COMPARISON OF FACTORS IN CUSTOMER SATISFACTORY OF YOGHURT IN WESTERN AND SOUTHERN PROVINCES

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DECLARATION OF THE CANDIDATE

I hereby certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a Degree or Diploma in any University and to best the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also here by give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.

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I have supervised and accepted the dissertation titled "Comparison of Factors in Customer Satisfaction of Yoghurt in Western and Southern Provinces" for submission of the degree.

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ABSTRACT

The dairy industry has a potential to contribute considerably to Sri Lanka's economic development. Lucky Lanka Milk Processing Company produces various products to enhance Sri Lanka's dairy industry. Due to the variance demand of 80g yoghurt, market strategies of the Lucky Lanka Milk Processing Company have been expanding and consequently sales of the company have been increased over the years. However, sales in the Western province has a bad situation compared that with the Southern province. The Objective of the present study was therefore to identify the factors in customer satisfactory of yoghurt in western and southern provinces in Lucky Lanka Milk Processing Company. A survey was carried out using sample size of 300. The sampling method was the purposive two stage proportional random sampling. The statistical analyze used are; (i) 2 way cross table using likelihood ratio chi-square test and (ii) binary logistic regression models. It was found that brand orientation, factory area, type of business, benefit of customer, quality of yoghurt, discipline of the company sales representatives, and advertising campaign were commonly in both Western and Southern provinces and price, competitors and customer knowledge were in only Western province and flavor of yoghurt only in Southern province were statistically significantly associated ($p<0.05$) with the usage of Lucky yoghurt, when each factors were considered separately. However, when all significant variables were considered together using binary logistic regression, it was identified that brand name, quality of the yoghurt and customer knowledge in Western province and brand orientation, quality of the yoghurt and benefits of the customers in Southern province were significantly associated with usage of Lucky yoghurt. The validity of the binary logistics model was confirmed by both likelihood ratio and Wald test.

Keywords: Binary logistic regression analysis, Llikelihood ratio test, Lucky yoghurt, Wald statistics

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

CHAPTER 01

INTRODUCTION

1.1. Sri Lankan Dairy Context

Organizing milk producers into dairy cooperatives and marketing the dairy production has been an evident fact in Sri Lanka as far back since the 1930s. The enthusiasm for diary production and marketing was generated by the successful achievements in neighboring India. The Ministry of Rural Industrial Development in Sri Lanka plays a significant role in this regard (National Milk Board, 2013). One of the weaknesses of the dairy cooperative movement in Sri Lanka is the high degree of dependence on government institutions for management and operational control (National Milk Board, 2013). At present, the establishment and strengthening of dairy cooperatives is being actively encouraged by all parties concerned, including donor agencies.

Sri Lanka imports around 68,000 MT of dairy commodities annually (Department of Custom, 2012), and dairy development is therefore considered as an instrument to replace this large volume of imported commodities. The domestic milk production only constitutes 17 percent of the national requirement and the rest was imported according to 2006 statistics. The importation bill on dairy commodities is around 17 billion rupees (National Milk Board, 2013). This figure is expected to double or triple in future because of the doubling price of the imported milk powder due to the large demand for milk and short supply worldwide. At present annual availability of milk per person is only 40 liters, which is just a 0.11 liters per day per person (National Milk Board, 2013). Through we import larger percentage, there is a high potential for increasing the supply of milk in Sri Lanka. The government policy on dairy development is aimed at producing 50% of country's milk requirement by the year 2015 (Mahinda Chinthana, 2005).

The government has been encouraging the local milk producers to produce more milk and citizens to consume more fresh milk. Of the total milk that is available, the volume of milk entering the formal milk market annually is around 100 million liters

and the rest is channeled via informal routes and consumed domestically. Of the private sector agencies involved in livestock activities, "Nestle Lanka Ltd**"** is a major player and it is a subsidiary of Nestle' (National Milk Board, 2003). It is the second largest milk processor next to "Milco (pvt) Ltd" and is engaged in producing a wide variety of dairy products. "Kotmale Dairy Products", Lucky Lanka Dairies (pvt) Ltd, Lanka Milk Foods (pvt) Ltd, and Fonterra Brands (pvt) Ltd are the other players of sizeable milk processing companies in Sri Lanka. Also, there are several medium scale and small-scale private sector organizations and cooperatives involved in milk collection and milk processing in the country (National Milk Board, 2013).

1.2. Background of the Study

The dairy industry has a potential to contribute considerably to Sri Lanka's economic development. A traditional industry surviving thousands of years, milk production also plays an important role in alleviating nutritional poverty in all age groups. It is also a source of extensive employment opportunities.

At present milk is sold through a combination of private and public organizations. Until 1981, farmers sold their milk to the National Milk Board (NMB), which was created in 1957 as the main outlet for milk purchaser agency. The primary business of the formal private sector stakeholders are milk powder and other processed milk product imports. Of the particular company is an exception, which runs a substantial milk powder-processing operation based on locally procured milk. In theory, all of the businesses extended their operations to procure fresh milk locally and to cater to the developing market segments, such as liquid milk, pasteurized and sterilized milk, flavored milks and yogurt. Locally procured milk is used for making ice cream and mixed-flavored fruit drinks (National Milk Board, 2013).

There have been changes in the composition of the milk-processing organizations (National Milk Board, 2013). A number of other private sector processors, some of them extremely small, are involved in the milk-processing industry. The private sector is also engaged in milk collection and processing, but due to the low volumes in the production areas, there is wasteful competition by the different collecting agencies

competing for the available milk in a given area (National Milk Board, 2013). In addition, lack of other marketing infrastructure, such as chilling tanks and transport vehicles, etc. compound this problem.

Yoghurt is produced through the fermentation of milk by lactic acid bacteria, usually lactobacillus bulgarius and streptococcus thermophiles (http://www.luckylanka.com/products.html) the milk is firstly heat treated, homogenized and is then cooled to allow the addition of bacteria or starter culture (National Milk Board, 2013). The milk proteins then coagulate and set, to form yogurt. A colorless liquid called acetaldehyde is also produced during fermentation and gives yogurt its distinct flavour. Yogurt can be made from different types of milk, including skimmed, semi-skimmed, whole, evaporated or powdered forms benefit of buying & eating yoghurt are,

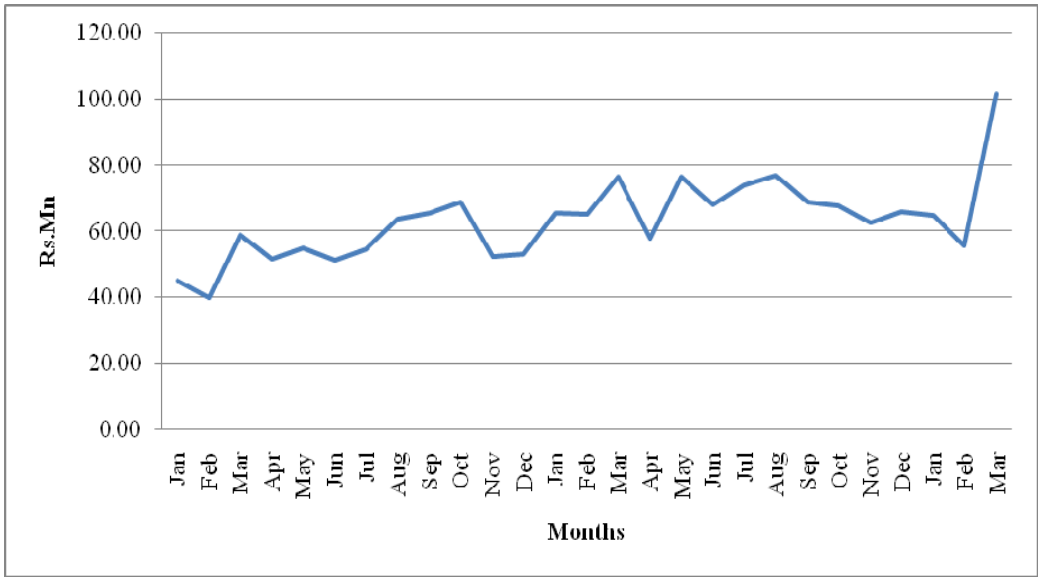
- A nutritious food.
- Remedy for the diseases like gastritis
- Different facials
- Dessert and
- An ingredient in making various food items.

There are large no of yoghurt productions companies exist in Sri Lanka. Those are Newdale, Lucky, Highland and CIC etc. Among them Newdale and Highland become the top brand in Sri Lanka. When considering the sales of above companies, Newdale and Highland are even. But there is a huge difference in the sales of Lucky yoghurt among the provinces. There is a big difference in Western & Southern provinces. That the reason, for choosing Lucky Lanka Milk Processing Company for this study.

1.3. Status of Sale in Lucky Lanka Milk Processing Company

Due to the various demand for 80g yoghurt, marketing strategies of the above company has been expanding. Consequently sales of the company has been increased from January 2011 to March 2013 irrespective of the provinces as depicted in figure 1.1 (Annual sales Report, 2013).

Figure 1.1: Monthly Sales of LLP Company (Jan 2011 – Mar 2013)

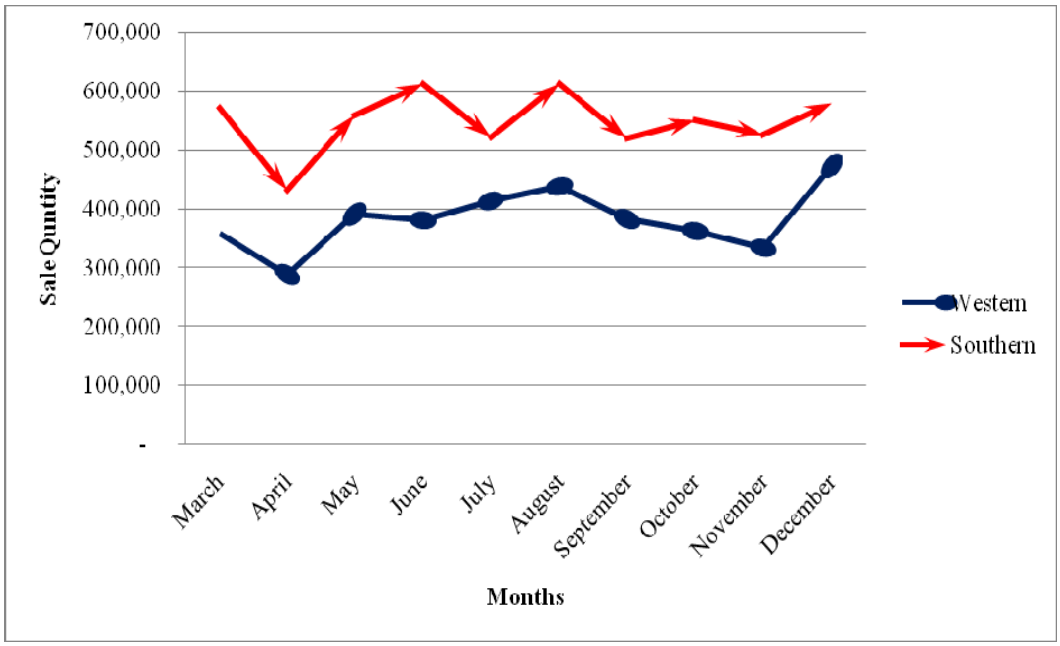


It is assumed that the following factors, may affect for the increase the sale,

- Introduction of new company policies and training program for sales representatives.
- Introduction of transaction facility by cheque.
- Offer of refrigerators free
- Offer of two yoghurt free, for the purchase of box of Yoghurt
- Introduction of new incentive scheme for the sales representatives (more than Rs.50,000/=).

