Data Appendix

Tyne & Wear City Region: Emerging Polynuclearity
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Tyne & Wear City Region: Emerging Polynuclearity

Final Report

Acknowledgements:

Simon Raybould at CURDS (Centre for Urban & Regional Development Studies) produced the maps.

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Tyne & Wear City Region: Emerging Polynuclearity

This research has examined the most robust available evidence relevant to the policy focus on the city region scale. More particularly, commuting patterns have been analysed to identify how far the Tyne & Wear City Region boundary defined for the Northern Way encompasses a functionally cohesive sub-region and, if so, whether it became noticeably more integrated in recent years. Most importantly, the ‘city region’ concept is not here assumed to involve a single dominant centre; indeed this research will explore the evidence in Tyne & Wear to assess whether the more appropriate model is of a *polynuclear* city region* which has several significant centres with overlapping areas of influence.

One reason for a growing interest in city regions in Britain is that labour markets have become markedly less localised, now longer-distance commuting is much less unusual. Among the key reasons for this trend are:-

- sustained increase in car use, allowing access to more workplaces
- diffused job opportunities (e.g. employers de-centralising to city edges)
- greater affluence (e.g. more professional and managerial jobs), and
- more double-earner households (who can’t live near both workplaces)

Many of these processes will clearly have affected other movement patterns too. For example, there has been a similar patterns of lengthening average journeys to shop, so that smaller towns are increasingly in the ‘hinterlands’ of larger centres and so no longer have very separate catchment areas. Little consistent data on journeys to shop – or other movement patterns such as travel to reach education or similar services – is in the public domain. The result is that the available datasets on commuting patterns will be analysed here in the same way as they have been in much similar research: partly because the labour market dimension to local geography is of major importance but *also* on the assumption that commuting patterns tend to roughly ‘proxy’ those other patterns of local linkages which would be of great interest but for which there is no available data.

**Commuting Trends in and around Newcastle**

The pattern of commuting changes as a result of population movements and, more especially, due to the re-distribution of jobs in an area. In a larger older city like Newcastle there has been a marked decline of those traditional industries which were mostly located near to city centres, with workforces which typically lived nearby. The growth in service sector jobs which has taken place has more recently included some dispersion to some more suburban areas. In fact, detailed comparative work by Coombes Atkins and Wymer on cities’ 1991 commuting patterns found Newcastle-Gateshead to be rather different from nine other large English cities in that a relatively high proportion of central city residents worked in suburban locations. Jobs in the Longbenton office campus, for example, meant Tyneside was in 1991 already unusual among English cities in the degree of dispersion of the types of job most often found in city centres. Tyneside’s inner city residents faced severe competition from in-commuters for city jobs, largely because many of the outlying areas had themselves suffered long-term loss of jobs in previously dispersed industries such as coal mining.

Data from the 2001 Census has been mapped by Durham University who looked at the city in aggregate and found few significant changes to the 1991 patterns set out above. Comparing patterns of commuting in and out of Newcastle to the experience elsewhere across the whole North East region, they concluded that

- the city is by some way the region’s principal attraction for commuters

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1 Nordregio (1999) *European Spatial Development Perspective: Towards Balanced and Sustainable Development of the Territory of the European Union* European Commission, Luxembourg

• almost 30% of in-commuters travel to work by public transport
• approaching half in-commuters have professional or managerial jobs
• there are slightly more women than men among in-commuters
• out-commuters are mostly men (many working in the production sector)
• under a third of all who work in the city commute over 10kms, and nearly 30% of all the city’s employed residents either commute less than 2kms or work at or from home.

Looking back over 20 years reveals the developing role of Newcastle within the region’s labour market. In particular, it is then possible to see how the city has renewed its core role (e.g. due to job growth in knowledge-based sectors), after a period when it was arguably more of a ‘contraction pole’ than a driver of growth for the region. This trend is demonstrated by the number of commuters into the city from the rest of the region actually falling by nearly 700 in 1980s. Since then the number of commuters to the city has grown again by more than 10,000 to be over 86,000 in the 2001 Census dataset. The distinctive nature of this trend, of decline interrupting steady growth, is shown by the trend in out-commuters from the city growing in both the 1980s and 1990s.

