

Economic Spillover Study

A report prepared for *emda* and the Alliance Sub-Regional Strategic Partnership

Experian

June 2005

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EMDA

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Appendix A: Associated work: Alliance SSP Impact Study

Introduction

This analysis was commissioned jointly by the East Midlands Development Agency (EMDA) and the Alliance Sub-regional Strategic partnership.

The study examines available evidence of the linkages between the northernmost reaches of the East Midlands region, the Alliance SSP area, and South Yorkshire.

The study goes on to build on scenario modelling conducted on behalf of the Alliance SSP using input-output analysis to approximate business and consumer spending links and leakages between the two areas. Using a best-case scenario from the associated SSP study we present leakage results from the simulation.

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Executive summary

SETTING THE SCENE

The study uses a best-case scenario from associated work with the Alliance SSP to simulate a significant employment impact in the northernmost reaches of the East Midlands on South Yorkshire. In doing so we can gauge leakage effects from the East Midlands.

The economies of the Alliance SSP area and South Yorkshire share some similarities, notably in manufacturing, as well as some major differences. South Yorkshire for instance has a much higher prevalence of banking & insurance activity.

EVIDENCE OF LINKAGES

Industry specialisms (or a lack of) are one feasible indicator of linkages. A lack of local presence in an industry increases the likelihood of external sourcing.

The 2001 census indicates that 8 per cent of people residing in the SSP travel to South Yorkshire to work. 2.5 per cent of South Yorkshire residents make the trip in the opposite direction. In absolute and relative terms we would expect significant consumer spending leakage to South Yorkshire.

Migration between the two areas is also significant. In 2001 over 2,400 people made the move from the north of the East Midlands to South Yorkshire, with 3,200 moving in the opposite direction.

Experian shopper flow data confirms that people living in areas bordering South Yorkshire (Bassetlaw, Bolsover and North East Derbyshire) are much more likely to shop in South Yorkshire than those living towards the Nottingham area.

ESTIMATING LINKS

Using techniques developed by Flegg & Webber we constructed a bespoke inter-regional input-output table formalising the links between the Alliance SSP area and South Yorkshire.

RESULTS

55,000 jobs is the direct impact borrowed from the Alliance SSP best-case scenario. This was calculated using information from local stakeholders in the SSP area as well as floorspace usage information published by the Office of the Deputy Prime Minister.

The end result for the area was some 52,000 additional jobs in the SSP area. This indicates that local displacement outweighs positive multiplier effects.

The model estimates that from the 55,000 jobs 4,800 would accrue to South Yorkshire due to the linkages between the two areas. This is a leakage of 8.5 per cent of the initial impact. If we treat the north of the East Midlands and South Yorkshire as a whole then the net effect is positive.

After controlling for the fact that the best-case scenario was biased towards certain industries and examining leakages by industry, the most significant leakage was in banking and insurance which simple similarity analysis identified as an underrepresented industry in the Alliance SSP area.