Though the overall sales of 80g milk yoghurt have increased irrespective of provinces care handing sales in Western province has a bad situation compared that with Southern province.

Figure 1.2: Monthly sales of 80g Yoghurt Sales of LLMP Company (March – December 2013)



As it depicted in Figure 1.2, it can be seen that the platens is almost the same in both regions, sales in Western province is lower than that of Southern province in all months.

1.4. Objective of the Study

On view of the above, the objectives of this study are;

(i) To compare factors effecting on sales of 80g yoghurt in Western province

(ii) To compare factors effecting on sales of 80g yoghurt in Southern province

(iii) To give some recommendation to the Lucky Lanka Milk Processing Company.

1.5. Significance of the Study

The analysis would generate information to understand how to satisfy their requirements of customers and what kind of product and services that they expect. It is easy to match their expectations according to company's expectations and for satisfaction of both parties. From organization point of view finding of this research

could assist to the management to identify their perceive value element whether influence the purchase intention of customers. Result will therefore help to identify the necessary actions that should be taken within the company to increases sales value of 80g yoghurt. Also they can use this knowledge to formulate rational marketing strategies.

1.6. Disposition of the Thesis

The result of the chapters in this dissertation is organized as follows. Chapter 2 presents a literature review of help for selecting the variable on this research and identify to the theory of this research. Chapter 3 provides the research methodology of how to analyze collecting data and Chapter 4 represents the analysis of collecting data discussed methodology in the third chapter. Chapter 5 discusses about the validity of the proposed framework in chapter 3. Validation has been done through the expert opinions. Finally the conclusion and suggestions of the study are given by Chapter 6.

CHAPTER 02

LITERATURE REVIEW

2.1. Introduction

A literature review is essential in research areas, and it follows three important steps to conduct a review. Literature review addresses the following steps. The first step is to examine the studies of individuals. The second step is to concentrate on how the researchers have accomplished conclusion from their studies. The third step is to summarize the collective results. Thus this chapter presents the detailed literature review on three significant areas.

2.2. History of Yoghurt

It is generally agreed among historians that yogurt and other fermented milk products were discovered accidentally as a result of milk being stored by primitive methods in warm climates. The word "yogurt" is Turkish in origin.(http://www.dairygoodness.ca/yogurt/the-history-of-yogurt) Most historical accounts attribute yogurt to the Neolithic people of Central Asia around 6000 B.C. Herdsmen began the practice of milking their animals, and the natural enzymes in the carrying containers (animal stomachs) curdled the milk, essentially making yogurt. Not only did the milk then keep longer, it is thought that people preferred the taste so continued the practice, which then evolved over centuries into commercial yogurt making. Recorded history states that Genghis Khan, the founder of the Mongol Empire, and his armies lived on yogurt.

It wasn't long before word of the perceived health benefits of yogurt travelled through to other peoples, and the consumption spread throughout the East. The first industrialized production of yogurt is attributed to Isaac Carasso in 1919 in Barcelona – his company "Danone" was named for his son, "Little Daniel".Turkish immigrants brought yogurt to North America in the 1700s but it really didn't catch on until the 1940s when Daniel Carasso, the son of Danone founder Isaac, and Juan Metzger took

over a small yogurt factory in the Bronx, New York – the company is now called Dannon in the United States. Yogurt with fruit on the bottom was first introduced in 1947 by Dannon. The popularity of yogurt soared in the 50s and 60s with the boom of the health food culture and is now available in many varieties to suit every taste and lifestyle.

2.3. History of Lucky Yoghurt

Lucky Lanka Milk Processing Company Limited which is located in a remote village like Kamburupitiya of Matara district in Southern province where far from the capital city of the country. The reason why delighted is business provides the path towards the prosperity of the country through economic advancement of all the stakeholders including farmers, direct & indirect employees, suppliers involved in business. According to the historical legend, the co w is considered as a sacred animal because of its invaluable uses provided to the human. It is a pleasure to be engaged in an industry, which is related to the so-called sacred cow in proud Sri Lankan history.

The small business started with a single household cow, has been sprouted throughout the country with the involvement of thousands of milk farmers, hundreds of employees and many of suppliers up to a national enterprise by now. Traditional Sri Lankan hospitality blended with international sophisticated food technology well packed in Lucky Yoghurt in order to optimize customer hospitality, Lucky seven flavours are presented in an attractive ready to serve and single serving package system. Milk considered to be of high nutritional value food material is processed and further developed so that the nutritional value and taste is enhanced and presented in a different form to the customers. Not only yoghurt is a high nutritional food but also it consists of medicinal value too. It provides protection to the human body against different diseases as well. Since milk provides the best favourable media for microbial growth, greater care should be provided throughout the manufacturing process of these products.

Well-qualified staff ensures the quality of incoming raw materials and the final products through continuous inspection, monitoring and laboratory testing including

chemical & microbiological testing of each batch. Product quality is maintained according to the Sri Lankan Quality Standards (SLS) 824 right & International Standard ISO throughout the manufacturing process. Sophisticated machinery further ensures the best product quality. Technical know-how and the technical assistance are always upgraded through national and international expertise on dairy technology. Continuous in-house research & development activities are undertaken in order to expand the existing product range simultaneously.

The company major objective is to make social & economic enhancement of their stakeholders. Farmer awareness programs on obtaining best quality high milk yield are conducted for the milk farmers. Farmer insurance scheme is being planned for the milk farmers. Different social development activities are undertaken through local governmental and private sector organizations. The company ultimate objective is to "maximize the satisfaction & utility provided through our products to our customers while**"** (http://www.luckylanka.com/index.html)

2.4. Milk Marketing

Milk is an essential commodity in daily consumption. In Sri Lanka milk and dairy products are by-products of several thousand agriculturalists. At present when almost all items are sold in readymade forms in packets and milk is no more exception. It can be purchased at any time from a grocery shop. It is also good from health point of view as it is purified and the cholesterol content is removed from it.

Marketing of milk in Sri Lanka is complex and varied. There are individual farmers who sell direct to processors, consumers, hotels, cafeterias and canteens. Co-operatives are organized primarily for the purpose of collecting and selling milk to either hotels or processors. The formal, or processed dairy market consists of small primary dairy co-ops, larger local co-ops, district-level dairy co-ops, dairy co-operative unions, and networks of 6 collection points and milk chilling centers operated by co-ops or the main dairy processors. Most farmers are not members of cooperatives or farmer societies. Unlike milk powder, the consumption of fresh milk appears to increase with income suggesting that as incomes increase over time demand could shift toward liquid milk. This presents good opportunities for smallholders who are involved in domestic dairy production.

Domestic producers have a comparative advantage in the liquid milk market as reconstituted milk does not seem to be a good substitute. Awareness to increase market for such sales needs to be considered.

2.5. Customers Purchase Intention

A consumer's attitude and assessment and external factors construct consumer purchase intention, and it is a critical factor to predict consumer behavior (Fishbein & Ajzen, 1975). According to Dodds, et al., (1991), purchase intention can measure the possibility of a consumer to buy a product, and the higher the purchase intention is, the higher a consumer's willingness is to buy a product. Purchase intention indicates that consumers will follow their experience, preference and external environment to collect information, evaluate alternatives, and make purchase decisions (Zeithaml, 1988; Dodds et al., 1991; Yang, 2009).

The definition of purchase intention remained similar. William et al (1997), suggested purchase intention was the possibility of consumer purchasing certain products or brand. Burton et al (1998) indicated a purchase intention was the probability of purchasing the product. According to the literature mentioned above, scholars attained consensus that purchase intention was psychological activity and probability of purchasing, and this paper adopted this definition.

2.6. Factors Influence on Sales

2.6.1. Quality of the yoghurt

Quality is the most important factor in highest sales of yoghurt. When considering quality of yoghurt, Gonçalvez, Pérez, Reolon, et al (2009) claimed that,

> "Addition of gelatin and starch to yogurt significantly affected sensory and instrumental texture and had a significant effect on the occurrence of syneresis. Furthermore, it helps to keep the thickeners to yogurt resulted in a significant increase in viscosity, ropyness, mouthfeel and creaminess. Gelatin was more effective in preventing syneresis than

starch: while the addition of 6000 ppm of gelatine. Prevent the occurrence of syneresis, the addition of starch only reduced it of variance instrumental parameters that significantly correlated to sensory texture attributes, yield stress. It was found to be the more appropriate to characterize the texture of yogurt in quality control or product."

The study of Dairy Market Trends in Vavuniya carried out by Thampoe and Gnanaseelan (2010) claimed that quality is very important for the highest yoghurt sales. The major factors influencing in choosing the type of milk and milk based products are availability, accessibility and quality. The study further revealed that as the imported milk is relatively expensive consumers would like to have more of local milk than imported milk.

2.6.2. Advertising

Advertising is the most important factor in selling brand. With considering in the advertising of yoghurt, Lana and Foik (1982) claimed that the period over which a given brand advertisement massage influence sale positively for a period of seven months. And in an another study Barroso and Llobet (1999) claimed that advertising not only has an effect on consumer utility but also can an effect which products they are aware of.

2.6.3. Product packing

Product packaging or design is another important factor that escort to the product perceived value. However, there are two thoughts about packaging. One is to prepare the product packaging very simple while the other is to prepare a colorful impression which is used for product on sight attraction. Product packaging/product design has a strong influence on consumer perceived value, resulting in intention to purchase (Ann, 2008). Khalid et al. (2008) suggested that customer desirability obtained through emotions is often take out by product's packaging art, clothing, and consumer goods; therefore, designers must consider emotions in packaging/product design.

According to Belleau et al (2007), if the product packaging/ design is reliable and versatile, then it would increase the perceived value of the customers. According to Fung et al (2004) that packaging/design of the product can hold consumer's pleasure feelings. Furthermore, packaging is an important part of the company reputation that plays a major role in communicating the product image and better packaging shows that it is a quality product (Dileep, 2006).

2.6.4. Customer knowledge

When making a purchase of any product, customers often rely on personal memory/knowledge to make decisions. The study of Satish and Peter (2004) elucidated that customer knowledge about the product play a vital role in the product purchase decision. Likewise, other studies also described that customer knowledge as a major factor for judgment making (Rao and Monroe, 1988). A bit different style, customer knowledge is important for building a customer response or evaluation about the product that may be called as product perceived value (Satish and Peter, 2004). Li et al. (2006) elucidated that, consumer psychology perception openly reflects consumer viewpoints on product knowledge and consumer knowledge of a product can help consumers to make their decisions effectively.

2.7. Summary of the Chapter

Literature reviews have highly supported to identify different methodologies for this study and to identify the influential variables on sales. However, it was noted in most of studies, detailed statistical analyses have not been reported.

CHAPTER 03

MATERIALS AND METHOD

3.1. Introduction

This chapter gives a brief explanation about the techniques that are used in analyzing data to find the factors which influence in the sales of lucky yoghurt in both Western and Southern provinces. Both primary data and secondary data are used in this study and the data collection methods are described.