The charts below illustrate these trends over the two decades, breaking down the overall pattern to examine the commuting links between the city and four other parts of the region: the rest of Tyne & Wear county, the southern parts of Northumberland (which include much of the city’s rural hinterland), northern areas of County Durham (which are also within 30kms of Newcastle), and the remainder of the North East region (but beyond the City Region). The first chart reveals that the 1980s drop in the number of commuters to the city was entirely due to fewer city workers living in the rest of Tyne & Wear: the other three zones showed the steady increase in flow to the city, as would be expected with a slow growth of longer-distance commuting by relatively well paid residents of outlying areas. This growth has accelerated during the 1990s, but has been rather dwarfed by the resurgent increase in commuting to the city from the neighbouring Tyne & Wear areas. The second diagram shows that the trends in the commuting of Newcastle’s own residents are not hugely different; the main difference is that out-commuting to more outlying areas has scarcely accelerated in the 1990s, partly no doubt because there has been less growth in other parts of the region in the highly paid jobs which support longer-distance commuting.

Newcastle and the Tyne & Wear City Region

Although it would have been foolhardy to overlook the patterns of commuting into and out of the city of Newcastle – not least with evidence now mounting that core cities like Newcastle are again
becoming drivers of their regions’ development – a key question here is the extent to which central Newcastle is the single dominant employment centre in wider commuting patterns. Northern Way policy frameworks use a City Region boundary based on unpublished CURDS research which analysed 1991 commuting data with an extended version of the method\(^3\) for defining Travel-to-Work Areas (TTWAs). This method does not presume a single dominant centre for each region, although the scale of analysis produced did tend to find one identifiable ‘principal’ city in most of the regions (although not the Central Lancashire region). The next part of this research looks within the Tyne & Wear City Region as defined to assess how far Newcastle was, and remains, its single dominant employment centre. As context, it is worth stressing that the period for which the necessary datasets are available ends at the start of the current decade; this is important when it is remembered that much of the evidence for core cities leading their regions’ regeneration relates to the last few years. The analyses here of changes between 1991 and 2001 could still be dominated by the very substantial flows of people from the region’s larger urban areas over recent decades. On the contrary, it may be that this drift to the countryside is largely a flow of people who are then longer-distance commuters to jobs which have not decentralised. This research now examines the evidence on this question.

The first step in the analysis is to identify the principal employment centres in the Tyne and Wear region. This is a non-trivial task, requiring linkage of ward-level data on jobs by workplace with statistics on the distribution of employed residents so that a map emerges showing the region’s key nodal points for commuters (which may be made up of one or more wards). This analysis is carried out separately for both ‘blue-/white-collar’ jobs (in both 1991 and 2001). Later the research processes ward-to-ward commuting flow data to identify the catchment areas of each of the key employment centres. Once again, the analysis is broken down by labour market segment (i.e. separating out manual/non-manual’ jobs). These analyses aim to reveal how far different parts of the region remain fairly separate sub-regions or, on the contrary, are part of complex overlapping hinterlands within a polynuclear pattern overall. Replicating these analyses on the 1991 and the 2001 datasets reveals any substantial change; from a more long-term perspective, it is worth recalling that in the past it was often said that the preponderance of very localised commuting patterns made the region unusual in comparison to other parts of Britain at the same period.

**Identifying Employment Centres**

Although the idea of an employment centre is not a complex one, it is not so simple that it automatically leads to the definitive mapping of the employment centres within a region. To illustrate: is Gateshead inner area still such a centre, as once it certainly was, and if so is it a separate centre in its own right or more of an adjunct of Newcastle city centre — or of the Team Valley — or of both? There are numerous other parts of the City Region where the results of the analysis are not easily predicted, so there is a definite need for a consistent basis on which to demarcate the City Region’s employment centres. This need for consistency is all the greater here because of the aim to identify any major changes to the City Region’s spatial structure: these changes can be identified only if the same form of analysis is applied to data from two years which are separated by a reasonable period.

