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Product pack size decisions in the emerging market spaza retail sector

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Abstract

Despite research around marketing mix recommendations, granular analysis on product unit pack size in emerging markets has not been extensively researched. Furthermore, the impact of modern-day retailers on the distribution and sales of product unit pack sizes has received limited attention. Research has focused on the broader role that product variety plays in the marketing mix and its impact on firm performance (Ford, Moodie & Hastings, 2012; Jaiswal & Gupta, 2015; Kumar, Fan, Gulati & Venkat, 2009). However, little work has been done on how product variety impacts firm performance in emerging markets and specifically in terms of product unit pack size (Wan, Dresner & Evers, 2014) which this current study aims to address. A second aspect of the current study is the influence of modern-day retailers and the impact that distance between them and emerging market spaza shops has on the distribution and sales of product unit pack sizes. Secondary quantitative data from Clover was used to conduct exploratory research on different products in three geographical clusters. Both the availability of product unit size and the sales thereof were found to be influenced by the distance between the spaza shops and the modern-day retailers.

Keywords: Emerging market, spaza shop, pack size, price, modern retailer

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Nicholas van Woerkom

Date: 7 November 2016

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CHAPTER 1

1. INTRODUCTION

1.1 Research problem

According to Wan, Dresner and Evers (2014), product variety can be created not only through physical product differentiation but also by means of branding, variations in packaging, the provision of warranties or after-sales support. Ampuero and Vila (2006), S.T. Wang (2013) and Rundh (2013) all focused on packaging as a differentiating factor. Despite research around marketing mix recommendations, granular analysis on product unit pack size in emerging markets has not been extensively researched. Research has focused on the broader role that product variety plays in the marketing mix and how this impacts firm performance (Berger, Draganska & Simonson, 2007; Ford, Moodie & Hastings, 2012; Jaiswal & Gupta, 2015; and Kumar, Fan, Gulati & Venkat, 2009).

Dholakia and Dholakia (2012), Kumar, Sunder and Sharma (2015), Liedeman, Charman, Piper and Peterson (2013) and Madlala (2016) all mention the need to study the impact of an increasing number of modern trade retailers entering the informal emerging market environment. Research by Kumar et al. (2015) has outlined that a mixed retail system consisting of large modern stores and smaller traditional stores (STSs) may well continue in India for the foreseeable future, and the same could be argued for many other emerging markets including Africa.

Linking the above challenges, it is evident that there has been limited research regarding the value of pack architecture diversification of products in the emerging market environment with the influx of large retailers entering this space, as attested by Kumar et al. (2015) as well as Sorescu, Frambach, Singh and Rangaswamy (2011).

Real and accurate sales data to assess the impact of price and product on an informal or emerging market spaza outlet are also not readily available, and there is a lack of data to determine the effect of proximity between retailer and spaza shop on the sales, price and pack performance of products (Jaiswal & Gupta, 2015.; and Kumar et al., 2015).

It is important to identify where research in a specific area has been lacking or where limitations in previous studies have not been addressed. Wan et al. (2014) suggest that little work has been done on how different types of product variety impact firm performance in emerging markets. Growth of the global emerging economy has brought increased competition and changing consumers, showing that there is a real need to study product

variety specifically focused on product unit size and its potential to offer increased value to manufacturers, distributors, retailers and end consumers.

In the emerging market environment, manufacturers have greater control over pricing decisions since the retailer is usually small and independently owned, as is the case with the spaza shop in the African or Indian context (Kumar et al., 2009). Manufacturers and producers are bypassing the traditional retailers to enter the emerging market space. The retailer or wholesaler takes margin and value in the channel which the manufacturer can circumvent by going directly to the spaza shop or trader, even with the additional distribution costs of doing so. Kumar et al. (2009) recognise in their study of the laundry detergent category that consumers are price inelastic and therefore they could benefit from increasing their product prices. However, according to their results, price elasticities can vary in emerging markets depending on the form or nature of the product and therefore should be considered only when developing strategies for emerging markets.

