

Assignment 2

MIS784

Marketing Analytics

Conjoint Analysis of SONY Curved TV in Australia

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Introduction

Sony is one of the most recognized TV brands in Australia, with a reputation for new age technology, digital concepts and superior quality. With brands series such as X7000, X8000, X8500, and X9500 etc. has established itself as a value leader in Australia.

The objective of this report is to understand the consumer's preference in the purchase of Curved TV in Australia and the attributes he/she thinks are of importance during the time of purchase. We are trying to understand how the five attributes – Brand, Screen Size, Refresh Rate, Resolution and Price, interact with each other to shape the purchase decision of the consumer.

We hope this conjoint project will help prioritize the most desired attributes of the curved TV so as to maximize profit, revenue and market share by understanding the consumer utility.

In order for SONY to move forward with this new product, management requires research data to support the product's potential sales. This study gives us insights into what are the consumer's preferences in a Curved TV and how changes in each attribute affect the likelihood of purchase. The following study will allow us to determine if introducing Curved TV's will be beneficial to SONY. This report is useful to all the TV manufacturers can enhance their products and better position their TV's to the consumers. After all, the customer is the king!

Methodology

Pre-study and selection of attributes

In order to select the attributes for the T.V, we conducted qualitative research. This formed as a good base to arrive at attributes and further frame the levels of the attributes. As the product is T.V so the participants were enthusiastic in expressing about the latest trends of the T.V.

Survey Design

In order to make the analysis effective, we asked 20 participants on these 5 attributes. The survey takers were then given 18 different product profiles to choose and asked to indicate how likely they will buy the product on a 1-7 scale where 1 represents ‘Least Likely’ and 7 ‘Most Likely’.

Attribute and Levels

Attribute	Levels
Brand	Samsung/SONY/LG
Screen Size	65/75/85 inches
Refresh Rate	120/240 Hz
Resolution	2160/4000 pixels
Price	\$4000/\$6000/\$9000

Table 1: Attributes and Levels

In this study, we assume that other than price, higher level of any of the other attributes don’t necessarily mean it is superior to a lower level because better attribute comes up with some limitation like higher weight, higher power usage or higher heat generation etc.

Competitors Product Profile

After identifying those attributes, the attributes were then used to define the current competitors in the market as well as the types of TV's they currently offer to consumers.

Serial No.	Existing Products
1.	LG 65 in 120 HZ 4000 Pixels \$4000
2.	Samsung 85 in 120 HZ 4000 Pixels \$9000

Table 2: Competitors Product Profile

After analysed its main competitors, SONY has decided to offer only 4000 pixels TV at a refresh rate of 120 Hz; but is flexible in terms of TV size and price.

Conjoint Analysis

Conjoint simulation can be used to strategically position the product or introduce the product into the existing market. Before going further, I will let you know all the assumptions that I made during calculations.

Dummy Coding: When you are building a regression and if anyone of your variables is categorical or qualitative in nature, it is important to convert them into a quantitative measure so that your model can actually read it. Regressions cannot naturally deal with categorical or qualitative data. This is where the dummy coding comes in. Conjoint analysis based on dummy coding. For estimating utilities using multiple regression we need to code them 0, 1, or -1 where "1" reflect the presence of a feature, a "0" represent its absence and -1 represent reference level.

Regression:

X (Independent Variable) = Product Profile

Y (Dependent Variable) = Participants Ranking of 20 participants

$Y = b_1 (65 \text{ inches}) + b_2 (75 \text{ inches}) + b_3 (\text{Blue}) + b_4 (\text{Samsung}) + b_5 (\text{SONY}) + b_6 (120 \text{ Hz}) + b_7 (4000 \text{ pixels}) + b_8 (\$4000) + b_9 (\$6,000) + \text{constant} + e$
where,

Y = respondent's preference for the product concept,

b1 through b9 are beta weights (utilities) for the features,

e is an error term, and the

reference levels are equal to "-1"

Base Level: LG, 85 inches, 240 Hz, 2160 pixels and \$9,000 consider as a base level part-worth. We code all this to -1.

Interpretation

Serial No.	Rank	Attributes	Levels	Mean utilities	Mean importance
1	4	Brand	Samsung	-0.36	17%
			SONY	0.05	
			LG	0.30	
2	2	Screen Size	65 inches	-0.27	25%
			75 inches	0.24	
			85 inches	0.04	

3	3	Refresh Rate	120 Hz	0.51	20%
			240 Hz	-0.51	
4	5	Resolution	2160 pixels	0.08	9%
			4000 pixels	-0.08	
5	1	Price	\$4000	1.29	38%
			\$6000	0.02	
			\$9000	-1.31	

Table 3: Analysis

Based on the output, I calculated the mean utilities and importance levels for the various attributes and individual levels. All 5 attributes were then ranked according to their importance levels. Table 3 shows the importance rankings of different attributes as well as the mean part-worth utilities of a given attribute level.