The only datasets available for consistent analysis of commuting patterns are from the Population Census and, in practice, this means that the period between 1991 and 2001 is the most recent\(^4\) which can be examined to see if there have been changes. For maximum consistency, the commuting dataset is used first for identifying the employment centres, before it is also used to portray the patterns of commuting to those centres. The dataset is broken down by various categories such as by industry or occupation, as well as by gender, but the key distinction here is taken to be between manual and non-manual types of jobs. In the interest of completeness, some differences between the two datasets should be noted:

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\(^4\) 1981 data may also be available if longer-term change is of sufficient interest to commit further resources to pursue that option
• the occupation coding system differs in detail between the two datasets
• only a 10% sample was used for the 1991 commuting dataset, so all the 1991 figures here have been multiplied by 10 to compare them with the 2001 dataset which is the first to have 100% commuting data coverage
• the 2001 dataset has been subject to a new disclosing control procedure — the small Cell Adjustment Method — but its very detailed level of impact on the figures is unlikely to be significant here.

The essential feature of an employment centre is that it attracts commuters. Because the Census dataset is at the ward scale, every area has some employed residents so the prime criterion for being an employment centre is that the area is more of an ‘importer’ than an ‘exporter’ of commuters. Only an area with a higher level of net in-commuting can be considered an employment centre of significance at the City Region scale. The remaining challenge is to determine which areas are part of a single expansive employment centre and which are distinct from each other, even if located nearby. It is not adequate to rely on ward boundaries – grouping together all and only wards which are contiguous with each other – because these boundaries are notoriously esoteric in their shape and also are prone to sudden change for reasons which do not reflect the interest of this analysis. As a result, an entirely new approach has been devised here.

This method is a more transparent version of the highly innovative analysis which used Geographic Information System (GIS) techniques to identify town centres for the official publication of statistics on retail property in particular. The method developed here can be summarised in four steps.

1. for each ward, subtract the number of employed residents from the number of jobs at its workplaces; this is its number of net in-commuters
2. input these values to a GIS ‘smoothing’ procedure so that the value for every ward become more similar to those of its neighbours
3. map these values with the GIS contouring system, so the zero contour differentiates between net in-commuter and net out-commuter areas
4. select a higher contour to distinguish the more significant employment centres in the region and identify the wards which are predominantly within these.

The same method can be applied to the manual and non-manual subsets of the workforce as well as the data on all commuters, and also for both the 1991 and 2001 datasets (nb. the GIS procedures also deal with any problems arising from the two datasets’ different sets of ward boundaries).

Map 1 shows the results for the 2001 total workforce. The method has very evidently highlighted the areas which are known as employment ‘hot spots’ within the region, with central Newcastle as the focus for the largest zone which has substantial numbers of net in-commuters (i.e. the largest area coloured red here). At a rather more detailed level it is possible to find ‘subsidiary peaks’ on either side of the main centre (which embraces Gateshead town centre as well as much of Newcastle’s inner area): to the north is an outlying employment centres which spans the Regent Centre and Longbenton (DWP complex), and to the south the Team Valley Trading Estate and Metro Centre make up another centre in a less traditional setting.