3.2. Capturing Primary Data

Due to obvious constraints, the study was restricted to two divisional secretaries. Therefore the type of population interested in this study is all retail and whole sale shop owners in both Western and Southern provinces. The pre identified two divisional secretaries in Western and Southern provinces are Matara divisional secretary and Sri Jayawardanapura divisional secretary. There are 20 of grama niladari divisions (GND) in Sri Jayawardhanpura divisional secretary and 66 of grama niladari divisions in Matara divisional secretary. Six GN divisions from each divisional secretaries were randomly selected (Table 3.1). The sampling unit is either a retail or whole sale shop owner. As no prior information available on population variance, the sample size was estimated by ratio a maximum possible margin of error to standard deviation equal $\left(\alpha = \frac{e}{\sigma} = \frac{1}{8.6}\right)$ with 95% confidence interval. The sample size n thus computed using equation suggested by Scott & Gerald (2005).

$$n = \lambda^2_{\alpha/2}\left(\frac{\sigma}{e}\right)^2$$

$$= 1.96^2 * 8.6^2$$

$$= 300$$

The total sample size (300) was divided equally between two divisional secretaries. The sample size among the six selected GND in given divisional secretaries was allocated proportionately based on the total number of shops in the selected six GND (Table 3.1). Thus the sampling method is the purposive two stage proportional random sampling.

Table 3.1: Distribution of sample size

Sri Jayawardhanapura			***Matara***		
GND	No. shops	Unit of Sample	GND	No. shops	Unit of Sample
Welikada North	1,256	25	Kekanadura Central	517	29
Nawala East	1394	28	Godagama	497	28
Rajagiriya	846	18	Thudawa East	223	13
Ethul Kotte	1477	30	Isadin Town	589	33
Nugegoda	1102	22	Walgama	520	29
Gangodawila North	1340	27	Maddawaththa	309	17
Total	**7,415**	**150**	**Total**	**2655**	**150**

3.3. Collecting Data

Both quantitative and qualitative data were acquired through a structured questionnaire. The questionnaire was pretested using six randomly selected retail shops. The final questionnaire is given Appendix 1. The main factors can considered in this study are described in Table 3.2.

Table 3.2: Variables Considered for the Survey

Variable	Notation
Price of the Yoghurt	POY
Competitors	COY
Brand orientation	BOC
Area of the Factory	AOF
Type of the Shop	TOS
Flavor of the Yoghurt	FOY
Shape of Yoghurt Cup	SYC
Benefits of the Customers	BCC
Quality of the Yoghurt	QAY
Quantity of the Yoghurt	QUY
Discipline of the Company Sales Representative	DCR
Advertising Campaign	ADC
Contribution of the Area Sales Managers	CAM
Customer Knowledge	CKN

3.4. Classification of Variables for the Analysis

Variables identified for the questionnaire can be classified in to three means by their characters and qualities namely qualitative variables, quantitative variables and categorical variable

3.4.1. Quantitative Variable

Data in numerical quantities that can assume all possible values of which mathematical operations are possible. As an example in this study price is a quantitative variable.

3.4.2. Qualitative Variable

Qualitative variables are those having exact values that can fall in to number of separate categories with no possible immediate level. In this study type of shop, brand orientation, flavor of yoghurt, quality of yoghurt, quantity of yoghurt, shape of the yoghurt etc. are considered as qualitative variables.

3.4.3. Categorical Variable

Variable contain information that can be sorted in to categories, rather like sorting information in to bins. Every piece of information belongs in one and only one. The resulting data are merely labels or categories. As an example in this study competitor, type of shop, area of the shop, benefits of the customers and advertising campaign can be considered categorical variable. However, it should be noted that, quantitative variables can be also transformed in to categorical variables, depending on the requirement of the statistical analysis.

3.4.4. Dependent variable

In this study, the dependent variable is the type of customer which is binary variable. The dependent variable was coded as 1 and 0 where, 1 = Customer of Lucky yoghurt and 0 = Non customer of Lucky yoghurt.

3.4.5. Coding used for independent variables

- **Competitors *(Question no 2:2 , 2:2, 2:3, Appendix 1)***

Competitors are the most important factor for sale of goods. And thereby it is common to the sale of yoghurts. Presently, many yoghurt producing companies are available in the Sri Lankan market. Therefore competitor is an important factor to Lucky Lanka Milk Processing Company. That is the reason to include competitors as a variable in this study. Create indexes for the competitor variable. The index will include three questions. They are; is there any other yoghurt do you buy except Lucky? What are the other brands of yoghurt you buy? From the above mentioned brands what is the brand of the yoghurt that do you buy most? After giving marks for those three questions and building indexes to variable of discipline of the sales representatives. Its coding system is mention below.

60 – 100	have an effect from competitors
60 – 0	have not effect from competitors

- **Brand orientation** ***(Question no 2:4, Appendix 1)***

Today, brand is a very important factor when selling goods. People consider the brand of goods and they prefer to get goods of famous brand name. Therefore brand is very important for sales purposes. The coding system has been mention below.

Have an effect from brand orientation	1
Have no effect from brand orientation	0

- **Quality of yoghurt** ***(Question no 3:1, Appendix 1)***

Quality also is an important factor for high sale of goods Gonçalvez et al., (2009), Gnanaseelan, (2010). Therefore this factor is also included in this study as a variable as described below.

Good	1	Worse	2
Better	3	Worst	4

- **Shape of yoghurt cup** ***(Question no 3:5, Appendix 1)***

According to the literature review it was found that product packing outlook or design is another important factor that escort to the product perceived value. (Ann, (2008), Beltas et al., (2006), Khalid et al. (2006). Furthermore, packaging is an important part of the company reputation that plays a major role in communicating the product image. Better packaging shows that it is a quality product (Dileep, 2006). Therefore this variable is included for this study as described below.

Have an effect from shape of yoghurt cup	1
Have not effect from shape of yoghurt cup	0

- **Price of yoghurt** ***(Question no 3:9, Appendix 1)***

The variable price of yoghurt included for this study was coded as;

Satisfy for the price of lucky yoghurt	1
Not satisfy for the price of lucky yoghurt	0

- **Benefits of the customer** ***(Question no 4:1, 4:2, 4:3, Appendix 1)***

Customers are tempted for the purchase of some good, if they have some benefits or any other profit. Lucky Lanka Milk Processing Company gives many benefits for their customer and then it is necessary to understand those benefit are effect on the sale, Therefore factor of benefits of the customer include this study and collect the data. They are, did you get the facilities provided to the shop by the lucky Company? What are the facilities you got? And do you satisfy with the provided facilities? After giving marks for those three questions and building indexes to variable of discipline for the sales representatives. Its coding system is mentioned below.

60 – 125 have an effect from benefits of the customers.

60 – 0 have no effect from benefits of the customer

- **Customer Knowledge** ***(Question no 5:1, Appendix 1)***

When making a purchase of any product, customers often rely on personal memory/knowledge to make decisions. (Satish and Peter, (2004); Li et al. (2006)) elucidate that, consumer psychology perception openly reflects consumer viewpoints on product knowledge and consumer knowledge of a product can help consumers to make their decisions effectively. Therefore this variable is also included as a variable for this study and coding system is mentioned below.

Customer know about the lucky yoghurt	1
Customer do not know about lucky yoghurt	0

- **Advertising Campaign** ***(Question no 5:1, 5:2, 5:3, 5:4, Appendix 1)***

Advertising is the most important factor in selling product. The study of Conell and Foik (1982) mentioned that advertising influence sale positively and B Alicia and Gerard (1999) claimed that advertising can be taken not only as an effect on consumer utility but also can have an effect on which products they are aware of. That clearly shows that advertising is highly significant for sales in products. Therefore advertising factor is included this study and collected the data. Create an indexes and that variable to collect data by four questions. They are, do you satisfy with the methods used by the Lucky Company to advertise the product? What are the advertising methods that you see? How do you tempt to buy lucky yoghurts? And do you satisfy about the advertising of the lucky yoghurt? After giving marks for those four questions and building indexes to variable of discipline of the sales representatives. Its coding system is mentioned below.

75 – 150 have an effect from advertising campaign

75 – 0 have no effect from advertising campaign

- **Discipline of the Sales Representatives** ***(Question no 6:1, 6:2, Appendix 1)***

Another very important factor is the contribution of the sale representatives of the company for sales. Top level management of Lucky Lanka Milk Processing Company said "company sales representatives have not given high contribution for the sales". So contribution of the company sales representatives' is an important factor for the sales of Lucky Lanka Milk processing Company. Therefore contribution of the company sales representative factor includes to this study as a variable and collected data for it. The two questions used for collecting data are, Did the sales reps of the lucky company come to your shops? and How long did the sales reps visit your shop after their first visit? After giving marks for those questions and building indexes to variable of discipline of the sales representatives. Its coding system is mentioned below.

40 – 75 have an effect from discipline of the sales representatives

40 – 0 have not effect from discipline of the sales representatives

3.5. Statistical Methods

3.5.1. Association between two factors

In order to test whether the explantarary categorical variables have a significant impact on the dependent variable, Chi–square analysis was carried out separately for each variable and accordingly the hypothesis tested from this analysis is;

H_0 : There is a no significant association between two factors

H_1 : There is a significant association between two factors

The test statistic is given by

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{r}\frac{(f_o-f_e)^2}{f_e} \approx \chi^2_v \qquad (3.1)$$

$$v = (r-1)(c-1) = \text{Degrees of freedom}$$

f_0 = Observed frequency

f_e = Expected frequency

r = Number of raws

c = Number of columns

3.5.2. Binary Logistic regression analysis

The regression analysis is used to find the functional relationship between independent variables and dependant variable, when dependant variable is continuous. If the dependant variable is not continuous and is in categorical form normality assumption does not satisfy. In such occasion logistic regression has been suggested by Hosmer (1986). When the dependent variable has two levels or two categories, the model is known as binary logistic regression. Binary logistic regression has special features. To find the significance impact of a categorical variable x on the probability of customer use Lucky yoghurt the following model is used.

$$\text{Log(odds)} = \log\left(\frac{\rho}{1-\rho}\right) = \beta_0 + \beta_1 x_j \qquad j = 1,2,\ldots\ldots p$$

(3.2)

Where,

P = prob(customer use Lucky yoghurt)

X_j = Predictor variable

Thus

$$\rho = \frac{e^{\beta_0+\beta_1 x_j}}{1+e^{\beta_0+\beta_1 x_j}}$$

And

$$\text{odds} = e^{\beta_0+\beta_1 x_j}$$

Therefore a given variable x_1 Odds $(x = 0) = e^{\beta_0}$ and odds $(x = 1) = e^{\beta_0+\beta_1 x_1}$

When the logistic model is extended all categorical variables, the model becomes,

$$\text{Log}\left(\frac{\rho}{1-\rho}\right) = \beta_0 + \beta_1 POY + \beta_2 COY + \beta_3 BOC + \beta_4 AOF + \beta_5 TOS + \beta_6 FOY + \beta_7 SYC + \beta_8 BCC + \beta_9 QAY + \beta_{10} QUY + \beta_{11} DCR + \beta_{12} ADC + \beta_{13} CRM + \beta_{14} CKN + \varepsilon$$

Where,

POY = Price of the Yoghurt

COY = Competitors

BOC = Brand orientation

AOF = Area of the Factory

TOS = Type of the Shop

FOY = Flavor of the Yoghurt

SYC = Shape of Yoghurt Cup

BCC = Benefits of the Customers

QAY = Quality of the Yoghurt

QUY = Quantity of the Yoghurt

DCR = Discipline of the Company Sales Representative

ADC = Advertising Campaign

CRM = Contribution of the Sales Representatives and Managers

CKN = Customer Knowledge

3.5.2.1. Goodness of fit of the logistic regression

The following statistics are used to validate the logistic model, as suggested by Sharma (2003).

