CHAPTER 1

RE-INDUSTRIALISATION: THE RE-BIRTH OF THE LIVERPOOL CITY REGION’S ORIGINAL AGGLOMERATION ECONOMY?
1 RE-INDUSTRIALISATION: THE RE-BIRTH OF THE LIVERPOOL CITY REGION’S ORIGINAL AGGLOMERATION ECONOMY?

1.1 The Liverpool City Region is a complex network of places that all, fundamentally, share one origin: they are all children of the industrial revolution. From ship-building and glass manufacture to petro-chemicals and automobiles the growth of the whole city region in the nineteenth and twentieth centuries was predicated upon the relationship between a manufacturing hinterland and the gateway to global markets offered by the Port of Liverpool. The post-industrial period from the 1960s onwards was widely reported to have permanently ended the viability of British industry but this view has, in recent times, been questioned and revised. Across Britain there is evidence that manufacturing is becoming an increasingly important part of some city-region’s economies. When taken in aggregate this renewed focus on British industry is supported by Central Government and can be seen in important statements of intent such as the Green Paper ‘Building our industrial Strategy’ (HM Government, 2017).

1.2 The State of the Liverpool City Region report from 2016 (Parkinson et al., 2016) began to outline some important ways in which this sector was becoming increasingly important to the Liverpool city-region. However, that research (and so too the Liverpool City Region’s Growth Strategy document, Building Our Future) are wide ranging in their treatment of all the main growth sectors: advanced manufacturing, digital and creative, financial & professional services, health and life sciences, low carbon, maritime and logistics and the visitor economy.

1.3 We present data for the growth sectors, but our central focus is on advanced manufacturing. The reason for this can be seen by looking behind some of the headline figures that have been used to describe the Liverpool City Region economy at a coarse scale. In this respect the most recently available data shows that total FTE employment in the Liverpool City Region (LCR) stood at 511,400 in 2015. Of this, 230,900 or 45.2% fell under six growth sector categories. Taking these categories as the starting point for our analysis we can look at the geography of these 6 specific growth sectors of the city-regional economy in Figure 1.1. This points to a suite of economic assets that are geographically actually very diffuse.

![Figure 1.1: The Six growth sectors combined: FTE employment; % share of LCR total FTE, 2015](source: Business Register and Employment Survey)

- Liverpool, 92100; 39.9%
- Wirral, 35700; 15.5%
- Sefton, 28600; 12.4%
- Knowsley, 31000; 13.4%
- Halton, 24500; 10.6%
- St. Helens, 19000; 8.2%
1.4 Figure 1.1 reveals that each borough has significant concentrations of employment in high-growth economic activity. Although, as might be expected Liverpool accommodates significant concentrations of high growth activity, the majority of the city-region’s high growth economy is actually outside the urban core, geographically distributed across all six boroughs. Looking a little more closely at how these growth sectors actually break down over space we can see that there are actually very significant geographic concentrations of high-growth activity across the city region that would be masked by aggregate, non-spatial measures. Adding in the temporal dynamic in Figure 1.2 reveals an additional facet to the story: some of the city-region’s boroughs have experienced startling growth in the high growth sectors over the period 2009-2015. Indeed, the standout performer in this respect is Knowsley where growth sector employment in aggregate has grown by just under 45% over this six year period, outstripping the national average by a factor of over 3 times. Even on the absolute measures set out in Figure 1.3 Knowsley has added almost twice as many jobs in high growth sectors as the next nearest city regional borough (Liverpool) over this period. But which high growth sector is it that is driving this sea change in Knowsley?

**Figure 1.2: The six growth sectors: total employment % change in FTE employment 2009-15**

![Figure 1.2](source: Business Register and Employment Survey)

**Figure 1.3: The six growth sectors & total employment (including growth sectors) – change in FTE employment 2009-15**

![Figure 1.3](source: Business Register and Employment Survey)
1.5 To gain a greater degree of clarity regarding what explains the changes depicted in Figures 1.2 and 1.3 we need to develop some comparative statistics. In this respect a valuable measure of the degree to which an area has a greater or lesser exposure than average to any particular sector of the economy is the Location Quotient – see Box 1.1. The value of this index for us will be to look much more closely at the contexts, such as Knowsley, that have experienced a sustained expansion in an aggregate measure (‘growth sectors’) to see which constituent element of this aggregate measure is really driving the phenomenon. In short it should provide clearer answers to the question of where growth comes from; what is its geographical incidence across our city region and how do the concentrations that we can identify compare to national averages?

1.6 Figure 1.4 shows location quotient data for the six growth sectors across the Combined Authority. The data clearly shows one standout performer – advanced manufacturing.

Box 1.1: Location quotients (LQs) explained

Location quotients (LQ) are calculated from the proportion of total FTE employment in each industrial sector in a geographical area of interest, in this case LCR, compared against the proportion in a larger geographical area, in this case the national figure for England. They quantify how concentrated a particular industry is, in the geographical area of interest compared to the national average.

