Insights from Retail Data

Overview

- A customer insight is an interpretation of trends in human behavior. The insight will help to increase the effectiveness of a product or service for the customer and increase the sales, as a mutual benefit. (Source: Wikipedia)
- Customer insights:
- 1. non-obvious
- 2. Should be actionable
- 3. Should be powerful enough to change customer behavior
- 4. Should be sustainable

Problem Statement

To gain consumer insights from a large collection of data.

- Collection of 8 datasets with customer transaction data is provided
- Collected for 2500 household
- Varied demographic factors like age, income, household size etc
- Product information
- Coupon redemption information
- Transaction data over 2 years
- Campaign information

Approach

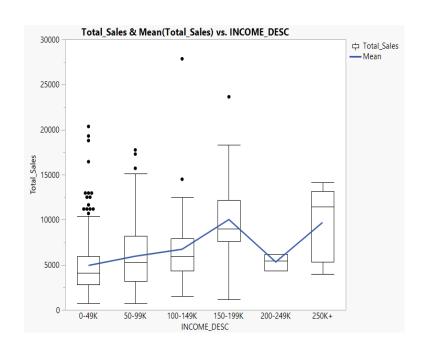
- Data cleaning & Wrangling
- 2) Removing or imputing missing values
- 3) Recoding values to group into bins
- 4) Changing data types for the variables
- 5) Transforming data whenever necessary
- 6) Exploratory Data Analysis
- 7) Confirmatory Data Analysis

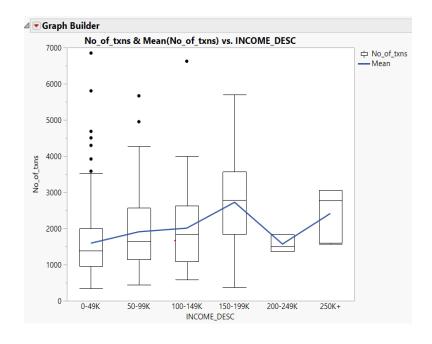
Findings

- The purchasing behavior and overall engagement is influenced by demographic factors such as:
 - a) Income
 - b) Age
 - c) Household size
 - d) Number of kids in the household

Distribution of data

The customers with income range 150-199K contribute the highest to both the transaction volume and amount





Customer purchasing behavior pattern

- Household with married couple spend more over time.
- The same is true with customers in the age range 25-54.
- Customers in the income range 150-199K and 50-74K spend more over time.
- Homeowners spend more over time
- Household with 2 Adults and 2 Adults with kids spend more with each quarter.

Customer Engagement

- Customers who are single or with unknown marital status spend less over time
- Customers above 45 spend less over time
- This pattern is observed in customers with income 25-34K
- Single female group also spend less over time.

Customer Engagement

In the high spend category, the fastest growing categories are:

- Married customers
- Age range 35-54
- Income range 50 74K
- Homeowners
- 2 Adults and 2 Adults with kids

The coupons do not have any significant effect on customers purchasing behavior.

Recommendations & Future Work

- The company can continue to focus on promoting sales in households with kids.
- For the households with single customers and low household size, the company must work creatively in the campaigns and attract sales.
- The company should also focus on matching the coupon with the manufacturer and eliminating the inconsistency, as this could affect purchasing patterns.