The Economic Competitiveness of the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) LEP Area

Executive Summary

- This report uses the UK Competitiveness Index (UKCI) to examine the present position and evolution of the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) Local Enterprise Partnership (LEP) in terms of its ability to attract and retain resources leading to higher standards of living for its population.
- Analysis is undertaken of the overall UKCI index for 2019 and also the constituent Input, Output and Outcome Indices to gain further insight into the source of competitiveness. Previous editions of the UKCI are utilised to identify changes over time going back to the formation of the LEPs.
- Comparisons are made with a number of different groups of LEPs located in close geographical proximity. More detailed comparisons are made with a more select group of four similar and aspirational key comparators.
- Differences within the D2N2 LEP are also examined to understand the challenges faced in boosting competitiveness for the LEP as a whole. This is to account for the quite different historical development patterns and the pathways followed more recently.
- It is found that in 2019 D2N2 (UKCI 88.3) is less competitive than the UK average (UKCI 100). However, this needs to be considered in the context of a majority of Midlands and Northern LEPs are also below the UK average.
- In 2019 D2N2 lags the leading LEPs in both its neighbour comparator group (Cheshire and Warrington UKCI 108.3) and the East Midlands comparator group (South East Midlands UKCI 102.8). In these comparator groups D2N2 is in the third quartile of LEPs considered.
- In the key comparator group both Greater Birmingham and Solihull (UKCI 95.0) and Coventry and Warwickshire (UKCI 100.7) are more competitive in 2019. Each of these comparators has aspirational value as the former has evolved to become more service orientated as has Nottingham, whilst the latter retains considerable manufacturing specialism as is the case for Derby.
- Considering a longer period of time D2N2 has more similarities with Sheffield City Region another member of the key comparator group. Both D2N2 and Sheffield City Region have seen their competitiveness eroded since their formation, whilst others key comparators have been better able to retain their competitiveness.
- When considering differences in competitiveness within D2N2 considerable variation is found. Although Rushcliffe achieves the UK average level of competitiveness in 2019 (UKCI 100), localities such as Ashfield (UKCI 78.0) and Mansfield (76.8) are well below the UK average. More peripheral localities in the LEP in particular have seen a decline in their competitiveness over time, leading to a greater polarisation even within the LEP.
- The fortunes of Derby and Nottingham also appear to be diverging over time. Of the two dominant urban centres in D2N2, Derby is the more competitive with its retention of a specialised manufacturing cluster, whilst Nottingham in transitioning to a more service orientated focus continues to see competitiveness eroded at a faster rate.
- Examination of the constituent indices of the UKCI in 2019 find that D2N2 performs most weakly in terms of the UKCI Input Index and most strongly in UKCI Outcome Index. The overall

pattern is therefore of D2N2 having less of the resources needed to compete in the modern knowledge based economy and struggling to retain those that is has, but still being able to utilise those resources present successfully to maintain the welfare of the population.

- Deeper analysis of the UKCI Input index finds that D2N2 lags more successful key comparators primarily because of both lower existing and newly generated businesses. The patterns through the recovery suggest that entrepreneurial resilience may be low, so that when negative shocks are present D2N2 lacks the culture and institutions to renew the business and enterprise community.
- The relative success of D2N2 in terms of the UKCI Outcome Index (96.3) is driven by low unemployment rather than higher levels of wages. Compared to Coventry and Warwickshire (UKCI Outcome Index 102.0) both D2N2 and Greater Birmingham and Solihull (UKCI Outcome Index 98.0) with their transition to being more service focused have failed to achieve both low unemployment and high wages, each has been better at one but not the other.
- Within D2N2 the component indices show the importance of commuting patterns with many important resources located in those localities surrounding the two main urban areas, but outputs being created within the urban area. The outcomes in terms of improved welfare are, however, enjoyed by populations outside the urban areas to a large extent. This is one of the difficulties faced with policy and governance within D2N2 and many other similar LEPs where authority and responsibility does not necessarily coincide with patterns of social and economic connections.
- The different natures of the two major urban areas mean that different challenges are faced by each. For Derby and its surrounding localities continued access to export and import markets at a national level and specialised labour are key.
- For Nottingham a potential mismatch between much of the skills developed historically may lead to further erosion of its competitive position. A need to encourage an entrepreneurial culture in new areas of specialisation and links to new knowledge sources will be required.
- A third group of more peripheral localities displays falling competitiveness as captured by the UKCI Input and Output indices in particular. Although, there is less evidence of this feeding through to the UKCI Outcome Index immediately this is not likely to be the case going forwards.
- Given the large loss of historically important industries and limited scale to a service orientation, isolated success is unlikely for these localities. A need to improve connections within D2N2 to help small subclusters of specialist firms to collaborate with those in the dominant urban areas will be important. Such connections could be physical in terms of transport or digital in terms of internet speeds.
- The variation within D2N2 provides both opportunities for the LEP to take in most future national scenarios. However, a continuing loss of competitiveness weakens the resources, culture and institutions, and ability to attract new resources to take advantage of these opportunities.
- Unlike most LEPs the bi-centric structure of the LEP provides further issues in terms of determining priorities. Although, there is potential for a symbiotic relationship to be generated, the current development paths appear to be leading in different directions.
- Like many LEPs D2N2 also faces issues related to a urban core and a more rural periphery with the latter in danger of being left even further behind.

1 Introduction to Measurement of Economic Competitiveness in the D2N2 Local Enterprise Partnership

This report examines the economic competitiveness of the Derby & Derbyshire, Nottingham & Nottinghamshire Local Enterprise Partnership (D2N2 LEP) area. In particular, it assesses the performance of D2N2 in comparison with four other LEP areas. Although the overall ranking of D2N2 in relation to all other LEP areas is considered, specific more detailed comparisons are made with different subsets of LEP areas. These comparators represent a mix of neighbouring LEP areas with which D2N2 may compete for resources and investment, as well as those with similar socio-economic and/or demographic characteristics.

The first comparator group includes the ten neighbouring LEP areas (have contiguous boundaries with D2N2 or are extremely close proximity) consisting of: Cheshire and Warrington; Coventry and Warwickshire; Greater Manchester; Greater Birmingham and Solihull; Leicester and Leicestershire; Leeds City Region; Stoke-on Trent and Staffordshire; Humber; Sheffield City Region; and Greater Lincolnshire. Comparisons are also made with the five LEPs that at least in part cover the former East Midlands Development Agency (EMDA) area: South East Midlands; Greater Cambridge and Greater Peterborough; Leicester and Leicestershire; Sheffield City Region; Greater Lincolnshire. These comparator groups as can be seen from the lists of LEPs above have overlap, but also LEPs that fall into one group, but not the other. These comparisons are based purely on geographical proximity and whilst this does in some cases mean that there are similarities in the industries present and geopolitical positions others are quite different. It is also true that the constituent local authorities making up the D2N2 area vary in nature in terms of industrial heritage, economic success, and physical geography. Therefore, to consider a longer period of comparisons (2010 to 2019) four 'key comparator' LEP areas have been selected: Coventry and Warwickshire; Greater Birmingham and Solihull; Leicester and Leicestershire; and Sheffield City Region.

The logic behind the selection of each of these key comparators is as follows. Coventry and Warwickshire is selected a LEP that has a strong manufacturing specialisation in the automotive industry (Rawlinson, 1991; Thoms and Donnelly, 2000). It is chosen as an aspirational comparator that has particular relevance for Derby with its transport and aerospace cluster (Smith and Ibrahim, 2006; Rossiter, 2016). Greater Birmingham and Solihull similarly is selected as an aspirational comparator, but has potentially more pertinence for Nottingham within D2N2 as an area with a strong tradition in manufacturing, but has in recent decades built it more recent success in the services sector (Barber and Hall, 2008; Lawton et al., 2019). An alternative would have been Leeds City Region (Dutton, 2003), however, it was deemed that the closer links within the Midlands Engine Area (Midlands Engine, 2015) made Greater Birmingham and Solihull the more appropriate choice. Leicester and Leicestershire is selected as containing the third of the large urban areas from the old EMDA area. The Sheffield City Region is selected as a LEP that like D2N2 has traditionally had high levels of specialisation and world leading production in a particular industry (steel manufacture), but with international competition has faced similar difficulties faced to Nottingham (lace manufacture) and Derby (transport) from deindustrialisation that has greatly reduced the share of employment accounted for by manufacturing even where it remains. In the case of three of the four key comparators (Greater Birmingham and Solihull being the exception) these LEPs like D2N2 as well as having their core urban areas also contain more rural local authorities and smaller urban centres reflecting similar challenges. For example, Sheffield City Region like D2N2 contains many urban areas that initially developed with the coal industry and those industries it served, but such industries are now largely absent (Power et al., 2010).

Given the differences within both D2N2 and comparator LEP areas as well as considering the competitiveness of the LEP area as a whole examination is made of the constituent local authorities of D2N2through time and with those localities in neighbouring LEP areas.

The analysis principally draws on data based on that published in the 2019 edition of the *UK Competitiveness Index* (UKCI) (Huggins et al., 2019). Discrepancies with the figures included in the UKCI 2019 report reflect the use of the latest data available. The 2019 figures included in this report include the latest data releases and revisions that were not available at the time of the UKCI 2019 report. The figures are extremely highly correlated with the overall UKCI reports for LEPs producing a correlation statistic of 0.988 (Table 1.1), and for the individual local authorities 0.999 (Table 1.2).

Table 1.1 – Correlation coefficients for LEP UKCI19 revised figures using the latest data and the figures reported in the UKCI19 report

	UKCI Input Index (Revised)	UKCI Output Index (Revised)	UKCI Outcome Index (Revised)	UKCI (Revised)	UKCI Input Index (UKCI19 report)	UKCI Output Index (UKCI19 report)	UKCI Outcome Index (UKCI19 report)
UKCI Output Index (Revised)	0.881 (0.000)						
UKCI Outcome Index (Revised)	0.826 (0.000)	0.918 (0.000)					
UKCI (Revised)	0.968 (0.000)	0.969 (0.000)	0.920 (0.000)				
UKCI Input Index (UKCI19 report)	0.970 (0.000)	0.848 (0.000)	0.820 (0.000)	0.939 (0.000)			
UKCI Output Index (UKCI19 report)	0.887 (0.000)	0.981 (0.000)	0.939 (0.000)	0.967 (0.000)	0.860 (0.000)		
UKCI Outcome Index (UKCI19 report)	0.862 (0.000)	0.900 (0.000)	0.978 (0.000)	0.928 (0.000)	0.865 (0.000)	0.926 (0.000)	
UKCI (UKCI19 report)	0.962 (0.000)	0.944 (0.000)	0.923 (0.000)	0.988 (0.000)	0.966 (0.000)	0.960 (0.000)	0.943 (0.000)

Notes: p-values in parentheses

Table 1.2 – Correlation coefficients for Local Authority District UKCI19 revised figures using the latest data and the figures reported in the UKCI19 report

	UKCI Input Index (Revised)	UKCI Output Index (Revised)	UKCI Outcome Index (Revised)	UKCI (Revised)	UKCI Input Index (UKCI19 report)	UKCI Output Index (UKCI19 report)	UKCI Outcome Index (UKCI19 report)
UKCI Output Index (Revised)	0.985 (0.000)						
UKCI Outcome Index (Revised)	0.465 (0.000)	0.434 (0.000)					
UKCI (Revised)	0.995 (0.000)	0.990 (0.000)	0.519 (0.000)				
UKCI Input Index (UKCI19 report)	0.998 (0.000)	0.983 (0.000)	0.483 (0.000)	0.995 (0.000)			
UKCI Output Index (UKCI19 report)	0.986 (0.000)	1.000 (0.000)	0.441 (0.000)	0.990 (0.000)	0.983 (0.000)		
UKCI Outcome Index (UKCI19 report)	0.459 (0.000)	0.419 (0.000)	0.937 (0.000)	0.508 (0.000)	0.479 (0.000)	0.426 (0.000)	
UKCI (UKCI19 report)	0.993 (0.000)	0.986 (0.000)	0.532 (0.000)	0.999 (0.000)	0.995 (0.000)	0.988 (0.000)	0.527 (0.000)

Notes: p-values in parentheses

The UKCI, which was first introduced and published in 2000, provides a benchmarking of the competitiveness of the UK's localities, and is designed to be an integrated measure of competitiveness focusing on both the development and sustainability of businesses and the economic welfare of individuals. In this respect, *competitiveness is considered to consist of the capability of an economy to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it*. This definition makes clear that local competitiveness occurs only when sustainable growth is achieved at labour rates that enhance overall standards of living.

The UKCI is based on a *3-Factor model* for measuring competitiveness, as shown by Figure 1. The 3-Factor model consists of a linear framework for analysing competitiveness based on: (1) input; (2) output; and (3) outcome factors. In order to achieve a valid balance between each of the indicators, in terms of their overall significance to the composite index, each of the three measures - Measure 1: Inputs; Measure 2: Output; and Measure 3: Outcomes - are given an equal weighting, since it is hypothesised that each will be interrelated and economically bound by the other (Huggins, 2003). This is confirmed by the figures reported in Tables 1.1 and 1.2 above which reflect the positive correlation between the three factor indices both at the LEP and Local Authority level. It is noticeable that the correlations are stronger at the LEP level reflecting the often quite different localities found within LEPs such as D2N2. Each may have stronger elements of overall competitiveness, which can also reflect commuting patterns (Lawton et al., 2019). These intra-LEP differences are averaged out and lost within the LEP areas as a whole.

Figure 1: The 3 Factor Model Underlying the UK Local Competitiveness Index

Input factors
Economic Activity Rates Business Start-up Rates per 1,000 Inhabitants Number of Business per 1,000 inhabitants Proportion of Working Age Population with NVQ Level 4 or Proportion of Knowledge-Based Business
↓
Output factors
Gross Value Added per head at current basic prices Productivity - Output per Hour Worked Employment Rates
↓
Outcome factors
Gross weekly pay Unemployment rates

Source: Huggins, R. and Thompson, P. (2013) UK Competitiveness Index 2013, School of Planning and Geography, Cardiff University: Cardiff

The individual indices therefore reflect differing approaches to measuring competitiveness. The UKCI Input Index captures what Aiginger and Firgo (2017) refer to as process competitiveness. This consists of examining the conditions and resources required to compete. The third index, the UKCI Outcome Index, captures the influence on the population's welfare and is a measure of outcome competitiveness (Aiginger and Firgo, 2017). The UKCI Output Index forms an intermediate step. Although, the UKCI Output Index component indices are frequently used as outcome competitiveness measures, the UKCI uses them to reflect the ability to convert inputs available into economic outputs, but these may not necessarily lead to rising living standards for the population. It is the UKCI Outcome Index which directly examines this to ensure that competitiveness is not being achieved purely on a cost basis and shedding of employment (Malecki, 2017).

Aiginger and Firgo (2017) highlight the value of outcome competitiveness measures accounting for actors such as the environment and working conditions. This helps to confirm the relationship between competitiveness measures and the population's well-being which whilst intuitive could be put under strain by negative side effects from economic success such as pollution (Huggins and

Thompson, 2012). For D2N2 such factors may be of importance in the future particularly given developments in the LEP relating to energy supply and storage which may have importance for renewable energy provision (Rossiter and Smith, 2018) and the need to look for alternative renewable energy production as traditional energy production in D2N2 is cut back (Abdo and Ackrill, 2016).

2 Overall Competitiveness for D2N2

This section of work looks at the overall UK Competitiveness Index figure for the D2N2 LEP area as a whole for 2019. As noted above a variety of comparisons are made with different groups of LEP areas to understand the relative position of D2N2. There is also further investigation of the evolution of D2N2's competitiveness over longer periods of time. The position of D2N2 is reported in comparison with all LEP areas in England, plus the city regions of Wales and Scotland in Table 2.1 below.

Table 2.1: UKCI by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions

					Change 2015-2019	
Rank 2019	Local Enterprise Partnership Area	2019	2015	Rank 2015	UKCI	Rank
1	London	128.7	129.4	1	-0.8	0
2	Thames Valley Berkshire	119.9	122.4	2	-2.5	0
3	Aberdeen City Region	112.7	116.2	3	-3.5	0
4	Buckinghamshire Thames Valley	111.1	114.6	4	-3.5	0
5	Hertfordshire	111.1	110.9	7	0.2	2
6	Enterprise M3	110.8	111.5	5	-0.7	-1
7	Oxfordshire	108.7	111.1	6	-2.4	-1
8	**Cheshire and Warrington**	**108.3**	**104.6**	**8**	**3.7**	**0**
9	West of England	102.9	103.6	10	-0.7	1
10	*South East Midlands*	*102.8*	*102.1*	*11*	*0.7*	*1*
11	Coast to Capital	102.1	104.4	9	-2.3	-2
12	Edinburgh and South East Scotland City Region	101.7	101.5	12	0.2	0
13	**Coventry and Warwickshire**	**100.7**	**101.0**	**14**	**-0.3**	**1**
14	*Greater Cambridge & Greater Peterborough*	*99.8*	*99.8*	*15*	*-0.1*	*1*
15	Gloucestershire	99.7	101.5	13	-1.9	-2
16	Swindon and Wiltshire	99.4	98.9	17	0.5	1
17	Worcestershire	98.8	94.6	19	4.2	2
18	**Greater Manchester**	**96.4**	**93.9**	**21**	**2.5**	**3**
19	**Greater Birmingham and Solihull**	**95.0**	**93.4**	**23**	**1.6**	**4**
20	Inverness and Highland City Region	94.1	95.3	18	-1.2	-2
21	South East	93.5	94.5	20	-1.0	-1
22	***Leicester and Leicestershire***	***93.3***	***93.8***	***22***	***-0.5***	***0***
23	Solent	93.2	99.5	16	-6.4	-7
24	Dorset	92.2	93.2	24	-1.0	0
25	Cumbria	91.5	93.1	25	-1.6	0
26	Glasgow and Clyde Valley City Region	91.3	91.7	27	-0.4	1
27	York, North Yorkshire and East Riding	91.0	92.2	26	-1.2	-1
28	**Leeds City Region**	**90.0**	**91.1**	**28**	**-1.2**	**0**

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

Table 2.1: UKCI by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions - continued

Rank 2019	Local Enterprise Partnership Area	2019	2015	Rank 2015	Change 2015-2019 UKCI	Change 2015-2019 Rank
29	Cardiff City Region	89.8	87.2	37	2.6	8
30	New Anglia	89.3	89.0	31	0.2	1
31	Lancashire	89.2	88.7	32	0.5	1
32	Liverpool City Region	88.7	87.6	35	1.2	3
33	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***88.3***	***90.8***	***29***	***-2.5***	***-4***
34	The Marches	88.3	89.9	30	-1.6	-4
35	Heart of the South West	87.0	88.5	34	-1.5	-1
36	**Stoke-on-Trent and Staffordshire**	**86.5**	**87.3**	**36**	**-0.8**	**0**
37	Tees Valley	84.9	88.6	33	-3.7	-4
38	**Humber**	**84.8**	**86.9**	**38**	**-2.1**	**0**
39	North Eastern	84.5	85.4	41	-0.8	2
40	***Sheffield City Region***	***84.4***	***86.8***	***39***	***-2.4***	***-1***
41	***Greater Lincolnshire***	***82.8***	***86.5***	***40***	***-3.7***	***-1***
42	Black Country	81.5	81.1	44	0.4	2
43	Cornwall and Isles of Scilly	80.8	81.6	43	-0.7	0
44	Swansea Bay City Region	80.8	81.7	42	-1.0	-2

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

In 2019 D2N2 has a UKCI score of 88.3 where 100 represents the UK average. This represents a slight decline from 90.8 in 2015. Care must be taken when interpreting the meaning of this as a fall in the UKCI score for a single LEP can represent declines in the underlying indices that make up the UKCI for the LEP in question. However, as the UKCI compares LEPs to the UK average a falling score can represent improvement in the underlying data in absolute terms, but a relative decline compared to the UK average. Local and regional competitiveness is often defined as reflecting the ability to attract and retain valuable inputs such as businesses and skilled workers (Storper, 1997; Huggins and Thompson, 2017b), whilst ensuring that living standards of the population are maintained and ideally improved (Aiginger and Firgo, 2017), thus avoiding low roads to success based on cheap labour and poor working/living conditions (Malecki, 2004, 2017). This makes the relative position as important as the absolute position particularly when taking a dynamic perspective. Of the 44 LEP and City Regions included in the index D2N2 has remained in the lower half of the rankings at 33rd. This is a decline of 4 places from 2015.