A review of Table 3 shows that price is the most important attribute, across all participants with its importance level being 38%. Screen Size, Refresh Rate, Brand and Resolution formed the next set of important attributes with the important percentages being 25%, 20%, 17% and 9% respectively. It also prevails and common observation that Price and Screen Size are the two most important attributes for buyers in the consumer market before purchasing any TV.

From the conjoint analysis one can say that consumers are more interested in the price of the curved TV's and followed by Screen Size. Price is the most important attribute in the industry. This could be the reason that LG captured market from

Samsung in curved TV segment due to LG decreased prices and that's why it is ruling for the overall TV market.

The next best attribute is screen size with nearly 25% importance for consumers in the market. It will also tell that consumers will prefer screen size to other attributes while purchasing a TV.

Refresh Rate is the third most important attribute for consumers. As most of the consumers go for buying T.V only for the sake of sophistication, versatility and fully functional. In the broadest terms, the higher the number, the smoother the image. Only the higher the number will have all those qualities.

Hence consumers may not feel those two attributes (brand and resolution) are not as important as others such as price, screen-size and refresh rate. When the consumer goes to buy a T.V he/ she do extensive research and read other's opinion, before making a purchase. The consumer knows every company is playing a marketing gimmick by providing more features, even some of the features are not relevant in daily life. The consumer is tech-savvy as they know extra pixels may not mean a better picture. That's why these 2 attributes are least important to customers.

The utility curves of conjoint analysis are given below:

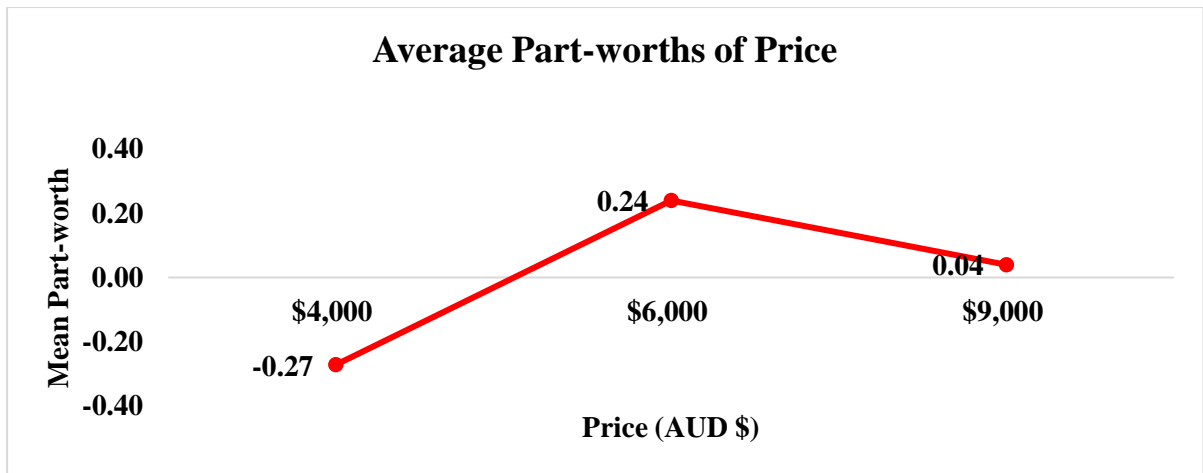


Figure 1: Average Part-worth's of Price

Here we can see that utility increased as the price increased from \$4,000 to \$6000. But thereafter it shows that utility decreased as price increases beyond \$6,000. So, charging high prices, i.e. beyond \$4,000 we can not only increase customer utility, but we can also fetch more profits. This gives us room to enter into a segment where consumers are ready to pay premium prices. This is an indication of how price-conscious, respondents are.