Map 1 Employment Centres of the Total Workforce in 2001

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5 M Thurstain-Goodwin et al () Producing boundaries and statistics for town centres Centre for Advanced Spatial Analysis, University College London http://www.casa.ucl.ac.uk/towncentres/cd/Technical.pdf
The second largest employment centre spans the river at Sunderland whilst the third substantial focus is Durham City which is located at the City Region’s southern fringe. Washington is the only other significant focus for in-commuters according to the analysis: a small ‘peak’ is found on the western edge of Peterlee but this is based on data for a single ward (and its value here is partly dependent on ward boundary changes between 1991 and 2001). As a result, this location does not warrant inclusion with the list of six employment centres described above. In fact, Peterlee is arguably more similar to places like Morpeth or South Shields which do include small employment centres but cannot provide enough jobs for all the residents of the immediately adjacent areas, let alone make much of a contribution to providing jobs for the City Region’s many other areas housing people who rely on commuting to work in other areas. Other towns which used to be significant employment centres — such as Ashington or Stanley — are seen to now be entirely dominated by net out-commuting to jobs elsewhere. In more rural areas, interpretation of the map must take account of the fact that the contours are derived from few data points: for example, the ‘ridge’ of employment provision from Hexham to Morpeth will probably only reflect the location of Northumbria Police HQ (near Ponteland).

Maps 2 and 3 provide the results of repeating this analysis on the manual and non-manual parts of the workforce respectively (nb. here the value of the higher contour has been reduced to take account of these datasets each including just one section of the total workforce). Rather unexpectedly, there is very little difference between these maps. Map 2 shows rather more clearly the northern ‘outlier’ of the Newcastle-based employment centre, while the Birtley area acts as a ‘corridor’ between the Team Valley and Washington employment centres, but the same six major centres can clearly be seen. Map 3 provides an equally strong echo of the same basic pattern, but perhaps also some evidence that there is a ‘corridor’ linking Washington with the Sunderland employment centre.

Map 2  Employment Centres of the Manual Workforce in 2001

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6 the shortage of data points between Ponteland and the other two towns causes the GIS analysis to ‘predict’ that there is a continuation of the higher levels of job provision in the locations for which it does not have enough information
In short, it seems clear that the degree of difference between the results of the three analyses is slight. This simplifies the task here, because it helps to make the contrasts between different patterns of commuting more interpretable if the same set of employment centres can be used in each analysis. If it had been the case that the different groups had had markedly different employment centres, then it might have been necessary to use a different set of zones for each analysis of commuting flows (e.g. at one time it might have been necessary for the analysis of manual workers’ commuting to have included one or more employment centre in a coalfield area, when this would not have been a centre for non-manual employment). Here it will be possible to directly contract the catchment areas of the same employment centres for the different groups of workers: this makes the contrasts much more readily recognisable.

One key question for these analyses is the extent and direction of change in the City Region’s pattern of employment centres. The key evidence here is provided by a comparison of results from the analysis of all employment in 2001 (Map 1) with an equivalent analysis of 1991 employment centres. Map 4 shows the position at the start of the 1990s, revealing the same principal centres as in 2001: the Newcastle-Gateshead complex with its ‘satellite’ centres to the north-east (Regent Centre and Longbenton) and south-west (Metro Centre and Team Valley), as well as Sunderland and Washington plus Durham City in the south.
At this time, there was more evidence of some strong local employment centres. All those seen in 2001 were already present (e.g. Morpeth and South Shields) but there were others too: Ashington and Blyth in the Northumberland coalfield plus Stanley and Birtley in northern county Durham all appear to have been less dependent on out-commuting at the start of the 1990s than they seem to be now. That said, the actual level of charge which took place may here be exaggerated, because some of the areas may have only marginally shifted from, for example, having 101 in-commuters for every 100 out-commuters (in 1991), to having just 99 (in 2001). At both periods, each of these towns is providing some local jobs and is also housing some people who travelled to work elsewhere. Even so, every one of these changes is in the same direction, so even though this map comparison may be exaggerating the change it remains true that the dominant trend was for any growth in the smaller City region’s outlying centres to be more in the provision of housing for longer-distance commuting than in local employment opportunities.

Maps 5 and 6 show the 1991 employment centres for non-manual and manual work to complete the picture. The set of now-familiar main employment centres once again stand out, so very little additional commentary is necessary. The fact that the earlier period had a slightly more dispersed distribution of employment (with this mapping perhaps exaggerating the change since then) seems here to be reinforced by the finding of quite large tracts outside the conurbations which attract more in-commuters than there were out-commuters living there.

