling to their place of work, irrespective of their occupation, age or gender. We have seen in earlier sections of this report that factors such as these differ among commuters and that there is clear evidence that these are likely to be drivers of commuting flows. It is therefore likely that labour market areas will vary by occupation due to significant differences in commuting patterns between occupation groups. In particular, workers within the higher occupational groups tend to travel much more extensively than do workers belonging to lower occupational groups. We would, therefore, expect that travel to work areas for the higher occupation groups will have to be much larger in order to meet the self-containment requirements. It is worth highlighting here again that ONS are producing travel to work areas based on 2001 Census data by occupation, age and gender, however these are not yet completed and therefore unavailable for analysis in this report.

Figure 6.4 and 6.5 show the proportion of total commuting flows from the East Midlands tot he rest of the UK for higher occupation groups and all other occupation groups respectively.. The distribution of higher occupation group flows is far wider and further than for the other occupation groups. This simple evidence begins to suggest that labour market areas will be larger for these groups. Earlier analysis suggested that 15 of the 1998 travel to work areas would fail to meet the self-containment criteria based on Census 2001 flows data. Repeating this analysis based on flows data by occupation will also further reinforce the premise that higher occupation groups will have considerably larger labour market areas.

Figure 6.4: % of all East Midlands out commuters employed in higher occupations

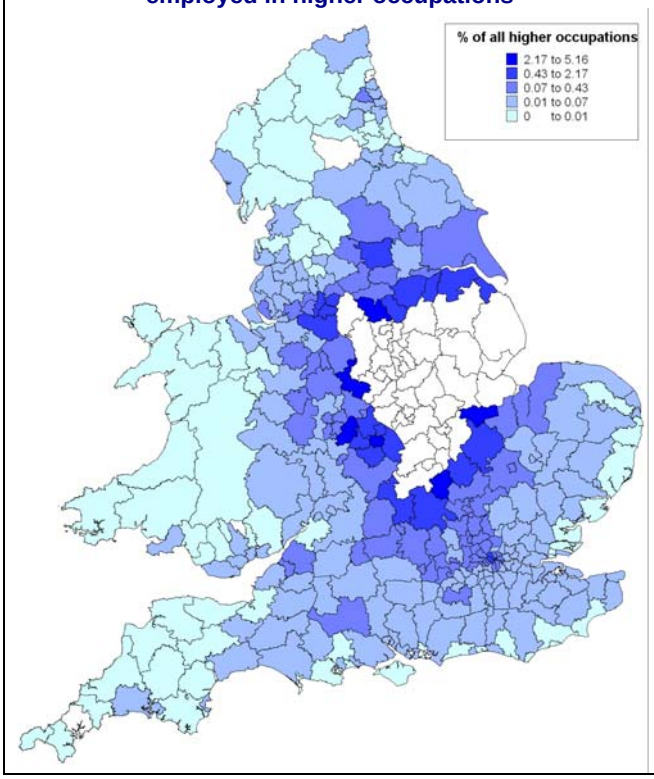


Figure 6.5: % of all East Midlands out commuters employed other occupations

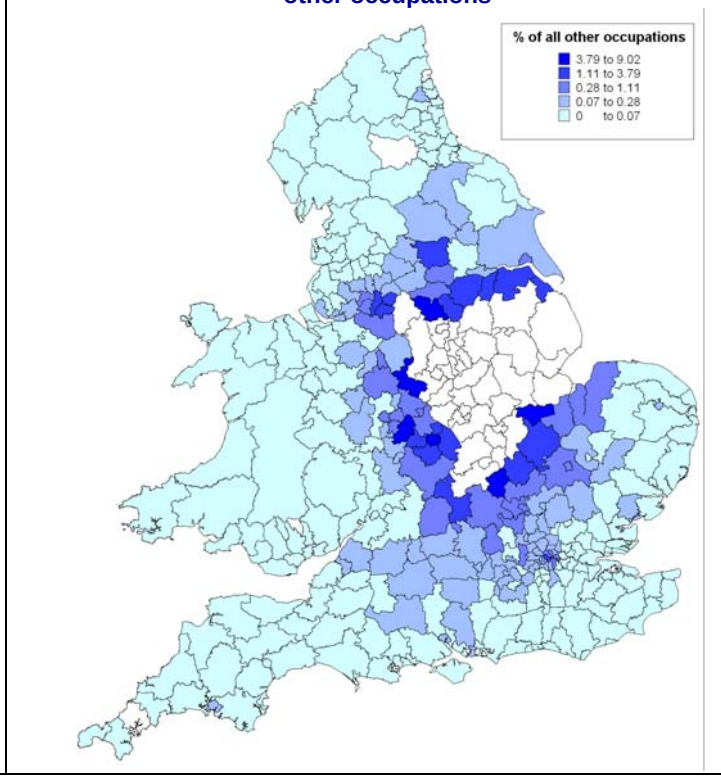
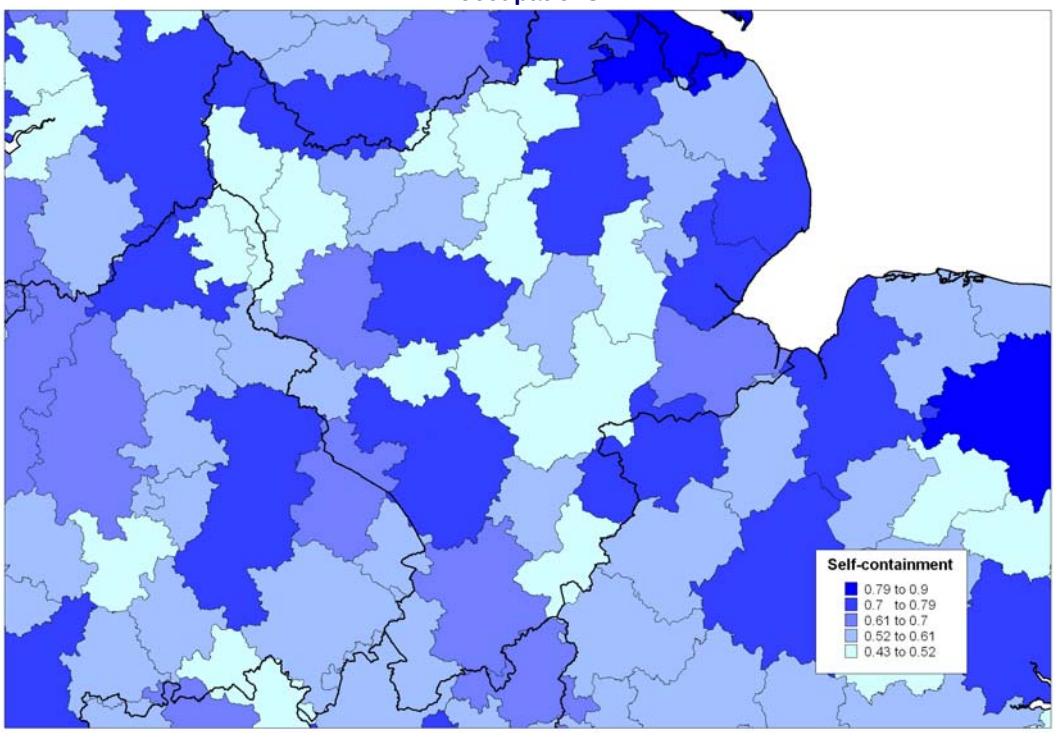


Figure 6.6 shows the self-containment measures for the 3 highest occupations groups applying information on commuter flows by occupation from the 2001 Census data to the 1998 TTWA boundaries. For the majority of travel to work areas, self-containment for higher occupational groups is substantially lower than that for all workers. This suggests that much larger areas would be required to meet the self-containment requirements for higher occupation groups. However, in the East Midlands the areas that had high self-containment for total commuting flows still have relatively high self-containment values for higher occupations.

Figure 6.6: Self-containment of 1998 travel to work areas using Census 2001 flows data for higher occupations



6.5 RELATIONSHIP BETWEEN LABOUR MARKET AREAS AND HOUSING MARKET AREAS

Figure 6.7 shows the relationship between 1998 TTWAs and the Housing Market Areas used in the Regional Spatial Strategy. The coloured areas on the maps represent the housing market areas as defined in the key. The hatched or patterned areas show the combination of travel to work areas that approximate to the housing market area underneath. The Housing Market Areas were defined by matching districts to travel to work areas. For example the travel to work areas of Louth, Skegness and Maplethorpe and Horncastle approximate to the two districts of East Lindsey and Boston, which are the constituent districts of the Lincolnshire (Coastal Lincolnshire) HMA. Accordingly the travel to work areas and the HMAs are fairly well matched.