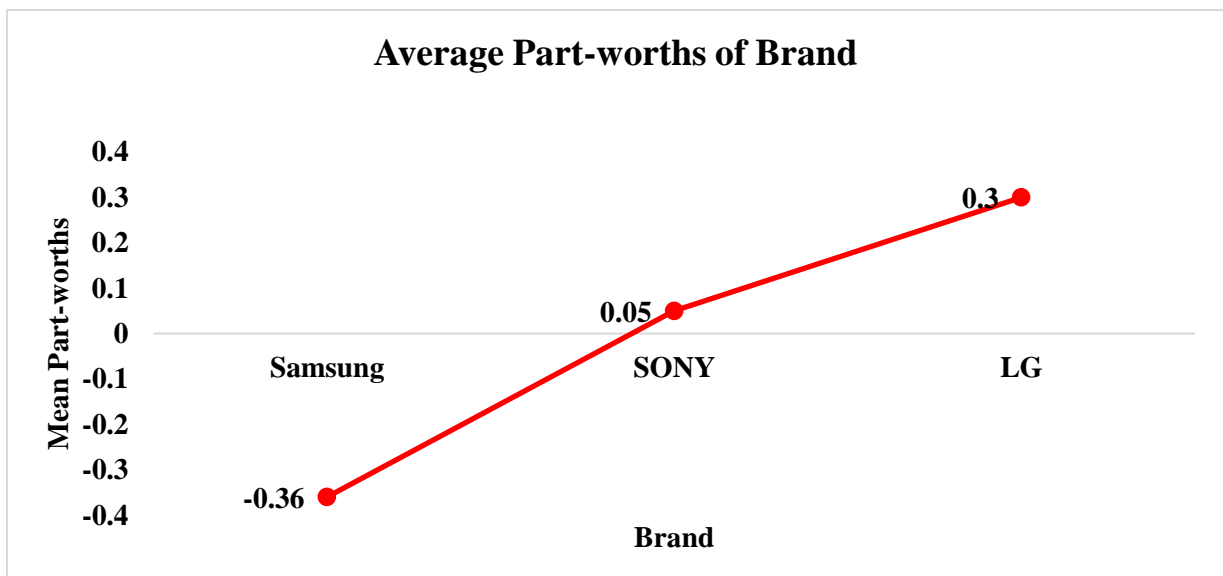


Figure 2: Average Part-worth's of Brand

Most of the respondents prefer the LG brand in Australia while Samsung brand is least favourable. SONY market is not cultivated yet in Australia. Very less number of respondents prefer to buy TV from SONY.

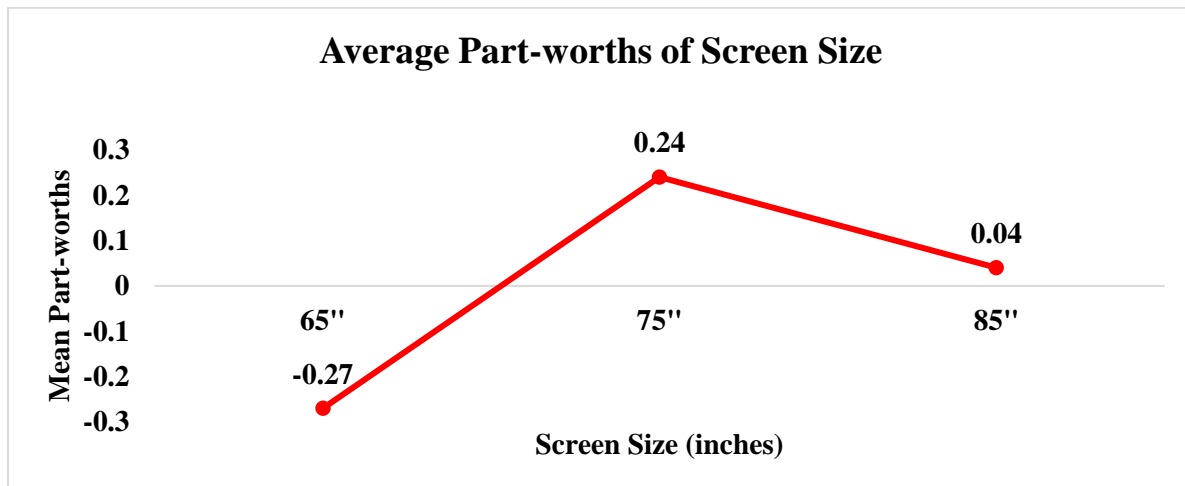


Figure 3: Average Part-worth's of Screen Size

Consumers prefer to buy 75 inches T.V. Participant's don't buy small T.V. as they don't give you the best viewing experience.

