

## The use of online behaviour data to develop a 'Time of Day' consumer classification

Davina Tijani<sup>1</sup>, Keith Dugmore<sup>1</sup>, Guy Lansley<sup>1</sup> and Matt Holgate<sup>2</sup>

<sup>1</sup>University College London, <sup>2</sup>Experian

### Project Background

Geodemographics is a tool with strong commercial features used to target products and services to consumers. As geodemographics traditionally focuses on consumers' residential locations, it is subsequently difficult to use geodemographic tools to understand how profiles of areas change during the day. This research sought to create a 'Time of Day' geodemographic mapping classification which can be used to produce maps and graphs showing the changing geodemographics of locations at different times and days of the week. This research is underpinned by Mosaic which is an established classification system that segments UK neighbourhoods into 15 broad groups, and 66 specific types, based on a range of demographic and socio-economic characteristics.

### Data and Methods

Data used for this research was the Display Advertising Programmatic Bid Stream known as 'Ultra' within Experian. The data were used to help understand where the consumer segments were at different times of the day. Ultra data are available to all advertisers in the digital advertising ecosystem. The Ultra datasets include advertising viewing information such as the date and time of when the advert was viewed. The Ultra data were combined with Mosaic data to help understand what the typical characteristics of the users were. R Studio software was used to build the geodemographic mapping classification. When maps were generated, it was revealed that certain Mosaic groups and types were underrepresented or overrepresented when compared to Mosaic residential figures. This would lead to non-representational bias within the maps and graphs, and to combat this, a weighting system was devised to counteract the bias which was present within the Ultra data.

### Key Findings

Various conclusions were drawn from the geodemographic analysis, including how Mosaic profiles of locations change over time as illustrated by the changes seen in the. These changes occurred due to the variety of people who live, visit, work and commute in and out of these locations. The weighting system gave a strong indication as to which Mosaic types were under- and/or overrepresented within the various locations. For example, Mosaic type A04 (Metro High Flyers) is extremely underrepresented in Shepherd's Bush, and the weighting system adjusts for this in its maps and accompanying graphs. The weighting system strengthened the viability of the Ultra data by offsetting the bias

which exists within the dataset. This allowed for more accurate and more representative Mosaic profiles of locations to be established.

Through the geodemographic mapping classification, certain trends about the 3 locations were identified. As illustrated in Figure 1, the first trend showed that Shepherd's Bush is dominated by Mosaic Group A (City Prosperity). This is due to the geographic features of Shepherd's Bush such as its high levels of transport accessibility.

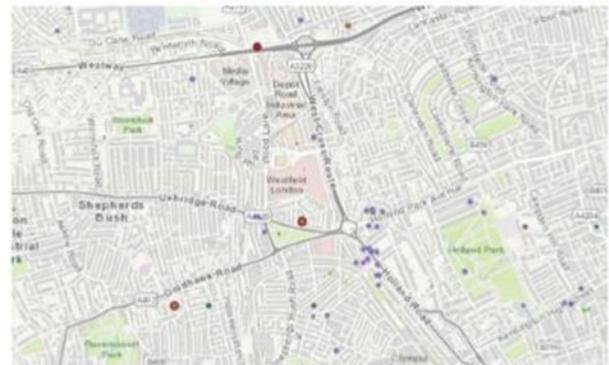


Figure 1: Map showing Mosaic type characteristics of Shepherds Bush and its surrounding areas for Weekday Mornings

The second trend showed that Bristol is dominated by Mosaic Group O (Rental hubs). This is due to Bristol's status as a major city in the UK, a growing city economy, and strong job prospects. The third trend revealed that Glasgow is dominated by Group K (Municipal Challenge) and Mosaic Group O (Rental hubs). This is due to Glasgow being Scotland's biggest city, as well as being a major city in the UK more generally.

### Value of the Research

This research has established the merits of 'Time of Day' geodemographics and its benefits for Experian's clients. Benefits include the ability to strengthen digital advertising campaigns by tailoring messages towards different users depending on the time of day and the day of week. The research also shows how retailers can locate stores based on which Mosaic users pass through specific locations at different times and days of the week. The new insights afforded by this research will allow brands to advertise more precisely to their customer bases depending on where they are during the day. Another benefit is to enable the targeting of consumers beyond the consumer's home location.