Data on personal disposable income per head suggest that over the years there will be a steady rise in personal disposable income for consumers in emerging markets (Gupta, Kim & Sharma, 2011). Increasing consumer aspirations highlight the fact that hedonic shopping could be on the rise in emerging markets. Where there is increasing modernity in conjunction with traditionalism and where the rich and the poor live alongside each other, the movement along the consumer behaviour spectrum will even out towards utilitarianism (Kumar et al., 2009). Hedonic behaviour will also rise as a sign of aspirations, increasing the dynamism on the consumer behaviour spectrum. The combination of adapting aspirations and traditionalism therefore offers opportunity for different retail formats to evolve over time (Gupta et al., 2011; and Neuwirth, 2014).

Highlighting the above, two key aspects core to this study emerge, namely pack size and lack of sufficient data in emerging markets to analyse how they are influenced by the entrance of modern-day retailers. Business and academia, globally, could therefore stand to benefit, as explained below.

1.2 Research relevance and importance

1.2.1 Relevance to academia

South Africa's contracting economy has forced many emerging market consumers to tighten their spending and execute more austerity. With many living from hand to mouth, there is a need to assess whether pack size variety, and in particular smaller pack sizes, can serve the needs of those with less daily disposable income (Akır & Balagtas, 2014; and Sy-Changco,

Pornpitakpan, Singh, & Bonilla, n.d.).There are already examples of pack size variety in many shapes and forms such as Coca Cola's many size options to suit different occasions and varying individual disposable incomes, as well as Clover's Tropika fruit juice which has a pack size range that has gradually increased over time. The studies by Scavarda, Reichhart, Hamacher and Holweg (2010); Jaiswal and Gupta (2015), Kumar et al. (2009) and Kumar et al. 2015) focused on the role of product and packaging variety in emerging markets. More specifically, Pornpitakpan (2010), Sy-Changco et al. (2010) and Wan et al. (2014) conducted research on the value of package downsizing, pack size and product line. Using the above studies as a base from which to develop an argument from an emerging market context and by adding a further research dimension namely the impact of the encroaching modern retailer (Ligthelm, 2008; Perks, 2010; Polsa & Fan, 2011; Ramakrishnan, 2010; Ruhigga, 2011; and Strydom, 2011), this research study aims to build on previous research and intends to discover new findings using the combination of these variables in an emerging market context. The relevance and significance will hopefully lie in the heightened interest among academia to provide a sound theoretical basis of information on the topic to be utilised by business.

1.2.2 Importance to business

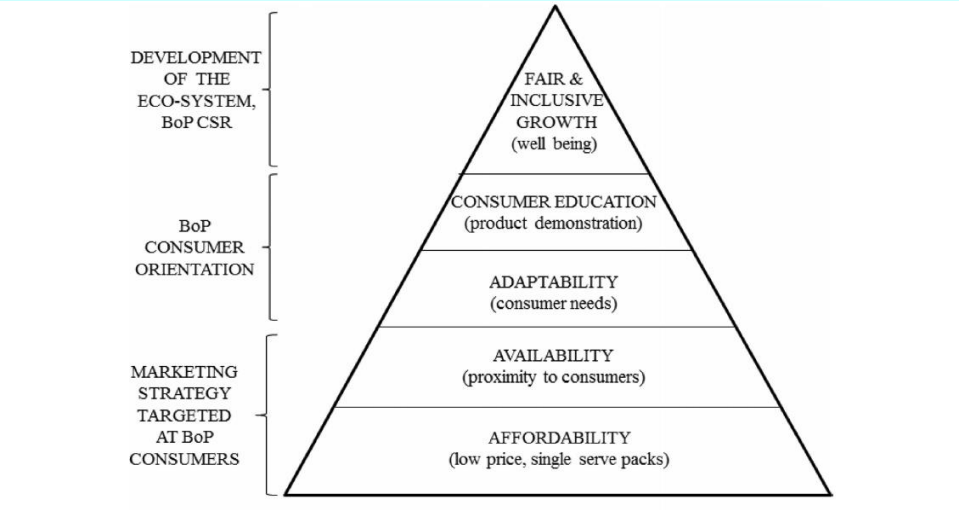
Emerging markets are becoming increasingly important to organisations in the global economy (Sheth, 2011) and will account for more of this century's economic growth than developed markets (Burgess & Steenkamp, 2013).