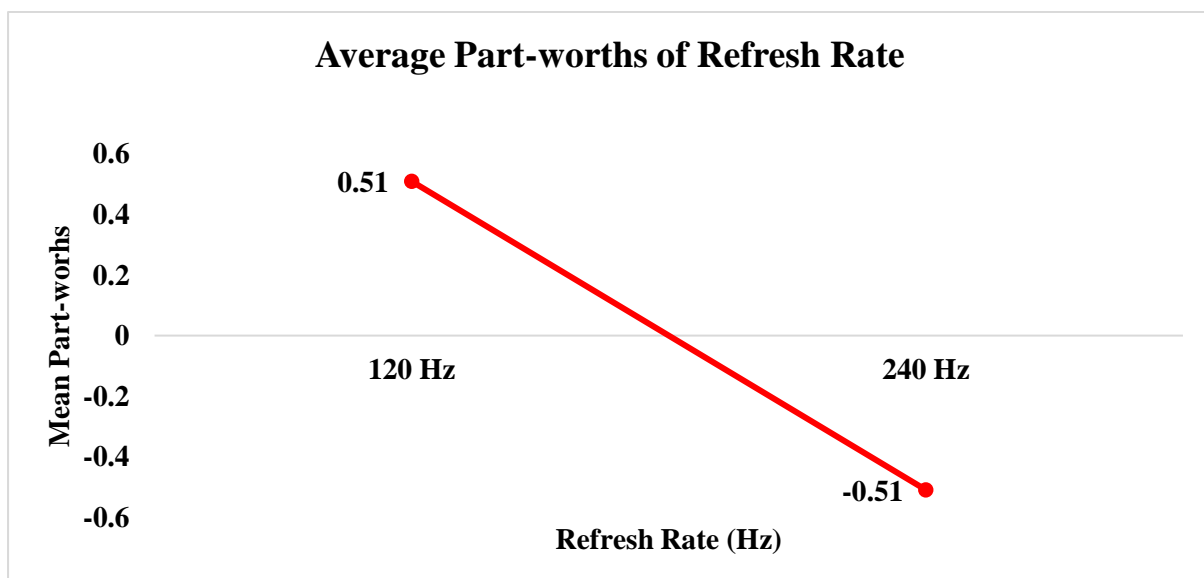


Figure 4: Average Part-worth's of Refresh Rate

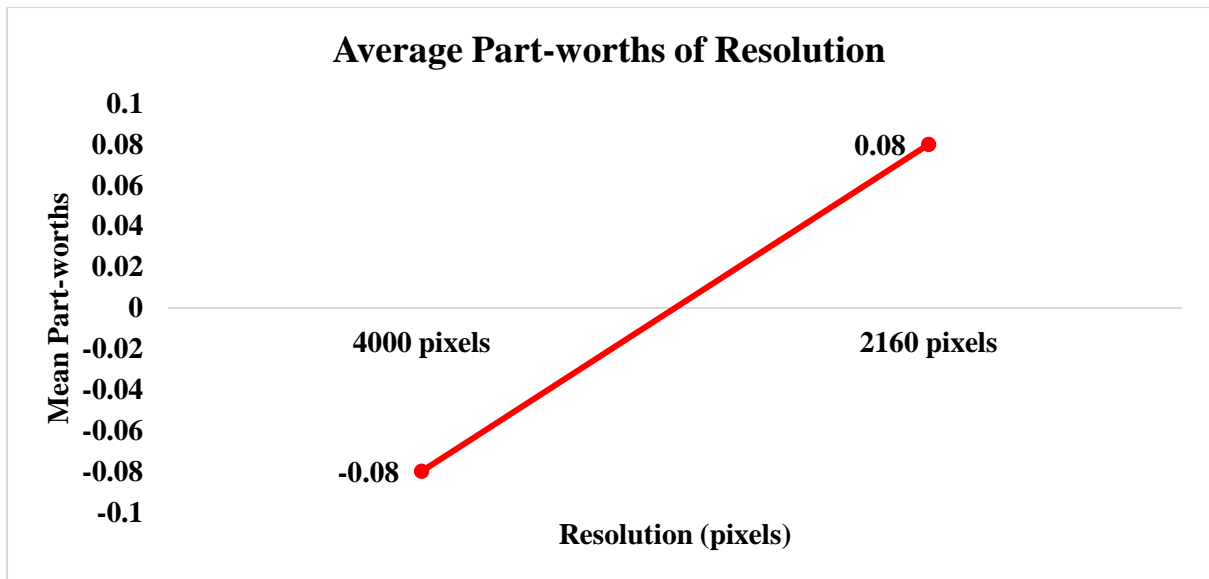


Figure 5: Average Part-worth's of Resolution

Both graphs show respondents are more inclined to have 120 Hz and 2160 pixels T.V.

