

Grocery Shopping and Income in the Boroughs of Greater London

This report investigates the relationship between grocery shopping behavior and income in the boroughs of Greater London using the Tesco Grocery 1.0 dataset, which contains data on the shopping behavior of 1.6 million Tesco Clubcard holders who made 420 million purchases in 411 Tesco stores in Greater London during 2015 (Aiello et al., 2020). The dataset includes information on product purchases, nutritional content, demographic characteristics, and transaction frequency. The value of the dataset lies in its ability to provide insights into consumer behavior, identify trends, and develop targeted marketing strategies. As well as to explore the nutritional quality of food purchases and identify potential areas for intervention to improve diet quality in London. The analysis also uses the ONS Model-Based Income Estimates for Middle Layer Super Output Areas (MSOAs) dataset, which provides estimates of the average household income for each MSOA and Boroughs in England and Wales over the year 2011/12, 2013/14 and 2015/16 (ONS income).

The research question focuses on exploring the differences in food purchases between high income and low-income areas, specifically the relationship based on alcohol purchase (beer and wine) and income. The literature review shows that previous studies have found mixed results regarding the relationship between income and alcohol consumption, with some finding a positive correlation and others finding no significant relationship or even an inverse relationship. The review suggests that higher income individuals may have more disposable income and may view alcohol as a status symbol or social lubricant, leading them to consume more of it. (Henderson, 2020) In contrast, lower income individuals may use alcohol as a coping mechanism or to relieve stress. One study mentioned that the price of alcohol determines the purchase and consumption of alcohol (Chaloupka et al.). For example, the higher the price of alcohol, the lower the purchase and consumption. Although, other social-economic factors play key roles in alcohol consumption and purchasing based on gender, lifestyle, etc. (Collins, 2016)

The analysis reveals a strong positive correlation ranging from 0.75 to 0.81, between income and the purchase of alcohol (beer and wine) and the energy contents from the alcohols, with significant differences in alcohol purchases between high and low-income groups with p-values ranging from 0.003 to 0.00001. There were also some key insights that were found from Tesco and income data such the most purchased food product across London was fruits and vegetables and drink products were water and soft drinks. Also, there is an overall trend of increasing income from 2011/12 to 2015/16 across all boroughs. The difference between total income and net income is relatively consistent across all boroughs, with net income being approximately 81-85% of total income.

However, it's important to note that the Tesco Grocery 1.0 dataset has limitations and assumptions, such as aggregation bias due to data used for this analysis being at the borough level and potential biases due to only including Tesco Clubcard shoppers. It's important to note that while the Tesco dataset provides information on the nutritional content of products purchased, it does not provide information on the overall diet and health outcomes of individuals. Additionally, the income data used in the analysis is based on model-based estimates rather than direct measures of income, which could introduce some degree of error or uncertainty in the data. Other factors that influence alcohol purchases besides income, such as cultural norms, personal preferences, and availability of alcohol, also needs to be considered.

In summary, this analysis provides valuable insights into the relationship between grocery shopping behavior and income in the boroughs of Greater London, but further research is needed to fully understand the complex relationship between alcohol consumption and income.

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