

## Can harnessing the demographic characteristics of store catchments improve the planning of promotions and pricing strategies?

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### Project Background

The overarching aim of the study was to examine the influence of demographics on price sensitivity and deal proneness in the UK grocery retail industry. If Marks and Spencer (M&S) fail to adapt to changing market pressures and consumer behaviour this could lead to a decrease in market share. The company now places a strategic focus on its grocery element and using their 'Sparks' loyalty card data to increase the efficiency and relevancy of promotions. It is within this strategic direction that the study resided: by firstly attempting to show how demographics may affect the uptake of promotions and could therefore be used to improve promotional and pricing efficiency; and secondly to evidence the valuable insight that can be obtained from loyalty card data.

### Data and Methods

The research was enriched by commercial data that is not openly available to academia. POS data for ten grocery products over the course of a year were provided from four stores across England. Expenditure on 'Sparks' loyalty cards at each store, attributed to a specific output area (aggregated from postcodes) was used for the estimation of the store catchment areas with a GIS. The estimated catchment areas were then joined with 2011 Census data to obtain the key demographic characteristics of the stores' catchments that have been argued to be effective determinants of deal proneness and price sensitivity.

The effect of price on the sales of four products at the different stores was explored by examining sales data alongside price histories. Linear regression models were applied for two purposes: firstly, for hypothesis testing to establish whether the impact of price was seemingly influential on sales; secondly, to explore the extent of the price-effect, if present, by estimating the price elasticity of demand from the outputs of the regression models. The results were then collated with the demographic characteristics of the stores to infer potential demographic influence on price sensitivity and deal proneness.

### Key Findings

The use of loyalty card data for catchment area estimation was shown to be an applicable method but it did overestimate areas for stores where customers were likely to exhibit complex customer patronage behaviour. Most poignantly,

the extent of the calculated catchment area of a convenience store located in a travel hub evidenced the intricacies associated with estimating a catchment area for a store of this type.

The findings displayed distinct differences in how price impacted sales at stores. Price and deals were argued to affect customers of the travel hub convenience store differently to the other more traditional outlets. In tandem with the differing price-effects, the estimated catchment area demographics also varied (see Figure 1). Customers at Store A were argued to be the most price sensitive and thus deal prone. The comparatively high proportion of households where 5 or more people reside led to the inference that households of this size were potentially more deal prone. In addition, the findings were argued to contradict the common belief that elderly people are more price sensitive due to lower opportunity costs and that more educated people are less price sensitive because of higher opportunity costs.

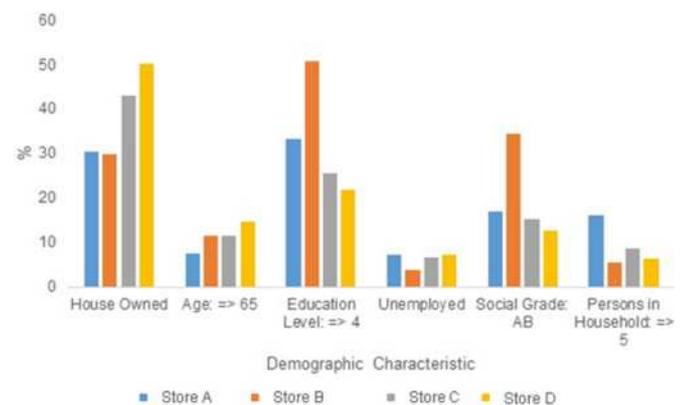


Figure 1. Estimated composition of store catchment areas with key demographic variables from the 2011 Census

### Value of the Research

The academic and commercial benefit for M&S resides firmly in the explicit explanation of the catchment area estimation technique which is brought forward for the first time in the existing literature. Furthermore, the insight asserts that strategically M&S, and other retailers, should not offer homogenous pricing and promotions across their network; these should be customised for increased effectiveness. The inferences in the findings show that catchment area demographics should be used to support the planning of these.