The overall pattern is more of continuity than change. The technical benefit of this finding is that the analysis of commuting patterns can best use the same set of employment centres for the same two periods, allowing that change which has taken place to be identified more clearly. As noted already, the contrast between manual and non-manual employment can also be assessed through the same geographical framework.
Map 5  Employment Centres of the Non-Manual Workforce in 1991

Map 6  Employment Centres of the Manual Workforce in 1991

Commuting patterns
The identification of the six primary employment centres is now complemented by the definition of 35 other zones whose commuting flows to the six centres are analysed below. All parts of the City Region outside the six centres have been divided into 34 zones which are mostly recognisable places (eg. Blyth in the north or Jarrow and Hebburn on Tyneside) and also as far as possible, of roughly similar\(^7\) population siz. There are some inevitable inconsistencies between the 1991 and 2001 zone definitions due to boundary differences between the wards used for the two Census datasets.

Maps 7 and 8 follow from the previous analysis by showing the 1991 commuting flows to the City Region’s six key employment centres of non-manual or manual workers respectively. The fine lines indicate flows which involve between 5% and

\(^7\) this criterion helps the mapped commuting analysis to be interpretable in a way which is not possible with individual wards, for example, because they very hugely in size between the conurbations and the deep rural areas
10% of that area’s workforce, within the category indicated, whereas the heavier lines are flows of at least 10% (eg. Map 7 has a heavy line from the far west and this shows that at
least 1 in 10 of all non-manual workers living in the zone including Hexham and the South Tyne valley were working in central Newcastle/Gateshead in 1991). As would have been expected, there was more longer-distance commuting among non-manual workers; jobs of manual workers are rarely paid well enough to justify the expense of long journeys to work. Map 7 shows that over 10% of non-manual residents of Chester-le-Street were commuting to the region’s principal employment centre (Newcastle/Gateshead) and over 5% to Durham city, but otherwise Durham had a substantially separate catchment area in which Consett was prominent. Sunderland too had a largely distinct ‘area of influence’ from those of the Tyneside-based employment centres, although it shared flows with Washington whose stronger links were to the centres in Newcastle and/or Gateshead (especially for non-manual workers).

Map 9 summarises the 1991 flow patterns; it is noticeable that of the larger flows – those shown with heavy lines – the longest was from the lower Tyne valley area (lying between Hexham and Prudhoe). This distance is barely 20km (12miles); no zone had over 10% of its workers commuting further to one of the City Region’s six major employment centres. There was no zone which had even 5% of its residents working in the employment complexes to the north of the Tyneside conurbation (Longbenton and Regent Centre). As was noted earlier, for Sunderland and still more so Durham City there are quite readily distinguishable local commuting hinterlands.

Map 10 provides the crucial information on the commuting patterns of the total workforce in 2001 so that an assessment can be made on the extent of change over the preceding 10 years. There is an evident growth in longer-distance travel to work in Newcastle/Gateshead: Map 9 had shown a flow of less than 10% from the Morpeth area to the north-west but this had gone over 10% ten years later, when it was also flanked by new flows of over 5% from the coastal area much further north and from the rather less accessible North Tyne valley. Map 10 also shows stronger flows to Newcastle/Gateshead from Birtley and Consett to the south but, at the same time, nearby Stanley joins Chester-le-Street in not only sending over 5% of its workforce to Newcastle/Gateshead but also sending much the same proportion to Durham City as well. This last example apart, there is little evidence of growing overlap in the commuting hinterlands of the three largest employment centres. The three smaller centres – Washington and the two

Map 9 Total Commuting Patterns 1991
‘satellite’ centres of Newcastle/Gateshead – are all located near to one or other of the three large centres, so it is unsurprising that zones which send substantial proportions of their workforce to these small centres also send substantial numbers of commuters to one of the large ones. The one exceptional small employment centre is that covering the Metro Centre and Team Valley: it attracts over 10% of the workforce living in both the Blaydon
and East Gateshead zones, with neither of these also sending a substantial proportion of their resident workers to the Newcastle/Gateshead core employment centre. Other points worth noting include:

- Durham City has not noticeably deepened its catchment areas to the south in a way which would have indicated the City Region was extending
- Sunderland has seen its inflow from southern Washington fall below the 5% level since 1991 and there is no real evidence of growth elsewhere
- Former coalfield areas Ashington and Peterlee are not closely integrated with the City Region’s major commuting flow patterns.