Figure 6.7: 1998 TTWAs and Housing Market Areas within the East Midlands

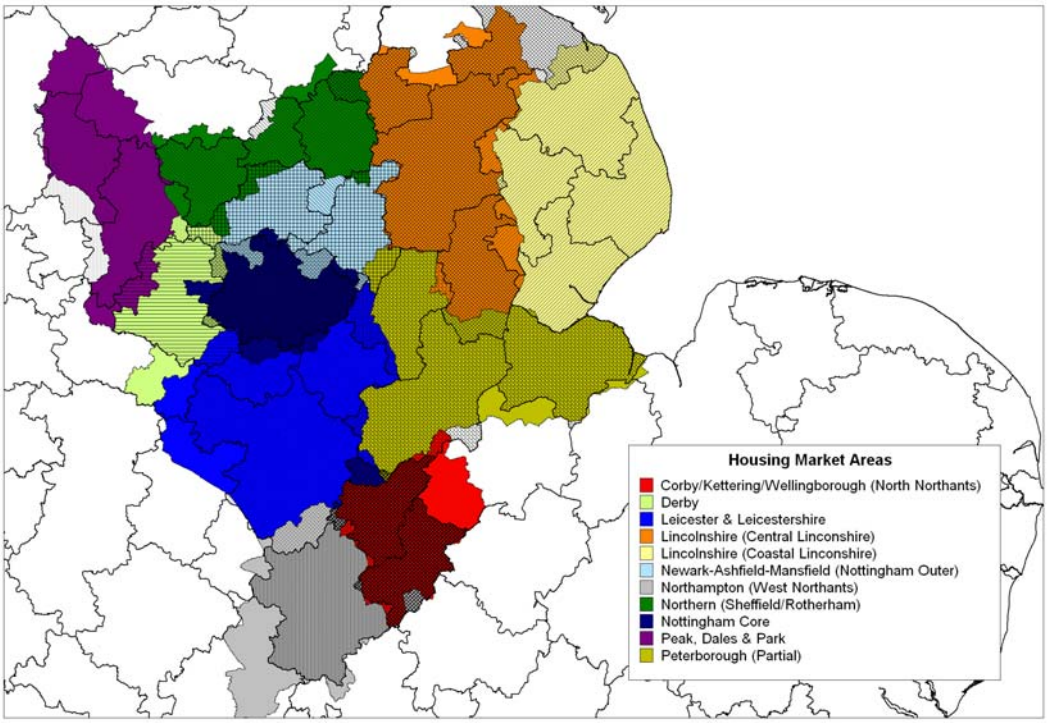
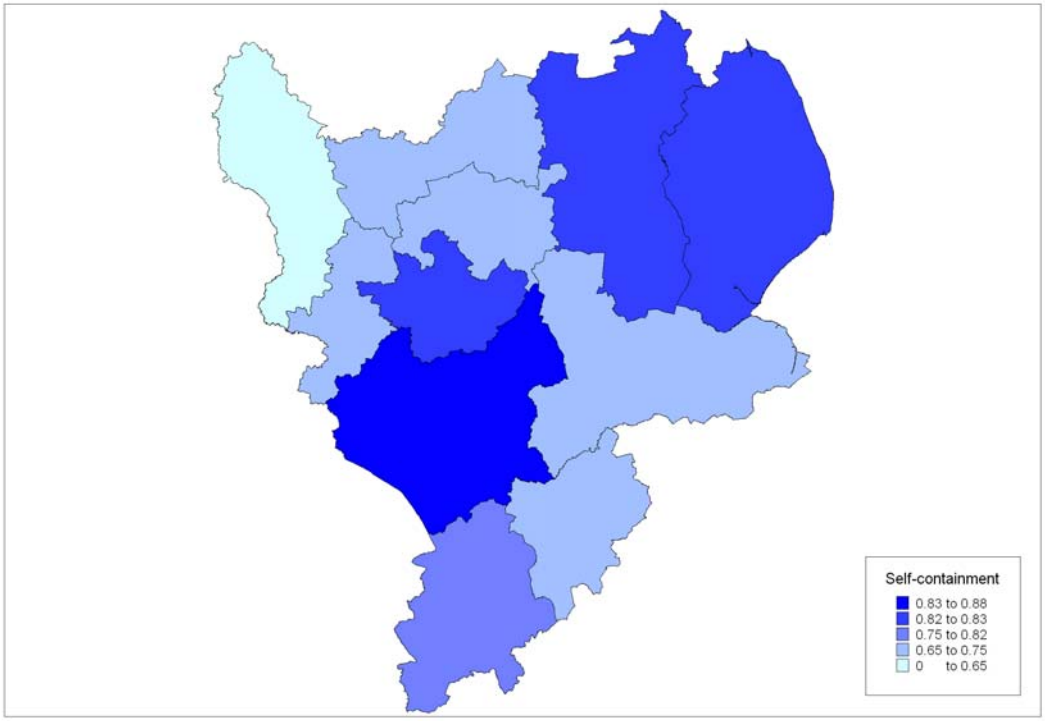


Figure 6.8 shows the self-containment of the HMAs based on Census 2001 flows data. The results are bipolar, with a number of areas well below the 75 per cent criteria (Peak Dales and Park, Nottingham Outer, Northern,) whilst other HMAs exceed the self containment thresholds (Leicester & Leicestershire, Nottingham Core). Peak Dales and Park is the only HMA which falls below the minimum self-containment criteria used to create the 1998 travel to work areas.

Figure 6.8: Self-containment of East Midlands Housing Market Areas



6.5.1 Commuting Flows between the housing market areas

The HMAs have effectively been created based on commuting patterns observed in 1991. Here we analyse the commuting flows between the HMAs based on 2001 data. Figure 6.9 shows a matrix of commuting flows between housing market areas. The largest flows are into the large urban areas as might be expected given the relative density of jobs in these areas. The flows between Nottingham Core and Derby are interesting with almost 16,000 Nottingham Core residents travelling to Derby to work and 13,500 flowing in the opposite direction. A similar pattern is true of Leicester and Nottingham Core and Northampton and North Northants. The largest single flow is from Nottingham Outer into Nottingham core, at 22,600 commuters, suggesting that some of the Nottingham Outer or indeed a small but significant part of the HMA is provides a substantial number of labour to the Nottingham Core area.

Whilst many of the flows between the HMAs are relatively small, there are still substantial flows between some areas, suggesting that the HMAs are not necessarily representative of self-contained labour markets. This is largely a product of the size of geography used to create the HMAs as districts can be in more than one labour market. Whilst each travel to work area represents a self-contained labour market, the TTWA itself forms part of a larger labour market. By grouping TTWAs to districts it is likely and indeed apparent here, that some districts will be allocated to HMAs that could fall into another HMA. That said, compromises will always have to be made when dealing with the complexities of commuting patterns, especially when there are additional geographical and data constraints and by considering travel to work areas allowance is made for the scale of movement between areas in the region.

Figure 6.9: 2001 Commuting flows between East Midlands Housing Market Areas

		Workplace											
		Corby/Kettering/Wellingborough (North Northants	Derby	Leicester & Leicestershire	Lincolnshire (Central Linconshire)	Lincolnshire (Coastal Linconshire)	Newark-Ashfield-Mansfield (Nottingham Outer)	Northampton (West Northants)	Northern (Sheffield/Rotherham)	Nottingham Core	Peak, Dales & Park	Peterborough (Partial)	Grand Total
Residence	Corby/Kettering/Wellingborough (North Northants)	105372	59	2388	49	12	24	15426	24	122	9	683	124168
	Derby	62	141740	8451	51	29	2323	127	3181	13349	3247	62	172622
	Leicester & Leicestershire	2537	3768	364758	228	82	851	2793	252	8096	84	2352	385801
	Lincolnshire (Central Linconshire)	48	91	315	96710	3128	1612	51	1158	677	6	3237	107033
	Lincolnshire (Coastal Linconshire)	24	47	111	3750	64828	98	15	37	140	9	2929	71988
	Newark-Ashfield-Mansfield (Nottingham Outer)	51	4363	1359	1610	89	92894	86	7635	22673	189	1073	132022
	Northampton (West Northants)	6500	78	1970	33	27	27	133205	24	152	0	68	142084
	Northern (Sheffield/Rotherham)	21	5881	545	1381	79	7967	82	112292	3178	3428	138	134992
	Nottingham Core	201	15685	12027	430	86	10321	274	1824	258473	468	656	300445
	Peak, Dales & Park	12	3679	191	6	3	249	22	2035	605	50079	6	56887
	Peterborough (Partial)	1649	90	3055	2376	1573	952	268	99	1352	6	81923	93343
	Grand Total	116477	175481	395170	106624	69936	117318	152349	128561	308817	57525	93127	1721385

6.6 CONCLUSIONS

This chapter presents the original 1998 travel to work areas, created using 1991 commuting flows data. These serve to highlight the inter-regional nature of commuting, with travel to work areas such as Sheffield & Rotherham and Manchester encroaching into the East Midlands boundary and demonstrating that whilst areas may belong to a regions' administrative boundary they may belong to labour market area based in a neighbouring region.

The 1998 travel to work areas are currently being updated by ONS and are scheduled for release in Spring 2007. In the interim, CURDS have created initial travel to work areas and their analysis suggests that the number of TTWAs at least partly within the East Midlands has fallen from 22 based on the 1991 Census (or 27 following the consultation process) to 13 based on the 2001 Census. Travel to work areas based on the 2001 Census commuting patterns are significantly larger than those based on the 1991 Census, reflecting increases in commuting and in average distances travelled. The 1998 TTWAs no longer satisfy the basic self-containment criteria. Analysis in this section also suggests that labour market areas for higher occupation groups will be larger than for other occupations, but exactly how large these will be will not be confirmed until the release of the 2001 based TTWAs by ONS.

Finally, this section presents a comparison of TTWAs with Housing Market Areas (HMAs). The HMAs are generally aligned with, but larger than, the 1998 TTWAs (since several HMAs combine two or more TTWAs). Nevertheless, a number of East Midlands HMAs do not satisfy the self-containment criteria for TTWAs (although others more than meet these criteria. Furthermore the gross flows data between HMAs suggests that for some areas, particularly key urban centres, that the HMAs do not necessarily represent self-contained labour markets.

7 Economic Impact of Commuters

7.1 INTRODUCTION

Commuting flows have a significant impact on the economic geography of the East Midlands. The previous analysis has examined in detail patterns of commuting by workers into, out of, and within the region. This section examines some of the economic implications of these commuting flows.

One obvious impact of commuting is to redistribute employment incomes across space. This section presents estimates of the income flows associated with commuting to and from workplaces and residences within the East Midlands. The analysis is based on Census 2001 data on commuting by occupation and on data from the ONS Annual Survey of Hours and Earnings (ASHE) on average earnings by occupation. Multiplying the number of commuters within a given occupation group between two locations by the average earnings by that occupation, and summing across all occupation groups, yields an estimate of the total commuter income flow between those locations. These calculations were carried out for flows among all East Midlands districts and between those districts and other regions.

Commuting also has significant implications for the geographical distribution of employment incomes to residences within the East Midlands. Much of the income from employment within the main urban centres flows out to households located elsewhere.

We also discuss a broader set of arguments which suggest that commuting does not merely redistribute income between areas, but may also influence the total level of income from the regional economy as a whole. Commuting generates economic benefits as well as costs. The former include the improvements in economic activity, efficiency and productivity from larger labour markets and improved matching of skills to jobs. The latter include the more broadly acknowledged congestion and pollution impacts.

7.2 COMMUTING INCOME FLOWS

At the most basic level, commuting affects the geographical pattern of income receipts by households by transferring employment incomes from workplace locations to residential locations. We can estimate the income flows associated with commuting by combining Census 2001 information on commuting by occupation with estimates of average earnings by occupation from the ONS Annual Survey of Hours and Earnings (ASHE). The analysis presented below is based on the latest (2006) ASHE data. This approach permits an analysis of commuter income flows among the East Midlands LADs (the smallest geography for which we have data on commuting by occupation) and between the East Midlands and other UK regions. Since ASHE estimates of earnings by occupation are only available for the Government Office Regions, the analysis assumes that average occupational earnings are equal across all areas of the East Midlands. The analysis does, however, allow for differences in average earnings by occupation between the East Midlands and other regions, with inter-regional commuters average income being determined by their workplace region.

7.3 INTER-REGIONAL COMMUTING INCOME FLOWS

Table 7.1 presents estimates of income flows between the East Midlands and other UK Government Office Regions derived based on the approach outlined above. We noted in Chapter 1 that the East Midlands is a net exporter of workers to other regions. It is, therefore,

not surprising that the East Midlands is also a net recipient of commuter incomes from other regions. The approach outlined above suggests that around £2.628 billion of employment earnings flows from other regions into the East Midlands, or 7.3 per cent of estimated total employment income receipts by East Midlands households. The main contributors to net commuter income flows into the East Midlands are the South East, East of England and Greater London.