This study aims firstly to encourage business to incorporate decisions on price and pack assortment, and secondly to bring these benefits to the attention of emerging market retailers or spaza store owners as well as distributors and manufacturers. Furthermore, the study will have relevance in terms of the impact that the growing spread of formal market retailers will have on such decisions. These retailers, who possess buying and bargaining power, will increase price and market share competition thereby threatening the very existence of the traditional spaza shop (Liedeman et al., 2013; and Madlala, 2016) Given this threat, emerging market retailers may need to adapt their product and price strategies to more of a convenience strategy catering for high frequency purchases, leaving formal retailers to cater for the month-end bulk purchase (London, Esper & Grogan- Kaylor, 2014).

An overarching model to consider is the bottom of the pyramid (BOP) strategy as seen in Figure 1 below. South Africa's retail environment is very much a hybrid of formal or modern retail formats and informal emerging market (Evans, 2011; and Ligthelm, 2008) of which many are at the bottom of the pyramid (those earning less than the equivalent of a dollar a

day). It is therefore important to understand the development of the ecosystem from single serve sachets in the informal market to luxury goods in the formal trade (Hammond & Prahalad, 2004).

Figure 1: Dimensions of the BOP marketing strategy



Source: Payaud (2014)

1.3 Scope of the research

An “emerging market retailer” or “spaza shop” in this research paper is an informal convenience business in South Africa, most often run from home and selling small everyday household items. These shops emerged rapidly due to the growth of sprawling townships that made commuting to formal shopping places more difficult or expensive (Ligthelm, 2008).

The “formal retailer” or “modern retail format” in this context is a business or person selling goods to the consumer. These outlets are what South Africans are used to. Easily recognisable brand names such as Checkers, Shoprite or Pick n Pay are the outlets and groups whose recent intentions have been to enter the “emerging market”, a term used to describe developing markets or markets that may be developed in the future.

“Price” or “retail selling price” refers to the price of a product in its final unit form ready to be purchased from a retail store as a single item for end consumption.

“Product unit pack size” refers to the product in its final unit form ready to be purchased from a retail store as a single item for end consumption.

The research problem in this study refers to the decisions regarding unit size and the influence that a growing number of formal retailers have on such decisions, specifically in the

South African emerging market context. Forms of product and packaging variety are the foundation of this research, after which it narrows down to uncover the importance of a more specific yet less researched topic namely pack size specifically in an emerging market context. The study furthermore seeks to uncover the impact of the geographical proximity between small emerging market retailers and large retail formats on the marketing aspects mentioned, as well as on the sales of these products.

1.4 Structure of the research

The research study consists of seven chapters:

Chapter 1 comprises the research problem, the business and academic need for the study as well the study objectives.

Chapter 2 visits relevant academic literature and places this study within the context of the literature, while also suggesting the opportunities for future research to build on.

Chapter 3 defines the study's research objectives and presents the research questions that need to be answered.

Chapter 4 is a detailed exploration of the research methodology and the approach taken.

Chapter 5 presents the analysis of the data.

Chapter 6 explains the findings and unravels the insights with supporting evidence from literature tying everything back to the objectives of the study.

Chapter 7 highlights the findings, limitations and recommendations for future research, including the implications for business and academia.