- -2 log likelihood
- Chi-square goodness of fit test
- Coefficient of the Cox and Snell R^2
- Coefficient of the Nagelkeike pseudo R^2
- Wald test statistics
- P Value
- Confidence intervals for the odd ratio
- Hosmer - Lemshow test

-2 log likelihood

To estimate the parameters in a linear model with mean function by -2 log likelihood, need to specify the distribution of the response vector. In the linear model with a continuous response variable, it is commonly assumed that the response is normally distributed. In that case, the estimation problem is completely defined by specifying

the mean and variance in addition to the normality assumption the log likelihood can be written as shown in (3.3).

$$-2\log\frac{L_0}{L_1} = -2[\log(L_0) - \log(L_1) = -2(L_0 - L_1)] \qquad (3.3)$$

Chi-square goodness of fit test

The change that occurs in the log likelihood or deviation value, when adding variables to model, is given by the chi- square. After adding a new variable to a model, to be that, a suitable variable to the model the chi value of the model must be significant. According to that the goodness of the model is tested by adding variables to the model while testing the chi- square value. Chi-square statistics is given by (3.4)

$$X^2 = \frac{\Sigma(observed - expected)^2}{expected} \qquad (3.4)$$

Coefficient of the Cox and Snell R^2

The proportion of the variance to independent variable from dependent variable in the model described by coefficient of the cox and snell R^2. Value can go maximum up to 1 in the cox and snell R^2. Method of calculating the cox and snell R^2 is shown in 3.5 equation.

$$R^2_{CS} = 1 - e^{\left[-\frac{2}{n}(LL(New) - LL(Base\ Line))\right]} \qquad (3.5)$$

Coefficient of the Nagelkeike pseudo R^2

The proportion of the Total variance to independent variables from dependent variable in the model described by coefficient of the Nagelkeike pseudo R^2. Method of calculating the it is shown in 3.6 equation.

$$R^2_N = \frac{R^2}{1 - e^{\left[\frac{2LL(Base\ Line)}{n}\right]}} \qquad (3.6)$$

Wald Test Statistics

The Wald statistic is calculated for the variables in the model to regulate whether a variable should be removed. If the i^{th} variable is not categorical, the Wald statistic is well-defined by 3.7 equation.

$$\text{Wald Value} = Z^2 = \left[\frac{\beta}{SE(\beta)}\right] \qquad (3.7)$$

P Value

We wish to test a null hypothesis against an alternative hypothesis using a dataset. The two hypotheses specify two statistical models for the procedure that produced the data. The alternative hypothesis is what we expect to be true if the null hypothesis is false. We cannot prove that the alternative hypothesis is true but we may be able to demonstrate that the alternative is much more plausible than the null hypothesis given the data. This demonstration is usually expressed in terms of a probability (a P-value) quantifying the strength of the evidence against the null hypothesis in favour of the alternative

If P Value < 0.05 H_0 that null hypothesis is reject.

Confidence intervals for the Odd ratio

If the build for the odd ration from confidence intervals are not included in the 1, so that variable is not a significant one.

Hosmer - Lemshow Test

The Hosmer–Lemeshow test is a commonly used test for assessing the goodness of fit of a model and allows for any number of explanatory variables, which may be continuous or categorical. The test is similar to a χ^2 goodness of fit test and has the advantage of partitioning the observations into groups of approximately equal size, and therefore there are less likely to be groups with very low observed and expected frequencies. The observations are grouped into deciles based on the predicted probabilities.

CHAPTER 04

RESULT AND DISCUSSION

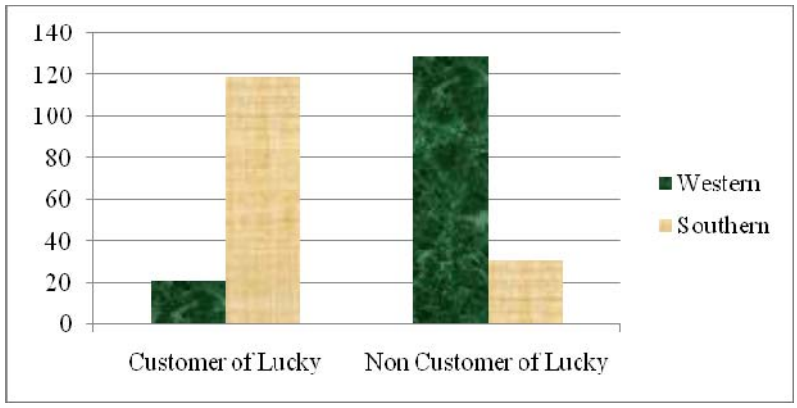
4.1. Introduction

This chapter gives the analysis of collected data using various statistical methodologies describe in chapter 3 and the interpretation of results. Those variables analyzed using likelihood chi – square test in order to check whether every variable is significantly influenced on buying Lucky yoghurt.

4.2. Impact of Province on the Use of Lucky yoghurt

Sample of 150 shops were selected from each district was grouped for both customers of Lucky yogurt and non customer of the Lucky yogurt. Summary results are shown in Figure 4.1.

Figure 4.1: Impact of province



According to the Figure 4.1 in the Western province, customers of Lucky yoghurt are 21 and non-customers of Lucky yoghurt are 129. Its percentage order is 14% and 86% respectively, In contrast, in the Southern province number of customer of Lucky yoghurt is 119 and non-customers of Lucky yoghurt is 31. The corresponding percentages are 79% and 21% (Table 4.1).

Table 4.1: Association between Province and Type of Customer

Province	Type of Customer				
	Customer of Lucky	%	Non Customer of Lucky	%	Total
Western	21	14	129	86	**150**
Southern	119	79.3	31	20.7	**150**
Total	**140**		**160**		**300**

$(\chi^2 = 1.286, p = 0.000)$

Above result indicates that chi square statistics is significant (p=0.000) at the 5% level of significance. Thus it can be concluded that there is significant association between type of customer and province. As there is a significant difference between the two provinces, the relationship between the factors which affect the sales of yoghurt in those provinces and the dependent variable (Customer or Non customer), is separately analyzed and results are shown accordingly.

4.3. Factors effect on usage of Lucky Yoghurt at Western Province

4.3.1. Impact of price of yoghurt cup

Table 4.2: Association between Price of Lucky Yoghurt cup and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Price of Lucky Yoghurt cup	Has an Effect	Count	10	117	**127**
		Raw %	7.9	92.1	**100%**
	Has a not Effect	Count	11	12	**23**
		Raw %	47.8	52.2	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 25.816, p = 0.000)$

According to the results in Table 4.2, the chi–square, statistic is significant (p = 0.000). Thus it can be concluded that there was a significant association between the price of Lucky yoghurt cup and use of Lucky yoghurt in Western province. Of the 92.1% of customers who claimed price has an effect are non users of Lucky yoghurt.

The corresponding percentage among those who claimed price has no effect is 52.2%.

In the sample 127 shops have an effect from price of Lucky yoghurt cup to the yoghurt sale and 23 shops have no effect from price of Lucky yoghurt cup to the yoghurt sale at Western province. Have an effect category consists about 7.9% for customer of the Lucky yoghurt and 92.1% for non-customer of the Lucky yoghurt and have not effect category consists about 47.8% for customer of the Lucky yoghurt and 52.2% for non-customer of the Lucky yoghurt.

4.3.2. Impact of competitors

Table 4.3: Association between Competitors of Lucky Yoghurt and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Competitors	Have an Effect	Count	21	106	**127**
		Raw %	16.5	83.5	**100%**
	Have a not Effect	Count	0	23	**23**
		Raw %	0	100	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 4.422, p = 0.035)$

As the results in Table 4.3, the chi–square statistics is significant (p = 0.035). Thus it can be concluded that there was a significant relationship between the competitors of Lucky yoghurt and use of Lucky yoghurt in Western province.

In the sample 127 shops have an effect from competitors of yoghurt to the sale of Lucky yoghurt and 23 shops have no effect from competitors of yoghurt to the sale of Lucky yoghurt at Western province. Of those who have by the competitors about 16.5% of the customers are Lucky yoghurt users and 83.5% are non-customer of the Lucky yoghurt. Furthermore it is interested to note that all those who claimed competitors have no effect are non users of Lucky yoghurt.

4.3.3. Impact of Brand Orientation

Table 4.4: Association between Brand Orientation and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Brand Name of the Yoghurt	Has an Effect	Count	21	103	**124**
		Raw %	16.9	83.1	**100%**
	Has not Effect	Count	0	26	**26**
		Raw %	0	100	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 5.120, p = 0.024)$

According to the results in Table 4.4, the chi–square, statistics is significant (p = 0.024).Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and brand orientation in the Western province. Of the 83.1% of customers who claimed brand has an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed brand has no effect is non users of Lucky yoghurt (100%)

According to the results in Table 4.4 in the sample 124 shops (82.7%) have an effect from brand name to the sales of Lucky yoghurt and 26 shops (17.3%) have not effected from brand name to the sales of Lucky yoghurt at Western province. Of those who have by the brand about 16.9% of the customers are Lucky yoghurt users and 83.1% are non customer of the Lucky yoghurt.

4.3.4. Impact of Factory Area

Table 4.5: Association between Factory Area and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Factory Area	Has an Effect	Count	12	12	**24**
		Raw %	50	50	**100%**
	Has a not Effect	Count	9	117	**126**
		Raw %	7.1	92.9	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 30.762, p = 0.000)$

As chi–square, statistics is significant (p = 0.000), it can be concluded that there is a significant association between usage of Lucky yoghurt and Factory area at the Western province. Of the 50% of customers who claimed factory area has an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed factory area has no effect is 92.9%. But 50% of customers who claimed factory area has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed factory area has no effect 7.1%.

4.3.5. Impact of Type of Business

Table 4.6: Association between Type of Business and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Type of Business	Retail Shop	Count	16	69	**85**
		Raw %	18.8	81.2	**100%**
	Wholesale Shop	Count	4	1	**5**
		Raw %	80	20	**100%**
	Restaurant	Count	1	25	**26**
		Raw %	3.8	96.2	**100%**
	Pastry shop	Count	0	34	**34**
		Raw %	0	100	**100%**
	Total		**21**	**129**	**150**

$(\chi^2 = 27.502, p = 0.000)$

As the results in the Table 4.6, the chi–square, statistics is significant (p = 0.000), it can be concluded that there is a significant association between usage of Lucky yoghurt and type of business in the Western province. Their percentage orders are 18.8% and 81.2%. Wholesale shops have 5 shops consist about the sample at western province. It consisted about 4 in customer of Lucky yoghurt and 1 in non-customer of Lucky yoghurt. Their percentage orders are 80%, 20%. Restaurants have 26 shops consist from the sample at western province. It consisted about 1 in customer of the Lucky yoghurt and 25 are non-customer of the Lucky yoghurt. Pastry shops have 34 shops consist about the sample.

4.3.6. Impact of Flavor of the Yoghurt

Table 4.7: Association between Flavours of Lucky Yoghurt and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Flavor of the Lucky Yoghurt	Milk Flavor	Count	9	66	**75**
		Raw %	12	88	**100%**
	Sourness Flavor	Count	11	50	**61**
		Raw %	18	82	**100%**
	Artificial Flavor	Count	1	13	**14**
		Raw %	7.1	92.9	**100%**
	Total		**21**	**129**	**150**

$(\chi^2 = 1.625, p = 0.445)$

The results in the Tables 4.7 indicate thT the chi–square, statistics is not significant (p = 0.445). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and flavor of Lucky yoghurt in Western province.