In the main this pattern matches that for commuting by worker, except that Greater London accounts for a significantly larger share of commuter income flows than of commuters. Based on the Census data, London accounted for 7 per cent of commuting out of the East Midlands, but 11 per cent of commuting income flows into the East Midlands. This reflects a strong bias in the occupational pattern of commuting from the East Midlands into London towards the higher occupation groups, and relatively high earnings, particularly for higher occupational groups, within the capital. The upper occupational groups (Managerial, Professional and Associated Professional) accounted for 57 per cent of all workers commuting out of the East Midlands, but 67 per cent of workers commuting to London. These same groups contributed 75 per cent of total inter-regional commuting income flows to the East Midlands, but 87 per cent of commuting income flows from London.

Table 7.1: Inter-regional Commuting Income Flows

	Income flows to East Midlands Households		Income Flows from East Midlands Workplaces		Net Income Flow to East Midlands	
	£m	%	£m	%	£m	%
East Midlands	35,955	87.4	35,955	93.4	0	0.0
Other Regions	5,173	12.6	2,545	6.6	2,628	100.0
of which:						
East of England	912	2.2	348	0.9	564	21.5
Greater London	590	1.4	85	0.2	505	19.2
North East	27	0.1	47	0.1	-20	-0.8
North West	482	1.2	200	0.5	282	10.7
South East	828	2.0	263	0.7	565	21.5
South West	74	0.2	49	0.1	25	0.9
Wales	17	0.0	34	0.1	-17	-0.6
West Midlands	1,200	2.9	844	2.2	356	13.5
Yorkshire and The Humber	1,043	2.5	674	1.8	369	14.0
TOTAL	41,128	100.0	38,500	100.0	2,628	100.0

Source: Experian based on Census 2001 and ASHE 2006

Gross income flows associated with commuting by East Midlands residents to workplaces in other regions are estimated at £5.173 billion, or 12.6 per cent of estimated total employment income. The main contributors to commuter income flows into the East Midlands are the surrounding regions of the West Midlands, Yorkshire & the Humber, East of England and South East. These four regions also dominate income flows from East Midlands' workplaces to residences in other regions. In all of these cases, however, income flows into the East Midlands were substantially larger than flows out of the region. Total income flows out of the region are around £2.545 billion, or 6.6 per cent of estimated total employment earnings from workplaces within the East Midlands.

7.4 REGIONAL GVA

These estimates have potentially important implications for measures of regional GVA and associated indicators of regional productivity. The ONS Regional Accounts headline estimates of regional GVA are derived on both a 'workplace' and a 'residence' basis. The former allocates the income of commuters to their region of work; the latter allocates commuter

incomes to their region of residence. A workplace-based estimate is preferred as a measure of regional output and as a basis for productivity measures. However, the current methodology for estimating regional GVA (which uses the 'income' approach) favours the residence-based approach because key income information (derived from HM Revenue & Customs data) is more reliably allocated to place of residence than to place of work. ONS therefore first derive a residence-based GVA estimate and then adjust this to obtain a workplace-based estimate reflecting the effects of inter-regional commuting. ONS assume that commuting patterns between most regions are more or less balanced, so that the workplace- and residence-based GVA estimates differ only for London, the South East and East of England. The adjustment reflects high levels of commuting from the East and South East into London, and therefore large commuter income flows out of the capital to those regions. The result is that workplace-based GVA substantially exceeds residence-based GVA in London (£204 billion compared to £181 billion in 2006), while residence-based GVA exceeds workplace-based GVA in the East and South East (£94 billion versus £105 billion and £155 billion versus £166 billion, respectively). For all other regions workplace-based GVA is assumed to equal residence-based GVA.

Our analysis suggests that the East Midlands, like the East and South East, is a substantial recipient of commuter incomes from other regions so that residence-based GVA does not provide a reliable estimate of regional output. A simple calculation based on our estimates of employment income commuting flows suggests that workplace-based GVA in the East Midlands is significantly lower than residence-based GVA. Allocating the Regional Accounts measure of 'compensation of employees' based on estimated commuter income flows, produces an estimate of East Midlands workplace-based GVA of £67.4 billion in 2005, compared to residence-based GVA of £70.8 billion. On this basis, workplace-based GVA per head in the East Midlands is around 87 per cent of the UK level, compared to the headline ONS estimate of 93 per cent. These estimates are, however, only indicative and should therefore be treated with some caution.

7.5 COMMUTING INCOME FLOWS BETWEEN DISTRICTS

Extensive commuting between areas of the East Midlands has a significant impact on the geographical distribution of employment incomes, as employment income flows out of the main employment centres to suburbs and outlying areas. Unfortunately, our analysis of commuter income flows is constrained by the lack of Census data on occupational commuting patterns at smaller geographical scales – the lowest level geography for which we can estimate such flows is the district.

7.5.1.1 Commuter Income Outflows from Workplace Districts

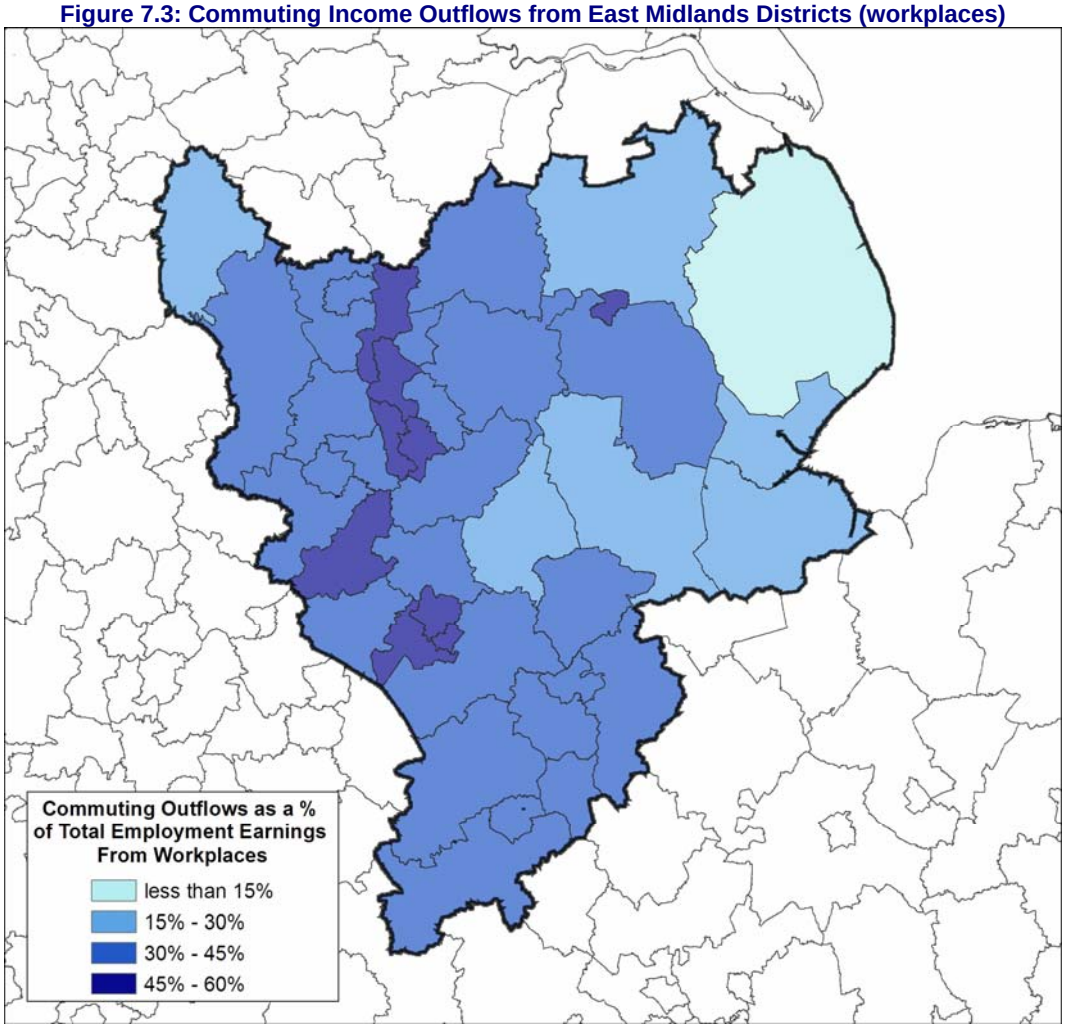
Figure 7.2: Commuter income out-flows as share of total workplace earnings

Highest	%	Lowest	%
Nottingham	60.4	East Northamptonshire	31.5
Blaby	57.4	Kettering	30.9
Oadby & Wigston	54.6	Newark & Sherwood	30.7
Bolsover	52.1	West Lindsey	29.6
Broxtowe	50.5	Melton	25.8
Leicester	49.6	Boston	24.3
Ashfield	48.6	South Kesteven	23.9
North West Leicestershire	48.3	High Peak	21.8
Lincoln	48.2	South Holland	20.8
South Derbyshire	44.0	East Lindsey	12.8

Source: Experian based on Census 2001 and ASHE 2006

Figure 7.2 provides estimates of the proportion of employment income generated in districts which flows out as commuter income to other areas. Areas with the largest shares of commuter-income outflows are typically larger cities and towns (Nottingham and Leicester) or towns and areas in the proximity of the larger cities which are significant industrial or commercial employment locations (Figure 7.3). The lowest shares of commuter-income outflows are for more rural districts, particularly those to the east of the region (Lincolnshire accounts for 5 of the 10 districts with lowest shares of commuter-income outflows).

Figure 7.3: Commuting Income Outflows from East Midlands Districts (workplaces)



7.5.1.2 Commuter Income Inflows to Residence Districts

Income to resident commuters contributes significantly to household income in many areas of the East Midlands. Of the 40 East Midlands districts, 15 receive the majority of their household employment income from commuting to other locations, and 30 receive more than one-third of total employment income from commuting.