Maps 11 and 12 complete the picture by showing 2001 commuting flows to the six major employment centres of manual and non-manual workers respectively. There are few new findings here, with the patterns largely echoing the main points which have already been established in relation to the contrasts between the two segments of the workforce, and the recurring nature of the catchment areas of the six centres. Map 11 does suggest one surprise, in that there seems to have been a reduction in the already low level of longer-distance commuting among manual workers when this 2001 pattern is compared to the 1991 equivalent (Map 8). One possible reason would be a reduction in the availability of manual work, and especially of those jobs which paid well enough to justify long journeys to work, but further investigation of that would be a diversion from the main concerns of this research.

Map 12 provides a suitable, if speculative, point to end on. It is arguable that through past decades the commuting patterns of ‘white-collar’ workers has foreshadowed behaviour which would become common to much of the wider workforce later; this suggests that non-manual workers’ 2001 commuting behaviour may offer an indication of the total workforce’s pattern in the future. This hypothesis leads to the prediction of further marked increases in commuting to Newcastle/Gateshead from remoter rural parts of Northumberland in particular. More significantly for the present interest in polynuclearity, it looks likely that there could be more direct inter-penetration of the catchment areas of the main
employment centres. Map 12 gives the first evidence of this possibly emerging trend, because in 2001 both Durham City and the central Sunderland zone were sending over 5% of their non-
manual residents to work in the Newcastle/Gateshead employment centre which continues to dominate the City Region’s commuting patterns.
Commuting Patterns

The identification of the six primary employment centres is now complemented by the patterns of commuting to these centres: these analyses have been divided into 34 zones which are mostly recognisable places (e.g. Blyth in the north or Jarrow and Hebburn on Tyneside) and also as far as possible, of roughly similar population size. There are some inevitable, but minor, inconsistencies between the 1991 and 2001 zone definitions due to boundary differences between the wards used for the two Census datasets.

Maps 7 and 8 follow from the previous analysis by showing the 1991 commuting flows to the City Region’s six key employment centres of non-manual or manual workers respectively. The fine lines indicate flows which involve between 5% and 10% of that area’s workforce, within the category indicated, whereas the heavier lines are flows of at least 10% (e.g. Map 7 has a heavy line from the far west and this shows that at least 1 in 10 of all non-manual workers living in the zone including Hexham and the South Tyne valley were working in central Newcastle/Gateshead in 1991).

Map 7  Non-Manual Commuting Patterns 1991

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As would have been expected, there was more longer-distance commuting among non-manual workers; jobs of manual workers are rarely paid well enough to justify the expense of long journeys to work. Map 7 shows that over 10% of non-manual residents of Chester-le-Street were commuting to the region’s principal employment centre (Newcastle/Gateshead) and over 5% to Durham city, but otherwise Durham had a substantially separate catchment area in which Consett was prominent. Sunderland too had a largely distinct ‘area of influence’ from those of the Tyneside-based employment centres, although it shared flows with Washington whose stronger links were to the centres in Newcastle and/or Gateshead (especially for non-manual workers).

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The one exceptional small employment centre is that covering the Metro Centre and Team Valley: it attracts over 10% of the workforce living in both the Blaydon and East Gateshead zones, with neither of these also sending a substantial proportion of their resident workers to the Newcastle/Gateshead core employment centre. Other points worth noting include:

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Map 12 provides a suitable, if speculative, point to end on. It is arguable that through past decades the commuting patterns of ‘white-collar’ workers has foreshadowed behaviour which would become common to much of the wider workforce later; this suggests that non-manual workers’ 2001 commuting behaviour may offer an indication of the total workforce’s pattern in the future. This hypothesis leads to the prediction of further marked increases in commuting to Newcastle/Gateshead from remoter rural parts of Northumberland in particular. More significantly for the present interest in polynuclearity, it looks likely that there could be more direct inter-penetration of the catchment areas of the main employment centres.

