

Retail Modelling in Tourist Resorts: A case study of Looe, Cornwall

Newing, Andy^{*1}, Clarke, Graham^{†1} and Clarke, Martin^{‡1}

¹School of Geography, University of Leeds

January 6th, 2015

Summary

We demonstrate that applied retail modelling can be used to support retail planning and location based decision making within highly seasonal tourist resorts. Using small area spatiotemporal demand estimates and a custom built Spatial Interaction Model (SIM), we evaluate a ‘live’ retail development scheme. Our modelling approach can be used to estimate store revenue and to identify the impact of supply side changes on consumer flows, store and retailer market shares and network performance in order to support the retail planning process.

KEYWORDS: Seasonal consumer demand, Grocery retail, Retail planning, Spatial Interaction Modelling, Tourism

1. Introduction

Seasonal visitor-induced demand fluctuations within tourist resorts present considerable challenges for the retail planning process. ‘Traditional’ approaches to predict store revenues, market shares and local economic impacts of proposed store developments often fail to account for the spatial and temporal characteristics of visitor demand. We report on applied research carried out in conjunction with a major UK retailer and consider sales of groceries (food and drink) in highly seasonal coastal tourist resorts. Drawing on a live retail development scheme from the Cornish resort of Looe (UK), we combine small area seasonal visitor demand estimates with a custom built Spatial Interaction Model (SIM) in order to evaluate the impact of new store development on consumer choice, consumer trip-making behaviours and on overall store and network performance. We demonstrate that our modelling approach can be used to evaluate new grocery store development in tourist resorts, identifying implications for the retail planning process.

2. Estimating seasonal demand fluctuations and store revenue in tourist resorts

Modelling local demand fluctuations driven by tourism is an under-researched area and little is known about the volume or seasonal distribution of visitors or their expenditure at the level of individual store catchments. We developed small area spatiotemporal estimates of visitor numbers and expenditures for the county of Cornwall (South West England), reported fully in Newing *et al.* (2013), utilising local and national surveys and insight from store loyalty cards. Our SIM utilises these demand estimates to model interactions (expenditure flows) between demand origins (census Output Areas) and grocery stores. Interactions are driven by store characteristics (size and brand) and accessibility (road travel time), with the model disaggregated by retail band and consumer characteristics in order to generate realistic flows. The development and calibration of the model is illustrated in detail in Newing *et al.* (2014), drawing upon empirical data from a major retailer.

We use the SIM to model visitor grocery expenditure flows within tourist resorts, accounting for visitor expenditure alongside existing residential spend to generate accurate seasonal store revenue

* a.newing@leeds.ac.uk

† g.p.clarke@leeds.ac.uk

‡ martin.c.clarke@btinternet.com

estimates. We have previously reported that this model, calibrated with reference to known consumer flows and store sales data, is able to estimate store revenues to an impressive level of accuracy (Newing *et al.* 2014). In the following sections we assess existing retail supply and demand within the tourist resort of Looe, before evaluating a new store proposal to serve the resort. All demand estimation, market shares, store revenues and other values reported refer to the year 2010 and are derived from our modelling.

3. Modelling consumer flows within the resort of Looe

Looe is a popular waterfront tourist destination located on the south coast of Cornwall. Our demand estimation suggests that 4,104 residents live within a 15 minute off-peak drive time of Looe, with an average total weekly spend on food and drink estimated at around £266,000. Expenditure derived from overnight visitors staying within the catchment generates additional demand of £312,000 per week during the August peak tourist season. Peak season visitor demand (Figure 1) is spatially clustered towards the coastline adjacent to Looe.

Grocery provision in the resort is limited to two small stores under the ‘Co-Op’ brand, suitable primarily for top-up shopping. Modelling suggests that residents and visitors within this catchment are dependent on these stores, which have a combined market share of around 27% of all food and drink expenditure, well in excess of modelled averages for this brand and store format. The resort lacks provision for residents or visitors to carry out a main food shop and many travel beyond the town to access a large format store in Liskeard (approximately 20 minutes’ drive from Looe) and another in Bodmin (around 30 minutes’ drive) (Figure 1), which exhibit a combined market share of 44% of all food and drink expenditure originating within this catchment. Visitors staying within over 1,500 accommodation units to the west of Looe face journey times in excess of 30 minutes to reach larger food stores due to the rural nature of this catchment and its poor road network.

