Understanding town centre performance in Wales: Using GIS to develop a typology for benchmarking

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Summary

This paper discusses the creation of a new benchmarking tool for the comparison of town centres and high streets in relation to retail vacancy rates. Retail vacancy is a key metric used to measure the success of a town centre. The paper presents a methodology using Local Data Company and census data to create a typology of town centres using k-means clustering and spatial interaction modelling. The typology can be used to compare towns and catchment areas within the same cluster to determine why some centres are doing better than others with respect to retail performance across different metrics

KEYWORDS: Town centres; retail vacancy; spatial interaction modelling, k-means clustering, benchmarking

1. Introduction

Town centres have become increasingly complex and multi-dimensional over time, serving a range of people and purposes, and this complexity makes them difficult to define (BIS, 2013; Astbury and Thurstain-Goodwin, 2014). The Department for Business, Innovation and Skills (BIS) suggests that a town centre must offer access to retail, service and leisure businesses, opportunities for employment, good transport links and be recognised as a town centre by the local community (BIS, 2013), distinguishing them from other purpose-built retail centres where non-retail related employment, as well as transportation and social-cohesion, are less of a focus. These characteristics make them influential determinants of economic performance, social cohesion and wellbeing at local and regional levels (Thurstain-Goodwin and Unwin, 2001; BIS, 2011; BIS, 2013).

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Given their importance, recent declines in the use of town centres, with consumers choosing to shop in out-of-town locations or by other mediums, such as online, have caused concern. This has prompted a number of government policies and national and local interventions intended to reverse these trends and improve town centre performance, such as Planning and Policy Guidelines 1996 and Portas Pilot towns in 2011 (Portas, 2011; BIS, 2011; Wrigley and Dolega, 2011; BIS, 2013; Wrigley and Lambrini, 2014). The Portas Pilots consist of 12 towns in England, backed by government funding, which were intended to showcase innovative ways to encourage consumers back into town centres (Portas, 2011). A review in 2017 showed that these towns, despite the extra financial support, had suffered a similar decline to other towns in the country, showing how difficult it is to break the trend of decline (BBC, 2017).

At its most basic, a town centre's purpose is to meet the needs of those living in its catchment area, and a town centre's performance is often determined by the interaction of both demand and supply side characteristics, along with careful strategic management from planners and stakeholders, such as Town Centre Managers, Local Authorities and Business Improvement Districts (Findlay and Sparks, 2010; BIS 2011; Wrigley and Dolega, 2011; BIS, 2013).

To ascertain the effectiveness of such management strategies, town centre performance must be monitored and evaluated and this can be done using a range of key indicators, including vacancy rates, footfall and questionnaire surveys (Findlay and Sparks, 2010; BIS, 2011). To enable comparisons to be made both spatially and temporally such data must be consistently defined and collected and, given that these data are not readily available in the public domain, private organisations, such as the Local Data Company (LDC) and Experian are being relied upon to fill the gap (Findlay and Sparks, 2008; Findlay and Sparks, 2012; Astbury and Thurstain-Goodwin, 2014).

The availability of such data makes it possible to undertake comparisons between town centres and assess change over time in a process known as 'benchmarking' (Cox et. al., 2000; Findlay and Sparks, 2012). However, given that town centres are unique in terms of their characteristics, and the characteristics of their catchment areas, a 'one size fits all' approach to benchmarking is not appropriate (Cox et. al., 2000). Instead, centres should be classified into like-for-like groups, creating benchmarks for comparison within each group, allowing planners to identify centres within each group which are outperforming other, similar, centres, and to identify why this may be, guiding further decision-making and informing local and regional policy (Wrigley and Dolega, 2011; BIS, 2013).

This study has used data provided by the LDC on 71 town and city centres in Wales, identified as part of the LDCs sample of 500 centres in Great Britain. These data are collected at regular time intervals (every six months), using consistent definitions throughout England and Wales (Dolega et. al., 2016; LDC 2017). This makes them more appropriate than other, similar datasets, such as those collected by Local Authorities, which are often collected irregularly, with different Authorities using different definitions (Findlay and Sparks, 2008; Findlay and Sparks, 2010).