Setting the scene

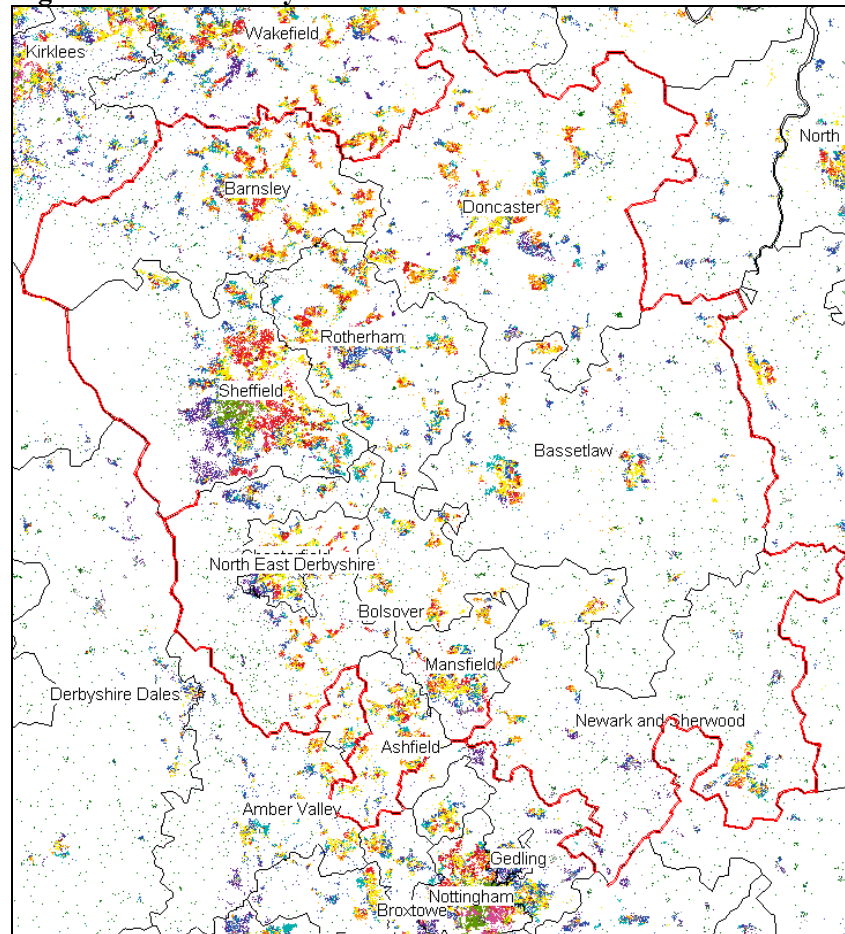
1.1 TOPOGRAPHY

The Alliance SSP area consists of seven local authority districts at the northernmost edge of the East Midlands region, namely:

- Ashfield
- Bassetlaw
- Bolsover
- Chesterfield
- Mansfield
- Newark & Sherwood
- North East Derbyshire

Figure 1.1 shows the area in relation to South Yorkshire.

Figure 1.1 – The Study Area



Source: Experian

1.2 ECONOMY & DEMOGRAPHY

The Alliance SSP area, although covering a greater area than South Yorkshire, is somewhat smaller in economic terms.

Table 1.1 shows selected statistics for the two areas.

Table 1.1: Selected Statistics, Alliance SSP & South Yorkshire, 2004

	Employment	Population	Area (sq. km)	Density (persons per Sq. km)
Alliance SSP	276,600	680,000	1,978	344
South Yorkshire	574,550	1,267,000	1,552	816

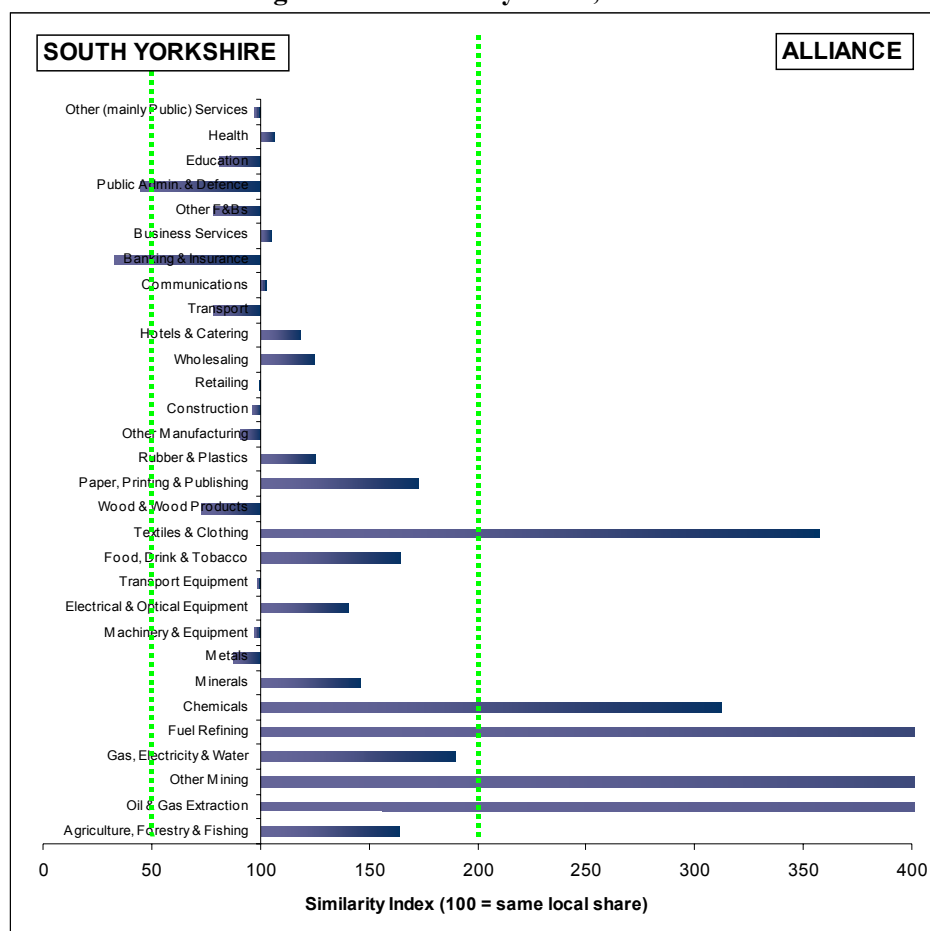
Source: Experian

On a workplace basis, South Yorkshire accounts for more than twice the number of jobs as the Alliance SSP area.