CHAPTER 2

2. THEORY AND LITERATURE REVIEW

2.1 Introduction

Considering the scope of this study as illustrated under Section 1.3 above, the thread of the literature follows a funnelled process of understanding previous research and discovery within the realm of product and packaging variety. Distribution in emerging markets and the threat of large retailers is analysed first along with the importance of production in pack size variety. The relationship between price and pack size is then reviewed before identifying the research questions, methodology and results of Clover's dairy product range.

2.2 Distribution in emerging markets and the threat of large retailers

Previous research has noted the increasing importance of distribution and marketing in emerging markets (Arnold & Quelch, 1998; and Reinartz, Dellaert, Krafft, Kumar & Varadarajan, 2011). Dholakia and Dholakia (2012) noted that, from a distribution perspective, emerging economies are very different from developed markets in terms of the unstructured and informal nature of retailing where spaza shops, street vendors, hawkers and bartering form a large portion of the market, and where informal traders collect stock from a large base of independent wholesalers and cash and carry stores (Trade Intelligence, 2016).

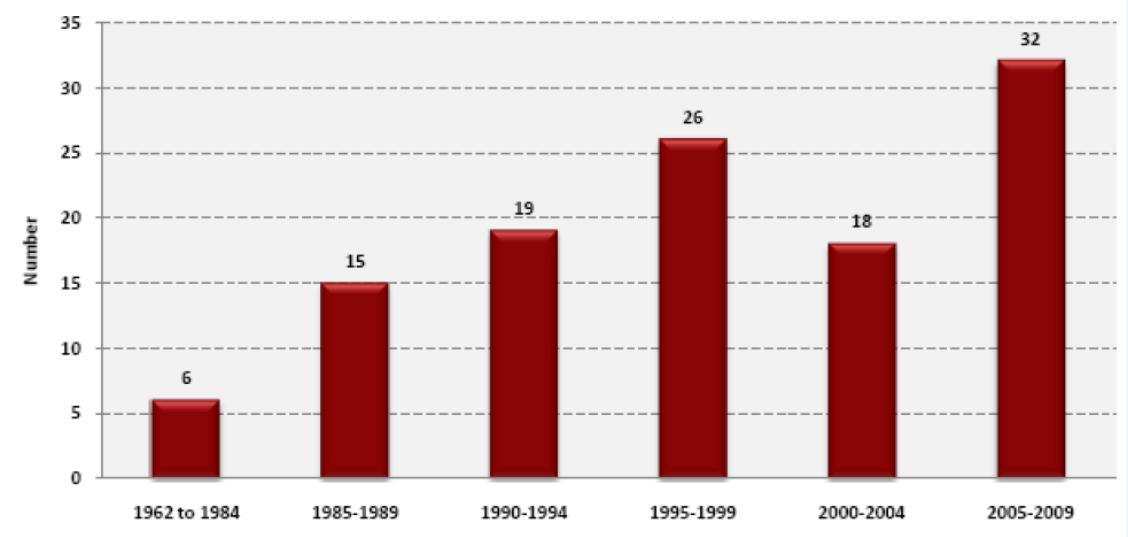
The study of Kumar et al. (2015) showed that the success of a brand in an emerging market depends on the extent to which its marketing mix (especially distribution) is customised as per the unique characteristics of the market. This is no more prevalent than in the study of sachet distribution in the Philippines where a large number of small stores suit the execution and sale of smaller pack sizes (Sy-Changco et al., 2010). Over the past five years studies in marketing literature have pointed out these unique characteristics and provided qualitative suggestions to firms to achieve success (Bianchi, 2014; Kumar et al., 2015; and Reinartz et al., 2011).

However, despite the heightened focus on the role of marketing in emerging economies, Kumar et al. (2009) pointed out that much of the literature was descriptive, qualitative and lacking in anecdotal evidence. As evidenced by Shankar and Bolton (2004), Bianchi (2014), Kumar et al. (2009) and Reinartz et al. (2011), despite research around marketing mix recommendations, granular analysis on product unit pack size and price in emerging markets needs more work and the assumption that "stable competition equilibrium is

assumed" (Shankar & Bolton, 2004, p. 47) shows the need for further study around the spread of formal or organised retail entering the emerging market space. This current study will aim to achieve more granular analysis on product pack size and will attempt to show that stable equilibrium cannot be assumed with the increasing presence of formal retailers.