4.3.7. Impact of Shape of Yoghurt Cup

Table 4.8: Association between Shape of the Cup and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Shape of yoghurt Cup	Has an Effect	Count	20	109	**129**
		Raw %	15.5	84.5	**100%**
	Has a not Effect	Count	1	20	**21**
		Raw %	4.8	95.2	**100%**
	Total		**21**	**129**	**150**

$(\chi^2 = 1.735, p = 0.188)$

As the chi–square, statistics is not significant (p = 0.188), it can be concluded that there is a no significant association between usage of Lucky yoghurt and shape of yoghurt cup in the Western province. Of the 84.5% of customers who claimed shape of yoghurt cup has an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed shape of yoghurt cup has no effect is 95.2%.

But 15.5% of customers who claimed shape of yoghurt cup has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed shape of yoghurt cup has no effect 4.8%.

4.3.8. Impact of Benefits of the Company

Table 4.9: Association between Benefits of the Company and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Benefits of the Company	Has an Effect	Count	6	1	**7**
		Raw %	85.7	14.3	**100%**
	Has a not Effect	Count	15	128	**143**
		Raw %	10.5	89.5	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 31.365, p = 0.000)$

The results in Table 4.9, indicate that the chi–square statistic is significant (p= 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and benefits of the company in the Western province. Of the 14.3% of customers who claimed benefits of the company have an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed benefits of the company have no effect is 89.5%. But 85.7% of customers who claimed benefits of the company has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed benefits of the company has no effect 10.5%.

4.3.9. Impact of Quality of the Yoghurt

Table 4.10: Association between Quality of the Lucky yoghurt and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Quality of the Lucky Yoghurt	Good	Count	21	22	**43**
		Raw %	48.8	51.2	**100%**
	Not Good	Count	0	107	**107**
		Raw %	0	100	**100%**
Total			**21**	**129**	**150**

(χ^2 = 60.763, p = 0.000)

According to the results in Table 4.10, the chi–square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and quality of Lucky yoghurt in Western province.

Consist of the sample, 83.4 percent of total respondents stated that quality of Lucky yoghurt was good or not bad for their usage of Lucky yoghurt. Also, availability of quality of yoghurt was bad for higher percentage (100%) of usage of Lucky yoghurt in Western province. As none of the customers of Lucky yoghurt users claim quality is not good (not bad, bad and very bad). These three groups were pooled.

4.3.10. Impact of Quantity of Yoghurt Cup

Table 4.11: Association between Quantity of the yoghurt cup and Usage of Lucky yoghurt in Western province.

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Quantity of the Yoghurt Cup	Has an Effect	Count	21	113	**134**
		Raw %	15.7	84.3	**100%**
	Has a not Effect	Count	1	16	**17**
		Raw %	5.9	94.1	**100%**
Total			**22**	**129**	**151**

$(\chi^2 = 2.926, p = 0.088)$

The results in Table 4.11 indicate that the chi–square statistics is not significant (p = 0.088). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and quantity of Lucky yoghurt in Western province. In the sample, 134 shops (88.7%) have an effect from quantity of the yoghurt cup to the sale of yoghurt and 17 shops (11.3%) have no effect from quantity of yoghurt cup to the sale of yoghurt at Western province. Of customers who claimed quantity of Lucky yoghurt have an effect 84.3% is non users of Lucky yoghurt. The corresponding percentage among those who claimed quantity of Lucky yoghurt have no effect is 94.1%.

4.3.11. Impact of Discipline of the Company

Table 4.12: Association between Discipline of the Company Sales Rep and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Discipline of the Company Sales Rep	Has an Effect	Count	2	70	**72**
		Raw %	2.8	97.2	**100%**
	Has a not Effect	Count	19	59	**78**
		Raw %	24.4	75.6	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 14.487, p = 0.000)$

According to the results in Table 4.12, the chi–square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and discipline of the company sales representative in Western province. Of total respondent 48% mentioned that discipline of the company sales reps were effect from the usage of Lucky yoghurt. Of the 97.2% of customers who claimed discipline of the company sales representative have an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed discipline of the company sales representative have no effect is 75.6%. But 2.8% of customers who claimed discipline of the company sales representative has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed discipline of the company sales representative has no effect 24.4%.

4.3.12. Impact of Advertising Campaign

Table 4.13: Association between Advertising Campaign and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Advertising Campaign	Has an Effect	Count	20	28	**48**
		Raw %	41.7	58.3	**100%**
	Has a not Effect	Count	1	101	**102**
		Raw %	1	99	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 44.884, p = 0.000)$

According to the result in above table, the chi–square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and Advertising campaign in Western province. In the sample 48 shops have an effect from advertising campaign to sale of yoghurt and 102 shops have no effect from advertising campaign to the sale of yoghurt at Western province. Of the 58.3% of customers who claimed advertising campaign have an effect are non users of Lucky yoghurt. The corresponding percentage among those who claimed advertising campaign have no effect is 99.0%. But 41.7% of customers who claimed advertising campaign has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed advertising campaign has no effect 1.0%.

4.3.13. Impact of Contribution of Area Sales Managers

Table 4.14: Association between Contribution of Area Sales Managers and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Contribution of Area Sales Managers	Has an Effect	Count	10	80	**90**
		Raw %	11.1	88.9	**100%**
	Has a not Effect	Count	11	49	**60**
		Raw %	18.3	81.7	**100%**

$(\chi^2 = 1.567, p = 0.212)$

According to the result in Table 4.14, the chi – square statistics is not significant (p = 0.088). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and contribution of Area Sales Managers (ASMs) in Western province.

4.3.14. Impact of Customer Knowledge

Table 4.15: Association between Customer Knowledge and Usage of Lucky yoghurt in Western province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Customer Knowledge	Has an Effect	Count	21	24	**45**
		Raw %	46.7	53.3	**100%**
	Has a not Effect	Count	0	105	**105**
		Raw %	0	100	**100%**
Total			**21**	**129**	**150**

$(\chi^2 = 56.986, p = 0.000)$

The result in Table 4.15, indicate that the chi–square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and customer knowledge in Western province.

In the sample consisted, 45 shops have an effect from customer knowledge to the sale of Lucky yoghurt and 105 shops have no effect from customer knowledge to the sales of Lucky yoghurt at Western province. Of the 53.3% of customers who claimed customer knowledge have an effect are non users of Lucky yoghurt. Furthermore it is interested to note that all those who claimed that customer knowledge have no effect are non users of Lucky yoghurt.

4.4. Factors effect on usage of Lucky Yoghurt in Southern Province

4.4.1. Impact of price of yoghurt cup

Table 4.16: Association between Price of Lucky Yoghurt cup and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Not Customer of the Lucky	**Total**
Price of Lucky Yoghurt cup	Has an Effect	Count	113	31	**144**
		Raw %	78.5	21.5	**100%**
	Has a not Effect	Count	6	0	**6**
		Raw %	100	0	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 1.628, p = 0.202)$

According to the results in Table 4.16, the chi – square, statistics is not significant (p = 0.202). Thus it can be concluded that there is not significant relationship between the price of Lucky yoghurt cup and use of Lucky yoghurt in Southern province.

In the sample 144 shops have an effect from price of Lucky yoghurt cup to the yoghurt sale and 6 shops have no effect from price of Lucky yoghurt cup to the yoghurt sale in Southern province. Of the 78.5% of customers who claimed price has an effect are users of Lucky yoghurt. Furthermore it is interested to note that all those who claimed that price have no effect are users of Lucky yoghurt in Southern province.

4.4.2. Impact of competitors

Table 4.17: Association between Competitors of Lucky Yoghurt and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Competitors of Lucky Yoghurt	Has an Effect	Count	71	24	**95**
		Raw %	74.7	25.3	**100%**
	Has a not Effect	Count	48	7	**55**
		Raw %	87.3	12.7	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 3.339, p = 0.068)$

As the results in Table 4.17, the chi–square, statistics is significant (p = 0.068). Thus it can be concluded that there is a significant relationship between the competitors of Lucky yoghurt and use of Lucky yoghurt in Southern province.

In the sample, 95 shops have an effect from competitors of yoghurt to the sale of Lucky yoghurt and 55 shops have no effect from competitors of yoghurt to the sale of Lucky yoghurt in Southern province. Of those who have by the competitors about 74.7% of the customers are Lucky yoghurt users and 25.3% are non-customer of the Lucky yoghurt. Of the 74.7% of customers who claimed factory area has an effect are users of Lucky yoghurt and corresponding percentage among those who claimed competitors has no effect 87.3%.

4.4.3. Impact of Brand Orientation

Table 4.18: Association between Brand orientation and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Brand Orientation	Has an Effect	Count	107	12	**119**
		Raw %	89.9	10.1	**100%**
	Has not Effect	Count	12	19	**31**
		Raw %	38.7	61.3	**100%**
Total			**119**	**31**	**150**

(χ^2 = 39.398, p = 0.000)

According to the results in Table 4.18, the chi–square, statistics is significant (p = 0.000).Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and brand orientation in Southern province

In the sample, 119 shops have an effect from brand name to the sales of Lucky yoghurt and 31 shops have not effected from brand name to the sales of Lucky yoghurt. Of the 89.9% of customers who claimed brand has an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed brand has no effect is 38.7%. But 10.1% of customers who claimed brand has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed brand has no effect 61.3%.

4.4.4. Impact of Factory Area

Table 4.19: Association between Factory Area and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Factory Area	Has an Effect	Count	109	12	**121**
		Raw %	90.1	9.9	**100%**
	Has a not Effect	Count	10	19	**29**
		Raw %	34.5	65.5	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 44.113, p = 0.000)$

As chi–square statistics is significant (p = 0.000). It can be concluded that there is a significant association between usage of Lucky yoghurt and factory area in the Southern province.

In the sample consisted, 121 shops have an effect from factory area to the sales of Lucky yoghurt and 29 shops have no effect from factory area to the sales of Lucky yoghurt in Southern province. Of the 90.1% of customers who claimed factory area has an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed factory area has no effect is 34.5%. But 9.9% of customers who claimed factory area has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed factory area has no effect 65.5%.

4.4.5. Impact of Type of Business

Table 4.20: Association between Type of Business and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Type of Business	Retail Shop	Count	82	19	**101**
		Raw %	81.2	18.8	**100%**
	Wholesale Shop	Count	0	6	**6**
		Raw %	0	100	**100%**
	Restaurant	Count	31	6	**37**
		Raw %	83.8	16.2	**100%**
	Pastry shop	Count	6	0	**6**
		Raw %	100	0	**100%**
	Total		**119**	**31**	**150**

$(\chi^2 = 25.256, p = 0.000)$

As result in Table 4.20, the chi–square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and type of business in the Southern province.

According to the Table 4.20 retail shops have 101 in southern province of the sample. Retail shops consisted 82 are customers of Lucky yoghurt and 19 are non-customers of Lucky yoghurt. Their percentage orders are 81.2% and 18.8%. Wholesale shops have 5 shops consist about 6 of the sample. Wholesale shops do not have shops in customer of Lucky yoghurt and 6 is non-customer of Lucky yoghurt. Restaurants have 26 shops consist from the sample at western province and 37 in Southern province of the sample. Restaurants about consisted about 31 shops in customer of the Lucky yoghurt and 6 are non-customer of the Lucky yoghurt. Their percentage orders are 83.8% and 16.2%. Pastry shops have 6 in Southern province of the sample.