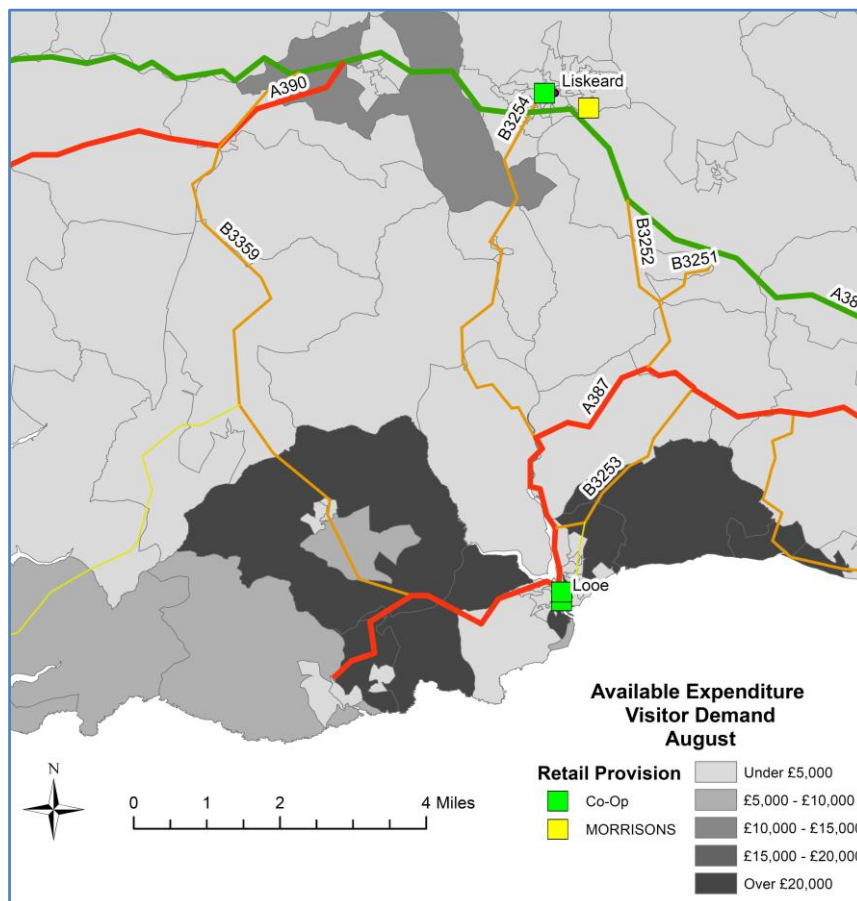


Figure 1 Visitor grocery expenditure estimates (£ per week) by Census Output Area

4. Modelling new store development in Looe

Morrisons have outlined interest in opening a new supermarket of around 25,000 ft² to serve the town via development of a brownfield edge-of-centre site at Polean in West Looe (Langford 2013) (shown on Figure 3). We use this development to demonstrate that our modelling approach can be used to assess proposed foodstore development in tourist resorts. Given word-limit constraints, we are not able to elaborate fully on the full range of modelled outputs or dwell in detail on the full impacts of this proposed store. Instead, we highlight the type of insight this modelling approach could provide, and consider broader implications in section 5.

Modelling suggests that the proposed store would generate average weekly revenue of around £300,000, with considerable seasonal sales fluctuations evident, driven by visitor demand (Figure 2). The store is modelled to trade at an average sales density of £12.23 ft²/week, well below the modelled company average (£17.83 ft²/week) for Morrisons' Cornish stores. However, sales densities are identified to increase to over £18 ft²/week during the August peak-season. As such, a store of this size is well-placed to cope with the summer seasonal influx of visitors and any population growth within Looe, but must address operational challenges driven by a very low sales density at times during the low-season, well below the usual levels experienced by grocery retailers. Seasonal visitor demand thus improves the viability of this store which provides much needed facilities for local residents, but where residential demand alone may not be sufficient to support this level of floorspace provision.