These data are used by this study to develop a typology based on town centre characteristics which groups together similar centres and enables such benchmarking. Centres are benchmarked against one another using town centre performance metrics such as vacancy rate (proportion of vacancy premises), persistent vacancy (proportion of premises which have been vacancy for more than three years), and churn (proportion of premises left vacancy for less than one year) (LDC, 2017).

The methodology used to create this tool is outlined in more detail below, and it is hoped that this can be applied elsewhere to create similar classifications, offering policymakers a better understanding of the performance of towns under their jurisdiction, thus guiding and improving decision-making. Given the importance of town centres in the local economy and local communities such improvements will have wider positive impact than solely on the town centre itself (Wrigley and Dolega, 2011; BIS, 2013; Welsh Government 2014a).

2. Data and Methods

K-means clustering, a partitional classification technique which groups individual cases into 'clusters' based on shared characteristics, was used to develop the typology (Gale et. al., 2016; Leventhal, 2016). A number of variables were identified for inclusion in the typology with Pearson's correlation coefficients used to identify and remove strongly correlated variables ($\pm$ 0.6) to avoid both data redundancy and multicollinearity.

Table 1 Town centre characteristics for final typology

Retail mix	Weak retail mix	Size of centre	Business fluctuation
Independent	*Charity shops*	*Total premises*	Vacancy
Multiple	Cheque cashers	DCLG area (m2)	Persistent vacancy
Comparison	Bookmakers		Churn
Convenience	Off-licenses		Openings
	Booze, Money, Gambling		
Leisure	*(BMG)*		Closures
Service			
Miscellaneous			

Italics signify that this variable was included in the final typology

Non-normally distributed variables were transformed to reduce skew, with highly skewed variables being omitted from the analysis and the remaining variables standardised using Z-scores (Gale et. al., 2016). The variables used to create the final typology can be found in Table 1.

The k-means process was run iteratively for several solutions containing different numbers of cluster groups. The most appropriate solution was selected using a number of diagnostics to find the solution which best minimises the variability within clusters and maximises the variability between clusters, as well as avoiding clusters containing small counts which would limit the analysis (Debenham et. al., 2003; Vickers et. al., 2005; Ashby, 2005; Gale et. al., 2016; Leventhal, 2016). These diagnostics determined that a six cluster solution offered the best distribution of town centres between clusters. Clusters were named based on their dominant characteristics, and each is described briefly below.
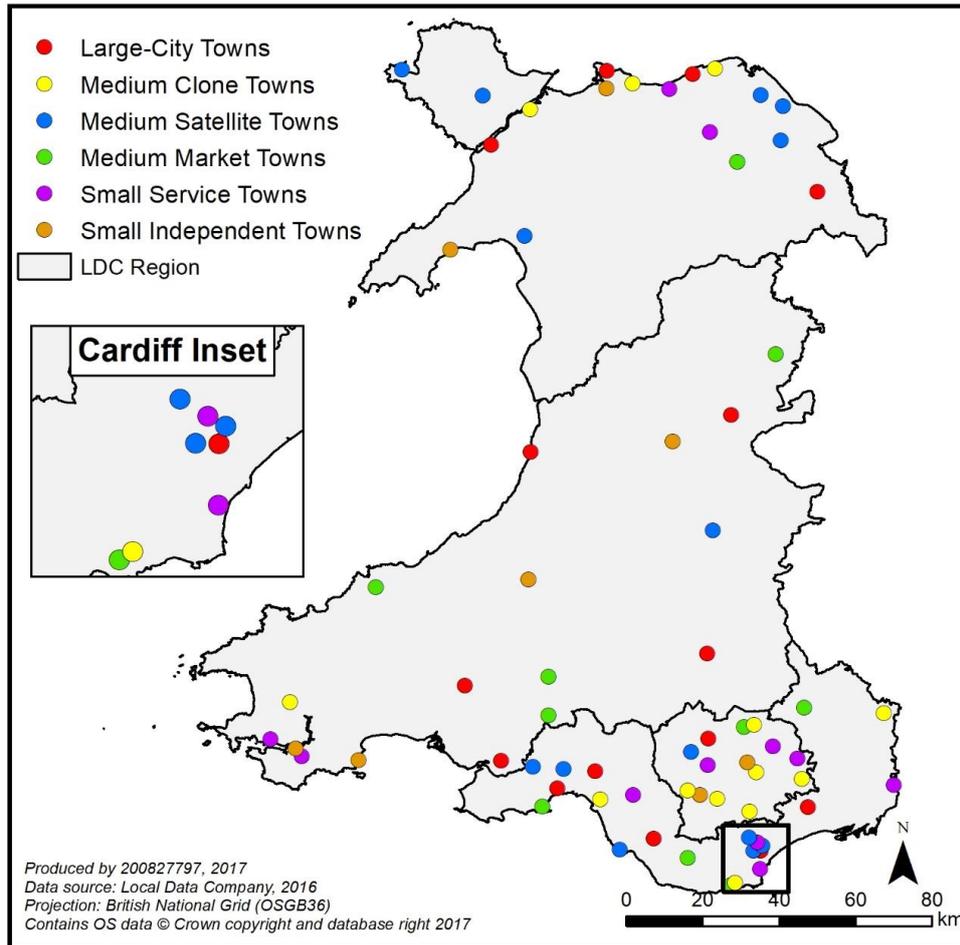
Figure 1 The final typology of town centres in Wales