We now move on to make more detailed comparisons of the competitiveness of D2N2 relative to different groups of comparator LEPs with economic connections and similar economic structures. This starts with a comparison of D2N2 and all its neighbouring LEP areas (Table 2.2).

Table 2.2: UKCI for D2N2 LEP area and neighbouring areas

Neighbour Rank 2019	Local Enterprise Partnership Area	2019	Rank 2019	2015	Rank 2015	Change 2015-2019 UKCI	Change 2015-2019 Rank
1	**Cheshire and Warrington**	**108.3**	**8**	**104.6**	**8**	**3.7**	**0**
2	**Coventry and Warwickshire**	**100.7**	**13**	**101.0**	**14**	**-0.3**	**1**
3	**Greater Manchester**	**96.4**	**18**	**93.9**	**21**	**2.5**	**3**
4	**Greater Birmingham and Solihull**	**95.0**	**19**	**93.4**	**23**	**1.6**	**4**
5	***Leicester and Leicestershire***	***93.3***	***22***	***93.8***	***22***	***-0.5***	***0***
6	**Leeds City Region**	**90.0**	**28**	**91.1**	**28**	**-1.2**	**0**
7	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***88.3***	***33***	***90.8***	***29***	***-2.5***	***-4***
8	**Stoke-on-Trent and Staffordshire**	**86.5**	**36**	**87.3**	**36**	**-0.8**	**0**
9	**Humber**	**84.8**	**38**	**86.9**	**38**	**-2.1**	**0**
10	***Sheffield City Region***	***84.4***	***40***	***86.8***	***39***	***-2.4***	***-1***
11	***Greater Lincolnshire***	***82.8***	***41***	***86.5***	***40***	***-3.7***	***-1***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

The neighbouring LEPs contain mostly Midlands and Northern LEPs. Even though literature has long noted a North-South divide in England (Huggins and Williams, 2011) it is clear that considerable variation exists even between D2N2 and its neighbours (González, 2011). Although Cheshire and Warrington is well above the UK average with a UKCI score of 108.3 there are also LEPs such as Greater Lincolnshire that are below the UK average with a score of 82.8. The source of these discrepancies will be examined in more detail in later sections that spilt the measures associated with process and outcome competitiveness (Aiginger, 2006; Aiginger and Firgo, 2017).

D2N2 itself as a LEP with a competitiveness level below the UK average even finds itself closer to the bottom of the range of this North and Midlands comparator group ranked 7th of 11. It finds itself almost between two groups. The first group includes LEPs such as Coventry and Warwickshire and Greater Manchester that have either maintained their historical manufacturing strengths in the case of the former or shown signs of successfully transforming towards a more service based structure in the case of the latter (Thoms and Donnelly, 2000; Boschma and Wenting, 2007; Ortiz-Moya, 2015). The second group of less competitive LEPs are often those that have been hit by deindustrialisation, but struggled to develop the knowledge based services, such as Sheffield City Region (Power et al., 2010).

Comparing the UKCI scores for 2015 and 2019, although not universal, there is more a pattern of the more competitive LEPs in the Midlands and North as covered here improving or at least maintaining their position relative to the UK average, whilst those towards the bottom are losing competitiveness. Unfortunately at the moment D2N2 would appear to be in the latter group given the change from 90.8 to 88.3 over this period.

Table 2.3 provides a further comparison with the LEPs in the former EMDA area. As noted in Section 1 this allows comparison of LEPs that formerly would have at least partially been covered by the EDMA.

Table 2.3: UKCI for D2N2 LEP area and those LEPs covering at least in part the former EMDA area

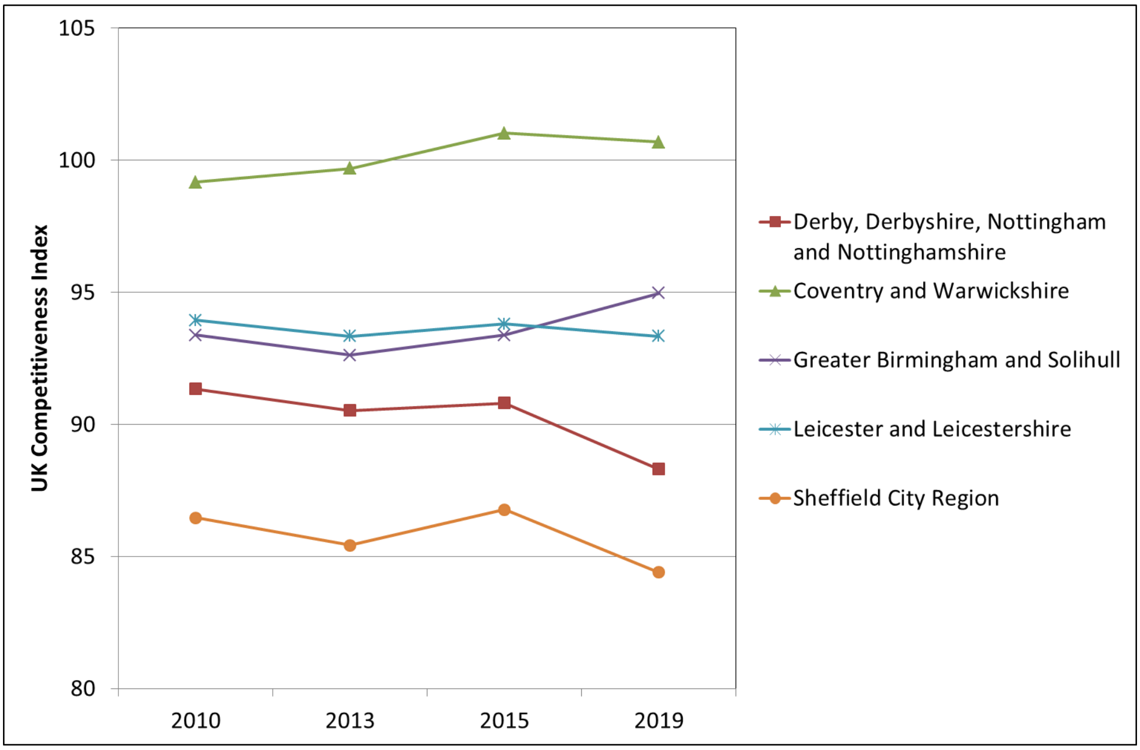
EMDA Rank 2019	Local Enterprise Partnership Area	2019	Rank 2019	2015	Rank 2015	Change 2015-2019 UKCI	Change 2015-2019 Rank
1	*South East Midlands*	*102.8*	*10*	*102.1*	*11*	*0.7*	*1*
2	*Greater Cambridge & Greater Peterborough*	*99.8*	*14*	*99.8*	*15*	*-0.1*	*1*
3	***Leicester and Leicestershire***	***93.3***	***22***	***93.8***	***22***	***-0.5***	***0***
4	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***88.3***	***33***	***90.8***	***29***	***-2.5***	***-4***
5	***Sheffield City Region***	***84.4***	***40***	***86.8***	***39***	***-2.4***	***-1***
6	***Greater Lincolnshire***	***82.8***	***41***	***86.5***	***40***	***-3.7***	***-1***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

Of the six regions covering areas previously part of the EMDA area D2N2 is ranked 4^{th} of 6. Again it is its neighbours Sheffield City Region and Greater Lincolnshire that are less competitive. The role of geographical location is apparent here. The most competitive LEPs are those closer to London and the knowledge triangle formed by Oxford, Cambridge and London. This shows the importance of inter-regional knowledge flows (Huggins and Thompson, 2017a).

Focusing on the key comparator LEPs identified in Section 1, Figure 2.1 below takes a longer run perspective comparing the evolution of the UKCI scores over the period 2010 to 2019. This allows D2N2's progress to be examined since just before its formation.

Figure 2.1 – Evolution of UKCI for D2N2 and Key Comparator LEP areas 2010 to 2019



As discussed previously more competitive LEPs in the Midlands and North appear to be strengthening their position. Those starting from a lower position in the middle of the Great Recession have generally seen their relative competitive position further eroded in the weak recovery and period of uncertainty associated with BREXIT that followed (Ebell and Warren, 2016; Cumming and Zahra, 2016). D2N2 has not changed its relative ranking compared to the key comparators selected. It remains fourth of the five, but like Sheffield City Region it now finds a larger gap in its UKCI score than in 2010 to the strongest of the key comparators, Coventry and Warwickshire. Whether this pattern continues or not is unclear. The automobile industry that Coventry and Warwickshire is highly reliant on may potentially be hurt by future BREXIT arrangements given its export focus (Crowley et al., 2018), rising prices of imported components if Sterling depreciates further (Bailey and De Propris, 2017), along with existing global slowdowns and uncertainty from BREXIT (Crowley et al., 2018; Steinberg, 2019). However, what is important to investigate in the latter sections that both break down the overall UKCI and also disaggregate the LEP areas is the source of Coventry and Warwickshire's strength given the similarity that parts of D2N2 have. The other key comparator experiencing improvements in competitiveness over the period is Birmingham, with its more service focused economy (Barber and Hall, 2008). Similarly, the source of this success is key to understand as again parts of D2N2 also display similarities.

3. Overall Competitiveness of D2N2 Local Authorities

In the previous section the competitiveness of D2N2 was found to be declining over time. It was shown that this follows a similar pattern to other LEPs such as Sheffield City Region, but there are other more successful LEPs that have commonalities with parts of the D2N2 area such as Coventry and Warwickshire and Greater Birmingham and Solihull, that have been much more successful. It therefore is of importance to understand to what extent there are differences in the competitiveness across D2N2 and whether those parts with similarities in economic structure to other more successful LEPs are also achieving success even if the D2N2 LEP area as a whole is not.

Table 3.1 – Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs

Midlands and North Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
1	Warwick	West Midlands	114.9	37	117.0	31
2	Trafford	North West	111.6	52	112.2	52
3	Stratford-on-Avon	West Midlands	110.1	54	111.6	54
4	Cheshire East	North West	109.8	55	107.3	70
5	Solihull	West Midlands	107.2	66	106.1	79
6	Rugby	West Midlands	106.1	76	105.7	80
7	Manchester	North West	105.7	79	101.9	106
8	North Warwickshire	West Midlands	104.7	84	99.8	125
9	South Northamptonshire	East Midlands	103.0	100	101.3	110
10	Warrington	North West	102.5	105	104.1	90
11	Cheshire West & Chester	North West	102.3	109	101.4	108
12	North West Leicestershire	East Midlands	100.9	114	100.8	115
13	Northampton	East Midlands	100.2	118	100.8	116
14	***Rushcliffe***	***East Midlands***	***100.0***	***120***	***104.4***	***88***
15	Blaby	East Midlands	99.7	121	101.8	107
16	Charnwood	East Midlands	99.7	122	92.7	192
17	***Derbyshire Dales***	***East Midlands***	***99.5***	***123***	***100.1***	***123***
18	Harborough	East Midlands	99.4	124	100.7	117
19	Stockport	North West	98.2	132	98.1	138
20	Salford	North West	96.9	139	97.2	141
21	***Derby***	***East Midlands***	***96.4***	***143***	***99.7***	***128***
22	Rutland	East Midlands	96.4	144	95.6	156
23	Lichfield	West Midlands	96.3	147	96.4	145
24	Daventry	East Midlands	95.9	152	99.2	130
25	Bury	North West	95.9	153	91.3	211
26	Stafford	West Midlands	95.4	156	91.6	209
27	East Staffordshire	West Midlands	93.8	168	91.8	204

Notes: D2N2 local authorities underlined,

Table 3.1 – Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs - continued

Midlands and North Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
28	Coventry	West Midlands	93.8	169	92.7	193
29	***High Peak***	***East Midlands***	***92.7***	***181***	***92.8***	***191***
30	Birmingham	West Midlands	92.5	185	91.9	202
31	Corby	East Midlands	92.4	188	88.1	258
32	Hinckley and Bosworth	East Midlands	92.2	193	93.0	186
33	Wellingborough	East Midlands	92.1	196	89.2	234
34	***Amber Valley***	***East Midlands***	***90.9***	***204***	***90.7***	***218***
35	Melton	East Midlands	90.7	207	94.5	165
36	***Broxtowe***	***East Midlands***	***90.4***	***214***	***90.6***	***220***
37	Kettering	East Midlands	89.9	223	93.9	173
38	***South Derbyshire***	***East Midlands***	***89.0***	***230***	***89.4***	***232***
39	East Northamptonshire	East Midlands	88.8	232	90.5	221
40	Leicester	East Midlands	88.6	236	88.2	257
41	Oadby and Wigston	East Midlands	88.4	239	88.4	254
42	Sheffield	Yorkshire and Humber	88.2	242	88.3	256
43	South Kesteven	East Midlands	88.1	247	90.8	216
44	South Staffordshire	West Midlands	87.9	250	88.4	252
45	Herefordshire, County of	West Midlands	87.5	256	88.5	251
46	***Gedling***	***East Midlands***	***87.5***	***257***	***86.8***	***279***
47	Shropshire	West Midlands	87.5	258	90.9	213
48	***Newark and Sherwood***	***East Midlands***	***86.8***	***264***	***85.6***	***296***
49	North Lincolnshire	Yorkshire and Humber	86.7	267	88.9	240
50	***Erewash***	***East Midlands***	***86.7***	***269***	***87.4***	***271***
51	Bolton	North West	86.3	273	86.3	285
52	Telford and Wrekin	West Midlands	86.3	274	87.6	267
53	Cannock Chase	West Midlands	85.8	277	85.8	292
54	***Nottingham***	***East Midlands***	***85.6***	***279***	***89.1***	***239***
55	***Chesterfield***	***East Midlands***	***85.4***	***280***	***87.4***	***273***
56	***Bassetlaw***	***East Midlands***	***85.3***	***282***	***82.3***	***335***
57	Lincoln	East Midlands	84.9	285	86.4	283
58	***Bolsover***	***East Midlands***	***84.7***	***290***	***94.8***	***163***
59	Oldham	North West	84.3	296	81.6	347
60	Nuneaton and Bedworth	West Midlands	84.0	300	86.8	280
61	North East Lincolnshire	Yorkshire and Humber	83.5	310	87.5	268
62	South Holland	East Midlands	83.3	312	85.6	295

Notes: D2N2 local authorities underlined

Table 3.1 – Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs - continued

Midlands and North Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
63	North Kesteven	East Midlands	83.3	313	83.6	320
64	Staffordshire Moorlands	West Midlands	83.2	315	81.9	338
65	Doncaster	Yorkshire and Humber	83.1	317	84.7	312
66	Newcastle-under-Lyme	West Midlands	82.9	319	82.6	332
67	***North East Derbyshire***	***East Midlands***	***82.6***	***321***	***81.8***	***341***
68	Rotherham	Yorkshire and Humber	82.4	326	82.8	330
69	Wigan	North West	82.1	331	83.9	318
70	Tamworth	West Midlands	82.0	334	85.9	291
71	Rochdale	North West	81.7	339	81.4	350
72	Tameside	North West	81.7	340	81.7	344
73	West Lindsey	East Midlands	81.3	341	85.0	305
74	Stoke-on-Trent	West Midlands	81.0	351	81.4	349
75	Barnsley	Yorkshire and Humber	80.7	354	79.9	364
76	***Ashfield***	***East Midlands***	***78.0***	***371***	***79.7***	***367***
77	Boston	East Midlands	77.2	374	79.8	365
78	East Lindsey	East Midlands	76.8	376	78.3	373
79	***Mansfield***	***East Midlands***	***76.8***	***377***	***80.3***	***360***

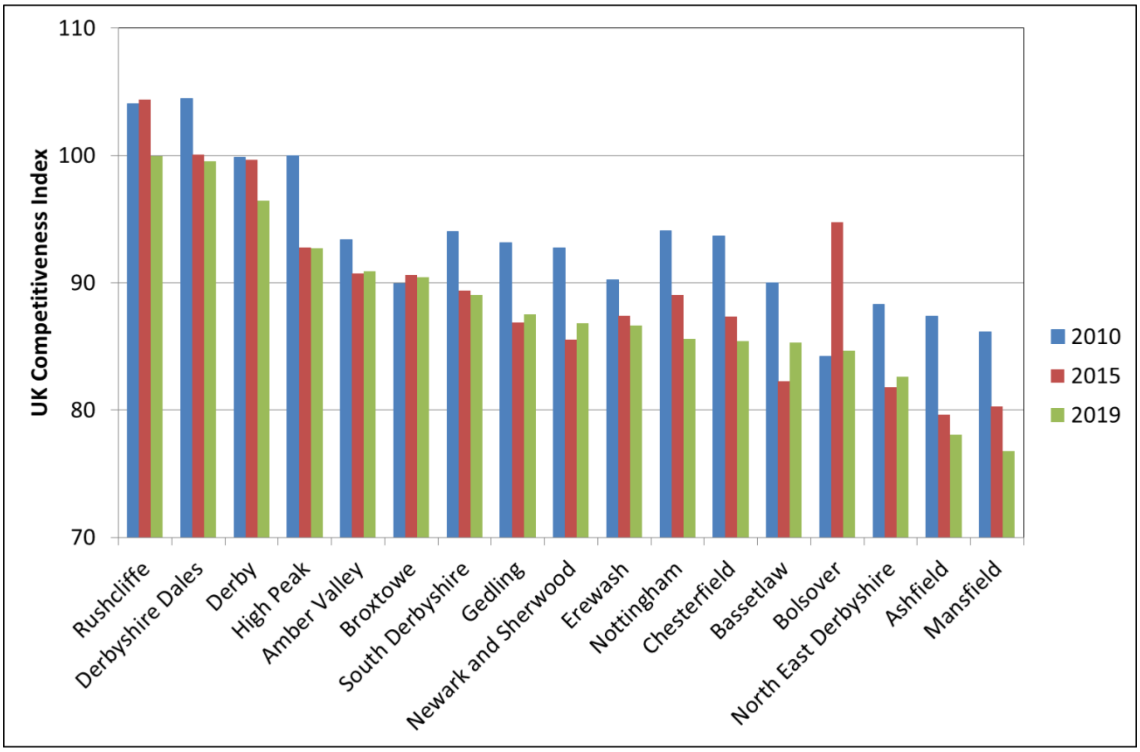
Notes: D2N2 local authorities underlined,

The extent of the variation across D2N2 is evident. The highest ranked locality in D2N2 is Rushcliffe at 14th of 79 localities covered in D2N2 at its neighbours. It has a UKCI score in 2019 of 100 indicating that it is comparable with the UK average. At the other end of the spectrum are Ashfield and Mansfield ranked 76th and 79th respectively of the 79 localities. Ashfield (UKCI 2019 score 78) and Mansfield (UKCI 2019 score 76.8) are both well below the UK average competitiveness. They have similar economic features in terms of being manufacturing and extractive economies historically. Neither have the urban scale to become large service based economies in their own right and have failed to retain their traditional specialisms as the coal industry and textiles have declined in the UK as a whole.