- A LQ of ‘2’ would indicate that the proportion of total FTE in an industrial sector is twice as high in the region of interest as compared with the national.
- A LQ of ‘1’ would show that the proportions in the region and nation are identical.
- A LQ of ‘0.5’ would indicate that the proportion in the region is half that of the proportion nationally.

A high or low LQ is not in itself necessarily a good or bad thing – it simply reports the degree to which an area is comparatively over or under weight with respect to a particular economic activity. However, high concentrations of activity in industries that are seen to be of high economic value or growing would generally indicate the presence of a driver for economic agglomeration.

Jay Karecha, Liverpool John Moores University

Figure 1.4: Liverpool City Region: Location Quotients in Growth Sectors, FTE Employment 2015, (England = 1.00)

[Diagram showing location quotients for various sectors]
1.7 Stated simply, Figure 1.4 paints a picture of a city region that has strong concentrations of activity in three of the advanced manufacturing categories – the location quotient data clearly demonstrates this to be well in excess of the national average even when considered at a city-regional scale. To answer the related questions of where the incidence of this economic activity is most strongly located, we can disaggregate employment in the advanced manufacturing sector down by local authority in Figures 1.5 and 1.6.

Figure 1.5: Advanced manufacturing: ‘medium to high tech manufacturing’ sectors, LCR LAs, FTE Employment 2015

Source: Business Register and Employment Survey; Notes: Totals may not sum due to data rounding. * The scale bar has been limited to 1800 in all charts for comparability purposes, however the ‘automotive’ bar in the Knowsley chart is consequently truncated. Its true value, shown in the data label, is 5,600.
1.8 Getting further behind these figures can be achieved by adding location quotient statistics to this aggregate employment data to produce a measure that sheds further light on the weight of specific high value industrial sectors. Reporting the data in this way reveals important insights into the relative strength of the geographic concentration of economic activity.

1.9 In what follows we have disaggregated the category “advanced manufacturing” into its constituent sub-elements and measured the geographical dispersion of this economic activity across the Liverpool City Region, selecting the most relevant indicators for further analysis.

1.10 Figure 1.7 presents FTE employment and location quotient data to reveal new insights into the economic geography of the city region. By examining data on employment in the pharmaceuticals industry with the relative strength of this industry in the context of its local economy – the location quotient – we can interrogate the strength of this sector’s geographic incidence. Displaying the data in this way allows us to show, crucially, both the spatial distribution of employment associated with this economic activity and the degree to which our stand out performers relate to the national average.
1.11 Presenting the data in this way reveals some important insights into both the geographic origins of the economic contribution arising from this important sector and also the degree to which the sector is under or over represented within this same economic geography. Dwelling on these figures for a moment shows that 60.1% of the city region’s employment in pharmaceuticals originates in Liverpool and, as a proportion of that borough’s total employment, this is 5.22 times the national average. By contrast, although Halton accommodates less (32.6%) of the city-region’s employment in this sector it is a much greater proportion of this borough’s economy; it’s LQ of 11.33 indicates that this is proportionately twice Liverpool’s exposure to this sector.

1.12 Interpreting the data could lead to various conclusions. On one reading boroughs such as Halton are ‘punching above their weight’, making a disproportionately large contribution to a growth industry based upon a similarly disproportionately high exposure to this sector. Alternatively a more diversified economy in which pharmaceuticals would necessarily have a lower LQ might be more resilient to changes in this industry and less susceptible to macro/global economic changes.

1.13 If we apply the same approach of combining employment data and location quotient data as illustrated by Figure 1.7 to other aspects of ‘advanced manufacturing’ we can produce statistics across all of the city region’s six boroughs. For example, performing the same analysis for ‘chemicals’, adds to our understanding of the geography of economic activity but also points to the concentration of consonant industries. Again, Halton stands out as worthy of special mention. At 38.7% it is the single largest contributor of employment in this sector when viewed in comparison to its city-regional neighbours. However, its LQ of 8.77 suggests this industry plays a significantly larger role in Halton than the national average.

1.14 Again, the interpretation of the data requires caution. There is compelling evidence that our city region boasts a significant concentration of economic activity related to chemicals and pharmaceuticals in Halton: a contribution that is disproportionately large relative to the rest of the borough’s economy. As high growth sectors this performance should be celebrated. However, that celebration should be tempered by the equally valid conclusion that an industrial strategy to build upon this success might look at distributing this activity more widely and supporting the growth of other sectors in Halton to broaden the borough’s economic base.

Figure 1.8: Chemicals: FTE Employment total; Location Quotient compared with England; & % share of LCR total, 2015

Source: Business Register and Employment Survey; Notes: Totals may not sum to LCR totals due to rounding.
How widely are the benefits felt?