Small Independent Towns had the lowest total number of premises in the typology and these, along with Medium Market Towns, were dominated by independent occupiers and comparison, convenience and leisure businesses, with very low proportions of service businesses. These were often located amongst rural, affluent communities. Small Service Towns are a similar size to Small Independent Towns, but instead are dominated by service businesses, and often found in urban, deprived communities. Medium Satellite Towns are larger than Medium Market Towns, having high proportions of convenience and services businesses, and are located amongst urban communities where deprivation is about average. Medium Clone Towns are the largest 'medium-sized' towns, and are dominated by multiple occupiers and comparison goods businesses in deprived, urban communities. Large-City Towns contain the largest towns and cities in the typology. These are often categorised by high proportions of multiple occupiers and leisure businesses. Catchments are less urban and deprived than might be expected, perhaps because these are wider given the large appeal of these towns.

The final distribution of the typology can be seen in Figure 1.

In addition to the typology, this study also developed a bespoke Spatial Interaction Model (SIM) to determine retail centre catchment areas for each town centre included within the typology. This model was disaggregated on the supply side by centre attractiveness, based on a number of characteristics reported as influencing town centre attractiveness (Dolega et. al., 2016). On the demand side, distance-decay was also disaggregated by consumer type based on demographic data obtained for Lower Super Output Areas from the Census 2011 and road network distances. This SIM enabled catchment characteristics to be obtained for each town centre in Wales, thus making it possible to better understand how the supply of a town centre meets the probable demand. The town centre catchments based on the