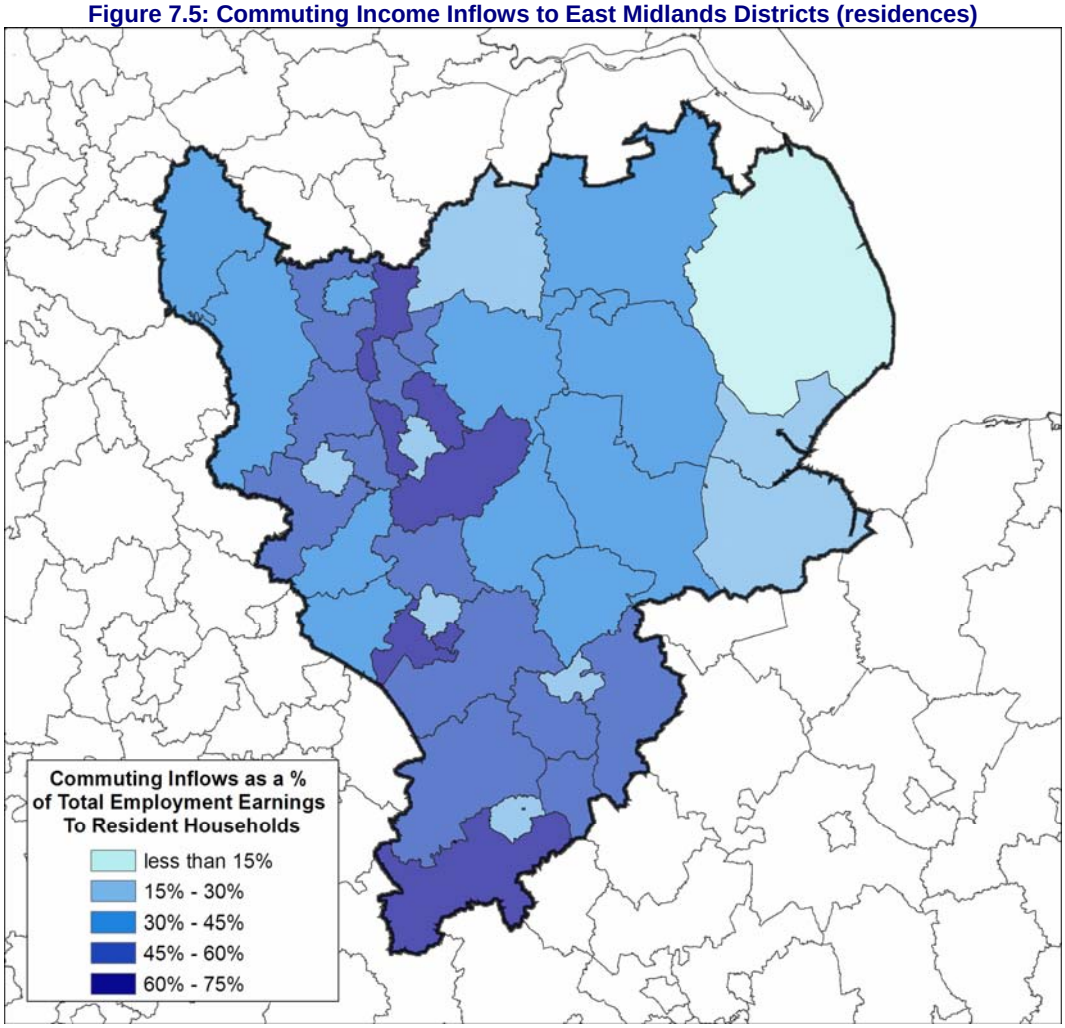
The East Midlands' districts with the highest and lowest reliance on commuter income inflows are listed in Figure 7.4. Those districts for which commuter income inflows represent the largest shares of residential employment incomes are primarily suburbs of the main urban centres. Areas with the lowest reliance on commuter inflows are dominated by the main cities and larger towns, but also include the more peripheral and self-contained districts of South Holland, East Lindsey and Boston.

Figure 7.4: Commuter income in-flows as share of total residence earnings

Highest	%	Lowest	%
Oadby & Wigston	68.2	Bassetlaw	33.0
Broxtowe	66.7	Lincoln	32.7
Gedling	66.4	Nottingham	29.0
North East Derbyshire	65.8	Northampton	28.0
Rushcliffe	64.0	South Holland	27.5
Blaby	63.9	Leicester	26.9
Bolsover	63.9	Derby	26.7
South Derbyshire	63.2	East Lindsey	25.0
South Northamptonshire	62.3	Corby	24.8
East Northamptonshire	56.6	Boston	22.2

Source: Experian based on Census 2001 and ASHE 2006

Figure 7.5: Commuting Income Inflows to East Midlands Districts (residences)



7.5.2 Commuter Income Flows from the Main Urban Centres

7.5.2.1 Commuter Income flows from Nottingham

Nottingham, with its very high net in-commuting, retains the smallest proportion of employment income within the LAD among East Midlands districts. Our estimates suggest that only 39.6 per cent of income from employment at Nottingham workplaces flows to Nottingham residences.

Figure 7.6: Employment Income flows from Nottingham Workplaces

	£ million	%
Nottingham	1472	39.6
Gedling	490	13.2
Rushcliffe	437	11.7
Broxtowe	382	10.3
Erewash	161	4.3
Ashfield	159	4.3
Newark & Sherwood	103	2.8
Derby	62	1.7
Mansfield	54	1.5
Amber Valley	54	1.4
Rest of East Midlands	223	6.0
Other Regions	123	3.3
TOTAL	3721	100.0

Source: Experian based on Census 2001 & ASHE 2006

Of £3,721 million of employment earnings generated in Nottingham workplaces, £1,472 million flows to residences within Nottingham itself while £2,125 million flows out to other East Midlands districts (Figure 7.6). The main recipient districts are those surrounding the city (Gedling, Rushcliffe and Broxtowe) (Figure 7.7). A further £123 million of employment income from Nottingham workplaces flows to other regions, principally the West Midlands (£36 million) and Yorkshire & the Humber (£32 million).

Figure 7.7: Income flows from Nottingham Workplaces to East Midlands districts

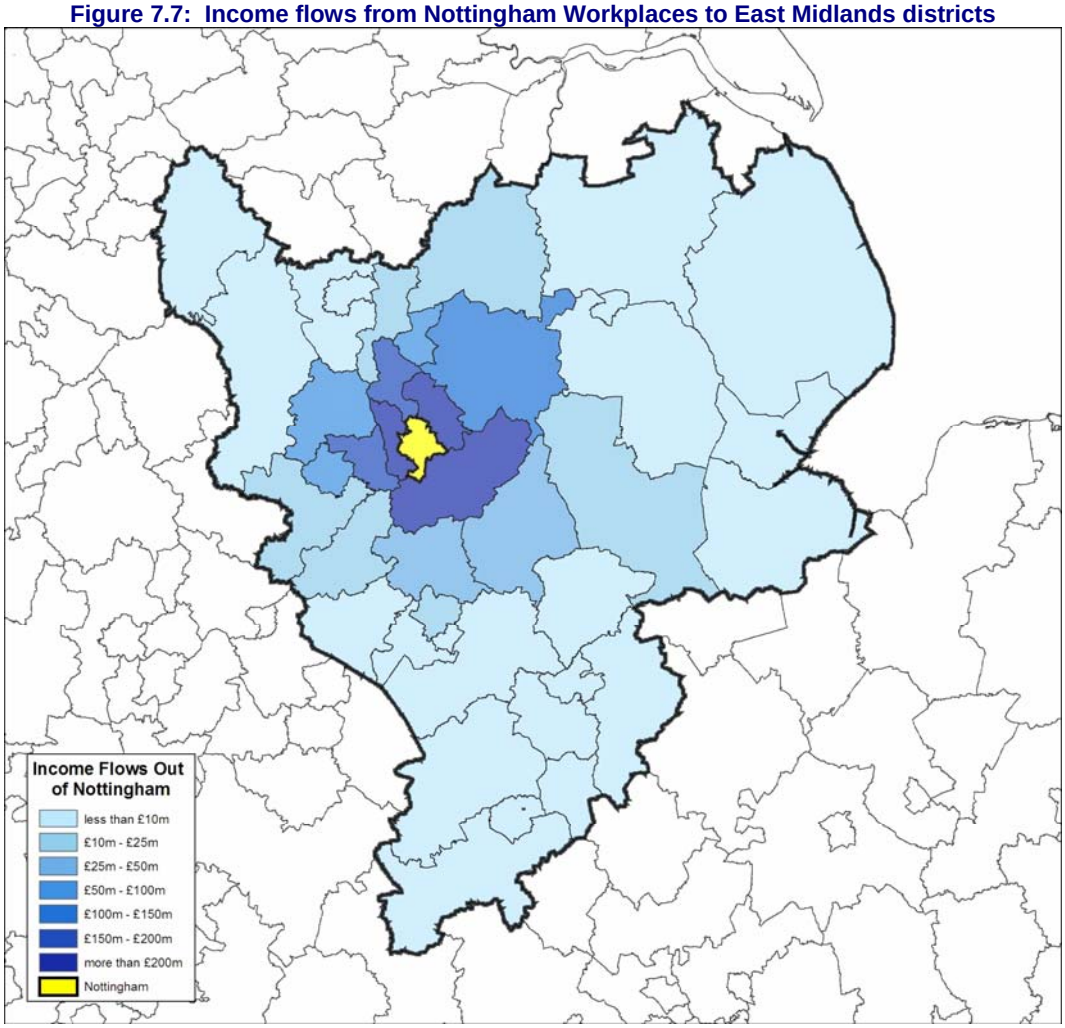


Figure 7.8: Employment Income Flows from Nottingham Workplaces by Occupation

	Nottingham	Other East Midlands LADs	Other Regions	TOTAL
	%	%	%	(£ million)
Managers & Senior Officials	31.2	63.0	5.8	943
Professional	33.7	62.1	4.2	701
Associate Professional & Technical	35.4	61.8	2.7	621
Administrative & Secretarial	36.1	62.8	1.1	388
Skilled Trades	49.9	48.0	2.1	324
Personal Services	55.3	43.7	1.0	100
Sales & Customer Services	48.7	48.8	2.5	144
Process, Plant & Machine Ops	54.6	44.1	1.3	261
Elementary Occupations	63.6	35.0	1.4	239
ALL OCCUPATIONS	39.6	57.1	3.3	3,721

Source: Experian based on Census 2001 & ASHE 2006

Not surprisingly, commuter income flows are more significant for higher level occupations (Figure 7.8). We estimate that 63.0 per cent of employment earnings by managers and senior officials at Nottingham workplaces flows to other parts of the region (and estimated £594 million) with an additional 5.8 per cent (£54 million) flowing to other regions. Similar patterns, albeit with smaller inter-regional flows, are seen for Professional, Associate Professional & Technical, and Administrative & Secretarial occupations. In contrast, only 35.0

per cent of earnings by workers in elementary occupations working in Nottingham flows to other parts of the region and only 1.4 per cent to other regions.