Figure 2 below, from a study by McGaffin (2010), shows how the informal economy in South Africa has been impacted by large shopping complexes over the past two decades. The present study aims to provide further evidence of more recent statistics across the three clusters as examined in McGaffin's (2010) study, thereby indicating the continued pattern of modern retail formats entering the emerging market space, not only in shopping centre formats but also in stand-alone retailers.

Figure 2: Growth of large BOP Shopping Complexes



Source: (McGaffin, 2010, p. 29)

Most of the distribution networks in developed markets are through large retailers like Walmart in the United States. In South Africa Pick n Pay, Spar and Checkers represent what is referred to as organised retail (Kumar et al., 2015), and the landscape is characterised by these retailers made up of a large number of outlets, spread nationally with a large assortment of brands and products. However, the emerging market landscape, as is the case in the emerging market sector in South Africa, consists of a large number of informal, independently owned retail stores. Sarma (2005) defines disorganised retail as "an outlet run locally by the caretaker, manager or owner of a shop that lacks technical and accounting standardisation" (p. 4797).

According to Joseph (2008), disorganised retail in China is around 80%, in Brazil it stands at 64% and in India it is as high as 95%. South Africa, however, is despite its burgeoning emerging market still dominated by modern-day retailers in the formal environment. With increased competition in the formal sector in South Africa, these retailers are looking for new markets, new customers and new revenue growth. They consequently enter the emerging market space.

There seem to be differences between the findings of Ruhigga (2011) and recent research conducted by Trade Intelligence (2016). Much has changed in the last five years. Research by Ruhigga (2011) indicated little evidence that the sector was set for recovery in the near future and countryside outlets were seen to be inadequately stocked for even the most basic needs, whereas over the last five years as shown by Trade Intelligence (2016) the emergence of foreign nationals has transformed the spaza industry. Ruhigga (2011) concluded by saying that the wholesale-retail sector was unlikely to play a leading role in the South African economy in the future, unless innovative responses to the structural weaknesses of the rural economy occurred.

As per Trade Intelligence (2016), that innovative response arrived in the form of foreign nationals who over the last five years have totally transformed the spaza shop environment. The key to their success has been their ability to create social networks, thereby creating a more competitive business model. These foreign nationals exhibit a collective buying behaviour to secure discounts and operational economies of scale. They do this within small buying groups that create cash accounts with wholesalers and local cash and carry stores, resulting in lower unit transaction costs due to shared transport and labour. Added to this, they enforce contractual agreements by clan elders (particularly evident amongst Somali groups) and strategically focus on concentrated geographical areas to create ethnic strongholds. They also operate from as early as 5 am and close as late as 10 pm (Trade Intelligence, 2016). These foreign nationals offer credit to customers and understand the risk and reward in terms of gradually building trust within their local communities. They furthermore exhibit higher levels of customer service than their local counterparts and their commercial competence seems far more adept at catering for the needs of the changing consumer. They often sell hampers of staple foods and, in line with this study, often re-pack goods into smaller sizes whereas large corporates and well-known brands have yet to understand the pack size and price architecture needed for the “top-up” shopper. Trade Intelligence (2016) as well as Liedeman et al. (2013) and Moloi (2014) further points out that these foreign nationals have greater access to financial resources, and have a more

effective ownership structure where most stores are owned through a shareholding agreement or a single owner operating several stores.

Given the entrance of modern retail chains and shopping centres, Ligthelm (2008) identified through feedback from interviewed respondents the following services provided by small township retailers as contributing to their survival since the opening of the Soshanguve Malls relevant to their study: proximity to customers' dwellings, long and flexible business hours, satisfaction of emergency needs, credit facilities, the availability of merchandise in small units, and good and friendly customer service. In fact, the results of the study by Gupta et al. (2011) have shown that it is the experience of the customer with the emerging market vendor that reduces switching to the organised retailer, rather than the personal characteristics of the customer.