SIM are shown in Figure 2. These catchments are discrete, rather than overlapping, with a probability threshold set at 50% - a value chosen pragmatically rather than empirically, ensuring that locations only get assigned to one catchment area, simplifying analysis (Dolega et. al., 2016).
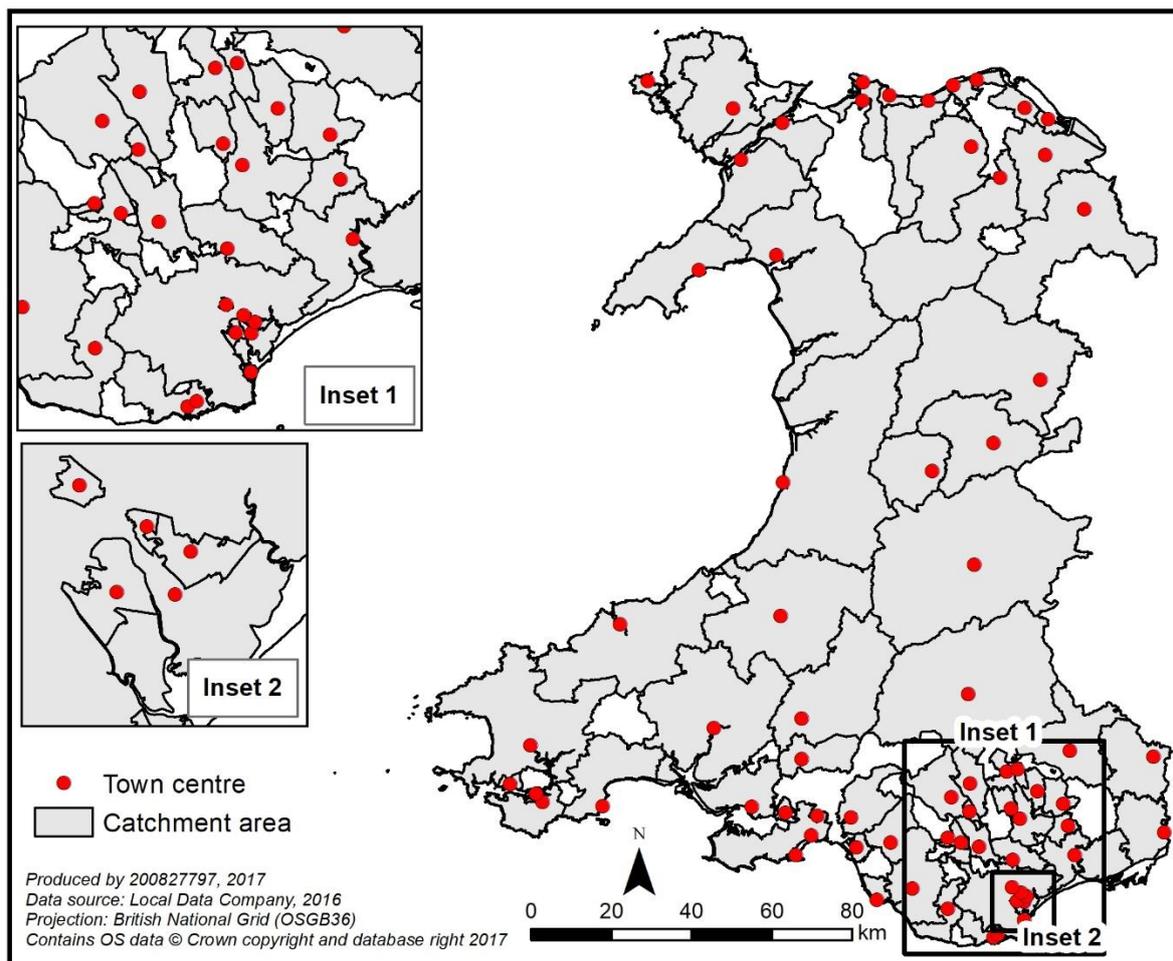

Figure 2 Town centre catchment areas derived using modelled customer patronage estimated using the SIM

3. Results and conclusions

Town centre performance in Wales was analysed at a national scale using a range of metrics thought to influence performance. Vitality (a town's diversity) and viability (a town's ability to attract trade, proxied by its position in the retail hierarchy) were both found to have a positive impact on town centre performance, being associated with towns with lower vacancy rates, particularly in more affluent areas. However, increased proportions of service businesses were found to be associated with the largest improvements in performance over time, particularly amongst deprived catchment areas.

Medium Market Towns and Medium Satellite Towns were the best performing towns in 2016 with the lowest vacancy rates, whereas Small Service Towns saw the largest reduction in vacancy rates since 2012. Further investigation suggested that town types found in affluent, rural catchment areas, with a more diverse retail mix, such as Medium Market Towns, performed better in 2016, whereas the greatest improvements in performance were seen amongst towns in deprived, urban areas, such as Small Service Towns and Medium Satellite Towns. A complementary relationship between Large-City Towns and Medium Satellite Towns is suggested, and Medium Clone Towns have been identified as the most

vulnerable, seeing a small increase in vacancy rates between 2012 and 2016.