On a workplace basis, South Yorkshire accounts for more than twice the number of jobs as the Alliance SSP area. In density terms the number of people per square kilometre in the Alliance SSP is well below half that of South Yorkshire.

In terms of industrial structure the two areas are similar in some respects but differ markedly in others. Figure 1.2, shows a similarity index for the Alliance SSP with respect to South Yorkshire.

Figure 1.2: Similarity index, 2004



Source: Experian

The similarity index measures the share of employment in each industry in each area. If the index takes a value equal to 100 the proportion of

employment provided by that industry is equal in both the Alliance SSP area and South Yorkshire.

Qualifying industries by size (to exclude those industries whose presence is minor in both areas) excludes many of the manufacturing and extractive industries towards the bottom of the chart.

The main differences can be split into those where the Alliance SSP has a much bigger representation than South Yorkshire (twice as large in proportional terms), namely:

- Other mining
- Chemicals
- Textiles & clothing

And those where the Alliance SSP is underrepresented relative to South Yorkshire, namely:

- Banking & insurance
- Other (mainly public) services

These in part reflect traditional regional specialisms such as the textile industry in the East Midlands.

Relative to South Yorkshire, the Alliance SSP area has a much higher concentration of Other Mining, Chemical and Textile firms.

Conversely South Yorkshire has a higher concentration of Banking & insurance and public services.

2 Evidence of linkages

2.1 INDUSTRY SPECIALISMS

In the previous section we discussed how the industries making up the Alliance SSP area and South Yorkshire differed. In terms of linkages there are a number of key points worth considering.

If an Alliance SSP firm needs to source inputs from an industry that is under represented locally, it may well source them from elsewhere.

Primarily if an Alliance SSP firm needs to source inputs from an industry that is under represented locally, it may well source them from elsewhere. That elsewhere could be South Yorkshire if they are in a position to supply said inputs. An example from the last section would be a firm requiring Banking & Insurance services in North Nottinghamshire and sourcing them from South Yorkshire.

Our methodology of approximating input-output models takes into account this economic theory and can be seen in section 3 of the report.

2.2 COMMUTING

Links between areas, specifically consumer spending links, are in part determined by where individuals are at certain times of the day. Alliance SSP residents working in Sheffield for instance will spend some proportion of their income in South Yorkshire as a result.

Table 2.1, below, shows commuting flows between the two regions.

Table 2.1: Selected commuting flows, 2001

	Work SSP area	Work South Yorkshire		Reside SSP area	Reside South Yorkshire
	Ashfield	32,082		Ashfield	35,529
	Bassetlaw	35,756		Bassetlaw	38,685
	Bolsover	22,005		Bolsover	17,667
	Chesterfield	35,087		Chesterfield	41,767
	Mansfield	33,676		Mansfield	32,539
Reside in	Newark & Sherwood	34,771	Work in	Newark & Sherwood	32,793
	North East Derbyshire	27,411		North East Derbyshire	21,808
	Barnsley	477		Barnsley	510
	Doncaster	2,422		Doncaster	2,908
	Rotherham	3,815		Rotherham	3,761
	Sheffield	7,485		Sheffield	15,817
					460
					4,924
					764
					3,654
					446
					228
					3,723
					67,375
					98,393
					86,617
					216,725

Source: 2001 Census

8 per cent of people in the SSP area with jobs travel to South Yorkshire for work whilst only 2.5 per cent of South Yorkshire residents commute in the other direction.

According to the 2001 census 23,000 people make the commute from the Alliance SSP area to South Yorkshire. This suggests almost 8 per cent of people in the area with jobs travel to South Yorkshire for work. 14,200 people make the trip in other direction, meaning only 2.5 per cent of South Yorkshire residents with jobs commute to the SSP area.

In relative terms commuting data suggests that a high proportion of SSP residents work in South Yorkshire, higher certainly than the equivalent figure for South Yorkshire residents working in the SSP. This is supported in absolute terms by the net out commuting figure from Alliance SSP to South Yorkshire of close on 9,000 persons.

The net consumer spending leakage effect due to commuting is almost certainly negative for the northernmost reaches of the East Midlands.

Using either an absolute or relative measure the net consumer spending leakage effect due to commuting is almost certainly negative for the northernmost reaches of the East Midlands. Put simply commuters from the Alliance SSP may be expected to spend more in South Yorkshire than reciprocal commuters spend in the Alliance SSP area.

Table 2.2 shows the ten largest district-to-district flows between the Alliance SSP area and South Yorkshire.