7.5.2.2 *Commuter income flows from Leicester*

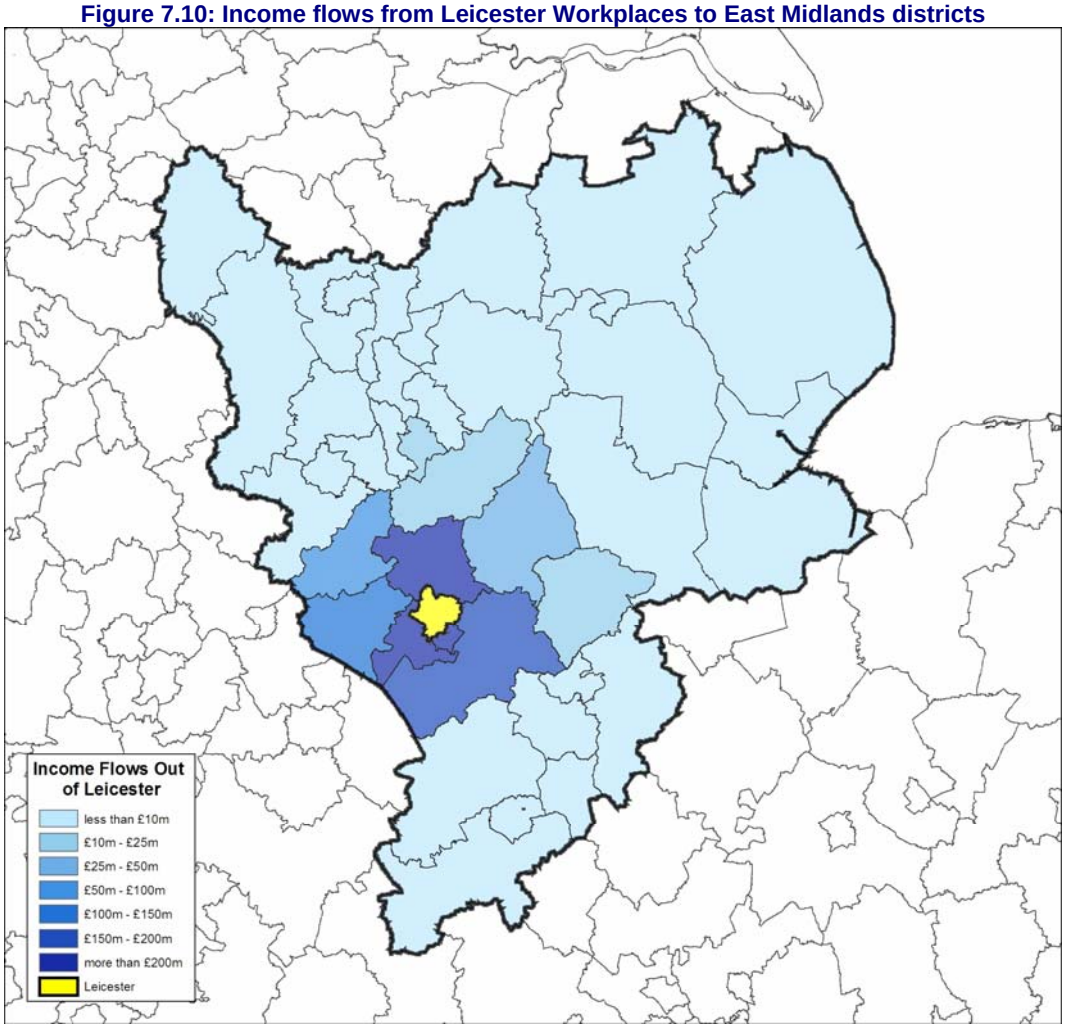
A substantially larger proportion of employment income from Leicester workplaces is retained locally than is the case in Nottingham. Nevertheless, commuter income flows out of the city amount to around one half of total employment earnings from Leicester workplaces. We estimate that, of the £3,239 million of employment earnings generated within Leicester, £1,631 million is retained in the city, £1,493 million flows to other East Midlands districts and £114 million flows to other region (predominantly the West Midlands, £58 million). The principal flows within the East Midlands are to the surrounding districts of Charnwood, Blaby, Oadby & Wigston and Harborough (Figure 7.9). The occupational pattern of flows is similar to that of Nottingham, but with smaller commuter income outflows within all occupational groups (Figure 7.11).

Figure 7.9: Employment Income flows from Leicester Workplaces

	Leicester	%
Leicester	1631	50.4
Charnwood	350	10.8
Blaby	343	10.6
Oadby & Wigston	238	7.3
Harborough	169	5.2
Hinckley & Bosworth	147	4.5
North West Leicestershire	57	1.8
Melton	45	1.4
Rushcliffe	24	0.8
Rutland	18	0.6
Rest of East Midlands	104	3.2
Other Regions	114	3.5
TOTAL	3239	100.0

Source: Experian based on Census 2001 & ASHE 2006

Figure 7.10: Income flows from Leicester Workplaces to East Midlands districts



Source: Experian

Figure 7.11: Employment Income Flows from Nottingham Workplaces by Occupation

	Leicester %	Other East Midlands LADs %	Other Regions %	TOTAL (£ million)
Managers & Senior Officials	38.2	55.3	6.5	748
Professional	43.9	52.0	4.2	520
Associate Professional & Technical	42.2	54.4	3.4	492
Administrative & Secretarial	47.1	51.8	1.2	327
Skilled Trades	56.8	39.6	3.6	336
Personal Services	62.2	36.9	0.9	109
Sales & Customer Services	60.6	37.6	1.8	125
Process, Plant & Machine Ops	71.9	26.9	1.3	369
Elementary Occupations	73.6	25.1	1.2	212
ALL OCCUPATIONS	50.4	46.1	3.5	3,239

Source: Experian based on Census 2001 and ASHE 2006

7.5.2.3 *Commuter income flows from Northampton*

Northampton is the most self-contained of the East Midlands' urban centres, with 63.4 per cent of employment income from Northampton workplaces being retained by local households. We estimate that, of the £2,356 million of employment earnings generated within Northampton,

£1,495 million is retained locally while £620 million flows to other East Midlands districts and £211 million flows to other region (Figure 7.12). At the district level, the predominant commuter income out-flows from Northampton to other parts of the East Midlands are to the surrounding districts of Daventry, South Northamptonshire and Wellingborough. A relatively high share (8.9 per cent) of employment earnings from Northampton flows to flows to other regions, particularly to the South East (£60 million), East (£56 million) and West Midlands (£45 million). Inter-regional commuting into Northampton workplaces is particularly prevalent among the higher occupational groups, leading to large inter-regional income flows within those groups. We estimate that commuting by workers in Managerial occupations contributes a net outflow of £650 million in employment income from Northampton to residences outside the East Midlands, 15.5 per cent of total managerial income from Northampton workplaces (Figure 7.14).

Figure 7.12: Employment Income flows from Northampton Workplaces

	Northampton	%
Northampton	1495	63.4
Daventry	161	6.9
South Northamptonshire	139	5.9
Wellingborough	128	5.4
Kettering	78	3.3
East Northamptonshire	66	2.8
Corby	19	0.8
Harborough	17	0.7
Leicester	5	0.2
Blaby	5	0.2
Rest of East Midlands	30	1.3
Other Regions	211	8.9
TOTAL	2356	100.0

Source: Experian based on Census 2001 & ASHE 2006

Figure 7.13: Income flows from Northampton Workplaces to East Midlands districts

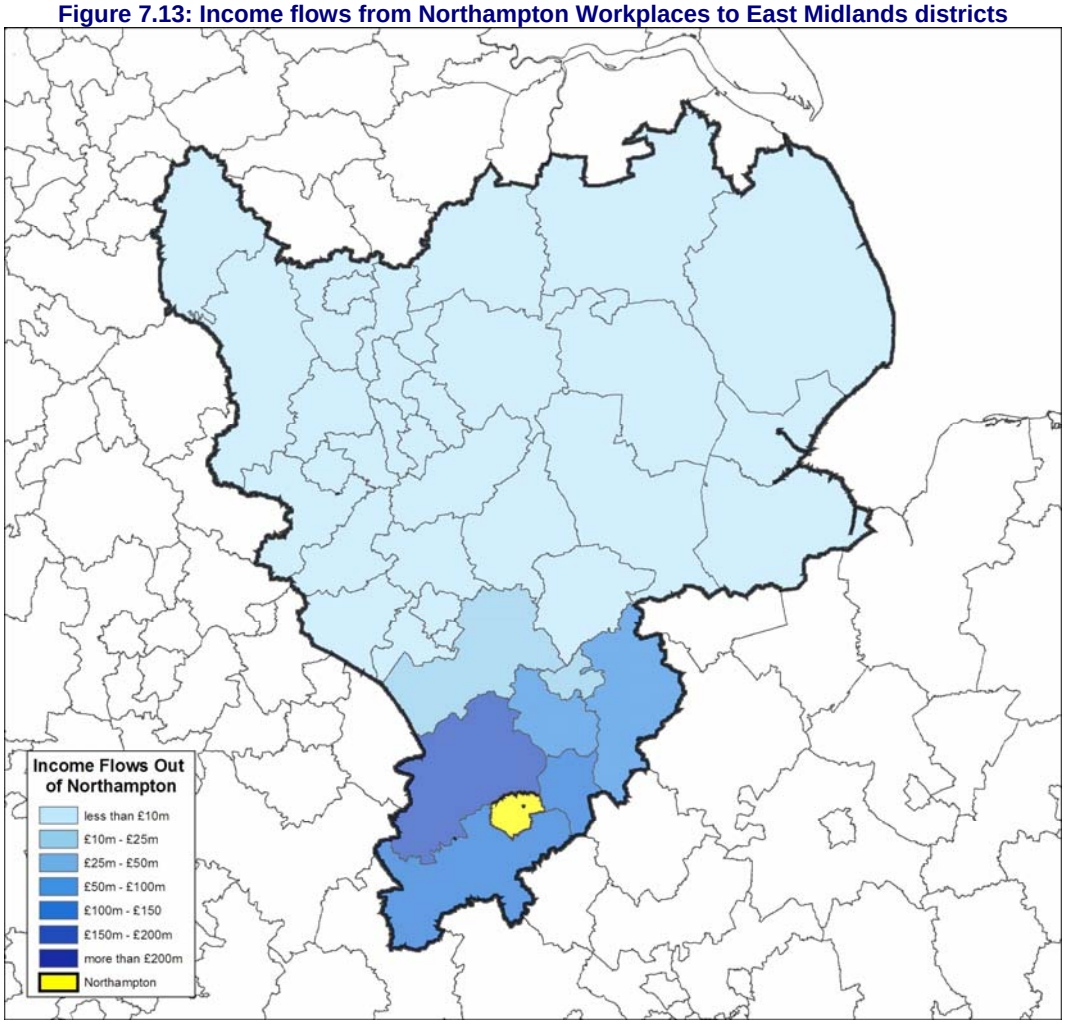


Figure 7.14: Employment Income Flows from Northampton Workplaces by Occupation

	Northampton %	Other East Midlands LADs %	Other Regions %	TOTAL (£ million)
Managers & Senior Officials	53.6	30.8	15.5	650
Professional	54.5	34.0	11.6	329
Associate Professional & Technical	61.6	31.0	7.4	335
Administrative & Secretarial	68.1	27.8	4.1	251
Skilled Trades	73.2	21.0	5.8	252
Personal Services	79.8	18.6	1.7	75
Sales & Customer Services	76.2	19.7	4.1	86
Process, Plant & Machine Ops	69.9	24.7	5.5	204
Elementary Occupations	79.1	17.4	3.6	174
ALL OCCUPATIONS	63.4	27.6	8.9	2,356