Madlala (2016) provides evidence to the fact that informal businesses may be exploited by large retailers as direct competitors in a competitive environment. His findings show how such large retailers have the competitive power to displace informal retailers. The smaller informal shops struggle to compete on price with such larger chains, even though the entry of a new large retailer significantly impacts only those stores that operate within a tight radius of the larger, formal retailer and only they lose a significant amount of trade.

A big challenge when operating in informal, disorganised and unstructured retail environments is that brand managers are required to depend heavily on local distributors or intermediaries (wholesalers and retailers) to "push" the products and brands into the market, leverage the brands across numerous outlet formats, and thus ensure success of the brand (Ataman & Heerde, 2010; Kumar et al., 2015; and Venkatesan, Farris, Guissoni & Neves, 2015).

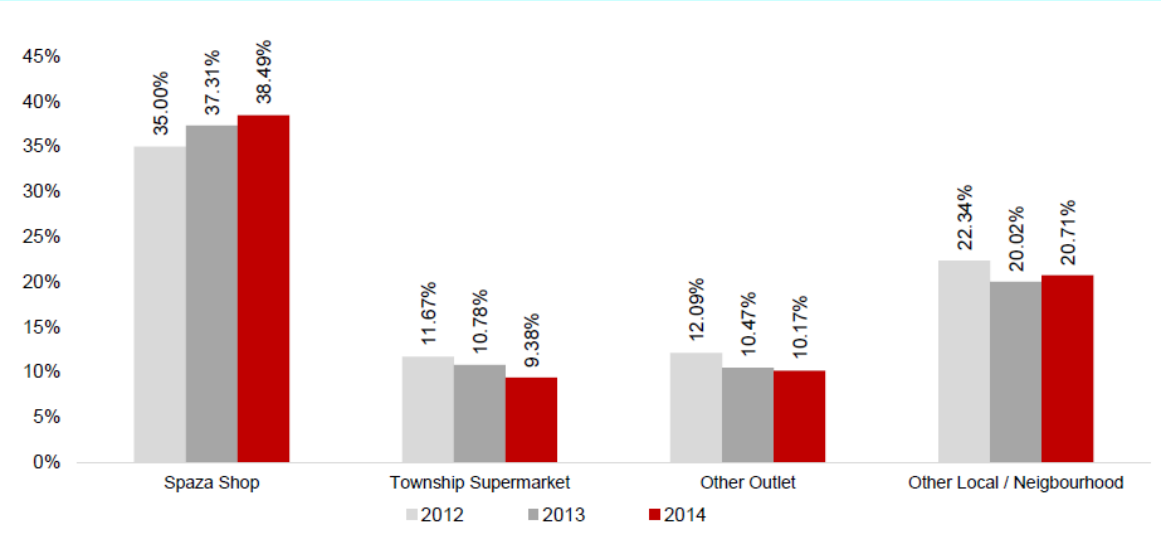
In the emerging market, the decision regarding how to distribute is more difficult to make as the unstructured nature of the market provides managers with little information (in the form of data) to make optimal distribution decisions. Given the continued growth of large retail chains and the power of these retailers, more and more manufacturers and producers are starting to realise that bypassing such retailers to get to the end consumer may be a more economical and viable long term strategy to success, especially when the resources are available to distribute in such a manner (Ataman & Heerde, 2010; Kumar et al., 2015; and Venkatesan et al., 2015). Ali, Kapoor and Moorthy (2010) noted that large modern organised retail formats were growing at a phenomenal pace throughout India. As mentioned before, this is what the researcher in this present study aims to build on, as the same can be said

about South Africa. Ali et al. (2010) further added that modern organised retail was reaping the benefits of changing buying patterns and was growing at a phenomenal rate, which has induced big national and multi-national corporations to invest into organised retailing in the informal space.