Table 2.2: Top 10 inter-district commuting flows, 2001

1	North East Derbyshire to Sheffield	9,536
2	Sheffield to North East Derbyshire	2,928
3	Sheffield to Chesterfield	2,847
4	Chesterfield to Sheffield	2,769
5	Bassetlaw to Doncaster	2,249
6	Doncaster to Bassetlaw	1,797
7	Bassetlaw to Sheffield	1,796
8	Bassetlaw to Rotherham	1,478
9	Bolsover to Sheffield	1,259
10	North East Derbyshire to Rotherham	1,127

Source: 2001 Census

The largest absolute flow is from North East Derbyshire to Sheffield, with the next largest in the other direction other direction between those two places.

When people spend their money dictates the extent of the leakage caused by this out-commuting. If commuters spend their money during the working week, the scope for spending leakage from the area is higher than if they spend their money locally at weekends.

We examine consumer spending patterns more closely in the third section of this chapter.

2.3 MIGRATION

Although the economic linkages between two areas are much more closely related to commuting than migration, we present selected migration data from the 2001 Census in table 2.3.

Table 2.3: Migration Flows between the Alliance SSP area and South Yorkshire, 2001

	Lived Alliance SSP area yr ago	Lived South Yorkshire yr Ago
Barnsley	84	
Doncaster	494	
Rotherham	434	
Sheffield	1,378	
South Yorkshire	2,390	
Ashfield		80
Bassetlaw		1,084
Bolsover		298
Chesterfield		365
Mansfield		69
Newark & Sherwood		90
North East Derbyshire		1,200
Alliance SSP		3,186

Source: 2001 Census

More people relocated to the Alliance SSP area from South Yorkshire in the year preceding the census than did so in the opposite direction.

Many of the people relocating from the Alliance SSP area to South Yorkshire in 2001 did so to Sheffield, whilst Bassetlaw and North East Derbyshire were the most popular destinations for those migrating in the opposite direction.

Given the geography of the area this suggests that many of the moves may have been reasonably short-distance in nature and just over the border between the two areas.

2.4 SHOPPER FLOWS

Experian holds information on retail shopping patterns that differentiates retail centres visited in relation to area of residence. The data is based upon a wide range of sources including store card information and shopper surveys. Using this data we are able to approximate a shopper flow matrix, which shows the proportion of spending made locally within the Alliance SSP area and leakages to South Yorkshire and the Rest of the UK.

Table, 2.4, below shows the shopper-flow matrix calculated from Experian data.

Table 2.4: Alliance SSP resident shopper flows

		Live						
		Ashfield	Bassetlaw	Bolsover	Chesterfield	Mansfield	Newark & Sherwood	North East Derbyshire
Shopper	Ashfield	24.1%	0.0%	4.9%	0.0%	0.8%	0.9%	1.4%
	Bassetlaw	0.0%	34.2%	9.9%	0.1%	1.0%	3.4%	0.4%
	Bolsover	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Chesterfield	0.4%	0.1%	26.7%	85.8%	0.2%	0.0%	54.0%
	Mansfield	27.7%	0.8%	30.5%	0.3%	84.7%	23.9%	2.2%
	Newark & Sherwood	0.0%	1.0%	0.0%	0.0%	0.1%	31.1%	0.0%
	North East Derbyshire	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Barnsley	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Doncaster	0.0%	19.1%	0.4%	0.2%	0.3%	0.2%	0.1%
	Rotherham	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.2%
	Sheffield	2.4%	31.5%	14.9%	11.8%	3.2%	1.8%	35.5%
	Alliance SSP	52.3%	36.2%	72.0%	86.3%	86.9%	59.2%	58.0%
	South Yorkshire R o UK	2.4%	50.9%	15.3%	12.0%	3.5%	2.0%	35.8%
	% Leakage	47.7%	63.8%	28.0%	13.7%	13.1%	40.8%	42.0%
South Yorkshire Leakage Factor	0.1	0.8	0.5	0.9	0.3	0.0	0.9	

Source: Experian

It is no coincidence that the biggest percentage leakages to South Yorkshire in consumer spending terms occur in the three areas bordering South Yorkshire: namely Bassetlaw, Bolsover and North East Derbyshire.

In the table the South Yorkshire Leakage Factor refers to the proportion of leakage to South Yorkshire relative to all leakage from the Alliance SSP

area. The factor is highest amongst those areas bordering South Yorkshire and lowest in those areas to the southern end of the SSP area.

Percentage leakage to the rest of the UK is highest in Ashfield, and comes as a result of Nottingham being omitted from the table.

