Assignment 1

# Introduction:

The consumer electronics market is a significantly hardware driven market and customers tend to prefer products which have specifications matching their preferences. For televisions, the main specifications of concern for most people are: - Resolution – Screen Size – Refresh Rate

I will be using Conjoint Analysis to find customer’s overall value of a product based on the sum of the individual part worths. Finding part-worths is a lot easier to obtain during a survey and so is the preferred method. The data was collected using the Rank Ordering method, which makes it easy for customers to complete the survey.

By examining customers’ preferences from a sample survey, we can gain an idea as to the bestselling combination of specifications and therefore tailor make a new product entering the market to be the ideal product for most consumers.

# Methodology:

The main undertakings for the analysis were Creating Dummy Profile Variables, Estimating Part-worths, Calculating the Utilities + Purchase Probabilities and Deriving the Market Share of each Product Profile for each customer.

*Create Dummy Profile Variables:*

To create Dummy Profile Variables, I created a table of Product Profiles against Specifications and marked out all the profiles unique combinations of specifications. As the number of attributes was low, I was happy with constructing a table that had a Full Factorial Product Bundle. As Regression requires independent variables to be independent, I assigned the value of 0 to:

– 1080p – 55in – 240hz

*Estimating Part-worths:*

To estimate the Part-worths, I then ran a regression using customer’s preference ranking as the independent variable and the dummy variables as the dependent variable.

Using the coefficients for each specification, I was able to estimate the part worth of each specification (/ feature).

Formula: Part-worth = Regression coefficient of specification against Dummy Variables

*Calculating the Utilities and Purchase Probabilities:*

To find the utility of each Product Profile, I found the sum of the Part-worths for each Product Profile.

To calculate the Purchase Probability of each Product Profile, I took the exponential of a new potential Product Profile and divided it by the sum of the exponentials of the new profile and the existing profiles. For the strategy that included a second Product Profile, I included the exponential of the second Product Profile’s utility.

Utility = sum of the part-worths of each specification

Purchase Probability (1 product) =

Purchase Probability (2 products) [Product1] =

*Market Share calculation:*

Finally I took the average of all customers’ Purchase probabilities for a Product Profile to find the market share.

# Interpretation:

Below I have interpreted the results of my analysis with respect to the four tasks set by Sony.

## Task One:

*Identify the product with the highest market share:*

Using the Multinomial Logit model, I can estimate that the product with the highest market share is Product Profile **18** with a market share of **57.4%.** This Product Profile is a TV with:

* 2160p resolution
* 55in screen
* 120 hz

## Task Two:

*If Sony offers the top two Product Profiles, how much market share can they get?*

If Sony offers the top two Product Profiles, they will have **27.09%** market share with Product Profile **18** and **41.24%** with Product Profile **20**. In total Sony would have **68.33%** Market share with both products.

## Task Three:

*Estimate Sony’s profit potential of offering either 1 or 2 products.*

If Sony only offered 1 product, their potential profit would be: **$11,471,159**

*=(50000\*400)\*0.574*

If Sony offered 2 products, their potential profit would be: **$8,473,887**

*=(50000\*400)\*(0.27+0.41)-5000000*

# Recommendations:

## Task Four:

1. *Discuss which of the two strategies gives highest market share and why:*

Selling both Product Profile **18** and Product Profile **20** would result in the highest market share at **68.33%.**

This is an expected result as customers have a variety of preferences and offering a new set of specifications to the market would likely be preferable to some customers and convince them to buy Sony’s second product (i.e. you would always expect to gain sales / market share from offering more products). There may be many customers who would have not bought the first Television Sony offers, but would buy the second Television. From a customer’s point of view, being given more choice is only a benefit and so offering more products to the consumer should always result in an increase in market share.

1. *Discuss which of the two strategies offers best profitability*

The most profitable strategy would be only selling Product Profile **18**, giving a profit of **$11,471,159**.

Whilst Sony would gain market share and thus greater revenues, from offering a new product, the significant fixed cost of introducing a new product (-$5,000,000) outweighs the potential revenue gain from offering the second product ($2,194,170).

1. *Discuss which product strategy would you recommend to SONY and why:*

Personally, I would recommend Sony to use the 1st strategy of only selling Product Profile **18**. This strategy is better because it would result in a higher overall profit and this is more important in the television market than having a high market share because Consumers tend to buy Televisions very rarely. As well as this, it would be much simpler to focus the business around 1 product rather than splitting resources, increasing marketing / admin costs and losing economies of scale; to try and sell 2 products.

There are however some limitations to the analysis that I have conducted. Ranking Product Profiles is a fairly intensive task for customers, particularly for a high number of profiles such as the 20 unique combinations used in the survey. If the task is intensive, most customers will make less effort ranking the profiles correctly and so the results of the survey used to conduct the analysis may be slightly unreliable.

Another issue is the fact that there are other factors that have an impact on a consumer’s choice of Television purchase. Many customers have opinions on brands, for example many customers believe that Samsung products are unreliable following the Galaxy Note 7 disaster, and these opinions may potentially sway customers toward or away from a Sony Television.

The profit calculations may be inaccurate due to underestimating the cost of high end components. 4K resolution screens are still a relatively new innovation in the television market and a 4K curved screen would likely have a much higher component cost than a 2K screen and even more than a 1080p screen. In this case the 2 most successful product profiles would have 2K screens, however if Sony was primarily interested in maximising profit (as most companies are) they may save costs by offering a 1080p screen.

Overall however, I believe that the analysis gives a good insight into the market and Sony will be successful launching Product Profile 18.