Source: Experian based on Census 2001 and ASHE 2006

7.5.2.4 *Commuter income flows from Derby*

Around 61.3 per cent of employment income from workplaces in Derby is retained by local residents (figure 7.15). Of £2,381 million of employment income from Derby workplaces, £1,458 is retained within Derby, £774 million flows to households residing in other parts of the East Midlands, and £148 million flows to other regions. At the district level, the predominant

commuter income out-flows from Derby to other parts of the East Midlands are to the surrounding districts of Amber Valley, South Derbyshire and Erewash. Together with Derby itself, these districts receive 82.1 per cent of employment income from workplaces in Derby. 6.2 per cent of income from Derby workplaces flows to other regions, with the majority of this (£95 million or 64 per cent of interregional income flows from Derby) being to proximate parts of the West Midlands. There are also substantial commuter income flows from Derby to Yorkshire & the Humber. As for the other urban centres, both intra-regional and inter-regional commuter income flows from Derby are particularly concentrated among the higher occupational groups (figure 7.17).

Figure 7.15: Employment Income flows from Derby Workplaces

	Derby	%
Derby	1458	61.3
Amber Valley	191	8.0
South Derbyshire	168	7.1
Erewash	138	5.8
Derbyshire Dales	50	2.1
Broxtowe	42	1.8
Nottingham	34	1.4
North West Leicestershire	24	1.0
Rushcliffe	19	0.8
Ashfield	15	0.6
Rest of East Midlands	94	4.0
Other Regions	148	6.2
TOTAL	2381	100.0

Source: Experian based on Census 2001 & ASHE 2006

Figure 7.16: Income flows from Derby Workplaces to East Midlands districts

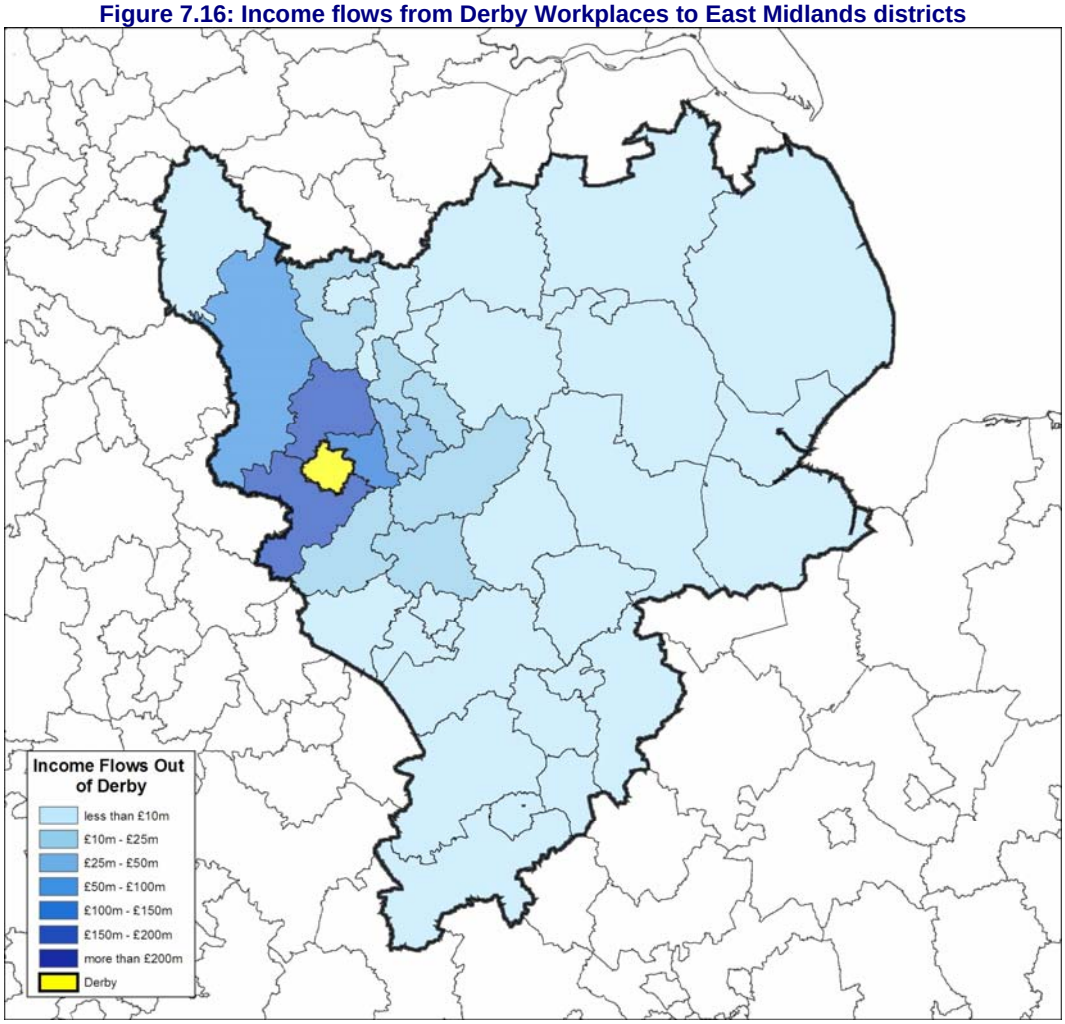


Figure 7.17: Employment Income Flows from Derby Workplaces by Occupation

	Derby	Other East Midlands LADs	Other Regions	TOTAL
	%	%	%	(£ million)
Managers & Senior Officials	52.4	38.5	9.1	576
Professional	49.0	42.8	8.2	442
Associate Professional & Technical	58.1	35.6	6.3	352
Administrative & Secretarial	67.6	29.2	3.1	205
Skilled Trades	69.3	25.4	5.2	280
Personal Services	78.5	19.2	2.3	77
Sales & Customer Services	76.4	20.5	3.1	89
Process, Plant & Machine Ops	70.7	25.0	4.3	209
Elementary Occupations	83.6	14.5	1.9	151
ALL OCCUPATIONS	61.3	32.5	6.2	2,381

Source: Experian based on Census 2001 and ASHE 2006

7.6 WIDER IMPACTS OF COMMUTING

The analysis presented above has described the income flows associated with commuting and their implications for household incomes in different parts of the East Midlands. It is, however, arguable that commuting influences the level of total income and not simply its distribution across space. Mobility – of people, goods and ideas – central to modern economic life, and creates both economic benefits and costs. Costs arise from the additional burden imposed by

commuting on scarce and costly transport infrastructure – imposing higher congestion costs on other uses and requiring additional investment in the infrastructure. Commuting travel also imposes a variety of environmental costs – through increased vehicle emissions, noise, etc. On the other hand, commuting increases the effective size of local labour markets and contributes to more efficient allocation of scare labour resources, by permitting a better matching of skills to job requirements than would be possible in smaller, more isolated labour markets.

Quantifying these effects would be a substantial research project in itself, and is outside the scope of the current research. It is, however, useful to briefly review some of the ways in which commuting may influence the overall level of economic activity.

7.6.1 Commuting and Labour Markets

By increasing the size of local labour markets, commuting extends the labour market options available to both workers and employers. Mobile workers can choose from a wider range of jobs, and employers have a larger pool of workers from which to select. The resulting allocative efficiency gain may improve labour market functioning in two ways – by increasing overall employment rates and by increasing the productivity of those in work. It could be argued that this could be achieved without commuting if people chose to live close to major employment centres. However, residential relocation is very expensive, in both financial and psychological terms, so that people will often seek to achieve career mobility without repeated residential moves. Commuting affords a means by which to do this. In addition, dual-earner households may have to choose residential locations which are convenient to both parties – who may have different working locations. In both of these cases, the solution may be a residential location which gives reasonable commuting access to several employment centres.

7.6.1.1 Commuting & Employment

The ability to travel to work increases the number of potential employers and jobs for any individual seeking employment. We would expect this to lead to a reduction in 'search' unemployment – allowing displaced workers to find alternative employment more quickly. We would also expect commuting to support higher rates of economic activity, as the broader range of employment opportunities induces a larger share of individuals to participate in the labour market. This may be a particularly important influence on economic activity rates among individuals (particularly women) whose residential location has been primarily determined by their partner's employment.

7.6.1.2 Commuting and Productivity

We would also expect larger labour markets to afford better 'matching' between workers and jobs – ensuring a closer alignment of skills and job requirements, and consequently higher levels of labour productivity. This is likely to be particularly important among higher occupational groups, where matching the highly-specialised skills of workers with the precise skill's requirements of jobs sometimes requires large pools of both workers and jobs. Again, this effect may be particularly important for dual-earner households, where the requirement of matching both partners to suitable employment demands a broad range of jobs. Large cities afford such extensive labour market opportunities for both workers and firms, and therefore become magnets for highly skilled workers and for firms who demand those skills. Smaller cities and towns can provide only more limited opportunities, although these can be extended through commuting. The consequent increases in labour productivity benefit firms, workers (through improved earnings) and the wider economy.

7.6.2 Costs of Commuting

Commuting also imposes economic costs. The travel infrastructure is a scarce and costly resource, and its use by commuters imposes costs on other users or potential users associated with higher transport and time costs and less reliable journey times. Such congestion effects

reduce economic efficiency and output. Most evidence suggests that the costs of congestion are substantial - typical estimates of the total costs of congestion in the UK are around £20 billion. To greater or lesser extents, most modes of transport also impose environmental costs by generating a variety of pollutants, including those associated with global climate change.

7.6.3 Net Benefits

The acknowledged costs of commuting must be weighed against its (less frequently acknowledged) benefits. We are not in a position to quantify these effects in order to give a precise measure of where the balance lies between costs and benefits. It seems clear, however, that commuting cannot sensibly be regarded as an unambiguous 'bad' – to be reduced if and when possible. Some degree of geographical mobility is required for efficient labour market functioning, particularly outside of major cities. The challenge is to support this mobility without imposing too great a cost. In some circumstances, attempts to reduce the volume of commuting from current levels may be justified. It is also possible, however, that in other cases greater commuting could yield net benefits. More generally, the appropriate response may be to encourage changes in transport mode rather than to patterns of commuting *per se*.