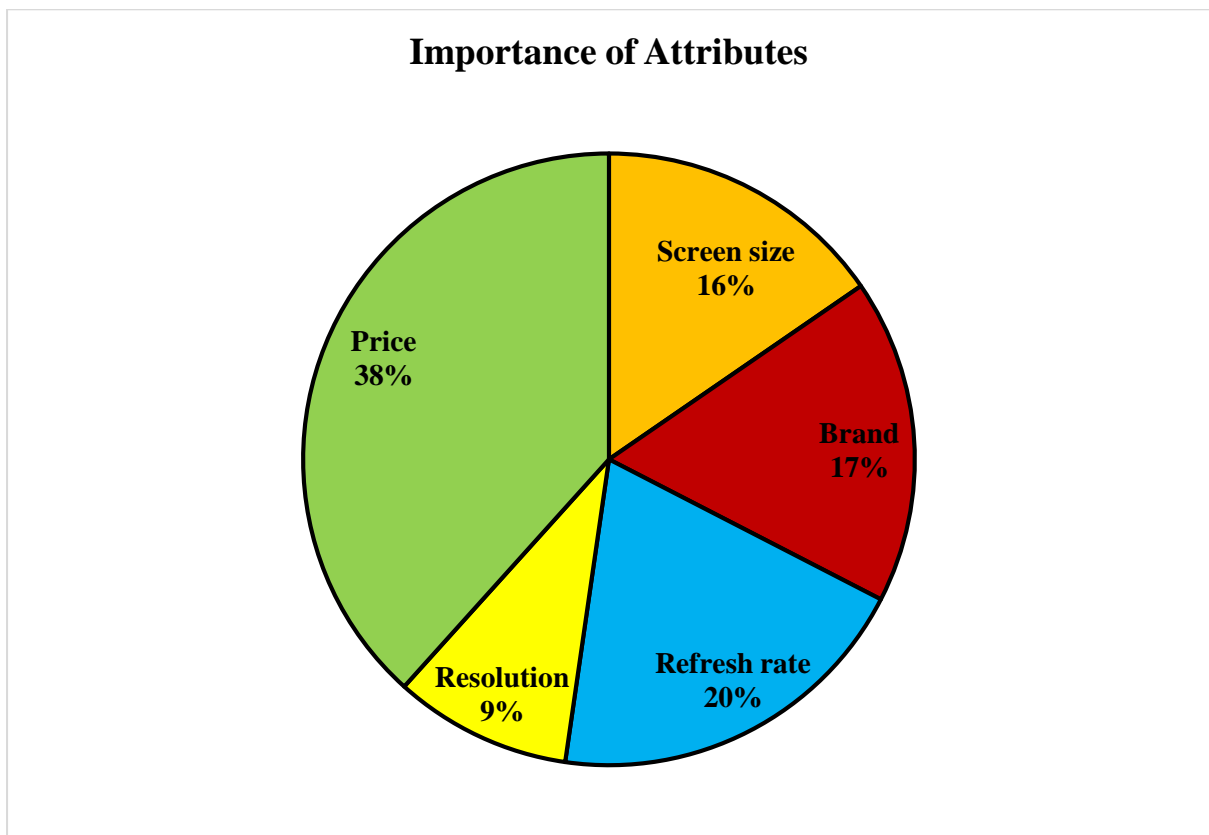


Figure 6: Importance of Attributes

The average importance of the attributes for the entire market was also computed by calculating the importance of each attribute for each consumer, and then by computing the average importance of each attribute across all consumers. These averages are reported in figure 6 shows each attribute's relative importance in a pie chart.