2.5 TRADE SURVEYS

Trade surveys are unarguably the best way to estimate links between different areas. The CBI survey currently undertaken by Experian looks at supply chain linkages in a region, with respect to local, national and international sales and purchases.

Unfortunately the survey does not provide evidence of specific linkages between the Alliance SSP area and South Yorkshire, rather providing an estimate as to the proportion of inputs sourced from outside the East Midlands region relative to other regions in the UK.

3 Estimating links

3.1 HOW WE DO IT

We employ an input-output model to assess the linkages between the Alliance SSP area and South Yorkshire. Input-output tables are collated in an accounting framework and link the economy together in terms of what is sold and purchased by individuals and organisations. Effectively the table indicates what is required by a firm to produce one unit of output. This will be in terms of inputs from different industries (including itself), labour inputs, and inputs from outside the confines of the Alliance SSP area. Similarly, the table includes consumers and highlights the industrial spending patterns of consumers given an extra pound in their pocket.

There is no published data on trade in goods and services between regions in the UK. Regional input-output tables would give us this information, but these tables are published only for Scotland, Wales and the UK. These tables also tend to be considerably out of date.

We have approached this problem by forming a view of what the Alliance SSP and South Yorkshire input-output tables may look like. Ideally in constructing such a table, one would carry out a detailed survey to inform the supplier and purchasing relationships. However, the costs of such an approach would be considerable. Given this, we have adopted an approach to estimate the linkages based on publicly available information and a series of assumptions.

The techniques we have adopted are those documented by Flegg, A.T. and Webber, C.D. (1995)¹ and are based on using published national input-output tables and adjusting them to reflect the region of interest. Regional economies import from the rest of the country as well as the rest of the world and hence will have far higher import propensities than the UK. This means a technique is required to scale down the UK coefficients.

Simple location quotients² are often used for this purpose. If a region is under-represented in a particular industry, one assumes that this industry would not be able to meet all the region's input demands and hence the coefficient would need to be scaled down to reflect the need for additional imports from other regions. However, as Flegg and Webber note, simply relying on this technique can give misleading results, as no account is being taken of the relative size of the supplying and purchasing sector. The relative size of the sectors is important to understand. For example, if the purchasing industry is under-represented in the Alliance SSP compared with the UK, it would be less important if the sectors supplying this industry were also relatively small. Furthermore, the region's supplying sector, whilst

¹ Flegg, A T. and Webber, C.D. (1995), 'On the appropriate Use of Location Quotients in Generating Regional Input-Output Tables Regional Studies, Vol. 29 pp547.

² Simple location quotients are defined as the ratio between the regional and national proportions of employment in a particular industry.

Input-output tables ... link the whole economy together in terms of what is sold and purchased by individuals and organisations.

potentially under-represented, may have specialised in supplying the purchasing sectors located nearby.

These problems are addressed to a certain extent by using cross-industry location quotients.³ The logic in using these is that if a supplying sector is relatively small in the region compared with the purchasing sector, then imports will be required from the rest of the country.

Flegg and Webber propose one further refinement, which we have also adopted to the methodology outlined above: that all the cross-industry location quotients should be scaled down to reflect the relative size of the region. The level of scaling suggested is supported by empirical evidence gathered when these techniques were used to estimate (published) Scottish and (survey generated) Peterborough input-output tables.

So far we have discussed estimating firms' regional purchases. We also need to consider consumer purchases and investment. Data for spending by industry is available nationally from the UK input-output tables. In order to assess the proportion of spending by local people that goes to local firms we have taken account of the type of industry and its representation within the local economy. For example, much of consumers' spend in the retail sector will be within the region of interest, but other industries are not so location specific. For these latter industries we have assumed that spending will be distributed elsewhere based on where the industries are most prevalent. Our final adjustment is based on evidence we have gathered in using these techniques to approximate the published spending figures from the Welsh and Scottish input-output tables. We have assumed government spending does not generate imports and exports across regions.

In terms of allocating international exports by industry, we have used the latest UK data on exports by sector – the UK input-output international exports information at a detailed (123 industry) split. This is then allocated to either the Alliance SSP or South Yorkshire based on detailed employment by industry shares.

The above methodology enables us to estimate an input-output table that represents the Alliance SSP and South Yorkshire economies. However, there is one final set of adjustments that need to be made so that the table reflects the local economies in 2004 as opposed to a few years ago, as is the case for the published tables on the UK economy.⁴ In order to achieve this we have revised the imports from the rest of the world section of our table to reflect the information in latest data releases. This in turn has led to a revision in the other coefficients in the model to ensure consistency.