7.7 CONCLUSIONS

Commuting flows have a significant impact on the economic geography of the East Midlands. Commuting redistributes employment incomes across space. It also influences the overall efficiency, and output, from an economy. While the income flows associated with commuting are readily amenable to quantitative analysis this is far more difficult for the wider effects, and we have presented only a brief overview of the main arguments.

This section presented estimates of the income flows associated with commuting to and from workplaces and residences within the East Midlands. The analysis of inter-regional flows suggests a substantial net inflow of commuter incomes to the East Midlands from other regions. This calls into question the ONS Regional Accounts Headline estimate of 'workplace' GVA in the East Midlands. We estimate that workplace GVA in the region is around 87 per cent of the UK level, compared to headline ONS estimate of 93 per cent.

Commuting also has significant implications for the geographical distribution of employment incomes to residences within the East Midlands. Much of the income from employment within the main urban centres flows out to households located elsewhere. This is particularly the case for the Nottingham UA, where around 60 per cent of total employment incomes flow out with commuters to other districts. On the other hand, commuting incomes make up a substantial proportion of total household incomes in many of the East Midlands' districts. 15 out of 40 districts get more than half of their total employment income from residents who commute to work elsewhere. The economic life of many parts of the region – in terms of local incomes and the support these give to local retail, leisure and hospitality sectors and local housing markets - is highly dependent on these commuting flows.

We also discuss a broader set of arguments which suggest that commuting does not merely redistribute income between areas, but may also influence the total level of income from the regional economy as a whole. Commuting generates economic benefits as well as costs. The former include the improvements in economic activity, efficiency and productivity from larger labour markets and improved matching of skills to jobs. The latter include the more broadly acknowledged congestion and pollution impacts. Once the potential benefits associated with commuting (and mobility more generally) are recognised, it is not sensible to treat commuting as an unambiguous 'bad'. Some degree of geographical mobility is required for efficient labour market functioning, particularly outside of major cities. The challenge is to support this mobility without allowing it to impose too great a cost.

8 Conclusions

Patterns of commuting are an important consideration for policy makers – due to the scale of travel to work movements and their implications for the economic geography of the East Midlands and the geographical distribution of employment incomes within it.

In the East Midlands nearly 200,000 people travel outside of the region to work, equivalent to over ten per cent of East Midlands' residents in work, while around 6 per cent of employment opportunities in the East Midlands are filled by people who live outside of the region.

At a more local level, commuters are drawn to a number of employment hotspots in and around the East Midlands. Within the East Midlands, 590,000 commute between districts, with Nottingham and Leicester attracting the most workers, followed by Derby, Northampton and Lincoln.

The sizeable numbers that travel outside of the region to work tend to be concentrated in the nearby employment centres of Peterborough, Sheffield, Milton Keynes and East Staffordshire, as well as Birmingham, Coventry, Manchester, East Lincolnshire, Rotherham and London. Indeed, there has been a significant increase in the numbers of East Midlands' residents travelling to the South East and London to work.

It is also important to note that certain groups of the population are more likely to commute than others. Indeed, commuting flows tend to be dominated by males aged between 30 and 44, those of higher socio-economic groups, those who work within managerial and professional occupations and people who are highly skilled.

Commuting patterns are influenced by an array of different factors which collectively determine where people choose to live and work. The location, type and quality of employment opportunities is a key driver of commuting flows alongside population growth and the availability, affordability and quality of housing. Transport infrastructure plays a key role in facilitating and to some extent driving patterns of commuting in the East Midlands, but a small fraction of journeys to work in the East Midlands are undertaken using public transport, particularly outside of the region's two largest cities.

Patterns of commuting have changed significantly over the past decade, with people more willing to travel further to access employment opportunities. While amended TTWAs based on the 2001 Census are yet to be released, provisional findings suggests that these are likely to be significantly larger that those identified a decade ago. Moreover, while the Housing Market Areas in the East Midlands are in broad alignment with travel to work areas, in some cases they do not represent self-contained labour markets and there are significant commuting flows between HMAs.

Commuting flows have a significant impact on the economic geography of the East Midlands, redistributing incomes across space and influencing the overall efficiency, and output, from an economy. Indeed, analysis of inter-regional flows suggests a substantial net inflow of commuter incomes to the East Midlands from other regions and thus workplace GVA in the East Midlands is more likely to be equal to around 87 per cent of the UK level, rather than the 93 per cent implied by headline ONS estimates.

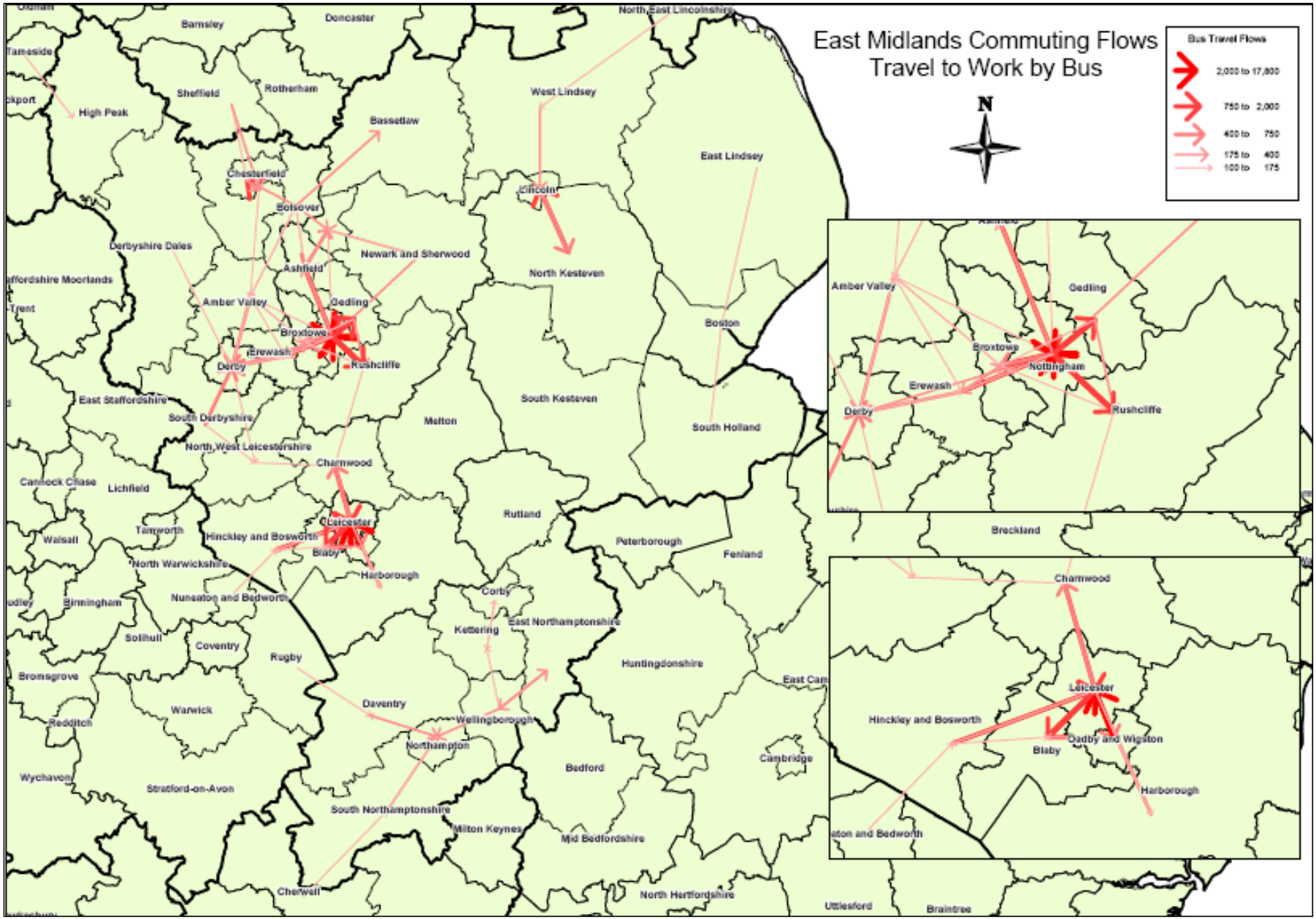
Within the East Midlands, commuting has significant implications for the geographical distribution of employment incomes to residences. Much of the income from employment

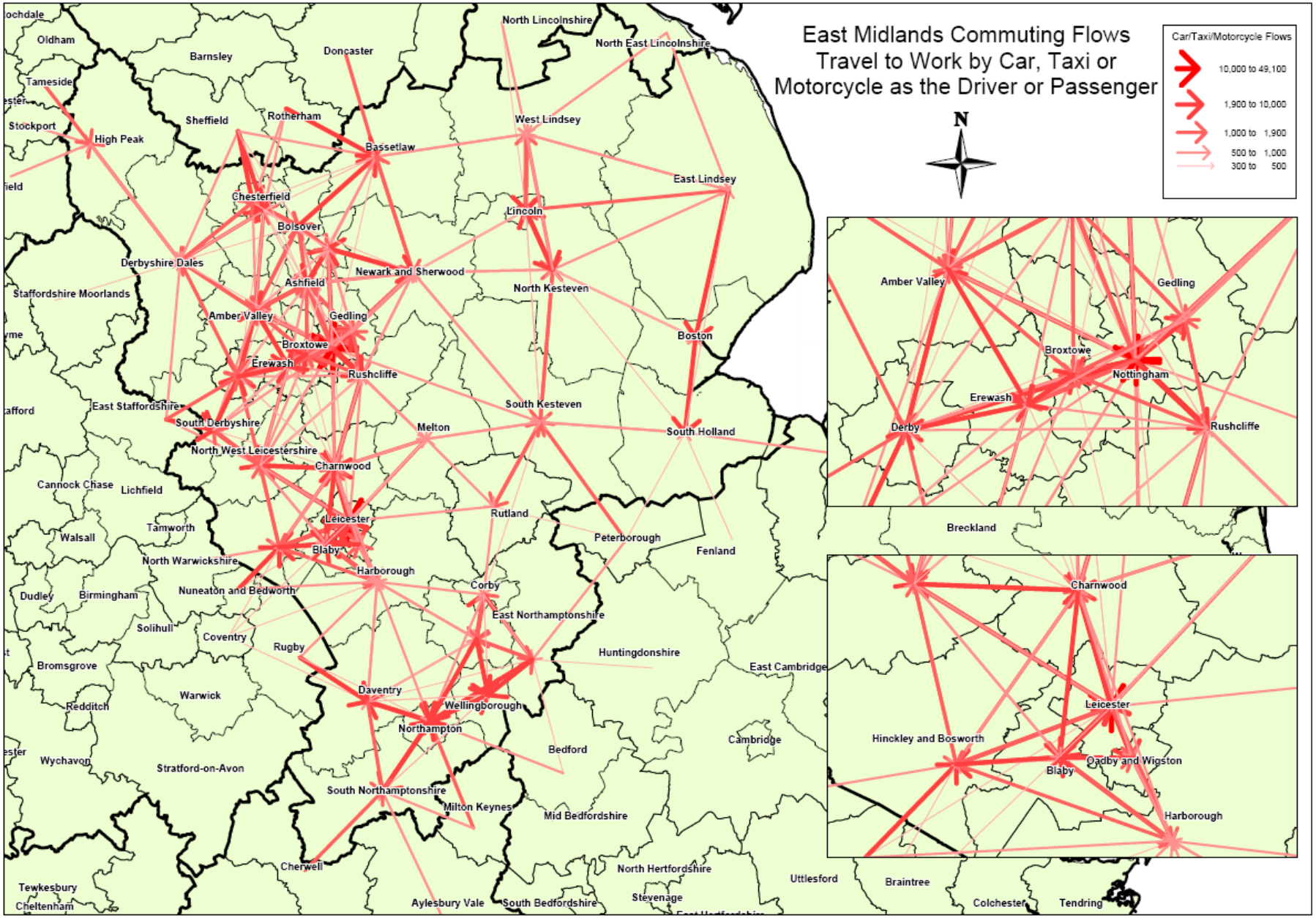
within the main urban centres, for example, flows out to households located elsewhere. On the other hand, commuting incomes make up a substantial proportion of total household incomes in many of the East Midlands' districts and the economic life of many parts of the region is highly dependent on these commuting flows.