Of the two large conurbations in D2N2, Derby fairs better and is ranked 21st with a UKCI score of 96.4 a little below the UK average. Nottingham is 54th with a UKCI score of 85.6 in 2019. It therefore appears that retention of traditional strengths has allowed greater renewal of competitiveness in Derby, whilst Nottingham having undergone a greater transformation has seen an erosion of its competitiveness. This may result in lessened resilience as jobs in the business administration and support services sectors are often vulnerable to demand-side shocks (Lawton et al., 2019). It will be important to examine in later sections whether this reflects a decline in access to inputs as reflected in process competitiveness, or a loss of outcome competitiveness (Aiginger and Firgo, 2017). The two are linked as the former should lead to greater future outcome competitiveness, but the latter will also be important in attracting and retaining the key inputs that ensure process competitiveness (Mellander et al., 2011). As will be examined for overall competitiveness below (Figures 3.1 and 3.2) it is also important to consider the trajectory of changes in this competitiveness over time.

Those localities performing more strongly such as Rushcliffe and the Derbyshire Dales also provide a different insight as they are often areas surrounding larger urban areas and can reflect a source of inputs, so the competitive position of localities should not considered totally in isolation (ESRB, 2011; Lawton et al., 2019).

Figure 3.1 UKCI for D2N2 Local Authorities from 2010 to 2019



For a majority of the D2N2 localities Figure 3.2 above shows that competitiveness has declined between 2010 and 2019. This is most marked for the localities that were already performing less strongly such as Ashfield and Mansfield. Even more strongly performing localities such as the Derbyshire Dales and High Peak have seen a fall of competitiveness over the period. It appears that although the UK as a whole has seen a mixed recovery with high levels of job creation, but slower recovery of real wages from the last recession to those previously (Coulter, 2016), the D2N2 localities have compared to the UK as a whole relatively lost their ability to recover.

The exceptions to the general pattern of decline found above are Broxtowe and Bolsover which have maintained their positions from 2010 to 2019 in terms of UKCI scores. For Bolsover this ignores a large increase in competitiveness in 2015 that then disappeared. Although such large changes in competitiveness scores of such a fleeting nature are uncommon recoveries can see large changes in activity as confidence returns, but unlike previous recoveries such improvements both nationally and internationally appear to have been much more fragile (Hincks et al., 2014; Benczes and Szent-Ivanyi, 2015).

Figure 3.2 UKCI rank for D2N2 Local Authorities from 2010 to 2019

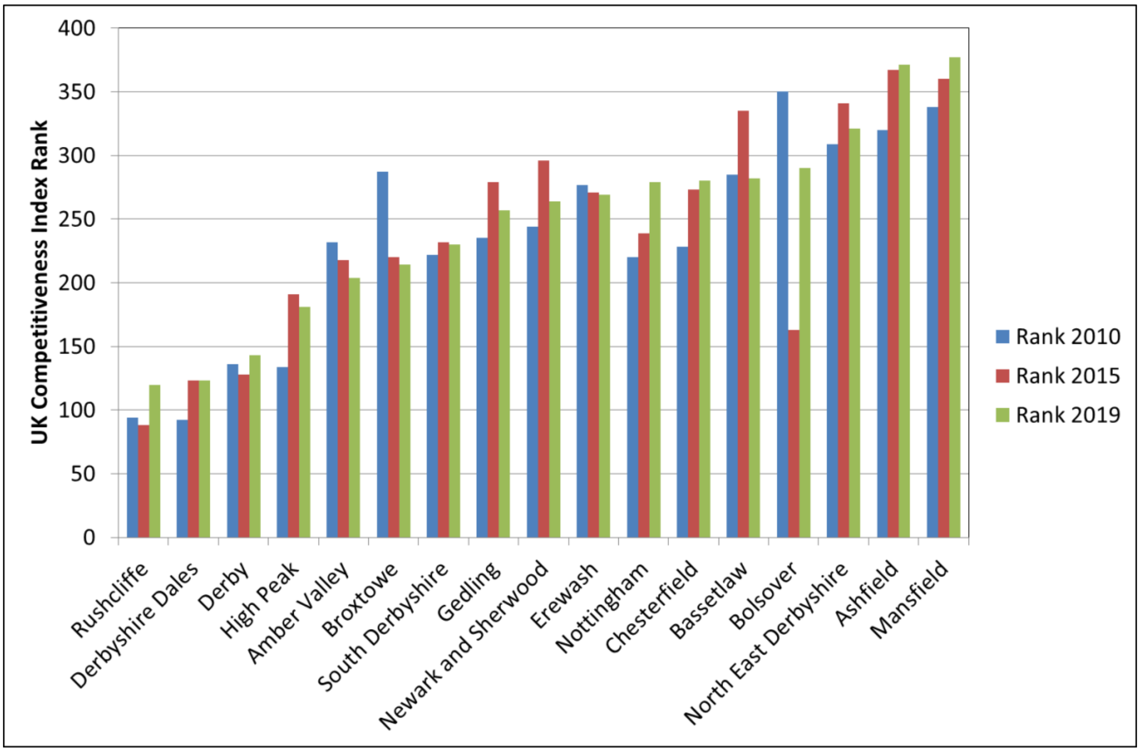


Figure 3.2 above shows the care that must be taken with interpreting UKCI scores alone. Although many localities in D2N2 saw their UKCI score fall, their position in the rankings did not always see a drop down the table. This reflects the manner that many localities across the UK have seen similar falls relative to the UK average, so Amber Valley for instance experienced a fall in UKCI score, but improved its ranking as others' competitiveness was eroded more quickly. The largest changes can be picked out more clearly in Table 3.2 below.

Table 3.2 Change in UKCI and UKCI rank for D2N2 Local Authorities 2010 to 2019

	Change in UKCI	Change in UKCI rank
Broxtowe	0.5	73
Bolsover	0.4	60
Amber Valley	-2.5	28
Derby	-3.4	-7
Erewash	-3.6	8
Rushcliffe	-4.1	-26
Bassetlaw	-4.7	3
Derbyshire Dales	-4.9	-31
South Derbyshire	-5.0	-8
North East Derbyshire	-5.7	-12
Gedling	-5.7	-22
Newark and Sherwood	-5.9	-20
High Peak	-7.3	-47
Chesterfield	-8.2	-52
Nottingham	-8.5	-59
Ashfield	-9.3	-51
Mansfield	-9.4	-39

The locality having the most positive change in competitiveness between 2010 and 2019 is Broxtowe both in terms of its UKCI score (+0.5) and ranking (rising 73 places). This gives a clear example of how Broxtowe has effectively maintained its competitiveness compared to the UK average, but as other localities that were in a similar position in 2010 have faired much worse this has actually led to a large improvement in ranking. Ashfield and Mansfield on the other hand have lost competitiveness, and given their fall in rankings, at a much faster rate than many of their close comparators.

As noted above that Nottingham has a much lower UKCI 2019 score than Derby, it is also clear that Derby whilst losing competitiveness over the period 2010 to 2019 has been aided by its retention of traditional strengthens to lessen this decline. Nottingham actually has the largest fall in rankings over the period and the third largest decline in UKCI scores of localities in D2N2.

Overall this section has shown that not only are their differences in the economic structures of localities across D2N2, but as might be expected these have manifested themselves in quite different levels of competitiveness. What is more worrying is that there is a general pattern of decline in UKCI scores over the last decade. Although, this is most marked in those localities that already had weaker competitive positions, their ability to learn from other D2N2 localities' experiences is lessened by the fall experienced by even the strongest localities.

4. Input Competitiveness for D2N2

In order to understand the relatively weak levels of competitiveness and patterns of declining overall competitiveness identified in the preceding two sections it is now of value to consider the individual elements of competitiveness as captured by the three individual UKCI indices, starting with the input index. This will help to identify where strengths can be built upon and where weaknesses may be the source of the pattern of overall erosion over time. As in Section 2 initially Table 4.1 presents the position of D2N2 relative to all others LEPs with regard to the UKCI Input Index before more detailed comparisons are carried out.

Table 4.1: UKCI Input Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions

Input Rank 2019	Local Enterprise Partnership Area/City Region	2019 Input	2015 Input	Input Rank 2015	Change 2015-2019 UKCI Input	Change 2015-2019 Input Rank
1	London	138.7	141.1	1	-2.4	0
2	Hertfordshire	124.2	122.6	4	1.6	2
3	Thames Valley Berkshire	123.1	127.2	3	-4.0	0
4	Buckinghamshire Thames Valley	122.8	128.4	2	-5.6	-2
5	Enterprise M3	120.4	121.7	5	-1.3	0
6	**Cheshire and Warrington**	**116.9**	**108.1**	**9**	**8.9**	**3**
7	Aberdeen City Region	114.6	113.4	7	1.2	0
8	Worcestershire	112.1	96.0	17	16.1	9
9	Oxfordshire	110.2	114.1	6	-3.9	-3
10	Coast to Capital	109.5	111.7	8	-2.2	-2
11	*South East Midlands*	*106.7*	*105.0*	*12*	*1.7*	*1*
12	Swindon and Wiltshire	104.5	100.8	14	3.6	2
13	West of England	104.3	106.8	10	-2.5	-3
14	**Greater Manchester**	**102.9**	**94.6**	**20**	**8.3**	**6**
15	Gloucestershire	100.7	105.6	11	-4.9	-4
16	**Coventry and Warwickshire**	**98.8**	**102.6**	**13**	**-3.9**	**-3**
17	*Greater Cambridge & Greater Peterborough*	*96.4*	*100.4*	*15*	*-4.1*	*-2*
18	Edinburgh and South East Scotland City Region	96.0	98.2	16	-2.2	-2
19	**Greater Birmingham and Solihull**	**94.8**	**91.6**	**24**	**3.2**	**5**
20	South East	93.8	95.7	18	-1.8	-2
21	***Leicester and Leicestershire***	***93.5***	***92.3***	***23***	***1.2***	***2***
22	Solent	93.5	94.8	19	-1.4	-3
23	York, North Yorkshire and East Riding	91.8	93.6	22	-1.8	-1
24	Dorset	91.6	94.3	21	-2.7	-3

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

Table 4.1: UKCI Input Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions - continued

					Change 2015-2019	
Input Rank 2019	Local Enterprise Partnership Area/City Region	2019 Input	2015 Input	Input Rank 2015	UKCI Input	Input Rank
25	Cardiff City Region	87.7	81.2	37	6.5	12
26	Inverness and Highland City Region	87.3	89.3	25	-2.0	-1
27	**Leeds City Region**	**86.3**	**88.2**	**27**	**-1.8**	**0**
28	Glasgow and Clyde Valley City Region	85.7	87.3	29	-1.6	1
29	The Marches	84.8	87.6	28	-2.8	-1
30	Lancashire	84.6	83.3	32	1.3	2
31	Heart of the South West	84.2	87.0	30	-2.8	-1
32	New Anglia	83.8	82.6	35	1.2	3
33	Liverpool City Region	83.4	80.1	39	3.3	6
34	Cumbria	83.3	87.0	31	-3.7	-3
35	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***82.5***	***88.6***	***26***	***-6.1***	***-9***
36	**Stoke-on-Trent and Staffordshire**	**80.5**	**82.3**	**36**	**-1.8**	**0**
37	Cornwall and Isles of Scilly	78.9	79.2	40	-0.3	3
38	***Sheffield City Region***	***78.2***	***82.7***	***34***	***-4.5***	***-4***
39	Tees Valley	78.0	83.2	33	-5.2	-6
40	North Eastern	75.6	76.1	42	-0.4	2
41	**Humber**	**75.4**	**77.9**	**41**	**-2.5**	**0**
42	***Greater Lincolnshire***	***74.6***	***80.3***	***38***	***-5.7***	***-4***
43	Black Country	72.9	72.5	44	0.3	1
44	Swansea Bay City Region	71.3	73.1	43	-1.8	-1

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

What is immediately clear is that the LEPs with the strongest existing resources are those from the core regions of London (London), and the South East (Hertfordshire; Buckinghamshire Thames Valley ; Thames Valley Berkshire; and Enterprise M3). LEPs with heavy industry strengths in terms of Cheshire and Warrington, which is one of D2N2's neighbours, and the Aberdeen City Region do appear as highly ranked. In addition to Cheshire and Warrington (UKCI Input Index 116.9), Greater Manchester (UKCI Input Index 102.9) is the only LEP that neighbours D2N2 with a UKCI Input Index that implies access to stronger resources than the UK average.

This suggests that to understand the current position of D2N2 in terms of inputs it is not appropriate to compare to the UK average, but to other LEPs with similar structures and histories. The UKCI Input Index for D2N2 is, however, well below the UK average with a score of 82.5. This has fallen from 88.6 in 2015, which has led to D2N2's position falling 9 places from 26th in 2015 to 35th (of 44 LEPs and

City Regions). The scale of this relative loss of inputs compared to the UK average and more comparable LEP areas will be outlined in Tables 4.2 and 4.3 below.

Table 4.2: UKCI Input Index for D2N2 LEP area and neighbouring areas

						Change 2015-2019	
Neighbour Input Rank 2019	Local Enterprise Partnership Area	2019 Input	Input Rank 2019	2015 Input	Input Rank 2015	UKCI Input	Input Rank
1	**Cheshire and Warrington**	**116.9**	**6**	**108.1**	**9**	**8.9**	**3**
2	**Greater Manchester**	**102.9**	**14**	**94.6**	**20**	**8.3**	**6**
3	**Coventry and Warwickshire**	**98.8**	**16**	**102.6**	**13**	**-3.9**	**-3**
4	**Greater Birmingham and Solihull**	**94.8**	**19**	**91.6**	**24**	**3.2**	**5**
5	***Leicester and Leicestershire***	***93.5***	***21***	***92.3***	***23***	***1.2***	***2***
6	**Leeds City Region**	**86.3**	**27**	**88.2**	**27**	**-1.8**	**0**
7	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***82.5***	***35***	***88.6***	***26***	***-6.1***	***-9***
8	**Stoke-on-Trent and Staffordshire**	**80.5**	**36**	**82.3**	**36**	**-1.8**	**0**
9	***Sheffield City Region***	***78.2***	***38***	***82.7***	***34***	***-4.5***	***-4***
10	**Humber**	**75.4**	**41**	**77.9**	**41**	**-2.5**	**0**
11	***Greater Lincolnshire***	***74.6***	***42***	***80.3***	***38***	***-5.7***	***-4***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

When considering D2N2 and its neighbours, D2N2 is now ranked 7th of 11 LEPs in terms of the UKCI Input Index. Only Greater Lincolnshire has experienced a fall of a similar score over the period. This compares to more service led LEPs such as Greater Manchester and Greater Birmingham and Solihull who with the greater scales have seen their scores rise by 8.3 and 3.2 points respectively. Both Cheshire and Warrington and Coventry and Warwickshire with their automotive strengths are more manufacturing based LEPs that out-perform the other Midlands and Northern LEPs compared here.

Table 4.2 above appears to suggest that D2N2 is slipping into the group of weaker Midlands and Northern LEPs that relatively is struggling to generate new enterprises and attract the skilled labour that will help generate high value knowledge based output ensuring high living standards are retained.

