

# Abstract

Deprivation research is a consumer research technique that has been getting a lot of attentions lately. It takes away the product that is used or consumed frequently by consumers, and replaces it with a new product over a period of time. Consumers rate the product at different stages of the experiment, so that researchers could track both their physical and emotional reactions. If done right, this type of research can really surface practical insights that could be used to enhance a specific product's benefit delivery and customize marketing campaign.

Despite the increasing popularity of deprivation research, not many research results around this topic are found. In this project we explored properties of four products using mixed-effects modeling, a statistical method that enables us to test for statistical significance and derives the distribution of ratings over different periods. We also computed the distances among rating scores and assigned experimental subjects into different clusters using random forest and classical multidimensional scaling techniques. Our results showed that there was no deprivation effects among the products whereas distinct clusters exist among rating scores. As such, endeavors to improve product quality and identify consumer types are needed.

**Keywords:** Deprivation Research, Data Analysis, Mixed Effects Modeling, Random Forest, and Multidimensional Scaling.