1.15 When considered at the aggregate level of the city region the growth in advanced manufacturing is quite startling. However, our subsequent analysis shows that this masks extreme variation in experience. Some boroughs have experienced rapid and significant growth over the period 2009-2015. By contrast others have recorded double digit declines over the same period, below the average for the region. Figure 1.12 summarises the percentage change in FTE employment, 2009-15, for the six advanced manufacturing sectors combined. But what explains this broader portrait of uneven geographical development and what response is required by policy makers?

Figure 1.9: Advanced manufacturing – % change in FTE employment 2009-15

1.16 On any measure of growth in advanced manufacturing over recent years Knowsley clearly stands out as a story worthy of further investigation. Breaking ‘advanced manufacturing’ down into its constituent sub-sectors reveals that the automotive industry is the principal driver of economic activity in the borough. The very strong concentration of this industry in Knowsley has profound local consequences. Figure 1.10 shows both the dominating effect of this sector in Knowsley (LQ of 15.38 compared to LQs of<1 in every other borough) and its wider contribution to the city region.
1.17 In many other global city regions where there is a strong automotive industry the corresponding supply chain is often more geographically diffuse and reflected in an attendant category (although nomenclature varies slightly from nation to nation), "Machinery, electrical and transport equipment". In the Liverpool City Region this relationship holds good, as indicated in Figure 1.11.

1.18 The lessons to draw from Figures 1.10 and 1.11 are threefold. Firstly, there is strong evidence that growth in one particular aspect of advanced manufacturing, the automotive industry, has been a significant driver of high value economic growth in Knowsley. However, the degree to which this has radiated out through attendant supply chain effects across the city region appears to be limited – although this is a question worthy of further research. Secondly, the undeniable asset that this concentration of activity represents has had a profound effect on the economy of Knowsley itself; the automotive industry represents a significantly greater proportion of employment (a factor of over 15) in Knowsley than the national average. Enjoying this kind of exposure to a high growth sector of the global economy can be rewarding but also bears risks: a more diversified local economy may be a worthwhile aim of city regional economic growth policy. Thirdly, the agglomerating effects of the automotive industry have almost certainly brought wider economic benefits to the wider city regional economy. However, this has so far not offset declines in other advanced manufacturing industries, for example Wirral has experienced a 12% decline in advanced manufacturing – we could perhaps do more to extend the spatial extent of the localised effects of the advanced manufacturing sector.

Figure 1.10: Automotive: FTE Employment total; Location Quotient compared with England; & % share of LCR total, 2015

Liverpool, 600; 0.51; 9.7%
Knowsley, 5600; 15.85; 85.0%
Halton, 200; 0.41; 2.0%
Sefton, 100; 0.17; 1.2%
St. Helens, 100; 0.26; 1.3%
Wirral, 100; 0.10; 0.8%

Source: Business Register and Employment Survey; Notes: Totals may not sum to LCR totals due to rounding.

Figure 1.11: Machinery, Electrical and Transport Equipment: FTE Employment total; Location Quotient compared with England; & % share of LCR total, 2015

Liverpool, 300; 0.36; 11.0%
Halton, 300; 1.34; 10.1%
Sefton, 200; 0.84; 9.7%
St. Helens, 400; 2.04; 16.3%
Wirral, 100; 0.45; 5.7%

Knowsley, 1000; 5.38; 47.1%

Source: Business Register and Employment Survey; Notes: Totals may not sum to LCR totals due to rounding.
Looking Further

1.19 The evidence presented here clearly shows that there are very strong concentrations of economic activity in the advanced manufacturing sector particularly within Halton and Knowsley. The evidence on this is sufficiently strong to potentially make this sector a case worthy of special attention by policy makers. One possible option in this respect could be the development of an industrial strategy for the Liverpool City Region equivalent to that prepared at the national scale by Central government.

1.20 Of course this would necessitate further research. In this respect two important questions present themselves.

Firstly we have too little evidence on the degree to which the agglomeration of economic activity stalls at local authority boundaries. The existence of ‘untraded dependencies’ - a common specialist pool of labour, a well-established logistics network and an institutional support network - has been identified in other urban regions across the globe as an important driver of economic agglomeration. Some of the evidence we have presented here would suggest that the concentrations of activity in advanced manufacturing are just that – concentrated. Is there something preventing this economic activity spreading out across local authority boundaries?

Secondly, in this report we have obeyed the boundary of the Liverpool City Region Combined Authority Area. However, it should be noted that the original agglomeration economy of which the Liverpool City Region was a component was through its symbiotic relationship with Greater Manchester. Many of the most meaningful linkages between the two city regions are now so long standing - such as the world’s first passenger railway – to be inscribed into the DNA of what is in effect a broader economic geography.

Further research is required on the degree to which some of the trends identified in this research are similarly present in the Greater Manchester City Region and, if so, whether a harmonised approach to economic development could be mutually beneficial to each city region.