4.4.6. Impact of Flavor of the Yoghurt

Table 4.21: Association between Flavours of Lucky Yoghurt and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Flavor of the Lucky Yoghurt	Milk Flavor	Count	55	7	**62**
		Raw %	88.7	11.3	**100%**
	Sourness Flavor	Count	39	6	**45**
		Raw %	86.7	13.3	**100%**
	Artificial Flavor	Count	25	18	**43**
		Raw %	58.1	41.9	**100%**
	Total		**119**	**31**	**150**

$(\chi^2 = 16.586, p = 0.000)$

According to the results in the Table 4.21 the chi–square, statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and flavor of Lucky yoghurt in Southern province.

In the sample represents 62 shops of the milk flavor in Southern province. It consists of 88.7% and 11.3% in customer of the Lucky yoghurt and non-customer of the Lucky yoghurt. The sample represents 45 of sourness flavor in Southern provinces. It is 86.7% customer of Lucky yoghurt in Southern provinces and 13.3% in non-customer of Lucky yoghurt. Considering the above Table no 4.21, the sample represents 58.1% and 41.9% represent order in customer of Lucky yoghurt and non-customer of the Lucky yoghurt.

4.4.7. Impact of Shape of Yoghurt Cup

Cross tabulation between shapes of yoghurt cup and usage of Lucky yoghurt is shown in the Table 4.22.

Table 4.22: Association between Shape of the yoghurt Cup and Usage of Lucky yoghurt in Southern province.

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Shape of the yoghurt Cup	Has an Effect	Count	110	29	**139**
		Raw %	79.1	20.9	**100%**
	Has a not Effect	Count	9	2	**11**
		Raw %	81.8	18.2	**100%**
	Total		**119**	**31**	**150**

$(\chi^2 = 0.045, p = 0.833)$

As the result in Table 4.22, the chi – square statistics is not significant (p = 0.833). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and shape of yoghurt cup in the Southern province.

Within the sample 139 shops have an effect from shape of yoghurt cup to the sale of Lucky yoghurt and 11 shops have no effect from shape of yoghurt cup to the sale of Lucky yoghurt in Southern province. Of the 79.1% of customers who claimed shape of yoghurt cup has an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed shape of yoghurt cup has no effect is 81.8%. But 20.9% of customers who claimed shape of yoghurt cup has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed shape of yoghurt cup has no effect 18.2%.

4.4.8. Impact of Benefits of the Company

Table 4.23: Association between Benefits of the Company and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Benefits of the Company	Has an Effect	Count	96	0	**96**
		Raw %	100	0	**100%**
	Has a not Effect	Count	23	31	**54**
		Raw %	42.6	57.4	**100%**
Total			**119**	**31**	**150**

(χ^2 = 69.476, p = 0.000)

According to the results in Table 4.23, the chi–square statistics is significant (p= 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and benefits of the company in the Southern province.

In the sample 96 shops have an effect from benefits of the company give to customers to the sales of Lucky yoghurt and 54 shops have no effect from benefits of the company for customers to the sale of Lucky yoghurt in Southern province. Of the 100% of customers who claimed benefits of the company have an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed benefits of the company have no effect is 42.6%.

4.4.9. Impact of Quality of the Yoghurt

Table 4.24: Association between Quality of the Lucky yoghurt and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Quality of the Lucky Yoghurt	Good	Count	100	7	**107**
		Raw %	93.5	6.5	**100%**
	Not Good	Count	19	24	**43**
		Raw %	44.2	55.8	**100%**
Total			**119**	**31**	**150**

(χ^2 = 66.184, p = 0.000)

According to the results in Table 4.24, the chi – square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and quality of Lucky yoghurt at Southern province.

Consist of the sample, good quality of Lucky yoghurt have 107 in southern province of the sample. It is consisted has 100 in customer of the Lucky yoghurt and 7 in non-customer of the Lucky yoghurt. Their percentage orders are 93.5% and 6.5%. Not good quality of Lucky yoghurt is 19 shops consist about the customer of the Lucky yoghurt. It is 100% of the not good quality of Lucky yoghurt. 24 shops of total respondents stated that quality of Lucky yoghurt was not good for their usage of Lucky yoghurt. As none of the customers of Lucky yoghurt users claim quality is not good (not bad, bad and very bad). These three groups were pooled.

4.4.10. Impact of Quantity of Yoghurt Cup

Table 4.25: Association between Quantity of the yoghurt Cup and Usage of Lucky yoghurt in Southern province.

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Quantity of the Yoghurt Cup	Has an Effect	Count	109	31	**140**
		Raw %	77.9	22.1	**100%**
	Has a not Effect	Count	10	0	**10**
		Raw %	100	0	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 2.791, p = 0.095)$

As chi–square statistics is not significant (p = 0.095). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and quantity of Lucky yoghurt IN Southern province.

According to the Table 4.25 in the sample, 140 shops have an effect from quantity of the yoghurt cup to the sale of yoghurt and 10 shops have no effect from quantity of yoghurt cup to the sale of yoghurt in Southern province. Of the 77.9% of customers who claimed quantity of Lucky yoghurt have an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed quantity of Lucky yoghurt have no effect is 100%. But 22.1% of customers who claimed quantity of Lucky yoghurt has an effect are non users of Lucky yoghurt.

4.4.11. Impact of Discipline of the Company

Table 4.26: Association between Discipline of the Company Sales Rep and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Discipline of the Company Sales Rep	Has an Effect	Count	119	24	**143**
		Raw %	83.2	16.8	**100%**
	Has a not Effect	Count	0	7	**7**
		Raw %	0	100	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 28.186, p = 0.000)$

According to the results in Table 4.26, the chi – square statistics is significant (p = 0.000). Thus it can be concluded that there is a significant association between usage of Lucky yoghurt and discipline of the company sales representative in Southern province.

In the sample, out of total respondent 95.3% mentioned that discipline of the company sales reps were effect from the usage of Lucky yoghurt. It is shown in Table 4.26. 4.7% have no effect from discipline of the company sales representatives to the yoghurt sale in Southern province. Of the 83.2% of customers who claimed discipline of the company sales representative have an effect are users of Lucky yoghurt. But 16.8% of customers who claimed discipline of the company sales representative has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed discipline of the company sales representative has no effect 100%.

4.4.12. Impact of Advertising Campaigns

Table 4.27: Association between Advertising Campaigns and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Advertising Campaigns	Have an Effect	Count	114	25	**139**
		Raw %	82	18	**100%**
	Have a not Effect	Count	5	6	**11**
		Raw %	45.5	54.5	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 8.313, p = 0.040)$

According to the result in above Table, the chi – square statistics is significant (p = 0.040). It can be concluded that there is a significant association between usage of Lucky yoghurt and Advertising campaign in Southern province.

In the sample 139 shops have an effect from advertising campaign to sale of yoghurt and 11 shops have no effect from advertising campaign to the sale of yoghurt at Southern province. Of customers who claimed advertising campaign have an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed advertising campaign have no effect is 45.5 %. But 18.0% of customers who claimed advertising campaign has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed advertising campaign has no effect 54.5%.

4.4.13. Impact of Contribution of Area Sales Managers

Table 4.28: Association between Contribution of Area Sales Managers and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Contribution of Area Sales Managers	Has an Effect	Count	112	29	**141**
		Raw %	79.4	20.6	**100%**
	Has a not Effect	Count	7	2	**9**
		Raw %	77.8	22.2	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 2.157, p = 0.142)$

According to the result in Table 4.28, the chi–square statistics is not significant (p = 0.142). It can be concluded that there is a no significant association between usage of Lucky yoghurt and contribution of ASM in Southern province.

In the sample consisted, 141 shops have an effect from contribution of ASMs to the sale of Lucky yoghurt and 9 shops have no effect from contribution of ASMs to the sale of Lucky yoghurt at Southern province. Of the 79.4% of customers who claimed contribution of ASMs have an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed contribution of ASMs have no effect is 77.8%. But 20.6% of customers who claimed contribution of ASMs has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed contribution of ASMs has no effect 22.2%.

4.4.14. Impact of Customer Knowledge

Table 4.29: Association between Customer Knowledge and Usage of Lucky yoghurt in Southern province

			Customer of the Lucky	Non Customer of the Lucky	**Total**
Customer Knowledge	Has an Effect	Count	36	4	**40**
		Raw %	90	10	**100%**
	Has a not Effect	Count	83	27	**110**
		Raw %	75.5	24.5	**100%**
Total			**119**	**31**	**150**

$(\chi^2 = 3.785, p = 0.052)$

According to the result in Table 4.29, the chi–square statistics is not significant (p = 0.052). Thus it can be concluded that there is a no significant association between usage of Lucky yoghurt and customer knowledge in Southern province.

In the sample consisted, 40 shops have an effect from customer knowledge to the sale of Lucky yoghurt and 110 shops have no effect from customer knowledge to the sales of Lucky yoghurt at Southern province. Of the 90.0% of customers who claimed customer knowledge have an effect are users of Lucky yoghurt. The corresponding percentage among those who claimed contribution of customer knowledge have no effect is 75.5%. But 10.0% of customers who claimed contribution of customer knowledge has an effect are non users of Lucky yoghurt and corresponding percentage among those who claimed contribution of customer knowledge has no effect 24.5%.

4.5. Summary of the Chapter

Of the selected factors, price of the yoghurt, competitors, brand orientation, area of the factory, type of the shop, benefits of the customers, quality of the yoghurt, discipline of the company sales representative, advertising campaign and customer knowledge were founded as significant variables for the usage of Lucky yoghurt in Western province. And brand orientation, area of the factory, type of the shop, flavor of the yoghurt, benefits of the customers, quality of the yoghurt, discipline of the company sales representative, advertising campaign and customer knowledge were founded as significant variables for the usage of Lucky yoghurt in Southern province. However, type of the shop, brand orientation, quality of the yoghurt, area of the factory, benefits of the customers, advertising campaign, discipline of the company sales representative and customer knowledge variable were statistically significant variables from the usage of Lucky yoghurt in both Western and Southern provinces.

CHAPTER 05

USE OF LOGISTIC REGRESSION

5.1. Introduction

In chapter four, when each variable was analyzed separately, it was found that price of the yoghurt (POY), competitors (COY), brand orientation (BOC), area of the factory (AOF), type of the shop (TOS), benefits of the customers (BCC), quality of the yoghurt (QAY), discipline of the company sales representative (DCR), advertising campaign (ADC) and customer knowledge (CKN) were significantly associated with usage of Lucky yoghurt in Western province. The variables such as area of the factory (AOF), type of the shop (TOS), flavor of the yoghurt (FOY), benefits of the customers (BCC), quality of the yoghurt (QAY), discipline of the company sales representative (DCR), advertising campaign (ADC) and brand orientation (BOC) were found as significantly associated with usage of Lucky yoghurt in the Southern province. Thus in this chapter, effect of all significant variables were analyzed simultaneously using binary logistic regression.

5.2. Result of Logistic Regression

Because of that from the significance association, the estimation of the functional relationship between the dependent variables and statistically significant relationship variables by the Binary Logistic Regression was carried out. Results in Table 5.1 represent the summarized results which were taken from the Binary Logistic Analysis.