3 Cross-location quotients for sectors *i* and *j* are defined as:
(Regional Employment in sector *i*/National employment in *I*) divided by
(Regional employment in sector *j*/National employment in *j*)

4 The latest UK input-output tables that separately identify UK purchases from the rest of the world are for 1995, there are more up-to-date tables giving information on purchasing patterns within the UK, but even the latest version of these represents the UK economy in 2002.

3.2 TECHNICAL ASPECTS

In modelling terms the model used for this study can be represented by figure 3.1 below.

**Figure 3.1 : The Bi-Regional Input-Output Model
(simplified 3x3 industry representation)**

	Industry 1, location 1	Industry 2, location 1	Industry 3, location 1	Industry 1, location 2	Industry 2, location 2	Industry 3, location 2	Autonomous Spending, location 1	Autonomous Spending, location 2
Industry 1, location 1	$C_{11,11}$	$C_{21,11}$	$C_{31,11}$	$C_{12,11}$	$C_{22,11}$	$C_{32,11}$	$C_{41,11}$	$C_{42,11}$
Industry 2, location 1	$C_{11,21}$							
Industry 3, location 1	$C_{11,31}$							
Industry 1, location 2	$C_{21,11}$							
Industry 2, location 2	$C_{21,21}$							
Industry 3, location 2	$C_{21,31}$							
Imports	$C_{1,4}$							
Profits	$C_{1,5}$							
Employment Incomes	$C_{1,6}$							
Total Employment	E_t							
Regional Employment	E_1							
Average Earnings	W_1							
Employment Income of Locals	Y_1							

$C_{21,11}$ would show the amount industry 1 in area 1 purchases from industry 2 in location 1.

The 'Cs' or coefficients show what one sector buys from another in which location. For example, $C_{21,11}$ is what Industry 1 (in location 1) buys from Industry 2 (in location 1). As well as selling to other industries, industries can sell to consumers or other components of final demand. Spending need not go on the output of industries within the UK; it can also be spent on imports. This is represented by the imports row in the model.

Once we have set up a model like the one above and we have a scenario that consists of a change in employment by industry we can run these through the model to generate the knock-on effects (and hence leakages) that this would cause in South Yorkshire (from an Alliance SSP impact). That is, we use the implied multiplier values (both induced and indirect) from the multiplier matrix calculated from the table above. The induced effects come from the additional consumer spending as we make consumer spending endogenous.

4 Results

This section introduces the results from the model simulation assessing the impact of increased employment in the Alliance SSP area on South Yorkshire and thus the leakages from the local economy.

We have chosen 2016 as the reference year as it is the last year of our forecast horizon in the model and in the Alliance SSP best-case scenario.

KEY SOURCE:

Planning - Employment Land Reviews: Guidance Note, ODPM

Using floorspace usage ratios from the Office of the Deputy Prime Ministers recent publication, Planning - Employment Land Reviews: Guidance Note, we arrived at the following estimates of employment for each area in the Alliance SSP boundary in the last year of the forecast horizon, 2016.

Table 4.1 – Direct (gross) employment impacts, 2016 (000s)

Bolsover	9.3
Chesterfield	9.7
North East Derbyshire	1.8
Ashfield	7.0
Bassetlaw	3.5
Mansfield	6.4
Newark and Sherwood	17.4
Alliance SSP Area	55.1

Source: Experian

These jobs were applied to the model described in section 3 to yield the results discussed in this section.

Table 4.2, below examines the effects across all industries in both the Alliance SSP area and South Yorkshire (termed External) in 2016 of the above employment impact.

Table 4.2 – Headline results

		2016
Alliance SSP	Gross Jobs	55,067
	Net Jobs	41,802
	Total Jobs	52,023
	Local Multiplier	0.94
External	Spillover Jobs	4,810
	Total Multiplier	1.03
	Leakage Factor	8.5%

Source: Experian

Introducing an impact of 55,000 gross jobs to the spillover model leads to only 52,000 total local jobs as the local displacement effects (included in net jobs) outweigh the beneficial multiplier effects.

Type I and type II multipliers account respectively for additional inter-industry purchases and additional consumer spending arising from the initial 55,000 gross jobs. Displacement refers to the negative side effects of extra jobs in an area, most notably where local markets are already operating at capacity and existing jobs are displaced as consumers redirect their expenditure.

This result is identical to the result presented in an associated piece of work on behalf of the Alliance SSP (the executive summary of which can be seen in Appendix A of this report).

Essentially the downstream sourcing and consumer spending induced by such an impact is not enough to offset the likely job losses caused by limits to spending capacity in the local area.

The resultant multiplier is thus less than unity. A value of 0.94 indicates that for every 100 jobs created in the Alliance SSP area under the simulation the end result is an additional 94 net jobs in the Alliance SSP area. That is not the end of the story, however, as our model attempts to pick up on spillover effects from the region.