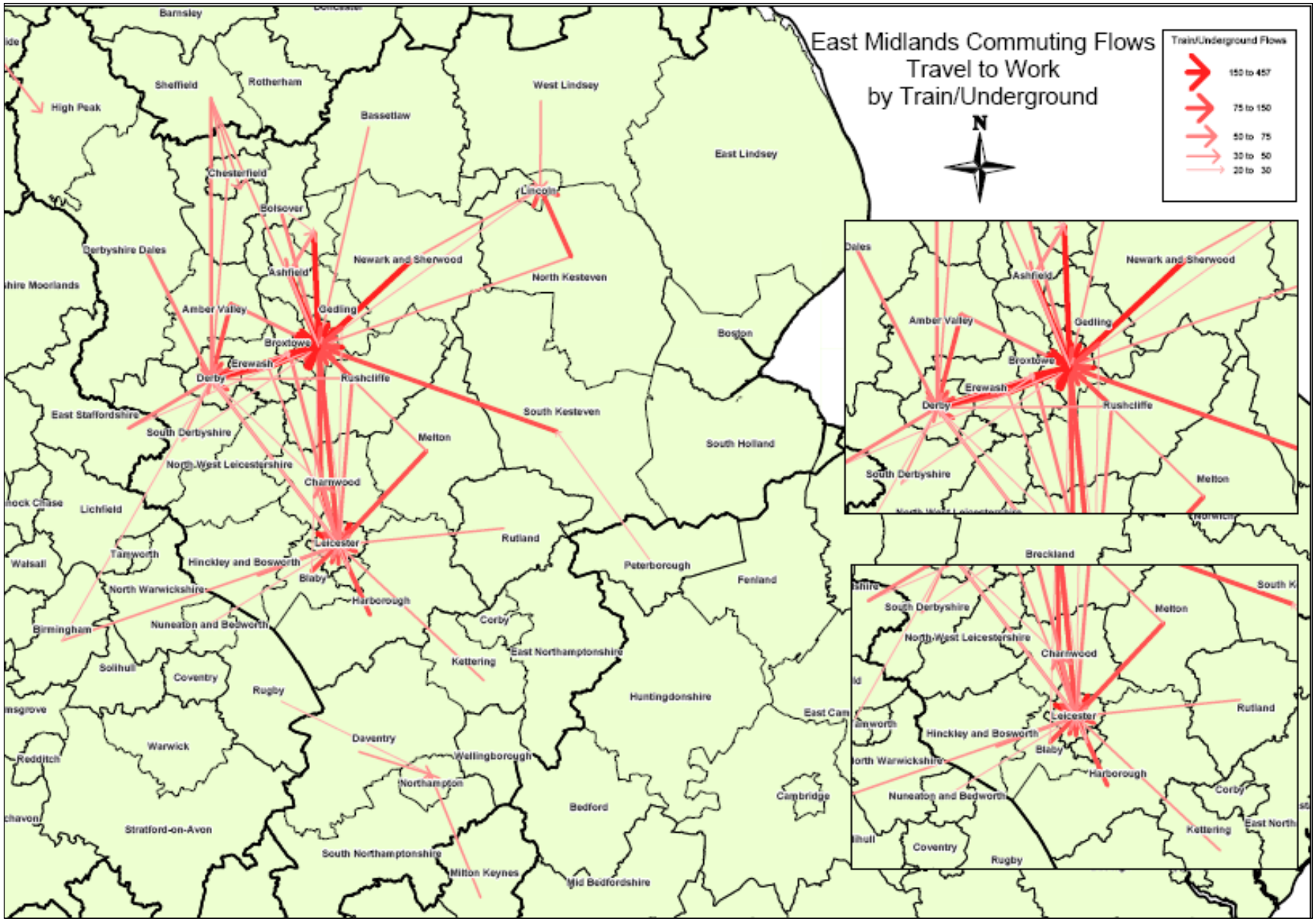
Finally, it is important to recognise that commuting generates economic costs as well as benefits, particularly congestion and pollution impacts. That said, some degree of geographical mobility is required for efficient labour market functioning, particularly outside of major cities, and the challenge is to support this mobility without allowing it to impose too great a cost.

Appendix A

Maps


East Midlands Commuting Flows
Travel to Work by Bus
N
Bus Travel Flows
2,000 to 17,800
750 to 2,000
400 to 750
175 to 400
100 to 175
Barnsley
Doncaster
North East Lincolnshire
Sheffield
Rotherham
West Lindsey
High Peak
Bassetlaw
East Lindsey
Chesterfield
Lincoln
Bolsover
Derbyshire Dales
Newark and Sherwood
North Kesteven
Ashfield
Amber Valley
Gedling
Boston
Broxtowe
Erewash
Derby
Rushcliffe
Nottingham
East Staffordshire
South Derbyshire
South Kesteven
Melton
South Holland
North West Leicestershire
Charnwood
Cannock Chase
Lichfield
Rutland
Leicester
Tamworth
Hinckley and Bosworth
Peterborough
Walsall
Blaby
Fenland
North Warwickshire
Harborough
Corby
Nuneaton and Bedworth
Birmingham
Kettering
East Northamptonshire
Solihull
Coventry
Rugby
Huntingdonshire
Bromsgrove
Daventry
Warwick
Wellingborough
Redditch
Northampton
Cambridge
Bedford
Wychavon
Stratford-on-Avon
South Northamptonshire
Milton Keynes
Mid Bedfordshire
Cherwell
North Hertfordshire
Uttlesford
Braintree
Breckland
Oadby and Wigston


East Midlands Commuting Flows
Travel to Work by Car, Taxi or
Motorcycle as the Driver or Passenger
N
Car/Taxi/Motorcycle Flows
10,000 to 49,100
1,900 to 10,000
1,000 to 1,900
500 to 1,000
300 to 500
North Lincolnshire
North East Lincolnshire
Doncaster
Barnsley
Oldham
Tameside
Stockport
High Peak
Sheffield
Rotherham
Bassetlaw
West Lindsey
East Lindsey
Lincoln
Chesterfield
Bolsover
Derbyshire Dales
Newark and Sherwood
Ashfield
North Kesteven
Staffordshire Moorlands
Amber Valley
Gedling
Broxtowe
Erewash
Rushcliffe
Boston
East Staffordshire
South Derbyshire
South Kesteven
Melton
South Holland
North West Leicestershire
Charnwood
Cannock Chase
Lichfield
Leicester
Rutland
Tamworth
Walsall
Peterborough
Fenland
Blaby
North Warwickshire
Harborough
Nuneaton and Bedworth
Corby
Dudley
Birmingham
East Northamptonshire
Solihull
Coventry
Rugby
Huntingdonshire
East Cambridge
Bromsgrove
Warwick
Daventry
Redditch
Wellingborough
Northampton
Cambridge
Bedford
Wychavon
Stratford-on-Avon
South Northamptonshire
Milton Keynes
Mid Bedfordshire
Cherwell
North Hertfordshire
Uttlesford
Tewkesbury
Cheltenham
Aylesbury Vale
South Bedfordshire
Stevenage
Braintree
Colchester
Tendring
Breckland
Amber Valley
Gedling
Broxtowe
Nottingham
Erewash
Derby
Rushcliffe
Charnwood
Leicester
Hinckley and Bosworth
Oadby and Wigston
Blaby
Harborough


East Midlands Commuting Flows
Travel to Work
by Train/Underground
N
Train/Underground Flows
150 to 457
75 to 150
50 to 75
30 to 50
20 to 30
Barnsley
Sheffield
Rotherham
High Peak
Bassetlaw
West Lindsey
East Lindsey
Chesterfield
Bolsover
Lincoln
Derbyshire Dales
Ashfield
Newark and Sherwood
North Kesteven
Amber Valley
Gedling
Boston
Broxtowe
Erewash
Derby
Rushcliffe
East Staffordshire
South Derbyshire
South Kesteven
Melton
South Holland
North West Leicestershire
Charnwood
Lichfield
Rutland
Leicester
Tamworth
Hinckley and Bosworth
Peterborough
Fenland
Walsall
Blaby
North Warwickshire
Harborough
Birmingham
Nuneaton and Bedworth
Corby
East Northamptonshire
Kettering
Solihull
Coventry
Rugby
Huntingdonshire
Daventry
Warwick
Wellingborough
Redditch
Northampton
Cambridge
Bedford
Stratford-on-Avon
South Northamptonshire
Milton Keynes
Mid Bedfordshire
Breckland

Appendix B

Revision history

DOCUMENT REVISION HISTORY

Version	Date	Authorised for release by	Comments
1 Skeletal	16th February 2007	Tim Lyne	
2 Draft	23rd March 2007	Tim Lyne	
3 Final Interim	13th April 2007	Tim Lyne	
4			
5			
6			
7			
8			
9			
10			