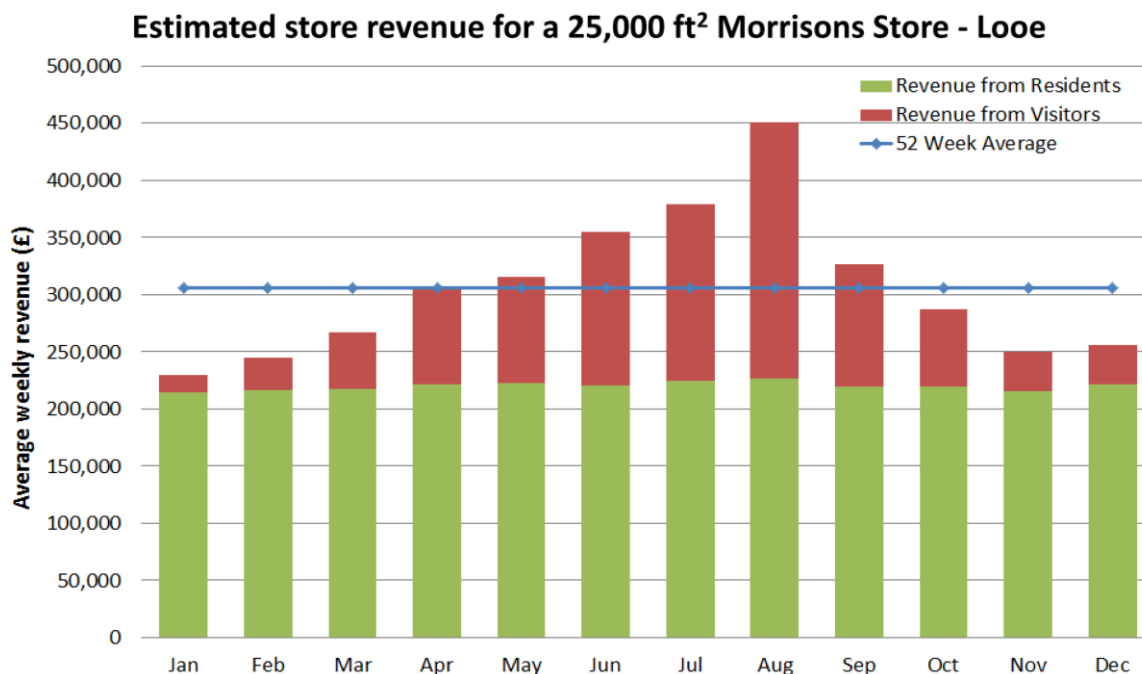


Figure 2 Modelled store revenue (£/week) for proposed new Looe foodstore

The modelled expenditure inflow (Figure 3) indicates that the store would draw trade primarily from the town itself, alongside the rural and coastal catchment to the west of the town, offering considerable access benefits to residents and visitors to the town, reducing the average trip distance across the Looe catchment by 1.5km. The store would also help retain food and drink expenditure modelled at £369,869 per week (in August) within Looe which is currently attracted to stores elsewhere. ‘Claw-back’ of this form of expenditure would be likely to generate additional non-food spend in stores and services in Looe town centre, via linked trips, given the proposed foodstore edge-of-centre location.