Table 4.3: UKCI Input Index for D2N2 LEP area and those LEPs covering at least in part the former EMDA area

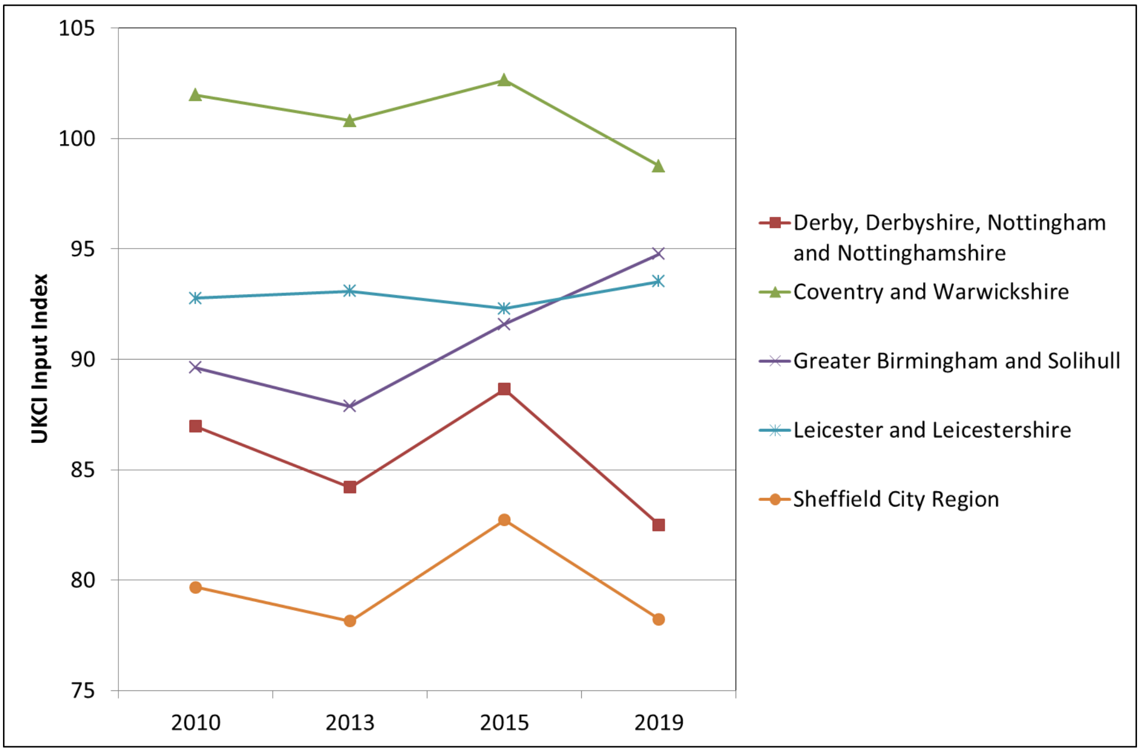
EMDA Inputs Rank 2019	Local Enterprise Partnership Area	2019 Inputs	Inputs Rank 2019	2015 Inputs	Inputs Rank 2015	Change 2015-2019 UKCI Inputs	Change 2015-2019 Inputs Rank
1	*South East Midlands*	*106.7*	*11*	*105.0*	*12*	*1.7*	*1*
2	*Greater Cambridge & Greater Peterborough*	*96.4*	*17*	*100.4*	*15*	*-4.1*	*-2*
3	***Leicester and Leicestershire***	***93.5***	***21***	***92.3***	***23***	***1.2***	***2***
4	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***82.5***	***35***	***88.6***	***26***	***-6.1***	***-9***
5	***Sheffield City Region***	***78.2***	***38***	***82.7***	***34***	***-4.5***	***-4***
6	***Greater Lincolnshire***	***74.6***	***42***	***80.3***	***38***	***-5.7***	***-4***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

This relatively weak position for D2N2 is evident when comparing to other LEPs that cover part of the old EMDA region. D2N2 is ranked 4th of these 6 LEPs. Only the Sheffield City Region and Greater Lincolnshire have UKCI Input Index scores worse than that of D2N2. The general pattern is of declining Input scores the further from London LEPs are.

A longer term perspective is important to take given the uncertainty faced in recent years from BREXIT. This will help to get a better understanding of the evolution of D2N2's Input Index score, given the studies that have highlighted the development of a biotech cluster in Nottingham that has emerged from a previous strength in the pharmaceuticals section, which should boost the creation of knowledge based enterprises (Ehret et al., 2012; Smith et al., 2017), an aerospace champion in the form of Rolls Royce in Derby creating high skilled employment (Smith and Ibrahim, 2006), and three universities generating graduate members of the labour force although employment of these skilled individuals is often not in the same locality as their education (Faggian and McCann, 2009b).

Figure 4.1 – Evolution of UKCI Input Index for D2N2 and Key Comparator LEP areas 2010 to 2019



Both D2N2 and Sheffield City Region display evidence of improving their UKCI Input Index scores in 2015 as the recovery strengthened, but their performance has weakened relative to others in 2019. This may reflect and issue of weaker entrepreneurial resilience (Huggins and Thompson, 2015a), where the culture and institutions present are less supportive of enterprise of activities making this activity more likely to fall when hit by a negative shock. This compares to the more competitive Leicester and Leicestershire which has seen much less fluctuation in its UKCI Input score over the period. Greater Birmingham and Solihull has maintained its upward trajectory in terms of inputs throughout the recovery period after 2013. Unsurprisingly given the export orientation of some of D2N2's most competitive key comparator LEP, Coventry and Warwickshire, the pattern observed for D2N2 is also replicated, so that 2019 saw Coventry and Warwickshire dip below the UK average for UKCI Input Index score.

In order to understand the more recent changes in UKCI Input Index Table 4.4 below reports the raw data from the indicators used for the UKCI 2015 and updated UKCI 2019. This also allows the relative position of the key comparators to D2N2 to be understood more clearly. The UK average is also reported.

Table 4.4: Individual Input Indicators for D2N2 and Key Comparators

	Derby & Derbyshire, Nottingham & Nottinghamshire		Coventry and Warwickshire		Greater Birmingham and Solihull		Leicester and Leicestershire		Sheffield City Region		UK	
	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019
Percentage of Knowledge Based Businesses	20.3	21.4	27.2	28.0	24.0	22.4	22.1	23.7	17.9	18.5	25.6	26.2
Percentage of Working Age Population with NVQ Level 4+	33.3	31.6	36.6	38.1	32.3	31.8	32.5	33.2	28.7	32.5	36.9	38.4
Business Registrations per 10,000 Inhabitants	52.7	40.5	62.9	50.2	58.2	70.6	52.0	53.8	54.1	38.2	58.8	57.8
Businesses per 1000 Inhabitants	31.4	32.9	38.0	40.1	30.9	36.6	37.2	40.3	28.2	29.7	36.6	40.4
Economic Activity Rate	76.7	77.2	75.2	80.1	72.4	75.1	75.5	76.8	76.8	77.5	77.6	78.3

Notes: See appendix for data sources

As can be seen D2N2 lags the UK average for each of the individual indicators in the UKCI 2019 data. In the case of Economic Activity Rates this is by a relatively small margin. For the other indicators the discrepancies are by a large percentage difference. D2N2 lags by at least 17.7% of the UK average for the four other indicators. In the case of business registrations this is just below a 30% lag. Looking at recent changes D2N2 has seen sizeable drops in Business Registrations and the percentage of the population educated to graduate level. Although the UK average has seen a small dip in business registrations, for the other indicators the changes are positive.

As noted above D2N2 appears to display a limited degree of entrepreneurial resistance (Martin, 2012; Huggins and Thompson, 2015a; 2017c; Thompson and Zang, 2018) as BREXIT uncertainty has reduced new venture creation considerably. A similar pattern is found for Sheffield City Region. Coventry and Warwickshire although starting from a higher position also displays this pattern.

It is in terms of new business creation as well as the existing business population that distinguish Greater Birmingham and Solihull, and to a lesser degree Leicester and Leicestershire, from D2N2. The service orientated economy has been able to renew, recover or bounce back from the recession much more successfully in this regard (Pendall et al., 2010; Martin, 2012; Huggins and Thompson, 2015a; 2017c; Thompson and Zang, 2018). In terms of skilled labour and the quality of these businesses (percentage of businesses classed as knowledge based) there is less to distinguish D2N2 from Greater Birmingham and Solihull. In the case of Leicester and Leicestershire the resistance of enterprise to shocks may be reflected in the relatively large ethnic minority population, particularly those Indian descent, that have a strong tradition in business ownership (Thompson et al., 2010).

5. Input Competitiveness of D2N2 Local Authorities

As with overall competitiveness, the very different structures, histories and geographies of the localities within D2N2 make it relevant to understand the strengths and weaknesses that will provide very different opportunities and challenges for policy makers seeking to boost competitiveness. Table 5.1 below provides a comparison of the D2N2 localities with those in neighbouring LEPs.

Table 5.1 – UKCI Input Index for Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs

Midlands and North Input Rank	Locality	Region	Input 2019	Input Rank 2019	Input 2015	Input Rank 2015
1	Warwick	West Midlands	130.2	26	136.0	22
2	Cheshire East	North West	129.2	28	111.8	83
3	Manchester	North West	126.5	34	106.6	101
4	Trafford	North West	124.3	36	130.4	31
5	South Northamptonshire	East Midlands	124.1	38	116.7	66
6	Bury	North West	120.6	47	95.1	160
7	Stratford-on-Avon	West Midlands	118.1	57	126.3	40
<u>8</u>	<u>Rushcliffe</u>	<u>East Midlands</u>	<u>113.0</u>	<u>72</u>	<u>127.7</u>	<u>37</u>
9	Warrington	North West	111.4	80	108.0	97
10	Harborough	East Midlands	108.6	92	108.0	98
11	Salford	North West	107.0	100	93.9	165
<u>12</u>	<u>Derbyshire Dales</u>	<u>East Midlands</u>	<u>105.3</u>	<u>104</u>	<u>109.4</u>	<u>91</u>
13	Rugby	West Midlands	104.9	107	110.0	89
14	Wellingborough	East Midlands	104.8	108	85.0	246
15	Northampton	East Midlands	104.3	109	106.7	100
16	Cheshire West & Chester	North West	103.6	110	103.6	113
17	Stockport	North West	102.0	116	104.0	111
18	Solihull	West Midlands	102.0	117	102.6	121
19	Daventry	East Midlands	101.8	119	105.5	105
20	Blaby	East Midlands	100.3	126	103.5	115
21	Rutland	East Midlands	99.8	129	102.7	119
22	Lichfield	West Midlands	97.9	138	101.0	130
23	North West Leicestershire	East Midlands	96.4	144	98.3	143
24	Stafford	West Midlands	95.4	152	91.2	192
25	South Kesteven	East Midlands	91.9	178	98.7	141
<u>26</u>	<u>High Peak</u>	<u>East Midlands</u>	<u>91.8</u>	<u>180</u>	<u>98.4</u>	<u>142</u>
27	East Northamptonshire	East Midlands	91.5	183	92.7	180
28	Leicester	East Midlands	91.0	186	85.3	240
29	Bolton	North West	90.6	188	85.1	242
30	Charnwood	East Midlands	90.4	190	87.9	215

Notes: D2N2 local authorities underlined,

Table 5.1 – UKCI Input Index for Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs - continued

Midlands and North Input Rank	Locality	Region	Input 2019	Input Rank 2019	Input 2015	Input Rank 2015
31	North Warwickshire	West Midlands	89.2	195	89.5	204
32	Rochdale	North West	89.0	196	74.9	328
33	Corby	East Midlands	89.0	197	79.1	292
34	Melton	East Midlands	88.3	201	93.1	173
35	Herefordshire, County of	West Midlands	87.8	206	89.9	200
36	East Staffordshire	West Midlands	87.7	207	85.4	238
37	Birmingham	West Midlands	87.5	209	90.3	195
<u>38</u>	<u>Broxtowe</u>	<u>East Midlands</u>	<u>87.3</u>	<u>211</u>	<u>85.1</u>	<u>243</u>
39	Shropshire	West Midlands	87.2	213	92.1	183
40	Hinckley and Bosworth	East Midlands	86.0	221	89.6	203
41	Coventry	West Midlands	85.7	224	87.1	225
42	South Staffordshire	West Midlands	85.5	225	92.1	184
43	Oadby and Wigston	East Midlands	85.2	227	88.4	211
<u>44</u>	<u>South Derbyshire</u>	<u>East Midlands</u>	<u>84.4</u>	<u>232</u>	<u>89.4</u>	<u>206</u>
45	Sheffield	Yorkshire and Humber	84.1	239	83.5	254
<u>46</u>	<u>Amber Valley</u>	<u>East Midlands</u>	<u>83.6</u>	<u>242</u>	<u>83.8</u>	<u>253</u>
47	Kettering	East Midlands	83.4	244	91.2	190
<u>48</u>	<u>Derby</u>	<u>East Midlands</u>	<u>83.1</u>	<u>248</u>	<u>86.4</u>	<u>230</u>
<u>49</u>	<u>Newark and Sherwood</u>	<u>East Midlands</u>	<u>81.7</u>	<u>253</u>	<u>84.0</u>	<u>251</u>
<u>50</u>	<u>Gedling</u>	<u>East Midlands</u>	<u>81.6</u>	<u>255</u>	<u>85.0</u>	<u>245</u>
<u>51</u>	<u>Nottingham</u>	<u>East Midlands</u>	<u>81.0</u>	<u>260</u>	<u>85.0</u>	<u>247</u>
<u>52</u>	<u>Erewash</u>	<u>East Midlands</u>	<u>79.9</u>	<u>266</u>	<u>83.2</u>	<u>257</u>
53	West Lindsey	East Midlands	79.4	271	86.0	232
54	Staffordshire Moorlands	West Midlands	78.6	282	75.0	327
55	Cannock Chase	West Midlands	78.2	284	80.3	280
<u>56</u>	<u>Bassetlaw</u>	<u>East Midlands</u>	<u>78.1</u>	<u>286</u>	<u>75.1</u>	<u>324</u>
57	Telford and Wrekin	West Midlands	77.7	291	77.5	310
58	North Kesteven	East Midlands	76.1	301	78.4	298
59	South Holland	East Midlands	75.4	302	83.1	258
60	Oldham	North West	75.2	304	74.6	334
61	Lincoln	East Midlands	74.6	309	74.0	341
62	Tameside	North West	74.0	313	74.6	333
<u>63</u>	<u>North East Derbyshire</u>	<u>East Midlands</u>	<u>74.0</u>	<u>315</u>	<u>80.4</u>	<u>278</u>
64	Wigan	North West	73.9	316	78.7	295
65	Doncaster	Yorkshire and Humber	73.4	323	79.5	286

Notes: D2N2 local authorities underlined

Table 5.1 – UKCI Input Index for Local Authority Areas in D2N2, the East Midlands and other neighbouring LEPs - continued

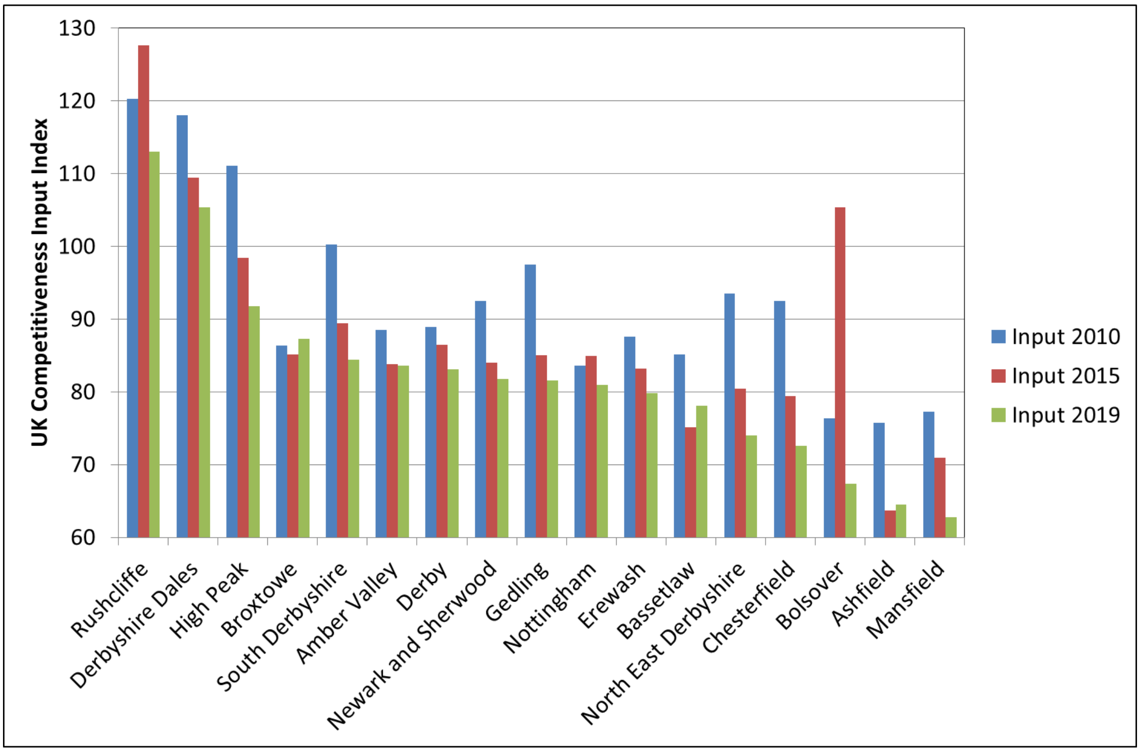
Midlands and North Input Rank	Locality	Region	Input 2019	Input Rank 2019	Input 2015	Input Rank 2015
66	Chesterfield	East Midlands	72.5	331	79.4	288
67	Nuneaton and Bedworth	West Midlands	72.0	333	77.7	306
68	Rotherham	Yorkshire and Humber	71.7	339	74.3	335
69	North Lincolnshire	Yorkshire and Humber	71.6	341	76.1	319
70	Newcastle-under-Lyme	West Midlands	71.4	342	76.4	316
71	Barnsley	Yorkshire and Humber	71.3	345	68.8	364
72	Tamworth	West Midlands	71.3	346	80.4	277
73	North East Lincolnshire	Yorkshire and Humber	67.8	358	78.1	301
74	Bolsover	East Midlands	67.4	360	105.4	107
75	Ashfield	East Midlands	64.5	371	63.6	376
76	Stoke-on-Trent	West Midlands	64.5	372	67.3	371
77	East Lindsey	East Midlands	63.3	374	68.4	366
78	Mansfield	East Midlands	62.8	375	71.0	353
79	Boston	East Midlands	59.3	378	67.5	370

Notes: D2N2 local authorities underlined

The disparities in UKCI Input Index scores across D2N2 are even more pronounced than was the case for overall competitiveness. Two localities, Rushcliffe (UKCI Input Index 113) and Derbyshire Dales (UKCI Input Index 105.3) have scores implying a stronger position than the UK average. There is then a considerable gap to the third highest ranking D2N2 locality in terms of UKCI Input Index, High Peak (91.8). At the far end of the scale Bolsover (UKCI Input Index 67.4), Ashfield (UKCI Input Index 64.5) and Mansfield (UKCI Input Index 62.8) are all well below the UK average in 2019. The larger conurbations of Derby (UKCI Input Index 83.1) and Nottingham (UKCI Input Index 81.0) are placed 48th and 51st of 79 localities covered respectively, so both are below the UK average and the median locality of those covered in the Midlands and North.

At the locality level Table 5.1 above shows that some considerable changes in UKCI Input Index scores have been observed between 2015 and 2019. Figures 5.1 and 5.2 consider this for the longer period of 2010 to 2019.