In assessing the current literature on the changing landscape of the South African informal economy, it is interesting to note the transition from earlier studies to more recent literature. In 2006, Tustin and Strydom concluded that because of the proximity of spaza shops to residences in the informal sector, they would still attract consumer demand. These authors pointed out, though, that such small spaza retailers would be faced with huge challenges in meeting the intensity of large formal retailers entering this space and in terms of the variables of price, assortment and retail experience.

A decade later, in 2016, the drastic changes in the South African landscape as researched earlier by Liedeman et al. (2013) have become evident. Strydom (2015) referred to these changes happening over the last five to seven years, attributing them to the resurgence of foreign-owned, business-astute spaza shop owners. The informal economy has been transformed and, as surveyed by Trade Intelligence (2016) and noted by (Madlala, 2016) is competing with and challenging the modern retailer entering this market, on price and assortment. This has significant meaning for the current study, as this research on assortment availability and sales may produce results that could prove that, despite the influx of modern retail, South Africa's informal economy remains strong and is growing, due to the assortment and pricing decisions of foreign-owned spaza shop owners. As can be seen in Figure 3 below, despite the steady growth of modern retail formats into the South African emerging market, spaza shops have shown an increase in the recent past with other retail formats in townships and local neighbourhoods decreasing (Trade Intelligence, 2016).

Figure 3: Shopper penetration by independent retail format



Source: Trade Intelligence (2016)

The question posed by Ligthelm (2008), Gupta et al. (2011) and Kumar et al. (2015) remains: What should the product assortment, service levels and location of small township retailers and spaza shops be to compete effectively in this new retail environment in township areas? Liedeman et al. (2013), Ligthelm (2008), Madlala 2016) and Moloi (2014) all suggest that further research should be conducted on the structural changes in the retail environment of emerging markets, and that further analysis of price and product assortment should be assessed for future training and advice for small retailers to effectively adjust to the new retail environment. Given the limited research in the area of retailer versus informal trader distribution of various pack sizes (Ataman & Heerde, 2010; and Venkatesan et al., 2015), the current study intends to shed more light on the value of pack size assortment for informal spaza shops in view of the growing emergence of modern retailers.

Before moving to the next aspect, it is important to take note of the discoveries of Ataman and Heerde (2010) and Kumar et al. (2015). Ataman and Heerde's (2010) research in a Brazilian context found that the sales attributable to a 1% rise in merchandising costs are higher for modern retailers than for informal or non-traditional stores. Added to this, the sales effect of a 1% increase in variety with respect to package size is higher in modern retail chain stores than in informal stores. This is a very important aspect relating to this study. Although the focus of this research is on pack size and assortment from an informal market spaza retailer perspective, Ataman and Heerde (2010) in the study above have shown pack size to be even more important for the modern retailer.

Although the research by Kumar et al. (2015) highlights the importance of distribution, they also stated that the success of a particular brand in an emerging market depended on the degree to which its marketing mix was customised to the unique characteristics of its market. Wan et al. (2014), asked why firms offered multiple flavours of a particular brand, and why companies produced specific products in a range of sizes. As mentioned by Sloot, Fok and Verhoef (2006), the answer, in short, would be to meet consumer needs and choices. Wan et al. (2014) added that companies could block out the threat of new entrants by providing an ever-increasing variety of products, thereby segmenting the market into thinner slices.

Many products in today's age face aggressive competition, requiring consumers to select from among several similar items in a store. The impact of product variety on the perceived quality and on dimensions such as taste continue even post the consumer experience of the product, indicating that product variety can also induce repeat purchase (Berger et al., 2007; and Guoying & Qingfeng, 2009). Therefore, competitive and differentiated packaging solutions can help the consumer to estimate the value of what they can get for their money (Rundh, 2013). It can also help consumers to better execute portion control which is an underestimated, understudied and important consideration in the informal emerging market ((G Alcock, 2015), and for the informal retailer, help compete on convenience in the face of heightened modern retail competition (Liedeman et al., 2013).