Map 11  Manual Commuting Patterns 2001
Map 12 gives the first evidence of this possibly emerging trend, because in 2001 both Durham City and the central Sunderland zone were sending over 5% of their non-manual residents to work in the Newcastle/Gateshead employment centre which continues to dominate the City Region’s commuting patterns.
Review of Findings

This research has developed a new method to identify employment centres in the City Region and then has examined the patterns of commuting to these centres: these analyses have been applied to data for 1991 and 2001 to explore the evidence of recent changes, looking at both manual and non-manual segments of the labour force as well as the total picture so as to explore the possibility that there is a widening gap in job accessibility between these groups.

Six main employment centres were found to be important for both manual and non-manual categories of the work-force and these centres’ dominance persisted from 1991 to 2001 (and is most unlikely to have diminished since then). This may at first seem to be a surprising finding, but the fact that the City Region has not spawned major new outlying employment centres can be explained by reference to its recent development trends. The first key point is that Tyneside was in fact an early developer of ‘out-of-town’ employment centres (notably the first large industrial estate at Team Valley then the Longbenton complex, followed by the Regent Centre and then Metro Centre) so the 1991 dataset which is examined here already reflects substantial existing dispersal of employment. Many of the more outlying areas in this region have seen long-term employment decline, whereas many other cities’ hinterlands have often been the more dynamic parts of their regions. In any case, the City Region’s slow economic growth has not generated much need for ‘overspill’ to newer employment locations; in addition, the Newcastle/Gateshead primary centre has been creating more space for new developments along its quayside areas. Of course, there have been new centres of employment created – like Doxford Park – but they do not show up on these analyses because the number of jobs they provide is not enough to make them into regionally-significant employment centres (indeed they do not have as many jobs as would be required to turn the suburban areas where they are located from net out-commuter to in-commuter areas).

Although the City Region does not show dramatic evidence for a growing polynuclear form, in the form of major new employment centres, the trend of job distribution offers more modest evidence in this direction. The old employment centre of Sunderland has seen the same decline in job numbers as the outlying areas with their largely industrial history; Newcastle/Gateshead has maintained its key role by roughly matching the whole City Region’s modest growth level. Dynamic growth has largely been restricted to the four smaller employment centres which were identified here, so the recent trend is towards a somewhat more evenly distribution in the longer-term of job opportunities.

Finally the commuting analyses have confirmed that a growing minority of the work-force commuting longer distances than used to be the case, and this has led to modest increases in the overlap of the main centres’ catchment areas. Taking the latest evidence on non-manual workers’ commuting patterns as the best evidence of behaviour which other workers will adopt in the future, it seems possible that this merging of the six centres’ hinterlands will continue to increase. That said, the present position is that Sunderland remains the centre of a largely isolated catchment area. It is also notable that neither it nor Durham City appears to be having a growing influence to the south of the City Region so the boundary between the Tyne & Wear and the Tees City Regions appears to be stable. Rather less comfortable for policy-makers is the likely reason for this stability: most of the areas in that part of the North East are former industrial and coalfield districts and their residents are much less likely to be taking the well-paid jobs which would warrant longer-distance commuting to employment centres some distance away. The same pattern is evident in Northumberland where towns like Ashington have few commuters travelling to Tyneside but more remote areas further afield are showing increasing numbers of residents – who may be recent immigrants attracted by the rural surroundings – commuting to the conurbation. The risk is that the residents in those areas which have suffered major declines in local employment opportunities remain relatively excluded from accessing the jobs in the City Region’s relatively few buoyant employment centres.

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Area 36 202-222