Table 5.1: Result Summary of the Binary Logistic regression

Province	Variables		B	S.E	Wald Statistics	P Value	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Western	BOC	Has an effect	2.397	0.846	18.675	0.041	2.004	1.259	12.543
	QAY	Good	3.601	0.756	12.718	0.000	30.892	7.547	316.045
		Not Bad	3.208	0.508	15.420	0.000	12.632	5.424	84.668
	CKN	Has an effect	4.467	0.995	10.496	0.000	24.759	4.546	153.543
	Const.		-26.126	3706.562	0.000	0.986	0.000		
Southern	BOC	Has an effect	-5.759	1.245	10.987	0.000	8.987	7.345	15.487
	QAY	Good	-9.197	3.789	16.879	0.324	25.654	23.567	35.264
		Not Bad	-2.406	0.853	14.786	0.000	16.764	15.332	256.649
		Bad	-3.593	0.725	12.765	0.000	30.342	29.328	435.746
	BCC	Has an effect	-1.086	0.654	19.654	0.000	21.345	20.789	40.544
	Const.		56.962	3706.562	0.000	0.897	0.000		

According to that factors which affect for the usage of the yoghurt identified as, brand name (BOC), and quality of yoghurt (QAY) and customer knowledge (CKN) in Western province. The equation as the Binary Logistic Equation which includes above variables in Western province shown below.

$$\text{Logit}(Y_w) = -26.126 + 2.397(\text{BOC} = \text{Yes}) + 3.601(\text{QAY} = \text{Good}) + 3.208(\text{QAY} = \text{Not BAd}) + 4.467(\text{CKN} = \text{Yes})$$

And also identified as the factors which affect for the usage of the yoghurt brand name (BOC), quality of yoghurt (QAY), and benefits for the customers (BCC) in Southern province. The equation s the Binary Logistic which includes the above variables in Southern province shows below.

$$\text{Logit}(Y_s) = 56.962 - 5.759(\text{BOC} = \text{Yes}) - 9.197(\text{QAY} = \text{Good}) - 2.406(\text{QAY} = \text{Not Bad}) - 3.523(\text{QAY} = \text{Not Bad}) - 1.086(\text{BCC} = \text{Yes})$$

The results sheet which was taken by estimating the model which includes the above variables under the Forward Stepwise Logistic Regression Method is represented in the attachment no.15.

The variables are included to the model, according to the forward stepwise logistic regression method as increasing the likelihood. Sequentially, the variables which were identified, brand name (BOC), quality of yoghurt (QAY), customer knowledge (CKN) for the sales of yoghurt in Western province and the variables which were used for the sales of yoghurt in Southern province, brand name (BOC), quality of yoghurt (QAY), benefits for customer (BCC) are included to the model. When including variables to the model, the difference of the deviations of the model is represented by the significance association. When including variables to the model, the deviation value of the model (-2 log likelihood), decreases. And the significance association value gives the difference of the above deviations.

The Wald statistic is considered for the variables in the model, to regulate whether a variable should be removed. According to the Table 5.1 the significance effects of all the variables are examined under 5% of the significant level. In there, the brand name (BOC), quality of yoghurt (QAY), customer knowledge (CKN) which is the variables of the Western province brand name (BOC), quality of yoghurt (QAY), benefits for customer (BCC), which are the variables of the Southern province, shows a significant relationship in the 5% significant level with the dependent variables.

When buying yoghurt, which has the effect of brand name of yoghurt in Western province, it shows two times more ability than from a shop which does have effect of brand name of yoghurt. The odd ratio relevant for that is 2.004. In Southern province, it is shown no ability from a shop which does have effect of brand name.

When buying yoghurt, which has the effect of good quality of yoghurt in Western province, it shows thirty times more ability than from a shop which does not have effect of good quality of yoghurt. The odd ratio relevant for that is 30.892. In Southern province, it is shown in twenty times more. The odd ratio of effect of good quality of yoghurt is 25.654. That value is lesser than the value in Western province. When buying yoghurt which has effect of not bad quality of yoghurt in Western province, it shows twelve times more ability than to a shop which has effect of not bad quality of yoghurt. The odd ratio relevant to that is 12.632. It shows 16 times more ability in Southern province. Effect of not bad quality of yoghurt has an odd ratio of 16.764. That value is higher than the Western province. And also when going to buy a yoghurt which has bad quality of yoghurt in Southern province, it shows thirty time more ability than a shop which does not have effect of bad quality of yoghurt. The odd ratio has become 30.342.

When tempting to buy yoghurt by a shop owner in the Western province, the effect of customer knowledge has twenty five times more ability than a shop owner which does not have the effect of customer knowledge. The odd ratio is 24.759. The temptation of a shop owner, who does not have the effect of benefits for the customer from the company, has twenty one times more ability than a shop owner who has the effect of benefits for the customer from the company. The odd ratio relevant to that is 21.345.

The confidence interval does not include the value 1 in 95% of the variables, Brand Name, Quality of yoghurt, Customer Knowledge, Benefits for the customer from the company. Because of that, we can conclude that there is a significant relationship between the above 4 variables and the buying of Lucky yoghurt.

5.2.1. Result of Omnibus Test

The Table 5.2 shows the summarized results of the result sheet relevant to the Omnibus Test for model coefficient.

Table 5.2: Omnibus Test

Province	Steps	Chi-square	Df	P- Value
Western	Step 1	59.306	1	0.000
	Step 2	48.593	1	0.000
	Step 3	13.592	2	0.001
Southern	Step 1	79.182	1	0.000
	Step 2	45.403	3	0.000
	Step 3	28.267	1	0.000

According to the Table 5.2 the deviation value of the model was reduced in 59.306 after including the variable, brand name to the model when tempting to buy yoghurts in the first step in Western province. To be this variable, a suitable one to the model, the difference of the deviation values of the model, must be significant numerically.

According to Table 5.2, the significant association value is 59.306 and the p value is 0.000. When examining hypothesis under 5% significant level the p value is lesser than the 5% significant level. So because of that, brand name can be concluded as a suitable variable. When examining the numerical significant effect of different variables, under Wald Statistic, the p value of the variable, brand name is lesser than the 5% significant level. Because of that we can further identify the variable brand name, as a variable which shows a significant relationship with the dependent variable. The confidence interval does not include the value 1 in 95% of the above variable. Because of that, we can conclude that there is a significant relationship between the variable, brand name and tempting to buy yoghurt.

The deviation value of the model was reduced in 79.192 after including the variable, brand name to the model when tempting to buy yoghurts in the first step in Southern province. To be this variable, a suitable one to the model, the difference of the deviation values of the model, must be significant numerically. According to the Table 5.2, the significant association value is 79.192 and the p value is 0.000. When examining hypothesis under 5% significant level the p value is lesser than the 5% significant level. So because of that, brand name can be concluded as a suitable variable. When examining the numerical significant effect of different variables, under Wald Statistic, the p value of the variable, brand name is lesser than the 5% significant level. Because of that we can further identify the variable brand name, as a variable which shows a significant relationship with the dependent variable. The confidence interval does not include the value 1 in 95% of the above variable. Because of that, we can conclude that there is a significant relationship between the variable, brand name and tempting to buy yoghurt, in the Southern province too.

In the second step, when tempting to buy yoghurts, the deviation value of the model is reduced in 48.593, with the addition of the variable, quality of yoghurt to the model.

To be this variable, a suitable one to the model, the difference of the deviation values of the model, must be significant numerically in the second step. According to the Table 5.2, the significant association value is 48.593 and the p value is 0.000. When examining hypothesis under 5% significant level the p value is lesser than the 5% significant level. So because of that, quality of yoghurt can be concluded as a suitable variable for Western province. In the Southern province the deviation value is reduced in 45.403. In the second step the significant value is 45.403 and the P value is 0.000. When examining the numerical significant effect of different variables, the P value of the variable, quality of yoghurt is lesser than the 5% significant level. Because of that we can further identify the variable quality of yoghurt, as a suitable variable.

According to the Table 5.2, the deviation value is reduced in 13.592 when including the variable customer knowledge in the third step. According to the significant association value test, which was done to examine whether customer knowledge is a

suitable one, the significant association value is 13.592 and the P value is 0.001. When examining the numerical significant effect of different variables, the p value of the variable, customer knowledge is lesser than the 5% significant level. Because of that we can further identify the variable customer knowledge, as a suitable variable in Western province. In the Southern province the deviation value is reduced in 28.267. In the third step the significant value is 28.267 and the P value is 0.000. When examining the numerical significant effect of different variables, the P value of the variable, benefit for the customer is lesser than the 5% significant level. Because of that we can further identify the variable benefit for the customer, as a suitable variable.

5.2.2. Result of Difference R^2 values

When including variables to the model, the prediction ability of the model can be done by examining the way of changing the significant coefficient. The data which were taken from model predictions are used for that. The relevant results sheet is shown in the Table 5.3.

Table 5.3: Difference of the R^2 Values

Province	Step	2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Western	Step 1	62.183	0.327	0.588
	Step 2	13.590	0.513	0.924
	Step 3	0.000	0.555	1.000
Southern	Step 1	73.670	0.410	0.642
	Step 2	28.267	0.564	0.883
	Step 3	0.000	0.639	1.000

5.2.3. Model of the Variable in Western and Southern Province

Table 5.4: Model with Constant

Province	Variable	B	S.E.	Wald	df	P – Value	Exp(B)
Western	Constant	1.815	0.235	59.513	1	0.000	6.143
Southern	Constant	-1.345	0.202	44.499	1	0.000	0.261

The log likelihood in Table 5.3 shows the difference of the deviation values of the variables which are added to the model in Western province with the constant word in Table 5.4. After including the variable with the constant word, brand name to the model, the deviation value was reduced to 62.183. Then, after including the variable with the constant word, quality of yoghurt to the model, the deviation value was reduced to 13.590. And after including the variable with the constant word, customer knowledge to the model, the deviation value was reduced to 0.000 (Table 5.3). Cox and Snell R and Nagelkerke R, represent the quantity of the explanation of the complete variation of the dependent variable by the independent variable. As depicted in Table 5.3 and according to the determination coefficient Cox and Snell R, complete variation of the dependent variable by the independent variable, 0.555 is explained. According to determination coefficient Nagelkerke R, complete variation of the dependent variable by the independent variable, 0.924 is explained.

After including the variable with the constant word, brand name to the model in Southern province, the deviation value was reduced to 73.670. Then, after including the variable with the constant word, quality of yoghurt to the model, the deviation value was reduced to 28.267. And after including the variable with the constant word, benefits for the customer from the company to the model, the deviation value was reduced to 0.000 (Table 5.3). According to the Table 5.3 and according to the determination coefficient Cox and Snell R, complete variation of the dependent variable by the independent variable, 0.639 is explained. According to determination coefficient Nagelkerke R, complete variation of the dependent variable by the independent variable, 0.883 is explained.

5.2.4. Result of Hosmer – Lemshow Test

In logistic regression analysis, the goodness of fit of the estimated model is tested by the test of goodness of fit of the Hosmer-Lesshow. The Table 5.5 represents the summarized data of goodness of fit of the models which were used in Logistic Regression Analysis relevant to the study.