Figure 5.1 UKCI Input Index for D2N2 Local Authorities from 2010 to 2019



Although there is a wide distribution of UKCI Input Index scores for localities across D2N2 over the period 2010 to 2019 most localities regardless of their starting position have experienced a loss of resources that help to generate process competitiveness (Aiginger, 2006; AIginger and Firgo, 2017). Although, Rushcliffe and Bolsover appear to have initially seen a strong improvement in 2015 as the UK economy finally began to gain traction (Kara et al., 2018), this has been short lived. It is a worry that even with the differences in D2N2's localities almost all localities have seen a loss of UKCI Input Index score over the period, although the extent of the decline varies with Nottingham for example experiencing a relatively small decline whilst South Derbyshire and Gedling showing much larger falls. Only Broxtowe has bucked the trend to finish the period with a higher UKCI Input Index in 2019 than in 2010.

More peripheral localities including market towns and those with a historical reliance on the coal and manufacturing industries such as Chesterfield, Ashfield and Mansfield have seen relatively large falls in their UKCI Input Index scores since 2010. This is consistent with the pattern identified by Fothergill and Houston (2016) of those localities surrounding larger cities losing out with regard to particular activities such as retailing and services.

Figure 5.2 UKCI Input Index rank for D2N2 Local Authorities from 2010 to 2019

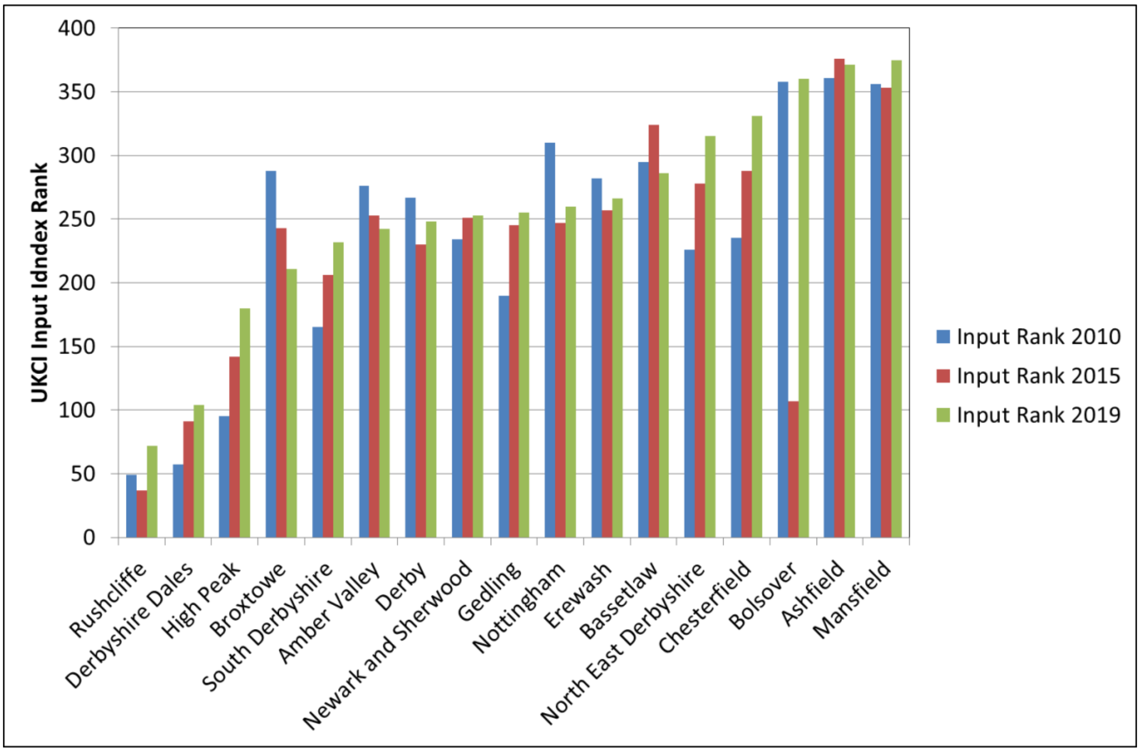


Figure 5.2 shows that as other localities with similar levels of UKCI Input Index score have seen falls in their competitiveness the change in ranking has been much less pronounced. This implies that D2N2's localities have experienced a similar fate to many of those localities with weaker than the UK average starting positions. In relative terms they have failed to attract and retain inputs compared to the most competitive localities. However, there are still variations in the extent of changes across the 2010 to 2019 period with some localities better at holding on to their resources than others (Table 5.2 below).

Table 5.2 Change in UKCI Input Index and UKCI Input Index rank for D2N2 Local Authorities 2010 to 2019

	Input Index	Input Index Rank
Broxtowe	0.9	77
Nottingham	-2.7	50
Amber Valley	-4.9	34
Derby	-5.8	19
Bassetlaw	-7.1	9
Rushcliffe	-7.3	-23
Erewash	-7.7	16
Bolsover	-9.0	-2
Newark and Sherwood	-10.8	-19
Ashfield	-11.3	-10
Derbyshire Dales	-12.7	-47
Mansfield	-14.6	-19
South Derbyshire	-15.8	-67
Gedling	-15.9	-65
High Peak	-19.3	-85
North East Derbyshire	-19.6	-89
Chesterfield	-19.9	-96

In terms of UKCI Input Index scores there may have been a 'brain drain' to more competitive localities (Hoare and Corver, 2010), but there also appears to be a greater concentration of resources within D2N2. Both Nottingham and Derby have been better at refreshing and/or retaining their resources. This is perhaps not a surprise given the educational institutions present in the two cities and major employers present. Both the availability of employment opportunities and higher education positions is likely to attract high ability individuals to larger urban areas from rural and smaller urban localities both within and from beyond the boundaries of the LEP (Faggian and McCann, 20090b). Localities that are more rural and/or based around smaller towns on the peripheries of the D2N2 LEP have suffered to the greatest extent. Those in Derbyshire (High Peak, North East Derbyshire and Chesterfield) appear to have fared least well. This shows the difficulties faced by areas such as D2N2 where outside the larger urban areas there may well be limited sources of new inputs and limited employment opportunities to attract new skilled workers or retain those that are present (Hoare and Corver, 2010; Mellander et al., 2011; Lee, 2014). In addition, theories such as those associated with the creative class and distribution of Bohemians would imply that such localities will have issues beyond the purely economic in attracting skilled labour given their lack of provision of cultural amenities (Florida, 2002; Mellander et al., 2011) and also less open community cultures (Huggins and Thompson, 2016; Huggins et al., 2018).

6. Output Competitiveness for D2N2

Sections 4 and 5 covered the UKCI Input Index scores for D2N2 and its constituent localities. This section and the following one will consider UKCI Output Index scores. These are traditionally thought of as part of outcome competitiveness, but the focus is on how well inputs are converted into outputs rather than the extent that these lead to better outcomes for the population. LEPs with similar inputs could do much better or worse on the UKCI Output Index depending on how well these resources are allocated and the extent that access to knowledge differs (Huggins and Thompson, 2019), which in the modern knowledge driven economy is perceived to be important for growth (Huggins and Thompson, 2015b).

Table 6.1: UKCI Output Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions

Output Rank 2019	Local Enterprise Partnership/City Region	Output 2019	Output 2015	Output Rank 2015	Change 2015 to 2019 Output	Output Rank
1	London	136.2	136.3	1	-0.2	0
2	Thames Valley Berkshire	126.8	131.1	2	-4.4	0
3	Aberdeen City Region	120.8	130.1	3	-9.3	0
4	Oxfordshire	110.8	114.2	4	-3.4	0
5	**Cheshire and Warrington**	**110.4**	**109.1**	**6**	**1.4**	**1**
6	Edinburgh and South East Scotland City Region	108.8	105.8	9	3.0	3
7	Buckinghamshire Thames Valley	107.5	112.7	5	-5.2	-2
8	Enterprise M3	107.0	107.9	8	-0.9	0
9	Hertfordshire	106.2	108.0	7	-1.7	-2
10	West of England	103.5	104.4	10	-0.9	0
11	*Greater Cambridge & Greater Peterborough*	*102.4*	*99.1*	*17*	*3.3*	*6*
12	*South East Midlands*	*102.3*	*103.0*	*11*	*-0.7*	*-1*
13	**Coventry and Warwickshire**	**101.3**	**101.1**	**14**	**0.2**	**1**
14	Gloucestershire	99.5	100.1	16	-0.6	2
15	Inverness and Highland City Region	97.3	101.5	13	-4.2	-2
16	Coast to Capital	97.0	100.1	15	-3.2	-1
17	Swindon and Wiltshire	95.8	96.3	18	-0.5	1
18	Cumbria	92.6	95.2	19	-2.6	1
19	**Greater Birmingham and Solihull**	**92.2**	**90.5**	**23**	**1.7**	**4**
20	Worcestershire	91.2	92.0	21	-0.8	1
21	**Greater Manchester**	**91.1**	**90.7**	**22**	**0.3**	**1**
22	***Leicester and Leicestershire***	***91.0***	***92.7***	***20***	***-1.7***	***-2***
23	Glasgow and Clyde Valley City Region	89.4	88.8	27	0.6	4
24	South East	88.8	89.8	24	-1.0	0

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

Table 6.1: UKCI Output Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions - continued

					Change 2015 to 2019	
Output Rank 2019	Local Enterprise Partnership/City Region	Output 2019	Output 2015	Output Rank 2015	Output	Output Rank
25	New Anglia	88.6	89.3	25	-0.6	0
26	Lancashire	88.3	88.5	29	-0.2	3
27	**Leeds City Region**	**87.6**	**89.1**	**26**	**-1.5**	**-1**
28	Dorset	87.4	88.3	30	-1.0	2
29	Solent	86.8	102.7	12	-15.9	-17
30	Cardiff City Region	86.8	85.3	37	1.5	7
31	Liverpool City Region	86.5	87.0	34	-0.5	3
32	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***86.5***	***87.7***	***33***	***-1.3***	***1***
33	York, North Yorkshire and East Riding	86.5	88.3	31	-1.8	-2
34	The Marches	86.1	87.9	32	-1.8	-2
35	**Humber**	**84.8**	**88.6**	**28**	**-3.8**	**-7**
36	North Eastern	84.8	85.1	39	-0.3	3
37	**Stoke-on-Trent and Staffordshire**	**84.6**	**85.1**	**38**	**-0.5**	**1**
38	Tees Valley	84.0	86.0	35	-2.0	-3
39	Heart of the South West	83.1	83.8	40	-0.7	1
40	***Greater Lincolnshire***	***81.9***	***85.8***	***36***	***-4.0***	***-4***
41	***Sheffield City Region***	***81.2***	***82.9***	***41***	***-1.8***	***0***
42	Black Country	79.3	78.2	43	1.1	1
43	Swansea Bay City Region	77.5	78.3	42	-0.9	-1
44	Cornwall and Isles of Scilly	74.3	75.9	44	-1.6	0

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

In terms of the UKCI Output Index in 2019, D2N2 is ranked 32nd of the 44 LEPs and City Regions. This is little changed on 2015. Although D2N2 has a UKCI Output Index of 86.5, below the UK average, this is in the context of only 13 LEPs and City Regions being more competitive than the UK average in this regard. There is a strong positive skew in the output competitiveness of LEPs in the UK. Table 6.2 therefore makes a comparison with the neighbouring Midlands and Northern LEPs.

Table 6.2: UKCI Output Index for D2N2 LEP area and neighbouring areas

Neighbour Output Rank	Local Enterprise Partnership/City Region	Output 2019	Output Rank 2019	Output 2015	Output Rank 2015	Change 2015 to 2019	
						Output	Output Rank
1	**Cheshire and Warrington**	**110.4**	**5**	**109.1**	**6**	**1.4**	**1**
2	**Coventry and Warwickshire**	**101.3**	**13**	**101.1**	**14**	**0.2**	**1**
3	**Greater Birmingham and Solihull**	**92.2**	**19**	**90.5**	**23**	**1.7**	**4**
4	**Greater Manchester**	**91.1**	**21**	**90.7**	**22**	**0.3**	**1**
5	***Leicester and Leicestershire***	***91.0***	***22***	***92.7***	***20***	***-1.7***	***-2***
6	**Leeds City Region**	**87.6**	**27**	**89.1**	**26**	**-1.5**	**-1**
7	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***86.5***	***32***	***87.7***	***33***	***-1.3***	***1***
8	**Humber**	**84.8**	**35**	**88.6**	**28**	**-3.8**	**-7**
9	**Stoke-on-Trent and Staffordshire**	**84.6**	**37**	**85.1**	**38**	**-0.5**	**1**
10	***Greater Lincolnshire***	***81.9***	***40***	***85.8***	***36***	***-4.0***	***-4***
11	***Sheffield City Region***	***81.2***	***41***	***82.9***	***41***	***-1.8***	***0***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

As with the UKCI Input Index D2N2 is ranked 7th of the 11 Midlands and Northern LEPs included in the analysis for the output index. However, as noted above there has been little change in the UKCI Output Index over the last four years unlike the case for the UKCI Input Index. In fact changes in other LEPs mean that D2N2 has actually improved its position relative to others LEPs climbing one place. In the comparison with neighbours D2N2 has climbed above Humber for the 2019 results. Against the background of weakening resources this is reassuring that the networks and institutions present have allowed D2N2 to maintain its position with regard to how these resources are used. However, it should be noted that the overall pattern is that the stronger LEPs in the Midlands and North have tended to improve their UKCI Output score between 2015 and 2019, whilst those such as Greater Lincolnshire and Sheffield City Region towards the bottom have seen their competitiveness in this respect further eroded.

The top two places are taken by the localities by a considerable margin by those localities with more of their traditional strengths in manufacturing specialism maintained, Cheshire and Warrington, and Coventry and Warwickshire. They both achieve UKCI Output Index scores above the UK average. More service orientated Greater Birmingham and Solihull and Greater Manchester are well below the UK average (92.2 and 91.1 respectively). This will be examined in more detail in the next section, but shows the importance in retaining traditional strengths, such as engineering in Derby, or building on those strengths to move into new areas such as Biotechnology in Nottingham (Ehret et al., 2012; Smith et al., 2017).

Table 6.3: UKCI Output Index for D2N2 LEP area and those LEPs covering at least in part the former EMDA area

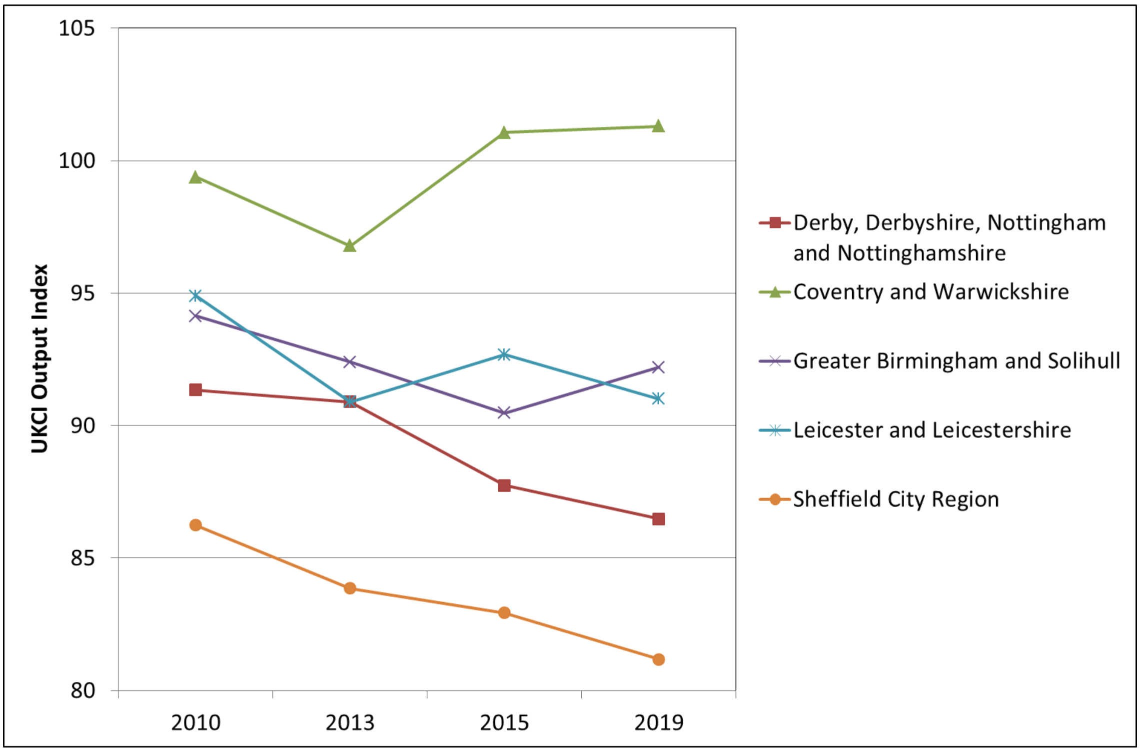
EMDA Output Rank 2019	Local Enterprise Partnership/City Region	Output 2019	Output Rank 2019	Output 2015	Output Rank 2015	Change 2015 to 2019	
						Output	Output Rank
1	*Greater Cambridge & Greater Peterborough*	*102.4*	*11*	*99.1*	*17*	*3.3*	*6*
2	*South East Midlands*	*102.3*	*12*	*103.0*	*11*	*-0.7*	*-1*
3	***Leicester and Leicestershire***	***91.0***	***22***	***92.7***	***20***	***-1.7***	***-2***
4	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***86.5***	***32***	***87.7***	***33***	***-1.3***	***1***
5	***Greater Lincolnshire***	***81.9***	***40***	***85.8***	***36***	***-4.0***	***-4***
6	***Sheffield City Region***	***81.2***	***41***	***82.9***	***41***	***-1.8***	***0***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

When comparing to LEPs from the old EMDA region, D2N2 is 4th of 6. There is a considerable gap between those LEPs towards the South of the East Midlands, Greater Cambridge and Greater Peterborough and the South East Midlands, and the other LEPs. To some extent D2N2 is likely to suffer from not being able to tap into the same knowledge intensive networks associated with knowledge intensive firms and university clusters in London, Cambridge and Oxford.

Although more recently the UKCI Output Index for D2N2 has been maintained it is important to look at the longer term patterns, with key comparisons made. Figure 6.1 below shows the patterns of UKCI Output Index for the period 2010 to 2019.

Figure 5.1 – Evolution of UKCI Output Index for D2N2 and Key Comparator LEP areas 2010 to 2019



The longer run patterns suggest three groups are present in the key comparators. Coventry and Warwickshire have increased their UKCI Output Index score over the period. Leicester and Leicestershire and Greater Birmingham and Solihull have largely maintained their position. Unfortunately D2N2 is in the last group with Sheffield City Region. This is reflective of the finding of other studies where Nottingham as a city does not make it into the two tiers of most connected cities (Taylor et al., 2009). Whereas the UKCI Input Index displayed larger upward and downward movements between editions of the UKCI as D2N2 like other areas across the EU has responded in an uneven and fragile fashion to the recovery (Hincks et al., 2014; Benczes and Szent-Ivanyi, 2015), the Output Index has displayed a constant downward pattern.