Case study examples for Cwmbran, a Medium Clone Town, and Tredegar, a Medium Market Town, exemplify the use of this typology for benchmarking. These towns have been compared to their respective benchmarks in performance (Figures 3 and 5), town centre characteristics and catchment characteristics (Figures 4 and 6) to better understand differentials in performance. It can be seen that Cwmbran has performed better in terms of retail vacancy rate metrics compared to the medium clone town profile (Figure 3) and this may be due to the lower percentage of independent shops and higher percentage of multiples compared to the medium clone town profile and the fact the catchment area of Cwmbran is slightly more urban than average for the cluster (the blue lines compared to the red lines in Figure 4).
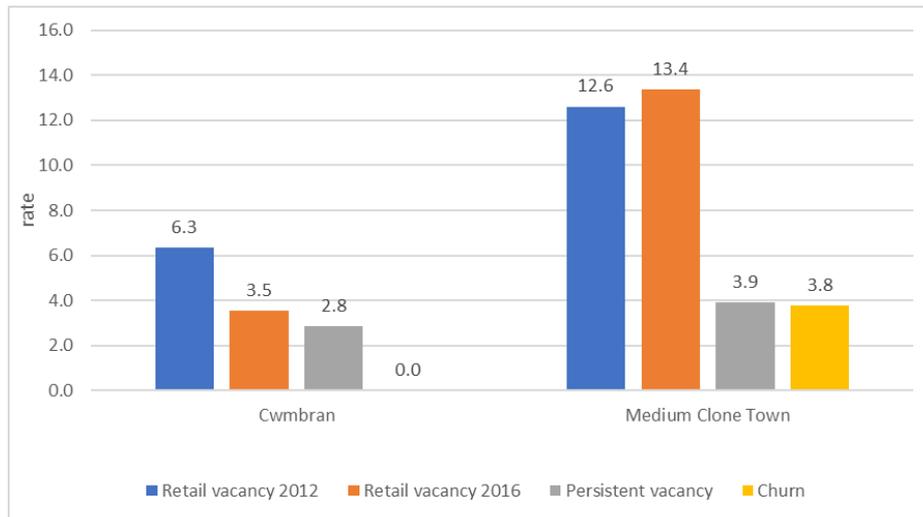

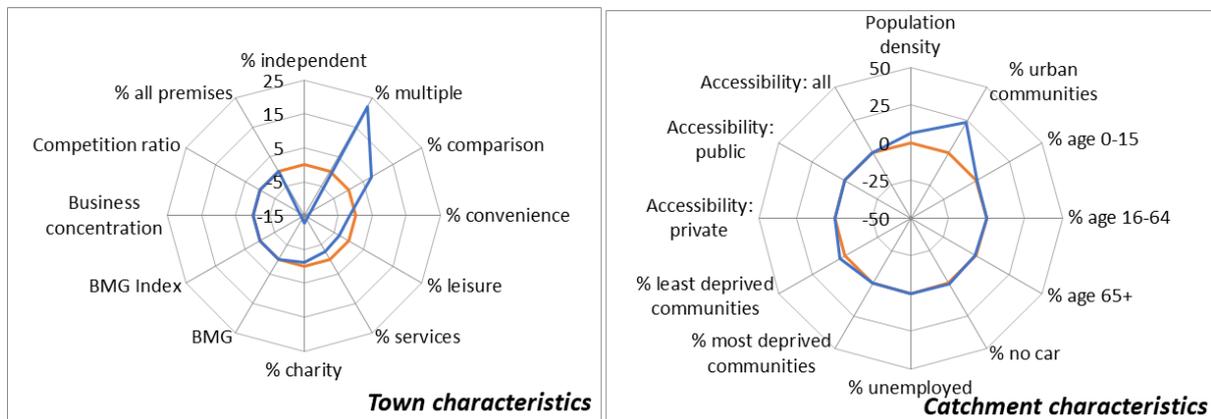**Figure 3** Benchmarking Cwmbran's performance

