# Team Assignment 1

*Group 6*

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## Contents



## 1. Introduction

This report aims to understand the market of four chosen Fast-Moving Consumer Goods (FMCG) products in the Italian market. Two product categories , i.e. Crackers and Dry Cookies, are provided in the dataset. Of the 17 brands, four brands from Cookies category are chosen to be analysed further. In general, to obtain further information about the market of those products, detailed information of the demand elasticity of each product has to be extracted from the dataset. The method to capture such information will be explained in the next section. Then, the result will be discussed extensively in the following part to understand the structure and competitiveness of the market of the four brands.

## 2. Methodology

Our methodology will be divided into 2 parts, data transformation and regression model. Due to limited information on the dataset, we will need to perform several transformation to the data. The following part will explain the model used in the report. Linear regression models are predominantly chosen to make an inference about the relationship between price and quantity.

### 2.1. Data Transformation

The objective of this part is to provide the models with the most appropriate features and to separate the effect of different demand factors of each product. Prices of each brand are derived from dividing the sales value of each week by the sales volume. Since the relationship between

volume and price is not known, the two variables should be converted to their log forms to adjust for models with different functional forms.

The next step is to separate the effect of promotion and observe when promotion occured for each brand. However, `Product 2` and `Product 5` data does not have Gross Rating Point (GRP) variable which would tell the size offline advertising corresponding to the product. Another parameter is needed to see when a promotion campaign take place. The first method is to determine the week when the products are selling at discounted price. We compute the average prices ($\bar{P}_i$) and their standard deviation ($\sigma_i$) over 105 weeks. If the price goes below $\bar{P}_i - \sigma_i$, the `promo` variable is coded 1 during that week and 0 if otherwise.

### 2.2. Regression Model

## 3. Results and Discussion

## 4. Conclusion

## Appendices