In order to understand the explanation behind these discrepancies in more detail Table 6.4 presents the raw data from the individual indicators used in the UKCI 2015 and UKCI 2019 Output Index. This also allows the understanding of more recent declines in the UKCI Output Index of D2N2 by observing changes in the UK average and that found for D2N2.

Table 6.4: Individual Output Indicators for D2N2 and Key Comparators

	Derby & Derbyshire, Nottingham & Nottinghamshire		Coventry and Warwickshire		Greater Birmingham and Solihull		Leicester and Leicestershire		Sheffield City Region		UK	
	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019
Employment Rate	72.9	74.1	72.9	77.8	67.3	71.0	71.6	73.4	71.8	73.3	73.4	75.0
GVA per Capita	19,301	20,172	25,584	26,851	21,793	24,364	21,983	23,141	17,254	17,862	24,163	25,630
Productivity	43,752	44,959	50,631	51,933	46,218	47,281	46,254	46,260	41,800	42,239	51,619	54,330

Notes: See appendix for data sources

When comparing D2N2 to the UK average the key message appears to be that employment rates are similar, but it is the quality of this employment that differs. D2N2 lags the UK average considerably both in terms of GVA per capita (21.3% lag) and productivity (17.2% lag). As noted in Section 1 the individual indices are connected through time, so a lack of new venture creation and less skilled labour available, along with fewer knowledge based enterprises are likely to ensure that such a gap doesn’t disappear quickly.

Although D2N2’s key comparators also lag in terms of productivity with the exception of Sheffield City Region the gap is smaller. Coventry and Warwickshire actually has a higher than UK average GVA per capita. As with the UK average, with the exception of Coventry and Warwickshire, D2N2 actually outperforms other key comparators in terms of employment rate. This reinforces the message above that D2N2 in terms of competitiveness does not have a problem of creating employment, but rather the creation of the right employment opportunities.

7. Output Competitiveness of D2N2 Local Authorities

In Sections 3 and 5 it was found that there was considerable variation in the overall and input competitiveness of localities within D2N2. As Section 6 outlined D2N2 as a whole follows a pattern that is similar to other struggling LEP or City Regions such as Sheffield City Region with a gradual weakening in the ability to convert inputs into output over time relative to the UK average and other key comparators. However, it was also shown that localities such as Coventry and Warwickshire with its strong manufacturing presence, and Greater Birmingham and Solihull which is becoming more service orientated have both performed relatively strongly. It is not assured that localities in D2N2 that have commonalities in their development pattern will also have experienced increases in the Output Index over time as Section 5 showed that UKCI Input Index scores were also displaying an erosion of relative inputs.

Table 7.1 below shows the UKCI Output Index for all localities in the neighbouring LEPs. Again clear variation is present across the Midlands and Northern LEPs. 15 of the 79 localities examined have UKCI Output Index scores above 100 suggesting they are above the national average. However, none of the D2N2 localities are in these 15. Two more rural East Midlands localities are at the bottom of the rankings in the form of East Lindsey (UKCI Output Index 71.4) and West Lindsey (UK Output Index 70.1). These localities appear to struggle to generate outputs from the inputs available.

Table 7.1 – UKCI Output Index for Local Authority Areas in D2N2 and neighbouring LEPs

Midlands and North Output Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
1	Solihull	West Midlands	119.9	29	113.2	44
2	North Warwickshire	West Midlands	119.8	30	119.8	30
3	Cheshire East	North West	118.6	34	114.4	40
4	Warwick	West Midlands	112.1	44	113.7	42
5	Blaby	East Midlands	109.4	50	105.3	75
6	Trafford	North West	108.9	53	109.9	53
7	Cheshire West & Chester	North West	107.6	58	105.0	77
8	Stratford-on-Avon	West Midlands	106.5	65	112.0	47
9	North West Leicestershire	East Midlands	105.6	69	109.0	60
10	Warrington	North West	105.0	74	106.5	65
11	Manchester	North West	104.6	78	100.1	117
12	Northampton	East Midlands	102.4	93	102.7	94
13	Daventry	East Midlands	101.5	97	98.3	127
14	Harborough	East Midlands	100.9	100	97.6	133
15	Rugby	West Midlands	100.8	103	104.4	80
16	Salford	North West	99.7	112	96.7	140
17	<u>Derbyshire Dales</u>	<u>East Midlands</u>	<u>98.3</u>	<u>118</u>	<u>96.9</u>	<u>138</u>
18	Melton	East Midlands	97.8	128	97.9	132
19	<u>Derby</u>	<u>East Midlands</u>	<u>97.6</u>	<u>130</u>	<u>100.1</u>	<u>119</u>
20	Coventry	West Midlands	97.0	136	92.2	183
21	Stockport	North West	96.3	142	96.1	144
22	East Staffordshire	West Midlands	93.7	163	93.3	174
23	Rutland	East Midlands	92.8	171	94.7	158
24	Corby	East Midlands	92.5	174	90.6	196
25	<u>Amber Valley</u>	<u>East Midlands</u>	<u>92.4</u>	<u>177</u>	<u>88.8</u>	<u>221</u>
26	Birmingham	West Midlands	91.1	189	86.5	250
27	Wellingborough	East Midlands	90.7	196	90.8	194
28	Nuneaton and Bedworth	West Midlands	90.5	197	90.6	195
29	Kettering	East Midlands	90.3	200	92.0	185
30	Hinckley and Bosworth	East Midlands	90.3	201	94.1	167
31	Telford and Wrekin	West Midlands	90.0	203	88.7	222
32	South Northamptonshire	East Midlands	89.7	208	90.0	204
33	<u>Nottingham</u>	<u>East Midlands</u>	<u>89.7</u>	<u>209</u>	<u>88.8</u>	<u>219</u>
34	North East Lincolnshire	Yorkshire and Humber	89.1	215	94.0	168
35	Stafford	West Midlands	88.5	222	87.3	241

Notes: D2N2 local authorities underlined

Table 7.1 – UKCI Output Index for Local Authority Areas in D2N2 and neighbouring LEPs - continued

Midlands and North Output Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
36	Chesterfield	East Midlands	88.4	223	90.1	201
37	Oadby and Wigston	East Midlands	88.3	225	86.3	251
38	North Lincolnshire	Yorkshire and Humber	87.7	229	94.6	159
39	Lichfield	West Midlands	87.6	230	91.1	190
40	Charnwood	East Midlands	87.4	233	90.1	202
41	High Peak	East Midlands	86.2	248	88.3	229
42	Boston	East Midlands	85.5	256	85.7	258
43	Shropshire	West Midlands	85.2	259	87.2	243
44	Erewash	East Midlands	85.1	260	86.0	253
45	Rushcliffe	East Midlands	85.0	261	89.3	210
46	East Northamptonshire	East Midlands	85.0	262	81.0	317
47	South Derbyshire	East Midlands	84.9	265	81.8	306
48	Bolsover	East Midlands	84.9	266	89.1	216
49	Lincoln	East Midlands	84.8	267	92.8	177
50	Leicester	East Midlands	84.7	269	83.8	280
51	Sheffield	Yorkshire and Humber	84.7	270	85.4	265
52	Cannock Chase	West Midlands	84.4	275	83.7	282
53	Stoke-on-Trent	West Midlands	84.2	276	84.2	275
54	Tameside	North West	83.9	282	83.4	287
55	Bassetlaw	East Midlands	83.7	285	82.5	297
56	Tamworth	West Midlands	83.1	292	84.8	268
57	South Holland	East Midlands	82.6	295	83.7	281
58	Newark and Sherwood	East Midlands	82.1	296	81.8	304
59	Broxtowe	East Midlands	81.4	304	85.5	262
60	Herefordshire, County of	West Midlands	81.3	307	86.7	248
61	Bury	North West	81.3	308	82.8	296
62	Bolton	North West	81.3	309	81.9	302
63	Doncaster	Yorkshire and Humber	80.8	315	80.8	324
64	South Kesteven	East Midlands	80.5	317	83.6	283
65	Ashfield	East Midlands	80.4	318	83.5	284
66	Rotherham	Yorkshire and Humber	80.4	319	80.8	323
67	South Staffordshire	West Midlands	79.7	327	78.5	349
68	Mansfield	East Midlands	78.9	335	83.2	292
69	Oldham	North West	78.9	336	80.0	337
70	Rochdale	North West	78.9	337	78.4	351

Notes: D2N2 local authorities underlined

Table 7.1 – UKCI Output Index for Local Authority Areas in D2N2 and neighbouring LEPs - continued

Midlands and North Output Rank	Locality	Region	2019	Rank 2019	2015	Rank 2015
71	Newcastle-under-Lyme	West Midlands	78.9	338	82.4	298
72	Wigan	North West	78.8	341	81.0	320
73	North Kesteven	East Midlands	78.1	348	80.4	331
74	<u>North East Derbyshire</u>	<u>East Midlands</u>	<u>77.2</u>	<u>352</u>	<u>78.6</u>	<u>347</u>
75	<u>Gedling</u>	<u>East Midlands</u>	<u>77.2</u>	<u>353</u>	<u>79.6</u>	<u>342</u>
76	Staffordshire Moorlands	West Midlands	77.0	355	80.6	327
77	Barnsley	Yorkshire and Humber	75.1	368	76.5	365
78	East Lindsey	East Midlands	71.4	375	76.2	366
79	West Lindsey	East Midlands	70.1	378	77.0	362

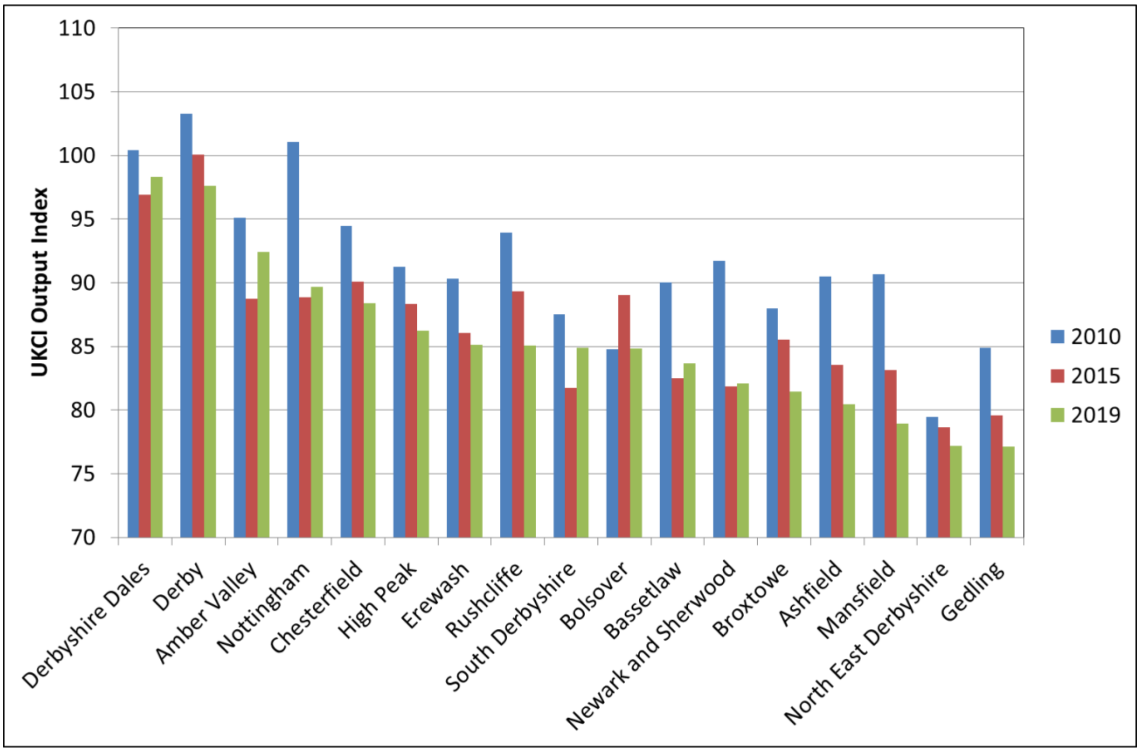
Notes: D2N2 local authorities underlined

Derbyshire Dales (UK Output Index 98.3) and Derby (UK Output Index 97.6) are the most strongly performing localities ranked 17th and 19th (of 79). This fits with the results presented in Section 6 where those localities that have retained manufacturing activities have performed more strongly. Rushcliffe (UKCI Output Index 85), although ranked well in terms of UKCI Input Index score (14th of 79) is only ranked 45th of 79 for UKCI Output Index. This partly reflects commuting patterns where more knowledge intensive activities are often located in major urban areas and served by resources located in surrounding areas (Lawton et al., 2019).

North East Derbyshire (74th of 79) and Gedling (75th of 79) are the least competitive localities in D2N2 in terms of the UKCI Output Index. This means that Ashfield and Mansfield whilst having weaker inputs are still able to retain some of their ability to convert these inputs into outputs.

Although Nottingham (UKCI Output Index 89.7) ranks more highly for output competitiveness (33rd of 79) than input competitiveness (51st of 79), this is well behind Derby. As with the key comparators considered in Section 7 the move to a more service oriented economy appears to have helped retain output competitiveness for some LEPs and localities in LEPs it does not necessarily lead to the same UKCI Output Index score as those that have retained their historical strengths. Clearly this provides some issues with trying to balance the needs of more successful localities with those seeking to transition to a new area of strength after the loss of previous strengths. However, to understand whether either path is more successful than another longer term evolution needs to be investigated (Figure 7.1).

Figure 7.1 UKCI Output Index for D2N2 Local Authorities from 2010 to 2019

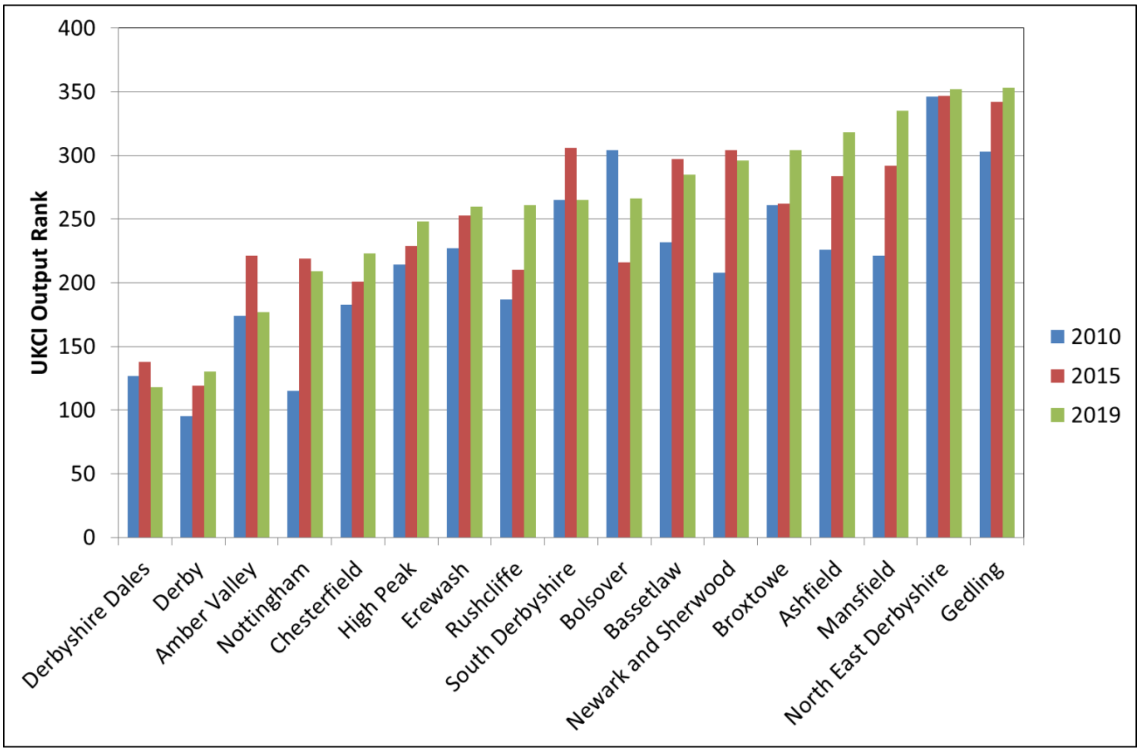


With the one exception of Bolsover the pattern for UKCI Output Index between 2010 and 2019 is downward. The extent of these declines have differed between localities in D2N2. Newark and Sherwood, Ashfield and Mansfield owe their current positions largely to falls in UKCI Output Index scores after 2010. Although, still ranked fourth of the D2N2 localities, Nottingham has also seen a large fall in UKCI Output Index score. This means that whilst Derby and Nottingham were both above the UK average in 2010, there is now a considerable difference between the two.

Future changes in the relative positions of Derby and Nottingham in terms of the UKCI Output Index depends to some extent on the BREXIT negotiations and outcomes. Although D2N2 is one of the NUTS2 regions that is less exposed and reliant on the EU (Los et al., 2017), there may be considerable differences across the LEP. As with other localities reliant on the exporting of manufacturing output Derby may struggle to achieve the same success in turning its specialised inputs into outputs if free trade is affected (Crowley et al., 2018; Steinberg, 2019). However, as manufacturers often rely on local services Nottingham may also be hurt to some degree where its professional services lose custom from firms based in their neighbour (Los et al., 2017).

Figure 7.2 considers if the effect that this loss of UKCI Output Index score has translated into reduced rank. In Sections 3 and 5 falls in score experienced by non-D2N2 localities with similar starting positions meant that the ranking of localities in D2N2 was not always in decline, and the score changes are reflective of a relative loss of position compared to the more competitive localities.

Figure 7.2 UKCI Output Index rank for D2N2 Local Authorities from 2010 to 2019



As before there are more localities such as Derbyshire Dales, Amber Valley, South Derbyshire, Bolsover and North East Derbyshire that have seen ranking improvements or relatively little change in rankings between 2010. However, most localities in D2N2 have seen their ranking fall between 2010 and 2019. The largest changes are identified in Table 7.2 below.