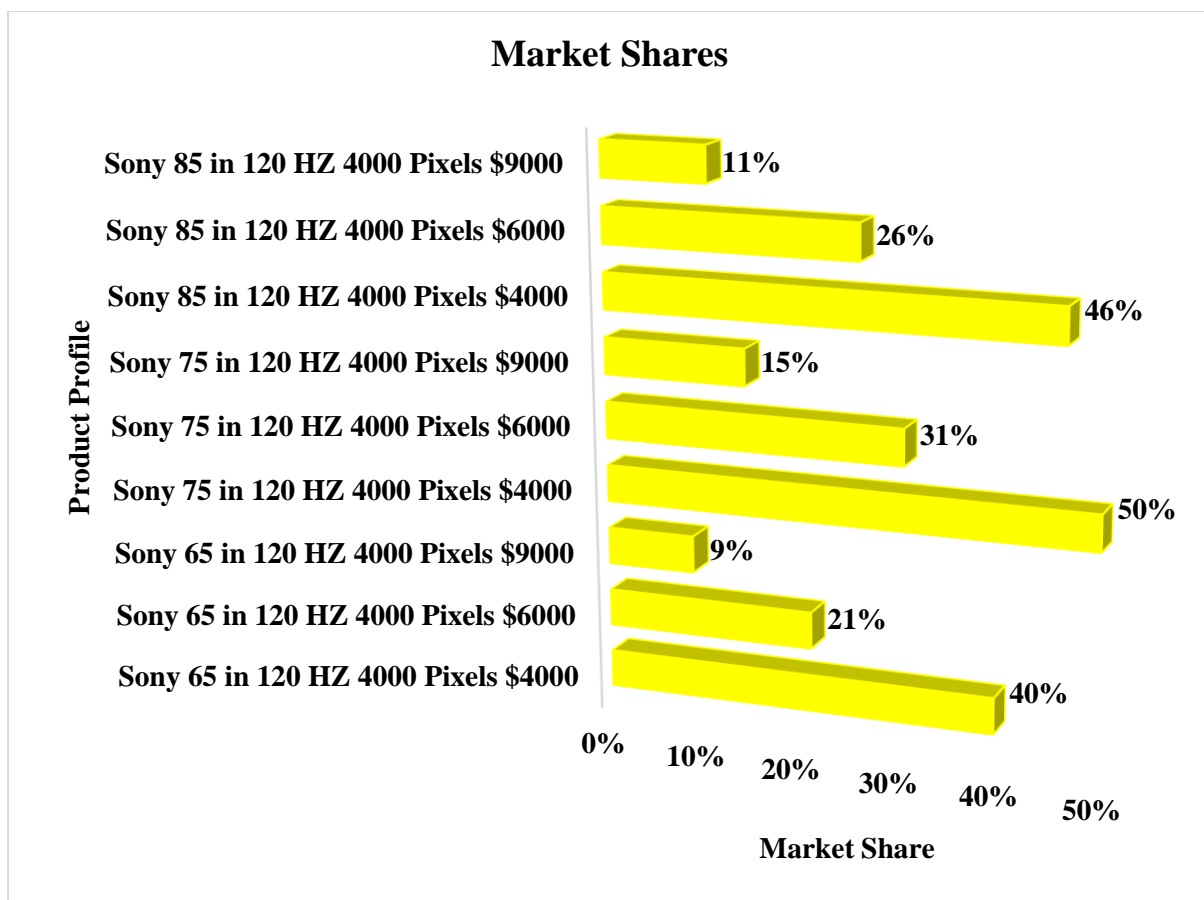


Figure 7: Market Share

The calculated market shares for each product within the simulated total market are shown in figure 7. Over half of the consumers prefer this product profile from SONY, having a refresh rate of 120 Hz, costing \$4000, with a screen size of 75-inches, and resolution of 4000 pixels. The product that was liked least by the consumers in the simulation market was SONY, costing \$9000, with a screen size of 65-inches, 4000 pixels, and 120 Hz.