Table 5.5: Hosmer – Lemeshow Test

Province	Steps	Chi-square	df	P - Value
Western	Step 1	0.000	0	.
	Step 2	0.011	2	1.000
	Step 3	2.620	3	0.623
Southern	Step 1	0.000	0	0.000
	Step 2	0.013	2	1.000
	Step 3	2.345	3	0.781

In the Hosmer-lesshow test, to see whether there is a difference between observation values and expected values, significant association test is done. The significant association value is for Western province is 2.620 and the p value is 0.623. And for Southern province significant association value is 2.345 and the p value is 0.781. When examining the hypothesis under 5% significant level, the null hypothesis is accepted which says that there is no any difference between the observation values and the Expected values in dependent variable. According to that we can conclude that there is no any difference between the observation values and the expected values of the models in Western and Southern provinces.

Likewise in the secondary analysis the factors which shows significant effect when buying Lucky yoghurt by the shop owners in Western province are brand name, quality of yoghurt and customer knowledge and the factors which shows significant effect when buying Lucky yoghurt by the shop owners in Southern province are brand name, quality of yoghurt and benefits for the customer from the company. The above variables can be identified by the binary logistic regression model.

CHAPTER 06

DISCUSSIONS AND CONCLUSIONS

6.1. Introduction

The main aim of this study was to study the factors which affect for the difference of the sales of Lucky yoghurt in between Western and Southern provinces. To achieve that target, Matara divisional secretariat was selected on behalf of Southern province and Sri Jayawardanepura Kotte divisional secretariat was selected on behalf of Western province. And shops belong to those two divisions were selected for the calculation. About 150 shops were selected from both divisional secretariats to the sample according to the two stage proportional random sampling method under proportional allocation.

6.2. Discussion

When coming to conclusions, we can present conclusions in primary analysis as well as in secondary analysis. According to the primary analysis, when coming to conclusions the availability of statistically significant relationship between variables was used.

Availability of statistically significant relationship between the variables, buying of Lucky yoghurt and type shop was done in primary analysis, and we were able to identify that there was a significant relationship between the above variables in both Western and Southern provinces. This study identified that there is a statistically significant relationship between the variables, brand name and buying of Lucky yoghurt in both Western and Southern provinces.

There was a statistically significant relationship between the variables, quality of yoghurt and buying of yoghurt in both Western and Southern provinces. Quality of yoghurt is identified as a factor which affect in tempting to buy Lucky yoghurt also Gonçalvez and Pérez (2009).

This study exposed that there was no any significant relationship in between tempting to buy Lucky yoghurt and flavor of yoghurt in Western province and also

this study exposed that there was a significant relationship in between tempting to buy Lucky yoghurt and flavor of yoghurt in Southern province.

The shape of yoghurt cup and moving forward to buy Lucky yoghurt did not have a significant relationship in both provinces. However from the studies done by Khalid et al., (2008) and Fung et al., (2004) and Dileep, (2006) shape of yoghurt cup has identified as a factor which affect in tempting to buy Lucky yoghurt also.

It was found that there is a significant relationship between the effect of price of Lucky yoghurt and tempting to buy Lucky yoghurt in Western province. And there is no any significant relationship between the effect of price of Lucky yoghurt and tempting to buy Lucky yoghurt in Southern province.

This study proved that there is a statistically significant relationship between the area of the factory and tempting to buy Lucky yoghurt in Southern and Western provinces.

This study exposed that there is a statistically significant relationship between the competitors of yoghurt and tempting to buy Lucky yoghurt in Western province and there is no any statistically significant relationship between the competitors of yoghurt and tempting to buy Lucky yoghurt in Southern province.

From this study it is proved that there is a statistically significant relationship between the benefit for the customer from the company and tempting to buy Lucky yoghurt in both Southern and Western provinces. This study proves that the facilities given by the company to the customers are highly affected in selling yoghurt.

Significance of the effect of the most important variable, advertising campaign in buying of Lucky yoghurt, is tested in the primary analysis. In there, it is concluded that it is a significant variable in tempting to buy Lucky yoghurt. From the studies done by Lana and Folik (1982) in University of Conell & and Barroso Alicia and Llobet Gerard (1999) it is proved that advertising campaign is an effectual factor.

From the study, we identified that there is no statistically significant relationship between the temptation of buying Lucky yoghurt and contribution of the ASMs and discipline of the company sale representatives.

Customer knowledge is a variable that has a significant relationship with the temptation of buying Lucky yoghurt in both Western and Southern provinces. It means that the study proves that, customer knowledge has a huge tendency in temptation in buying Lucky yoghurt. From the studies done by Satish and Peter (2004) and Rao and Monroe (1988) customer knowledge, is identified as a factor which affect in tempting to buy Lucky yoghurt.

The identification of the variables which has a significant relationship with the temptation in buying Lucky yoghurt is done in the primary analysis. The variables, type of shop, brand name, quality of yoghurt, flavor of yoghurt, price of yoghurt, Area of factory, competitors, benefits for customer from company, advertising campaign, customer knowledge were identified. From those factors, the factors which affect in being a shop owner who buys Lucky yoghurt relative to a shop owner who does not buy Lucky yoghurt were identified in the secondary analysis.

Though the variables, type of shop, flavor of yoghurt, price of yoghurt, area of factory, competitors, advertising campaign were significant in both Western and Southern provinces or in one province in the primary analysis, in the secondary analysis those variables were not considered as significant variables. The factors which show a significant effect on the temptation in buying Lucky yoghurt is further proved in the binary logistic regression analysis. According to that it can be concluded that the effect of brand name which do not affect to a person in tempting to buy Lucky yoghurt relative to a person who has the effect of brand name, in tempting to buy Lucky yoghurt is 23 times more in Western province and is 8 times in Southern province.

When tempting to buy Lucky yoghurt, the yoghurts with good quality, have more ability in buying them. Like that the buying of yoghurt without good quality relative to buying yoghurt with good quality is 50 times more in Western province and is 25 times more in Southern province.

When tempting to buy Lucky yoghurt, the yoghurts with not bad quality of yoghurt, have more ability in buying them. Likewise the buying of yoghurt without not bad

quality of yoghurt, relative to buying yoghurt with not bad quality of yoghurt is 12 times more in Western province and is 16 times more in Southern province.

There was a statistically significant relationship between customer knowledge and the temptation of buying Lucky yoghurt in secondary analysis. According to that a shop owner who does not have customer knowledge, relative to a shop owner who has customer knowledge, has 25 times more tendency in tempting to buy yoghurt in Western province. Benefits for customer from company are a variable which has a statistically significant relationship to buy Lucky yoghurt.

According to that it can be concluded that the effect of benefits for customer from company which do not affect to a person in tempting to buy Lucky yoghurt relative to a person who has the effect of benefits for customer from company, the tendency in tempting to buy Lucky yoghurt is 21 times more in Southern province.

6.3. Conclusion

The brand name, quality of yoghurt and customer knowledge are identified as the factors which affect for the shop owners to buy Lucky yoghurt in Western province and the variables brand name, quality of yoghurt and benefits for customer from company are identified as the factors which affect for the shop owners to buy Lucky yoghurt in Southern province. Thus, to increase the sales in Western province, popularity of the brand name “Lucky yoghurt”, the quality of yoghurt and the facilities given to the customers from the company must be increased.

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QUESTIONNAIRE USED FOR THE STUDY

ID Number	**: ……**
Name of Area	**: ……..**
Date	**; ……..**
Time	**: ……..**

<u>Comparison of Factors in Customer Satisfactory of Yoghurt in Western and Southern Province</u>

1. Information about the shops

1.1. What is name your Business?

……
……..

1.2. How long did you start your business?

below 6 months ☐ 1 year to 3 years ☐
6 months to 1 year ☐ more than 5 years ☐

1.3. Nature of your business

Retail Business ☐ Hall Sales Business ☐
Restaurant ☐ Pastry shops ☐

1.4. The facilities prevail in your business?

Refrigerators ☐ Deep refrigerators ☐

1.5. Have you bought Lucky yoghurt to your shop?

Yes ☐ No ☐

1.6. How long do you buy Lucky yoghurt?

For a month	☐	For 6 to 1 year	☐
For a 6 months	☐	More than 1 year	☐

2. Information about the competitors

2.1. Are there any other yoghurt you buy except Lucky?

Yes	☐	No	☐

2.2. What are the other brands of yoghurt you buy?

Newdale	☐	CIC	☐
Highland	☐	Other	☐
Ambewela	☐		

2.3. Of the above which brand of the yoghurt you buy more frequency?

Newdale	☐	CIC	☐
Highland	☐	Other	☐
Ambewela	☐		

2.4. Do you concern about the brand name of the yoghurts when buying yoghurts?

Yes	☐	No	☐

2.5. If you buy yoghurt, do you care about that factory location or his owner home town?

Yes	☐	No	☐

3. Information about the quality of yoghurt

3.1. What is your idea about the quality of Lucky Yoghurts?

Good	☐	Worse	☐
Better	☐	Worst	☐

3.2. If you not satisfy quality of Lucky Yoghurt, What are your suggestion to improve the quality of Lucky Yoghurt?

……

……

……

3.3. What do think about the tastes of Lucky Yoghurt?

Milky Taste ☐ Taste of Preservatives ☐

Sourness ☐ Other ☐

3.4. If you not satisfy tastes of Lucky Yoghurt, What do you think about how to change taste of Lucky Yoghurt?

……

……

……

3.5. Do you satisfy with the shape of the Lucky Yoghurt Cup?

Yes ☐ No ☐

3.6. If you not satisfy shape of Lucky Yoghurt cup, What do you think about how to change of Lucky Yoghurt cup?

……

……

……

3.7. Do you satisfy with the quantity of Lucky Yoghurt Cup?

Yes ☐ No ☐

3.8. If not, how it should be change?

The quantity must decrease ☐

The quantity must increase ☐

3.9. Do you satisfy with price with Lucky Yoghurt?

Yes ☐ No ☐

4. Information about the facilities provide to the shop by the Lucky Company

4.1. Did you get the facilities provided to the shop by the lucky Company?

Yes ☐ No ☐

4.2. What are you get those facilities?

6 + 1 Free Issue ☐
2 free yoghurt cups for every one box ☐
Cheque Facilities ☐
Other ☐
Coolers ☐

4.3. Do you Satisfy that facilities?

Yes ☐ No ☐

5. Information about the Advertising

5.1. Do you Satisfy with the methods use by the Lucky company to advertise the product?

Yes ☐ No ☐

5.2. What are the advertising method that you seen

TV Advertisement ☐
Radio Advertisement ☐
Posters ☐
Stickers ☐
Cutouts ☐
Others ☐

5.3. How you tempt to buy Lucky Yoghurts?

Through advertisements ☐
Through the arrival at the Sales Reps ☐
Through the demand of the Customer ☐

5.4. Do you Satisfy about the Advertising of the Lucky Yoghurt?

Yes ☐ No ☐

5.5. If not, Why?

……

……

……

5.6. What do you think about how to change Lucky Advertising?

……

……

……

6. The Idea about the Sales Reps and the Distributor

6.1. Did the Sales Reps of the Lucky Company come to your Shops?

Yes ☐ No ☐

6.2. How long did the Sales Reps take to visit your shop after their first visit?

within 2 days ☐ within 2 weeks ☐

within 7 days ☐ within 1 months ☐

6.3. Do you satisfy with the way the Sales Reps discuss with you?

Yes ☐ ☐

6.4. If not why?

……

……

……

7. If you do not buy Lucky Yoghurt what is the reason for it?

……

……

……

8. What are the changes that should make to buy Lucky Yoghurt?

……

……

……