Table 7.2 Change in UKCI Output Index and UKCI Output Index rank for D2N2 Local Authorities 2010 to 2019

	UKCI Output	UKCI Output Ranking
Bolsover	0.1	38
Derbyshire Dales	-2.1	9
North East Derbyshire	-2.2	-6
South Derbyshire	-2.6	0
Amber Valley	-2.7	-3
High Peak	-5.1	-34
Erewash	-5.2	-33
Derby	-5.7	-35
Chesterfield	-6.0	-40
Bassetlaw	-6.3	-53
Broxtowe	-6.5	-43
Gedling	-7.7	-50
Rushcliffe	-8.9	-74
Newark and Sherwood	-9.7	-88
Ashfield	-10.1	-92
Nottingham	-11.4	-94
Mansfield	-11.8	-114

Notes: D2N2 local authorities underlined,

With the exception of the five localities noted above all others have seen considerable drops in their rankings relative to all UK localities for the UKCI Output Index. All of the localities with the exception of those five have lost 33 places of more. Mansfield has suffered the largest fall in output competitiveness both in terms of UKCI Output Index score (-11.8), and ranking (a drop of 114 places).

Although the downward pattern of UKCI Output Index found for D2N2 as a whole is evident for the localities that make up D2N2, these are much more pronounced for the Nottinghamshire localities. The implication is that moving to a more service orientated economy is difficult where inputs are relatively scarce (Section 5) and as found in this section has seen a decline in the ability to successfully to convert inputs into outputs. This may be reflective of an incompatible culture (Huggins et al., 2018; Thompson and Huggins, 2018), or a lack of inter-LEP links to access appropriate knowledge (Huggins and Thompson, 2015b; Huggins and Thompson, 2017a).

8. Outcome Competitiveness for D2N2

The final two sections of this report will examine the UKCI Outcome Index for D2N2. This index is important given the definitions of competitiveness developed by authors such as (Malecki, 2017) and (Aiginger and Firgo, 2017). In these definitions they the authors distinguish between 'low roads' based on reduced costs and 'high roads' associated with innovation and productivity, to competitiveness.

Table 8.1 presents the UK Outcome Index for all LEP and City Regions. Understandably London and the South East dominate the top of the table, with the six top LEPs from these regions. Aberdeen City Region with its highly successful North Sea oil cluster is the highest ranked LEP outside the core regions (Cumbers, 2000). Of the comparators to D2N2 Coventry and Warwickshire (UKCI Outcome Index 102) ranked 8th of 44, and Greater Cambridge and Greater Peterborough (UKCI Outcome Index 100.6) ranked 10th, are the highest ranked. Sheffield City Region (UKCI Outcome Index 94.4, ranked 36th) and Greater Lincolnshire (UKCI Outcome Index 92.8, ranked 43rd) are the lowest ranked of D2N2's broader comparator group.

Table 8.1: UKCI Outcome Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions

Outcome Rank 2019	Local Enterprise Partnership/City Region	Outcome 2019	Outcome 2015	Outcome Rank 2015	Change 2015 to 2019 Outcome	Change 2015 to 2019 Outcome Rank
1	London	112.2	112.1	1	0.1	0
2	Thames Valley Berkshire	110.1	109.6	2	0.5	0
3	Enterprise M3	105.5	105.4	4	0.1	1
4	Oxfordshire	105.1	105.2	5	-0.1	1
5	Buckinghamshire Thames Valley	103.6	103.5	6	0.1	1
6	Hertfordshire	103.5	102.8	7	0.7	1
7	Aberdeen City Region	103.2	105.9	3	-2.7	-4
8	**Coventry and Warwickshire**	**102.0**	**99.4**	**15**	**2.6**	**7**
9	West of England	101.0	99.7	12	1.3	3
10	*Greater Cambridge & Greater Peterborough*	*100.6*	*100.0*	*11*	0.7	1
11	Edinburgh and South East Scotland City Region	100.5	100.7	10	-0.2	-1
12	Coast to Capital	100.0	101.6	8	-1.6	-4
13	Solent	99.6	101.1	9	-1.6	-4
14	*South East Midlands*	*99.6*	*98.4*	*17*	1.1	3
15	Glasgow and Clyde Valley City Region	99.3	99.4	14	-0.1	-1
16	Cumbria	99.2	97.4	20	1.8	4
17	Gloucestershire	98.8	99.0	16	-0.2	-1

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

Table 8.1: UKCI Outcome Index by English Local Enterprise Partnership Areas and Welsh and Scottish City Regions - continued

					Change 2015 to 2019	
Outcome Rank 2019	Local Enterprise Partnership/City Region	Outcome 2019	Outcome 2015	Outcome Rank 2015	Outcome	Outcome Rank
18	South East	98.1	98.1	19	0.0	1
19	Swindon and Wiltshire	98.1	99.5	13	-1.4	-6
20	**Cheshire and Warrington**	**98.0**	**97.0**	**22**	**1.0**	**2**
21	**Greater Birmingham and Solihull**	**98.0**	**98.2**	**18**	**-0.2**	**-3**
22	Dorset	97.9	97.1	21	0.8	-1
23	Inverness and Highland City Region	97.9	95.3	33	2.6	10
24	Liverpool City Region	96.7	96.1	28	0.6	4
25	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***96.3***	***96.2***	***27***	***0.1***	***2***
26	**Leeds City Region**	**96.2**	**96.3**	**25**	**-0.1**	**-1**
27	New Anglia	95.6	95.5	32	0.1	5
28	***Leicester and Leicestershire***	***95.5***	***96.4***	***24***	***-0.9***	***-4***
29	**Greater Manchester**	**95.4**	**96.3**	**26**	**-0.9**	**-3**
30	Cardiff City Region	95.2	95.6	31	-0.4	1
31	York, North Yorkshire and East Riding	95.0	94.8	37	0.2	6
32	Lancashire	94.9	94.6	40	0.2	8
33	**Humber**	**94.8**	**94.9**	**36**	**0.0**	**3**
34	Swansea Bay City Region	94.7	94.8	38	-0.1	4
35	**Stoke-on-Trent and Staffordshire**	**94.6**	**94.7**	**39**	**-0.1**	**4**
36	***Sheffield City Region***	***94.4***	***95.1***	***34***	***-0.7***	***-2***
37	The Marches	94.1	94.3	41	-0.2	4
38	Worcestershire	94.0	96.0	29	-2.0	-9
39	North Eastern	93.9	95.7	30	-1.8	-9
40	Heart of the South West	93.9	94.9	35	-1.0	-5
41	Black Country	93.2	93.6	43	-0.4	2
42	Tees Valley	93.0	96.9	23	-4.0	-19
43	***Greater Lincolnshire***	***92.8***	***93.9***	***42***	***-1.1***	***-1***
44	Cornwall and Isles of Scilly	89.9	90.1	44	-0.2	0

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

D2N2 itself has improved its position in terms of the UKCI Outcome Index over the last four years rising two places to 25th. Although it has a UKCI Outcome Index score of 96.3 less than the UK average, the distribution of scores is quite tight for those with less competitive positions. Compared to the Input Index (Table 4.1: 82.5, ranked 35th) and Output Index (Table 6.1: 86.5, ranked 32nd) this indicates that D2N2 has been able to convert its output more successfully into outcomes associated with higher wages and lower unemployment.

Table 8.2: UKCI Outcome Index for D2N2 LEP area and neighbouring areas

						Change 2015 to 2019	
Neighbour Outcome Rank 2019	Local Enterprise Partnership/City Region	Outcome 2019	Outcome Rank 2019	Outcome 2015	Outcome Rank 2015	Outcome	Outcome Rank
1	**Coventry and Warwickshire**	**102.0**	**8**	**99.4**	**15**	**2.6**	**7**
2	**Cheshire and Warrington**	**98.0**	**20**	**97.0**	**22**	**1.0**	**2**
3	**Greater Birmingham and Solihull**	**98.0**	**21**	**98.2**	**18**	**-0.2**	**-3**
4	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***96.3***	***25***	***96.2***	***27***	***0.1***	**2**
5	**Leeds City Region**	**96.2**	**26**	**96.3**	**25**	**-0.1**	**-1**
6	***Leicester and Leicestershire***	***95.5***	***28***	***96.4***	***24***	***-0.9***	**-4**
7	**Greater Manchester**	**95.4**	**29**	**96.3**	**26**	**-0.9**	**-3**
8	**Humber**	**94.8**	**33**	**94.9**	**36**	**0.0**	**3**
9	**Stoke-on-Trent and Staffordshire**	**94.6**	**35**	**94.7**	**39**	**-0.1**	**4**
10	***Sheffield City Region***	***94.4***	***36***	***95.1***	***34***	***-0.7***	**-2**
11	***Greater Lincolnshire***	***92.8***	***43***	***93.9***	***42***	***-1.1***	**-1**

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

The relatively strong performance of D2N2 on the UKCI Outcome Index mean relative to its neighbours it ranks 4th of 11 of the Midlands and Northern LEPs. This means that it outperforms LEPs such as Leeds City Region and Greater Manchester that have developed service based economies. Although it should be noted that it still lags the more manufacturing specialised economies of Coventry and Warwickshire and Cheshire and Warrington. The success of such LEPs relative to that of D2N2 may reflect the fit of employment opportunities with the skills held by the population (Houston, 2005).

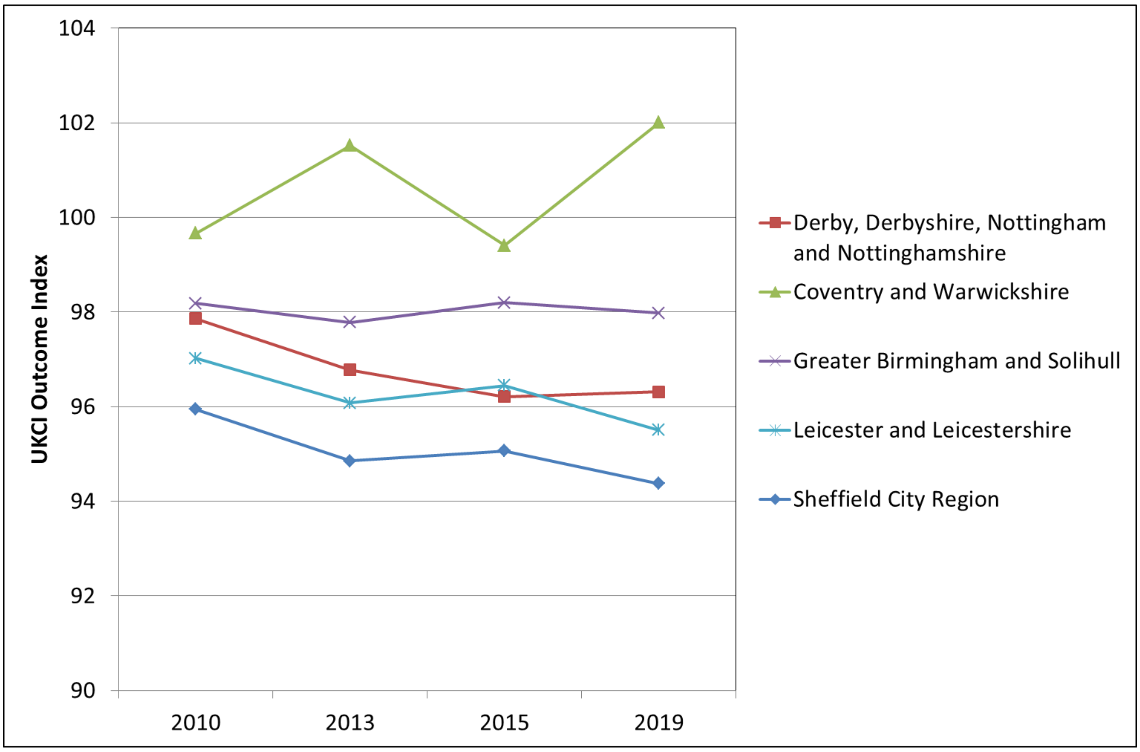
Table 8.3. UKCI Outcome Index for D2N2 LEP area and those LEPs covering at least in part the former EMDA area

EMDA Outcome Rank 2019	Local Enterprise Partnership/City Region	Outcome 2019	Outcome 2015	Outcome Rank 2015	Change 2015 to 2019 Outcome	Change 2015 to 2019 Outcome Rank
1	*Greater Cambridge & Greater Peterborough*	*100.6*	*100.0*	*11*	*0.7*	*10*
2	*South East Midlands*	*99.6*	*98.4*	*17*	*1.1*	*15*
3	***Derby & Derbyshire, Nottingham & Nottinghamshire***	***96.3***	***96.2***	***27***	***0.1***	***24***
4	***Leicester and Leicestershire***	***95.5***	***96.4***	***24***	***-0.9***	***20***
5	***Sheffield City Region***	***94.4***	***95.1***	***34***	***-0.7***	***29***
6	***Greater Lincolnshire***	***92.8***	***93.9***	***42***	***-1.1***	***36***

Notes: LEP areas in bold are those neighbouring the Derby & Derbyshire, Nottingham & Nottinghamshire (D2N2) area; LEP areas in italics are those covering part of the former East Midlands Development Agency (EMDA) area

In the former EMDA area D2N2 ranks 3rd (of 6). This means that in contrast to the UKCI Input Index and UKCI Output Index, D2N2 ranks above Leicester and Leicestershire, although the UKCI 2015 figures reported in Table 8.3 indicate that this is only a recent change. Figure 8.1 allows the longer term patterns to be examined and understand the direction of travel with regard to the UKCI Outcome Index for D2N2 and its key comparator LEPs.

Figure 8.1 – Evolution of UKCI Outcome Index for D2N2 and Key Comparator LEP areas 2010 to 2019



The longer term patterns show that although D2N2's UKCI Outcome Index score can be seen as a positive it has displayed an erosion over time. Although it ranks above Leicester and Leicestershire this has traditionally been the case. What is more disappointing is that the gap between D2N2 and Greater Birmingham and Solihull has been increasing over time. Coventry and Warwickshire has also improved its UKCI Outcome Index since 2010. This means that D2N2 appears to display a pattern that is more similar to Sheffield City Region and Leicester and Leicestershire, LEPs that are yet to either retain their specialised production expertise in steel, textiles and footware, but also yet to full transition to a more service orientated economy. Those key comparators that have either remained specialised manufacturing centres, Coventry and Warwickshire, or have the scale and inputs to become knowledge based service centres, Greater Birmingham and Solihull, have improved or at least maintained their UKCI Outcome Index relative to the UK average.

Table 8.4 below allows the relatively strong position of D2N2 to be analysed in terms of the individual indicators and how they relate to the those of the key comparators. This will help to establish whether D2N2's relatively better performance in terms of the UKCI Outcome Index is driven by employment or income factors.

Table 8.4: Individual Outcome Indicators for D2N2 and Key Comparators

	Derby & Derbyshire, Nottingham & Nottinghamshire		Coventry and Warwickshire		Greater Birmingham and Solihull		Leicester and Leicestershire		Sheffield City Region		UK	
	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019	UKCI 2015	UKCI 2019
Median Full-Time Weekly Wage	487.0	526.3	517.8	589.3	513.1	554.6	487.3	514.4	478.3	507.9	527.1	569.0
Claimant Count Rate	1.8	2.0	1.4	1.7	2.9	3.7	1.4	1.4	2.4	2.5	1.9	2.2

Notes: See appendix for data sources

Consistent with the productivity and employment rate patterns found for D2N2 in Section 6 it is found that although D2N2 lags the UK average in terms of median wages it has had a lower unemployment rate in the data used for both the UKCI 2015 and 2018 editions. Interestingly Leicester and Leicestershire shows this pattern even more prominently. Greater Birmingham and Solihull on the other hand has a higher unemployment rate, but also compared to D2N2 a higher median wage rate. In some regards it appears that stronger inputs and ability to utilise these resources has not necessarily led to universally better outcomes for the population in Greater Birmingham and Solihull.

Although it cannot be certain what the longer run impact of changes in national trade relations will have on LEPs such as Coventry and Warwickshire that have larger manufacturing sectors that are export orientated, currently it seems that efforts by LEPs such as D2N2 and even Greater Birmingham and Solihull to become more service orientated are having mixed results for the population, with employment assured, but not necessarily employment leading to higher remuneration.

9. Output Competitiveness of D2N2 Local Authorities

Given the results observed in Section 7 relating to the UKCI Output Index for D2N2's constituent localities, and those found for the UKCI Outcome Index for D2N2 as a whole in Section 8, it might be expected that localities in D2N2 retaining more of their historical manufacturing specialisms will display higher UKCI Outcome Index scores. More peripheral localities and those transitioning, but not necessarily established as one of the UK's leading service centres are expected to have lower UKCI Outcome Index scores. The D2N2 localities are compared to those localities in neighbouring LEPs in Table 9.1 below.