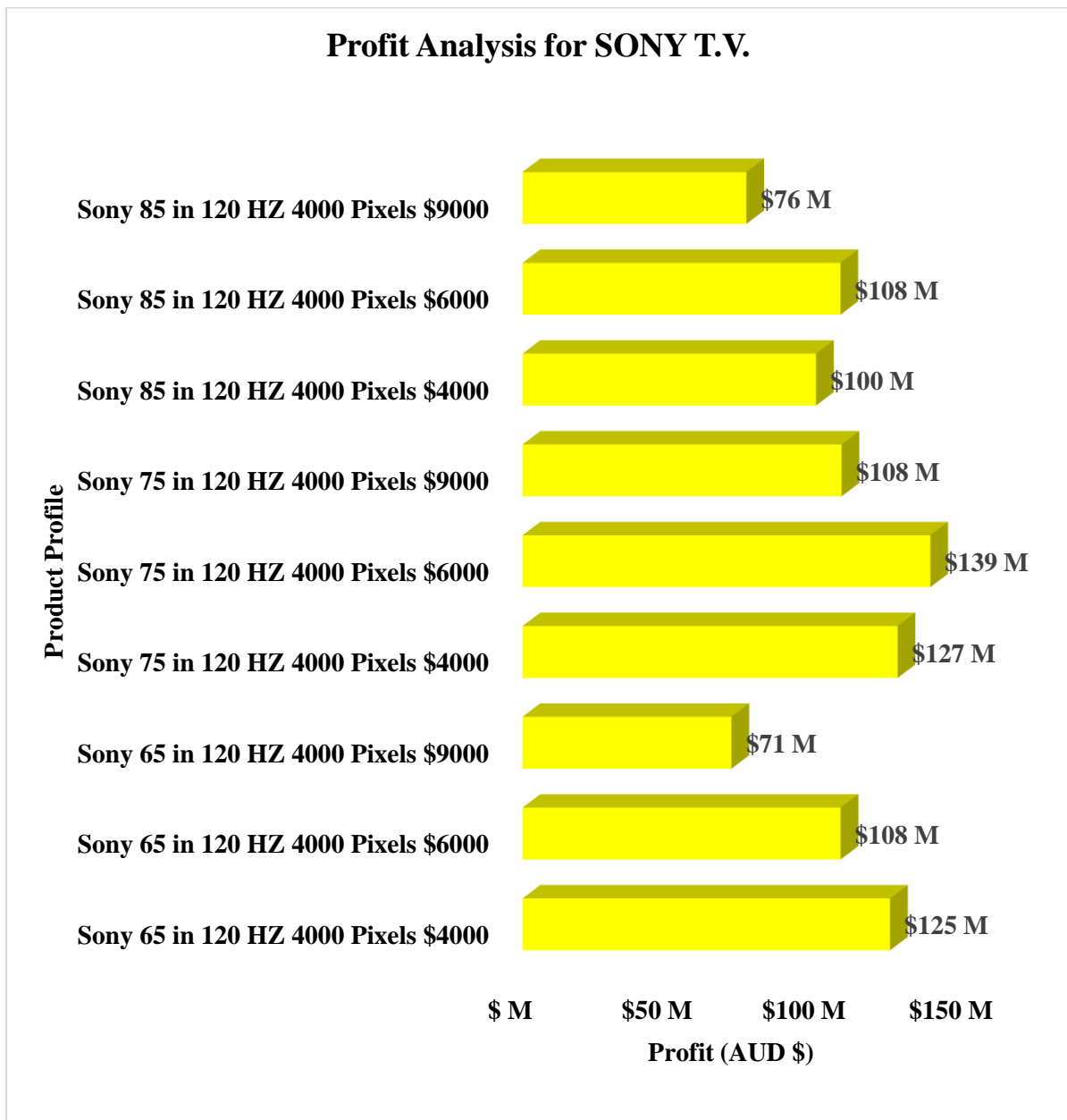


Figure 8: Profit Analysis for Sony Curved T.V.

Company will earn a maximum profit of \$139 million if they cost a T.V at \$6000 and 75 inches for the screen size. The least profit they can earn \$71 million where the screen size is 65 inches and it cost \$9000.

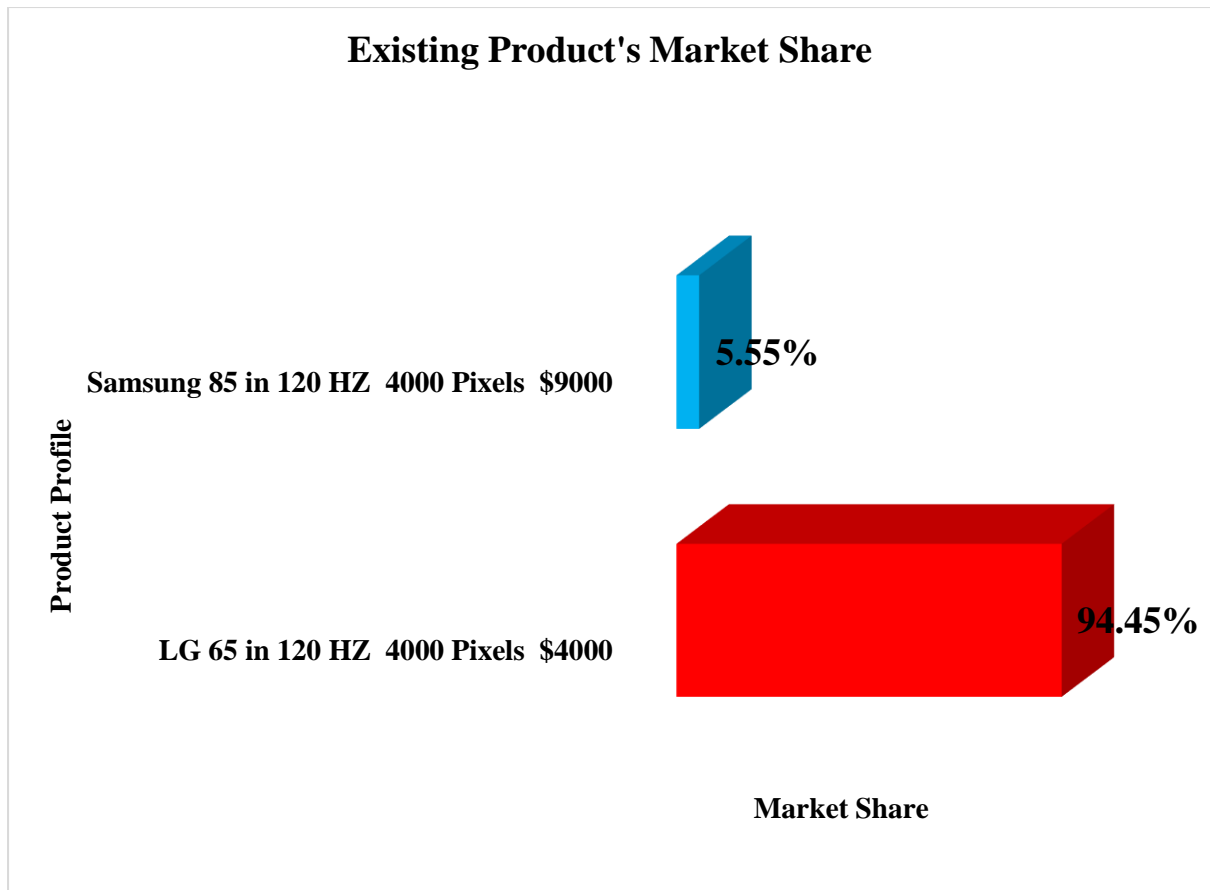


Figure 9: Market Share

Following figure 9 shows the respective market shares of the existing products in the market. The product profile that gives the highest market share as LG at a price of \$4000, same as that of competition. As we see from our competitor analysis (figure 9), 95% of the market is captured by LG and merely 5% by Samsung.