The resultant multiplier for the Alliance SSP area and South Yorkshire in total is 1.03. This suggests that for every 100 jobs created in the Alliance SSP area the end result is some 103 net jobs in the Alliance SSP area and South Yorkshire together.

By definition, of the total 103 jobs created, 9 are expected to be located in South Yorkshire. In other words some net beneficial effects accrue to South Yorkshire in this simulation.

In absolute terms 4,800 jobs accrue to South Yorkshire using the model. This represents an 8.5 per cent leakage of the initial impact in the Alliance SSP area to South Yorkshire. For comparison this figure is some 12 per cent for the rest of the East Midlands, suggesting that under this scenario more beneficial leakage accrues to the rest of the East Midlands than South Yorkshire. In total therefore around 20 per cent of the initial impact is lost to the Alliance SSP region because of links with surrounding areas.

Table 4.3, overleaf, shows the industrial breakdown of the leakage from the simulation.

The model suggests that net beneficial effects accrue to South Yorkshire.

Table 4.3, Leakages to South Yorkshire

Transport	862
Banking & Insurance	711
Other F&Bs	581
Business Services	529
Wholesaling	358
Retailing	204
Other (mainly Public) Services	200
Food, Drink & Tobacco	189
Communications	179
Construction	167
Metals	160
Hotels & Catering	98
Education	72
Rubber & Plastics	68
Health	65
Public Admin. & Defence	64
Machinery & Equipment	55
Paper, Printing & Publishing	46
Transport Equipment	46
Electrical & Optical Equipment	34
Gas, Electricity & Water	29
Minerals	23
Agriculture, Forestry & Fishing	22
Textiles & Clothing	21
Other Manufacturing	14
Wood & Wood Products	8
Other Mining	2
Oil & Gas Extraction	2
Fuel Refining	0
Chemicals	0
Total	4,810

Source: Experian

The largest absolute leakages from the Alliance SSP area come in Transport, Banking and Insurance and Other Financial and business services. There are, however two factors at work here. One is the simulation we have used; the other being the estimated cross border links themselves. All else equal a large impact in the Alliance SSP area in an industry will lead to a larger leakage to South Yorkshire in that industry and those which source from it. By benchmarking against the jobs created in the simulation in the Alliance SSP area, as we do in table 4.4, we isolate the leakages we are interested in.

**Table 4.4, Leakages to South Yorkshire
as % of Alliance SSP Jobs created**

Banking & Insurance	72.3%
Public Admin. & Defence	48.6%
Transport	43.7%
Wood & Wood Products	41.0%
Other Manufacturing	40.1%
Transport Equipment	39.3%
Other Mining	35.5%
Minerals	34.6%
Agriculture, Forestry & Fishing	33.3%
Rubber & Plastics	32.3%
Metals	31.1%
Textiles & Clothing	30.1%
Construction	27.5%
Communications	22.6%
Paper, Printing & Publishing	19.5%
Food, Drink & Tobacco	19.3%
Education	16.5%
Other (mainly Public) Services	15.3%
Hotels & Catering	9.7%
Health	9.2%
Retailing	9.0%
Gas, Electricity & Water	5.7%
Other F&Bs	4.1%
Business Services	3.8%
Wholesaling	1.7%
Machinery & Equipment	1.1%
Electrical & Optical Equipment	0.6%
Oil & Gas Extraction	0.0%
Chemicals	0.0%
Fuel Refining	0.0%

Source: Experian

The majority of industries seeing high percentage leakage are those, which are underrepresented in the SSP area relative to South Yorkshire. Recall the similarity index in section one of the report. Banking and Insurance for instance is a much more prevalent industry in South Yorkshire than locally. Firms are therefore more likely to source this type of input from elsewhere, South Yorkshire included. This is clearly visible in the table.

In isolating leakages, however, relatively small leakages can appear at the higher end of the table as with Public Administration and Defence.

Appendix A

Alliance SSP area: 2004-2016

We adopt a top-down approach to local economic forecasting, starting with a view of UK macroeconomic prospects and the UK's position in the global economy. These forecasts then inform forecasts of key variables at the regional and sub-regional level.

We use additional models that examine potential long-run supply-side limitations with respect to the local economy. For instance, the short-run relationship between the UK and the Alliance SSP area may suggest economic growth in excess of what is feasible given local supply-side constraints such as population, skills and infrastructure.

Nationally, the late-eighties and early-nineties saw significant fluctuation in employment, productivity and subsequently output growth. For the last decade, however, growth has been markedly less volatile. The low inflation – low unemployment environment has been conducive to stability of late, something we envisage continuing over the coming decade.