Table 9.1 – UKCI Outcome Index for Local Authority Areas in D2N2 and neighbouring LEPs

North and Midlands Outcome Rank	Locality	Region	Outcome 2019	Outcome Rank 2019	Outcome 2015	Outcome Rank 2015
1	Derby	East Midlands	108.8	23	112.5	10
2	Rugby	West Midlands	107.1	32	103.5	65
3	Warwick	West Midlands	105.2	46	103.2	67
4	Solihull	West Midlands	103.7	64	104.2	57
5	Gedling	East Midlands	103.7	65	95.2	247
6	Stratford-on-Avon	West Midlands	102.8	72	99.1	137
7	Rushcliffe	East Midlands	102.4	76	97.9	167
8	Coventry	West Midlands	102.4	77	100.8	101
9	Hinckley and Bosworth	East Midlands	100.0	117	96.2	218
10	Birmingham	West Midlands	99.8	122	99.4	133
11	South Staffordshire	West Midlands	99.4	129	96.5	214
12	Amber Valley	East Midlands	99.4	131	99.0	140
13	East Northamptonshire	East Midlands	99.3	134	97.7	170
14	Cheshire East	North West	99.2	139	96.7	211
15	Rutland	East Midlands	98.4	159	91.5	334
16	Manchester	North West	98.3	160	99.9	117
17	Stafford	West Midlands	98.1	162	97.4	183
18	South Derbyshire	East Midlands	98.0	168	96.5	213
19	Warrington	North West	97.9	174	98.5	151
20	Sheffield	Yorkshire and Humber	97.6	181	96.7	210
21	Charnwood	East Midlands	97.5	182	100.6	106
22	Stockport	North West	97.5	184	97.4	181
23	Daventry	East Midlands	97.4	185	95.1	250
24	Ashfield	East Midlands	97.4	186	92.9	308
25	North Lincolnshire	Yorkshire and Humber	97.1	191	100.0	115
26	Corby	East Midlands	97.0	192	94.3	274
27	Trafford	North West	96.9	196	95.2	248

Notes: D2N2 local authorities underlined

Table 9.1 – UKCI Outcome Index for Local Authority Areas in D2N2 and neighbouring LEPs - continued

North and Midlands Outcome Rank	Locality	Region	Outcome 2019	Outcome Rank 2019	Outcome 2015	Outcome Rank 2015
28	Blaby	East Midlands	96.8	199	97.2	189
29	North West Leicestershire	East Midlands	96.7	200	96.1	221
30	Salford	North West	96.6	201	98.6	150
31	South Northamptonshire	East Midlands	96.6	203	99.5	130
32	Cheshire West & Chester	North West	96.5	205	95.9	230
33	Erewash	East Midlands	96.5	207	92.4	318
34	East Staffordshire	West Midlands	96.3	211	97.0	198
35	Telford and Wrekin	West Midlands	96.0	217	97.6	178
36	Barnsley	Yorkshire and Humber	95.4	228	96.7	209
37	Kettering	East Midlands	95.4	231	98.5	154
38	Harborough	East Midlands	95.2	235	97.6	175
39	Northampton	East Midlands	95.1	238	93.5	289
40	North Warwickshire	West Midlands	94.9	241	92.6	312
41	Bury	North West	94.8	246	95.5	240
42	Shropshire	West Midlands	94.6	251	94.4	271
43	Nuneaton and Bedworth	West Midlands	94.6	253	92.5	315
44	Derbyshire Dales	East Midlands	94.5	256	95.3	245
45	Doncaster	Yorkshire and Humber	94.1	266	94.8	259
46	Broxtowe	East Midlands	94.0	272	100.3	108
47	Nottingham	East Midlands	94.0	274	94.6	267
48	Lichfield	West Midlands	93.9	275	97.3	186
49	High Peak	East Midlands	93.9	277	91.7	330
50	Cannock Chase	West Midlands	93.8	280	93.3	295
51	West Lindsey	East Midlands	93.8	281	94.5	270
52	Lincoln	East Midlands	93.5	288	93.6	287
53	Stoke-on-Trent	West Midlands	93.2	294	94.4	272
54	Wellingborough	East Midlands	93.0	299	91.2	340
55	Rotherham	Yorkshire and Humber	92.9	303	94.8	260
56	Leicester	East Midlands	92.8	304	95.4	242
57	North East Derbyshire	East Midlands	92.6	308	86.6	379
58	Bolton	North West	92.4	310	92.9	306

Notes: D2N2 local authorities underlined

Table 9.1 – UKCI Outcome Index for Local Authority Areas in D2N2 and neighbouring LEPs - continued

North and Midlands Outcome Rank	Locality	Region	Outcome 2019	Outcome Rank 2019	Outcome 2015	Outcome Rank 2015
59	Staffordshire Moorlands	West Midlands	92.4	312	91.9	327
60	North Kesteven	East Midlands	92.4	313	93.8	283
61	Wigan	North West	92.3	314	93.2	300
62	Melton	East Midlands	92.1	321	93.8	284
63	Tamworth	West Midlands	91.9	324	92.2	321
64	East Lindsey	East Midlands	91.5	329	93.3	294
65	Tameside	North West	91.3	331	90.3	354
66	Bolsover	East Midlands	91.3	333	89.6	363
67	Bassetlaw	East Midlands	91.2	336	89.9	359
68	Oldham	North West	91.1	337	89.7	362
69	South Holland	East Midlands	91.1	338	91.7	329
70	Chesterfield	East Midlands	90.9	344	92.2	322
71	Newcastle-under-Lyme	West Midlands	90.7	348	89.4	365
72	Herefordshire, County of	West Midlands	90.7	349	90.0	357
73	Mansfield	East Midlands	89.6	360	87.2	378
74	South Kesteven	East Midlands	89.5	361	91.0	343
75	Rochdale	North West	89.3	362	90.4	351
76	North East Lincolnshire	Yorkshire and Humber	89.2	364	93.2	301
77	Boston	East Midlands	88.4	374	89.2	369
78	Oadby and Wigston	East Midlands	88.4	375	90.5	350
79	Newark and Sherwood	East Midlands	88.3	376	90.6	349

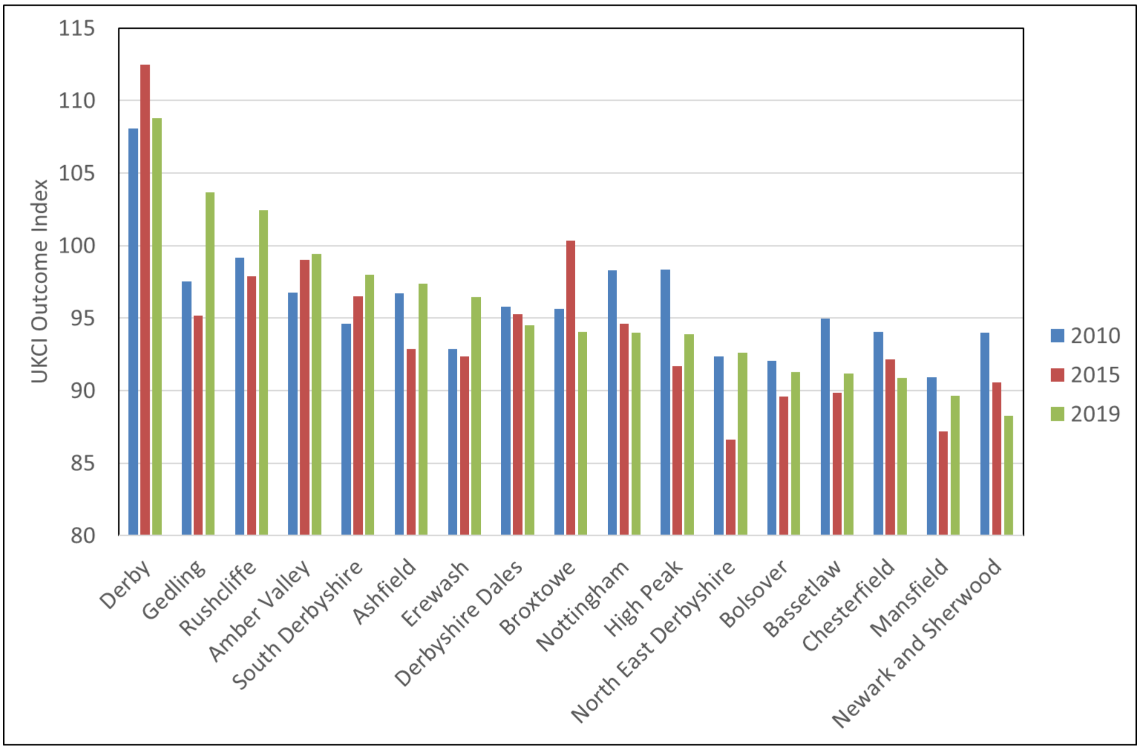
Notes: D2N2 local authorities underlined

It is found that D2N2 localities have the broadest range of UKCI Outcome Index scores relative to those others compared form the Midlands and North as possible. Although Derby with a UKCI Outcome Index of 108.8 is ranked 1st of the 79 localities, Newark and Sherwood is the 79th locality with a UKCI Outcome Index score of 88.3. Derby's UKCI Outcome Index score implies it well above the national average, but only Gedling and Rushcliffe in D2N2 join it. Nottingham (UKCI Outcome Index 94.0) by contrast is only ranked 47th of 79.

As suspected it is the less urban localities, such as Newark and Sherwood, Mansfield, and Chesterfield, that are more distant from the large urban centres that display the weaker UKCI Outcome Index scores. The importance of commuting patterns is clear where Ashfield (UKCI Outcome Index 97.4) like Gedling (UKCI Outcome Index 103.7) performs much more strongly than the findings of Section 7 on the UKCI Output Index would imply. These results also show the importance of considering both the overall UKCI and its component Indices. Although Nottingham is relatively good at utilising inputs and converting them into outputs, because many of the key inputs are drawn from outside the locality it is not necessarily the population of Nottingham that gains from this success.

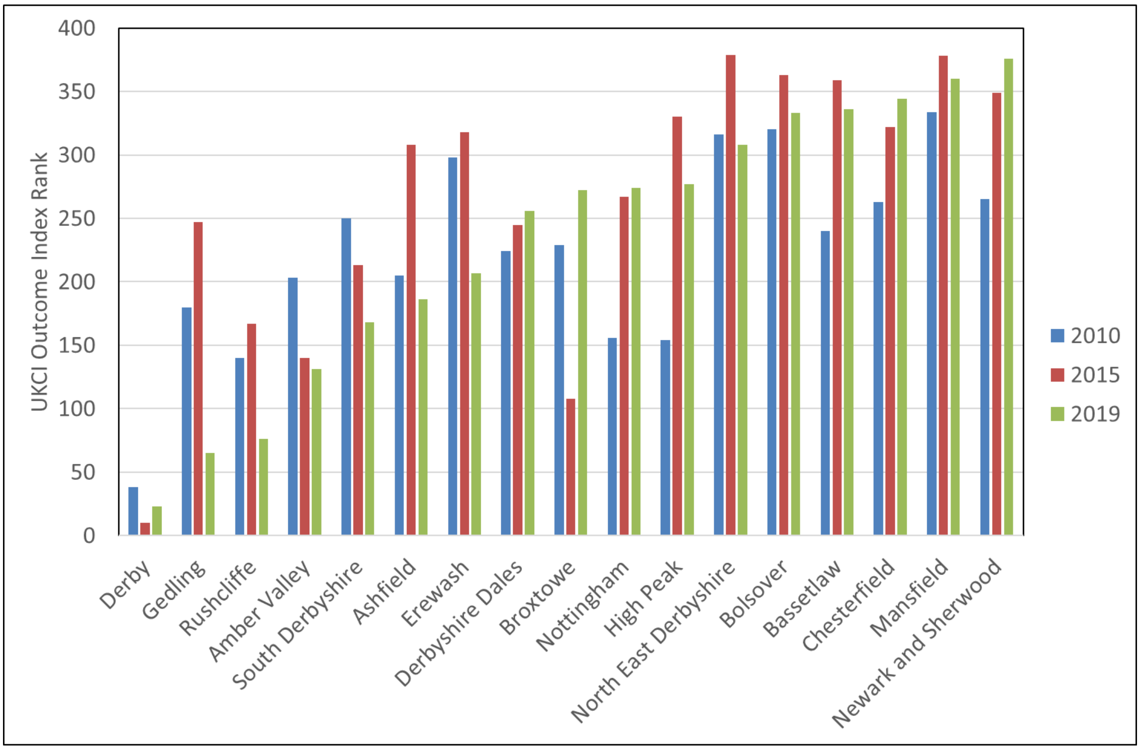
Whether the relatively high outcome competitiveness can be maintained is questionable given the patterns found relating to the UKCI Input and Output Indices. This makes it important to consider the patterns observed for the D2N2 localities over time as Section 8 found that the LEP’s UKCI Outcome Index score has been declining since 2010. Figure 9.1 below displays the pattern of UKCI Outcome Index over the period 2010 to 2019.

Figure 9.1 UKCI Outcome Index for D2N2 Local Authorities from 2010 to 2019



A much more complex pattern of winners and losers is found for the UKCI Outcome Index over time. Some localities such as Gedling, Rushcliffe and Erewash have seen improvements in their scores. Whilst other localities such as Nottingham and High Peak which had higher UKCI Outcome Index scores in 2010 have seen larger falls, as have a number of those starting from a lower base such as Newark and Sherwood.

Figure 9.2 UKCI Outcome Index rank for D2N2 Local Authorities from 2010 to 2019



The varied changes in UKCI Outcome Index scores across the D2N2 localities is also reflected in the changes in ranks experienced. Gedling, Rushcliffe, Amber Valley, and South Derbyshire are examples of localities with major improvements in their ranks. Nottingham, High Peak, Bassetlaw, Chesterfield and Newark are moving in the opposite direction. Table 9.2 below presents the largest changes in both directions.

Table 9.2 Change in UKCI Outcome Index and UKCI Outcome Index rank for D2N2 Local Authorities 2010 to 2019

	UKCI Outcome	UKCI Outcome Rank
Gedling	6.1	115
Erewash	3.6	91
South Derbyshire	3.4	82
Rushcliffe	3.3	64
Amber Valley	2.6	72
Derby	0.7	15
Ashfield	0.7	19
North East Derbyshire	0.3	8
Bolsover	-0.8	-13
Derbyshire Dales	-1.3	-32
Mansfield	-1.3	-26
Broxtowe	-1.6	-43
Chesterfield	-3.2	-81
Bassetlaw	-3.8	-96
Nottingham	-4.3	-118
High Peak	-4.4	-123
Newark and Sherwood	-5.7	-111

As noted above those localities surrounding both Derby and Nottingham such as Erewash and Gedling respectively have seen large improvements in their UKCI Outcome Index scores and ranks since the recession. High Peak and Newark and Sherwood that are more distant from the urban centres are seeing their UKCI Outcome Index scores and ranks move in the opposite direction. However, with regard to competitiveness being based on attraction of labour, capital and firms in such a manner that the population benefits the fall in Nottingham's UKCI Outcome Index score by 4.3 points and its ranking by 118 places is perhaps most worrying.

10 Conclusions

The analysis presented in this report using the UKCI and its component indices have illustrated that D2N2 is less competitive than the UK average. However, when this has been examined in more detail with comparisons made to a number of different comparator groups it has been shown that the UK average is pulled up to a large extent by the dominant core London and South East regions.

At the same time though the D2N2 tends to perform relatively weakly compared to its neighbouring LEPs. In particular, it tends to suffer in comparison to key comparators such as Coventry and Warwickshire with its automotive cluster, and Greater Birmingham and Solihull that has transitioned more successfully towards a service orientated economy. Both these LEPs have relevance for D2N2 as in some regards parts of D2N2 reflect each. Unfortunately D2N2's UKCI scores appear to have more in common with Sheffield City Region, which is another LEP that like parts of D2N2 has lost much of the economic activities that provided its traditional strengths without achieving the same success in replacing such activities with knowledge intensive services as its key comparator rivals.

Another warning sign is that all three component indices have seen a general pattern of falling scores over the period since the LEPs were formed. This is most pronounced for the UKCI Input and Output Indices with outcomes for the population holding up more strongly. However, it would be expected that if the relative availability of inputs in the locality are weakening, and the ability to convert the inputs that remain into outputs displays a similar pattern then outcomes for the population are likely to fall further. As noted in Section 1 the problem is that attraction and retention of skilled labour will be negatively affected where the UKCI Outcome Index falls (Mellander et al., 2011), so this is likely to lead to further falls in the UKCI Input Index.

In terms of implications for policy what might be most difficult is the different nature of localities across D2N2. In some regards there are three groups, those linked to a manufacturing centre of excellence, those associated with an emerging service centre, and those more peripheral localities. The support and policies that are most appropriate for each are likely to vary (Rossiter, 2016). However, it should be noted that D2N2 is not unique in this as many LEPs have urban centres and more rural areas and others have centres with differing strengths and weaknesses.

As noted previously Derby and its surrounding localities are likely to have more in common with Coventry and Warwickshire. Here more traditional industries are providing high value opportunities for the local workforce. The export nature of much of this production means that infrastructure and export regulations will be highly important for the success of these localities. The latter may understandably be affected by changes in factors beyond the control of D2N2. However, like the automotive industry some of the effects of external shocks such as BREXIT can reduced where support is provided to the development of local supply chains (Bailey and De Propris, 2017). At the same time it is important that local educational institutions continue to provide the type of graduates and others with technical skills required for these specialised roles (ESRB, 2011). Ultimately the external shocks that may affect these localities make issues of resilience as well as competitiveness important (Martin and Sunley, 2017).

For localities closer to Nottingham and its more service orientated economy, the loss of many traditional industries results in economies in transition. Policies here might need to focus on encouraging the location of more service firms, but also in terms of supporting the creation of knowledge intensive start-ups to help retain the skilled labour being generated by the city's universities. Collaboration between policy makers and institutions including the universities has already achieved success with the re-emerging biotechnology cluster in the city (McDonald-Junor et al., 2018). If the creation of skilled employment opportunities does not continue to occur there is a strong likelihood that the type of labour sought for the growth areas will be attracted to not too distant 'rival' LEPs with stronger existing clusters of these firms (Faggian and McCann, 2009a), such as Greater Birmingham and Solihull, Greater Manchester, and Leeds City Region. A further issue that D2N2 faces is the current policy and governance arrangements. Nottingham and the surrounding localities that provide much of its resources are not controlled by the same councils and Nottingham may provide many of the positive outcomes for others rather than its own population. In general support needs to consider what benefits the population as a whole will receive and avoid groups being left behind (Black et al., 2017). This therefore implies that D2N2 may have an important planning and coordination role (Pugalis and Townsend, 2010).

The last group of localities, but potentially those requiring the greatest outside investment are the more peripheral localities in the D2N2 LEP area. Often these more rural areas surrounding smaller towns are those that are displaying not only the lowest levels of competitiveness, but also the fastest falling UKCI scores. Having lost their traditional industries they are being left behind in terms of their resources, links to other localities, and the relative standard of living. The D2N2 localities in this group are relative losers with the resurgence of the cities (Storper and Manville, 2006; Fothergill and Houston, 2016). It may not be realistic in many cases to hope to reinvigorate these localities in a self-contained manner. The continued patterns of clustering found in advanced economies (Rocha, 2013), make it less feasible to attract firms to locate from scratch. However, lower cost bases in combination with improved links (both physical and digital) may help generate specialist sub-clusters connected to other parts of D2N2 and beyond (Irvine and Anderson, 2008; Carter, 2013). As Fothergill and Houston (2016) highlight cities' success are based to a large extent on the success of the surrounding areas, so their fates are intertwined, and therefore for D2N2 as a whole more peripheral localities need to be supported and existing connections strengthened.

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Appendix – Data Sources

For the latest edition of the UKCI the most recent data releases are used. All the figures reported for previous UKCI editions have been updated to use the most recent data for the period in question.

Table A1 – Data sources used for UKCI 2019 figures

Indicator	Source	Date
Percentage of Knowledge Based Businesses	UK Business Counts - Nomis	2018
Percentage of Working Age Population with NVQ Level 4+	Annual Population Survey	2017
Business Registrations per 10,000 Inhabitants	ONS Business Demography	2018
Businesses per 1000 Inhabitants	UK Business: Activity, Size and Location	2018
Economic Activity Rate	Annual Population Survey	2018
Employment Rate	Annual Population Survey	2018
GVA per Capita	ONS Regional and Subregional Productivity	2017
Productivity	ONS Regional and Subregional Productivity	2017
Median Full-Time Weekly Wage	Annual Survey of Hours and Earnings	2018
Claimant Count Rate	Nomis	2018