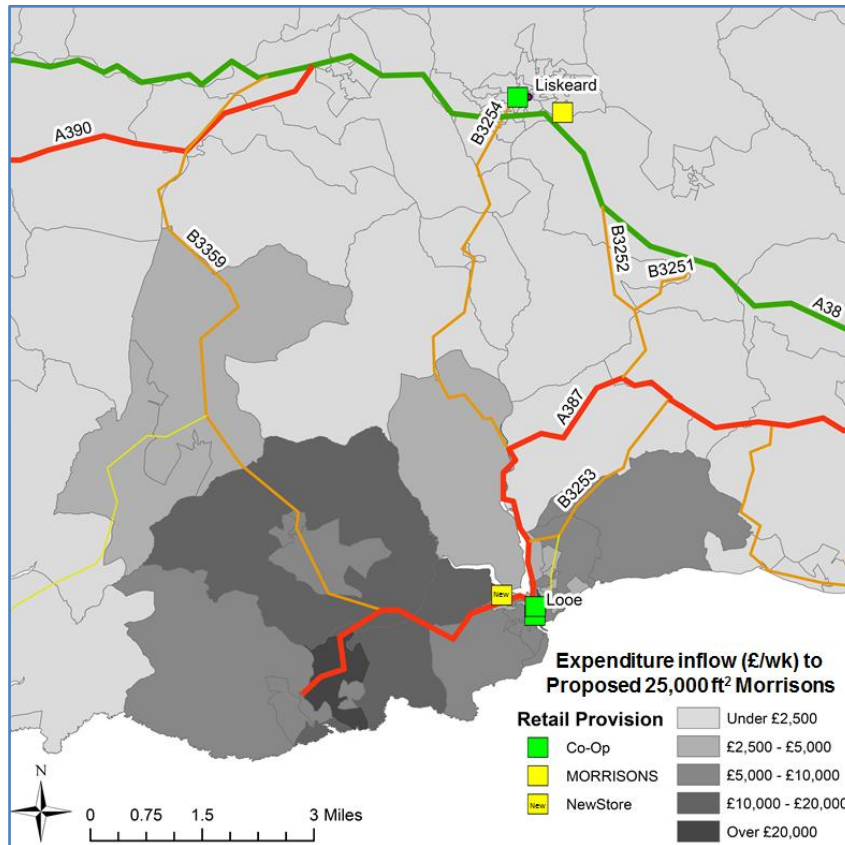


Figure 3 Modelled expenditure inflow (£/week by census Output Area) to proposed new Looe foodstore

Whilst offering much needed retail facilities and opportunities for linked-trips with other town centre stores and services, the modelled impact on the existing Co-Op stores in Looe suggests these stores will face a 65.6% sales reduction (52-Week average). Impacts would also be felt by the existing Morrisons' store in Liskeard, where 52-Week average sales are predicted to fall by 11.4% as a result of this investment. Nonetheless, following this investment, Morrisons' market share within the Looe catchment area increases by 30.7%, generating an overall net sales increase to the company. Our approach enables detailed impact assessment of this nature, incorporating underlying spatiotemporal demand estimates within a robust spatial model which considers consumer interactions with the supply side, offering considerable benefits to the retail planning process.

5. Implication for retail planning within tourist resorts

The incorporation of seasonal visitor demand within a modelling framework such as this enables complex location-based decision making and impact assessment to be undertaken. Using a live retail development scheme in a major tourist resort, we have demonstrated that our modelling approach can be used to assess the impact of proposed retail developments in tourist resorts, quantifying changes in consumer flows, store revenues and retailer market shares following new store development. Incorporation of visitor demand throughout the modelling process in this fashion allows location planners, developers and local planning authorities a more complete evidence base for store development and assessment of local economic impacts in tourist resorts. The approach could be applied to other retail or service sectors in highly seasonal tourist destinations where accurate estimation of the impact of demand uplift driven by tourism could help optimise service provision.

6. Acknowledgements

The research reported in this abstract was supported by an ESRC doctoral CASE Award (2010-2013)

as part of the Retail Industry Business Engagement Network.

7. Biography

Andy Newing is a lecturer in Retail Geography at the University of Leeds. His research interests include applied spatial and quantitative analysis for retail location planning and analytics, consumer data analysis, health service delivery, census/neighbourhood analysis and geodemographics.

Graham Clarke is Professor of Geography at the University of Leeds. His research interests include GIS, urban services, retail and business geography.

Martin Clarke is Professor of Geographic Modelling in the School of Geography at the University of Leeds. From 1990 to 2004 he was Chief Executive of GMAP Ltd. Martin is Deputy Director of the ESRC Consumer Data Research Centre (CDRC).

References

Langford, R. 2013. *Letter from WM Morrison Supermarkets Plc to Cornwall Council dated 4th February 2013 Re: Polean, West Looe, Cornwall*. At: Bradford: Morrisons.

Newing, A., Clarke, G. and Clarke, M. 2013. Identifying seasonal variations in store-level visitor grocery demand. *International Journal of Retail & Distribution Management*, **41**(6), pp.477-492.

Newing, A., Clarke, G. P. and Clarke, M. 2014. Developing and applying a disaggregated retail location model with extended retail demand estimations. *Geographical Analysis*, Early view article DOI: 10.1111/gean.12052.