Employment growth at the national level, although stable, will be low by historical standards as growth in the number of people of working-age in the UK slows. Fewer people available to work in the long-run limits the potential for employment growth, unless we see offsetting increases in participation.

Against this backdrop we envisage that the Alliance SSP area will realise slower employment growth than both the East Midlands and the UK. This is a continuation of historical trends but also reflects the fact that the local working-age population is set to fall in official population projections. The effects of this are offset as we expect participation rates to increase slightly in the SSP area.

Employment growth will come largely in service sector industries mirroring the UK picture; manufacturing industry will continue to realise job losses. As a result the industrial make-up of the SSP area will shift further towards the service industry over the forecast horizon.

GDP per capita is currently lower in the Alliance SSP area than the East Midlands as a whole. This is reflected in targets that aim to increase GDP per capita in the area by 2015 such that the gap with the more prosperous SSPs in the East Midlands is closed. Our baseline estimates see an improvement although not of the level required to meet the target.

Authorities such as Chesterfield and Bassetlaw, which have the highest levels of GDP per capita in the SSP area are forecast to realise the highest levels of growth in GDP. At the other end of the scale Bolsover is set to realise the slowest growth of all authorities in the SSP.

Local employment sites

To inform the best-case scenario used in the study we received data on feasible employment sites in the SSP area. Specific sites included in the study are:

- Manton Colliery
- Bevercotes Colliery
- Pinxton Castle
- Brook Park
- Barlbrough Links
- Bryan Donkins (former site)
- A61 Corridor
- Markham Vale
- Bilsthorpe Park
- Fernwood Business Park
- Newlink Business Park
- Newark Industrial Estate
- Cavendish Park
- Coney Green

Estimating additionality

We make use of input-output techniques to gauge the “knock-on” effects of economic interactions within the Alliance SSP area. To do this we first require the gross jobs or direct jobs likely to be created as a result of new employment land.

The Office of the Deputy Prime Minister (ODPM) recently published guidelines as to estimating employment from floorspace and we make use of these guidelines in the study.

Using information regarding the above employment sites in conjunction with the ODPM floorspace data, we arrived at the number of jobs we would expect assuming that all employment land available in the area is successfully utilised over the next decade and that the jobs created are above and beyond the jobs created in our baseline estimates.

The direct jobs are then subjected to the input-output model contained within EMDA’s Scenario Impact Model to yield the knock-on effects of these extra jobs. The model includes both multiplier and displacement effects and thus takes on board the positive effects accruing from increased downstream industry purchasing and consumer spending. At the same time displacement ratios approximate the negative effects of the developments; effectively accounting for firms displaced by additional firms and local markets of finite size.

After calculating these additional effects we arrive at the final estimates of jobs and economic activity associated with the best-case scenario.

Results

Given the broad-brush nature of this assessment, the scope for error in estimates of initial jobs and the varying detail of local-level information, we suggest that the results presented here be interpreted with caution.

The direct impact associated with the best-case scenario (as calculated from available information) is approximately 55,000 jobs by 2016.

The additional effects of the impact are negative such that the negative effects associated with displacement in the area outweigh extra downstream sourcing and consumer spending. The final impact is 52,000 more jobs than that suggested by our baseline forecasts. This equates to growth in employment of 2.0 per cent per annum to 2016. Compared to the 0.3 per cent seen in the baseline estimates this, growth is rapid.

Industrially the shift towards a service sector economy is much more marked than in the baseline projections.

Productivity per worker also increases in the best-case scenario as employment becomes more concentrated in higher-productivity industries. The upshot of higher employment and productivity growth is much higher output growth; averaging 5.0 per cent per annum over the forecast period.

The best-case scenario sees Alliance SSP reach its stated goal of closing the gap on the more affluent areas of the East Midlands, moving from 5th place in the baseline projections to 3rd place in Value Added per capita rankings by 2016.

The level of growth associated with the best-case scenario is way above baseline projections. It is also way above comparable UK benchmarks. So, *Is it really achievable?* The answer is probably not. Even if supply side conditions are improved the growth projections for certain areas within the Alliance SSP area are still unlikely to occur.

Our baseline supply-side analysis suggests that a declining working-age population is the main drag on growth in the long-term. Without people in the area to support such growth in labour terms the demand side best-case scenario will not happen. Skills are also below average for the UK and without easing these supply-side restrictions to growth the best case is unachievable. Local initiatives are underway to improve supply-side factors and whether not the best-case scenario is manageable or not these initiatives will enhance the prospects for growth in the area.

We must also remember that all employment sites are assumed to be successfully developed and occupied in the best-case scenario and this in itself is a very strong assumption. Further work could introduce risk analysis to the planning process for more realistic scenarios.