Figure 4 Benchmarking Cwmbran's characteristics

In comparison, it can be seen that Tredegar has performed worse in terms of retail vacancy rate metrics compared to the medium market town profile (Figure 5). This may be due to the lower percentage of multiple and comparison shops and higher percentage of convenience shops and services compared to the medium market town profile and the fact the catchment area of Tredegar is more deprived and slightly more urban than average for the cluster (the blue lines compared to the red lines in Figure 6).
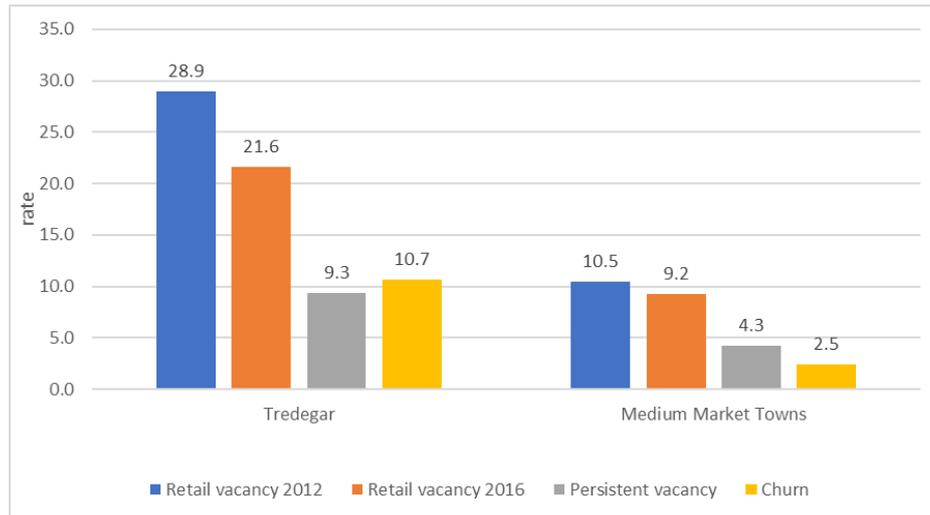
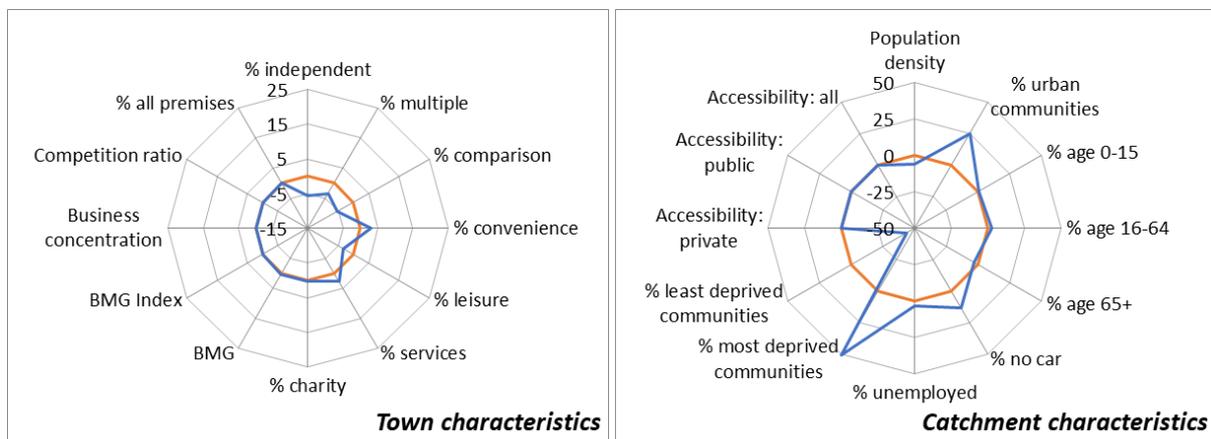**Figure 5** Benchmarking Tredegar's performance

Figure 6 Benchmarking Tredegar's characteristics

Town centre managers, policymakers and others with responsibility for the strategic management of town centres are encouraged to use this typology to benchmark centres against others in the same cluster, identifying strengths and weaknesses and guiding decision-making. Stakeholders may also use this typology to better understand the effectiveness of new policies implemented in one town but not in others in the same cluster. And to use the catchment areas developed to better understand whether the business mix of their town centre is meeting the expectations and requirements of the catchment area. This investigation is not without its limitations and, as a result, the analysis here should be treated with caution and one of many means to supplement decision-making with intelligence. Further work is needed to improve the methodology used, making analysis more representative of reality.

4. Acknowledgements

5. Biography

Samuel Jones is the Research Data Officer at WISERD and is on a part-time secondment to the National Assembly for Wales, assisting in the development of their GIS programme.

Dr Scott Orford is a Reader in GIS and spatial analysis at Cardiff University School of Geography and Planning. His research is on the spatial and statistical modelling of social and economic processes

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