Recommendations

Our primary objective of this market simulation is to find the product attributes that maximizes the market share of the product and maximize profit for the company. This report overviews three recommendations for SONY to remain competitive in the Australian marketplace.

1. Maximum Market Share

From figure 7, in order to capture more market share in Australia, the SONY need to focus on these two product profiles:

- Sony 75 in 120 Hz 4000 pixels \$4000
- Sony 85 in 120 Hz 4000 pixels \$4000

The first profile will capture 50% of the market while the second profile captures 46%. But I don't recommend the second profile as larger screen size (85 inches) affect negatively to its customers and doesn't have huge impact on utility.

2. Maximum Profit

If SONY wants to maximize the profit I recommend SONY to launch below product profiles in the market.

- Sony 75 in 120 Hz 4000 pixels \$6000

This profile will fetch you around \$139 million. It is profit from the company side as they can fetch extra \$2000 providing same kind of specification. From the consumer point of view, it is not good as they need to spend more and also deters some customer to buy that T.V. Even for this profile the market share reduced to merely 31%. Approximately we loss major chunks (19%) of the customer. That is huge.

3. Optimal Market Share and Product Profit

In order to get a high market share and reasonable profits, I would recommend this product profile.

- Sony 75 in 120 Hz 4000 pixels \$4000

This profile is optimal as we earn profit of around \$127 million and half (50%) of the market share is captured by us. As we know from our analysis (figure 2) SONY brand is not much popular in Australia because its mean utilities are mere 0.05. SONY needs to focus more on capturing more market in Australia. This is possible only by this profile. It is a win-win situation for everyone. Nobody is

losing. The customer gets big screen at the same price while the company earn better amount of profit and capturing lot more of Australian market. In the long run, it is possible that they can beat LG and earn more profit than \$139 million.

Following any one of the recommendations is solely depend on SONY missions, goals and what they are trying to achieve in the Australia market.

Competitor Analysis (LG, Samsung) vs. SONY

In order to reduce the market share of the existing companies, I recommend the SONY Company to launch 75 inches T.V. for \$4000. SONY Company to launch 75 inches T.V. for \$4000 is our prospective launching.

If you want to capture more market or if SONY wants to compete with its competitors I recommend the product profile due to following reasons:-

1. LG is already an established player in the market. It is providing the screen size 65 inches at \$4,000. We are providing a bigger screen size (75 inches) on that same price (\$4,000). So lots of customers are getting attracted towards us as we know screen size is the second most important attribute, after price. From figure 3 we know that 65 inches have negative utility and customers are more interested in 75 inches. Lots of people get attracted to our brand as they get bigger screen on same competitor price.
2. We don't have competition from Samsung as they are providing a higher cost and bigger screen size. If we introducing our new product on the market we didn't need to worry about Samsung as they are proving 85 inches and \$9000. From our conjoint analysis we see that both price (\$9000) and screen size (85 inches) doesn't have huge impact and sometimes it affects negatively. From above, we can infer that our product has very high prospects of being popular and stands high adaptability from customers.

Based on our results alone the introduction of the alternative would prove to be beneficial as they capture a significant market share away from competitors.

In summary, we conclude the following attributes that should be featured in our prospective product:

- Price: AUD \$400
- Screen Size: 75 inches
- Refresh Rate: 120 Hz
- Resolution: 4000 pixels

SONY would emerge as a most preferred consumer choice if the same configurations are launched in the market.

Novel Solution to Launch a Product in the market

1. Define your target audience
2. Know how to reach those audiences: Use social media to educate customers on why our product is better than us. Design good catalogue, social media channels, email marketing, campaign tagging etc.
3. Start selling these new products from the cities like Sydney, Melbourne, Brisbane and selected store. See how customers react. Offer Early Use Incentives.
4. Feedback: Ask the customer to leave a review. Analyse the feedback. Improve your product.
5. Turn your product launch as an event. Send your products to distributors, retailers like JB Hi-Fi, Harvey Norman etc., or even make online presence like in Amazon etc.
6. Track and measure your success. Think about your goal and timeline.

Limitations

We encountered numerous problems in our research. Notably, I found that the sample size of 20 participants conducted for this analysis was too small. Alternatively, a sample size of 50 or more from different places in Australia, would be much more ideal. To get perfect utility values or better understanding customer's attributes we need to go for heterogeneous samples.

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