However, existing research all confirms that future studies may want to investigate further ways in which an individual making a selection affects the perception of the chosen option (Berger et al., 2007; Guoying & Qingfeng, 2009; and Rundh, 2013). Crucially, in terms of the direction of this study, theoretical and empirical evidence provided by Waller and Tangari (2008) as well as Eroglu, Williams, and Waller (2011) showed that the number of units per retail shipping container (case pack quantity) has a significant impact on retail market share. Their findings indicate that the effect of case pack quantity on market share depends upon the rate of sale (ROS) of a given stock-keeping unit (SKU). For faster-selling SKUs, larger case packs increase market share but for slower-selling SKUs, larger case pack quantities reduce market share. This is because of additional stock-outs at the retail level, resulting from execution problems caused by the larger case pack quantities (Waller & Tangari, 2008).

The above is evident in the emerging market sector in South Africa and has been experienced first-hand by the author who, together with the head of the emerging market strategy at Clover, Kuben Govender, went through a process of reducing case pack. The cash layout for a spaza shop owner for a case of 20 units is unaffordable, especially if the

product is not a crucial key value item (KVI). By reducing the number of units per case, it allowed more frequent purchase and more reliable on-shelf availability for Clover South Africa as well as Kellogg Company South Africa, which use the same distribution channel (Kuben Govender, personal communication, July 7, 2016). These companies' experience that emerging market retailers have limited cash flow and are deterred by large case pack quantities with slower unit rate of sale has been encountered by other companies too, leading to Red Bull's reduction of their 24-can cases to 12-can cases and Parmalat's very successful introduction of single-slice cheeses (G.G. Alcock, personal communication, October 20, 2016).

Results in the study by Wan et al. (2014) showed several limitations which could be used as opportunities for future research. Wan et al. (2014) acknowledged that a limitation of their study was the restriction of the sample of soft drink products sold in 12-ounce cans. Soft drinks are sold in many other forms, and the variety across container size could also have an impact on performance. The implications of this key limitation were that future studies could examine the impact of various dimensions on a wider range of performance measures.

2.2.1 Importance of production in pack size variety

Production, handling and distribution costs could increase as container variety increases, although as competition intensifies and consumers become more price-sensitive or are impacted by a reduction in consumer income, unit pack size variety may become more predominant. This once again raises the important yet understudied topic of portion control, not as a control of dietary content or weight control but as a measure of consumption versus income (Alcock, 2015; Alcock, 2016; and Liedeman et al., 2013). Another understudied trend in the emerging market in South Africa is that of convenience given the reliance on public transport according to Trade Intelligence (2016). With distances vast in many instances, carrying and transporting groceries and bags of food becomes an obstacle for consumers. Variety and convenience in packaging therefore becomes an important consideration.

Research by Scavarda, Reichhart, Hamacher and Holweg (2010) as well as Bezuidenhout (2014) reviewed previous research done on "late configuration" (p. 220), a term coined by Scavarda et al. (2010) to describe variety and assortment created in products post the manufacturing stage. Their studies have shown that one important aspect has perhaps not been considered: When comparing the aspects of variety in their study on Ford's supply chain (factory-fitted variety versus late configuration at dealerships), it is evident that low-volume variety can be created more cost-efficiently further down the value chain and in their study specifically, in a job-shop environment as opposed to an assembly line. Scavarda et

al. (2010) stated that future research regarding late configuration should perhaps consider both volume and variety to provide a more holistic assessment. To add to this, assortment and packaging variety should also be taken into account and, as mentioned earlier as the aim of this study, should be analysed within an emerging market context. Scavarda et al.'s (2010) view that “it is more difficult, if not impossible to increase fundamental and intermediate variety using late configuration at dealers, which puts a severe restriction on the variety offered in emerging markets” (p. 221) is also applicable to an emerging market environment.

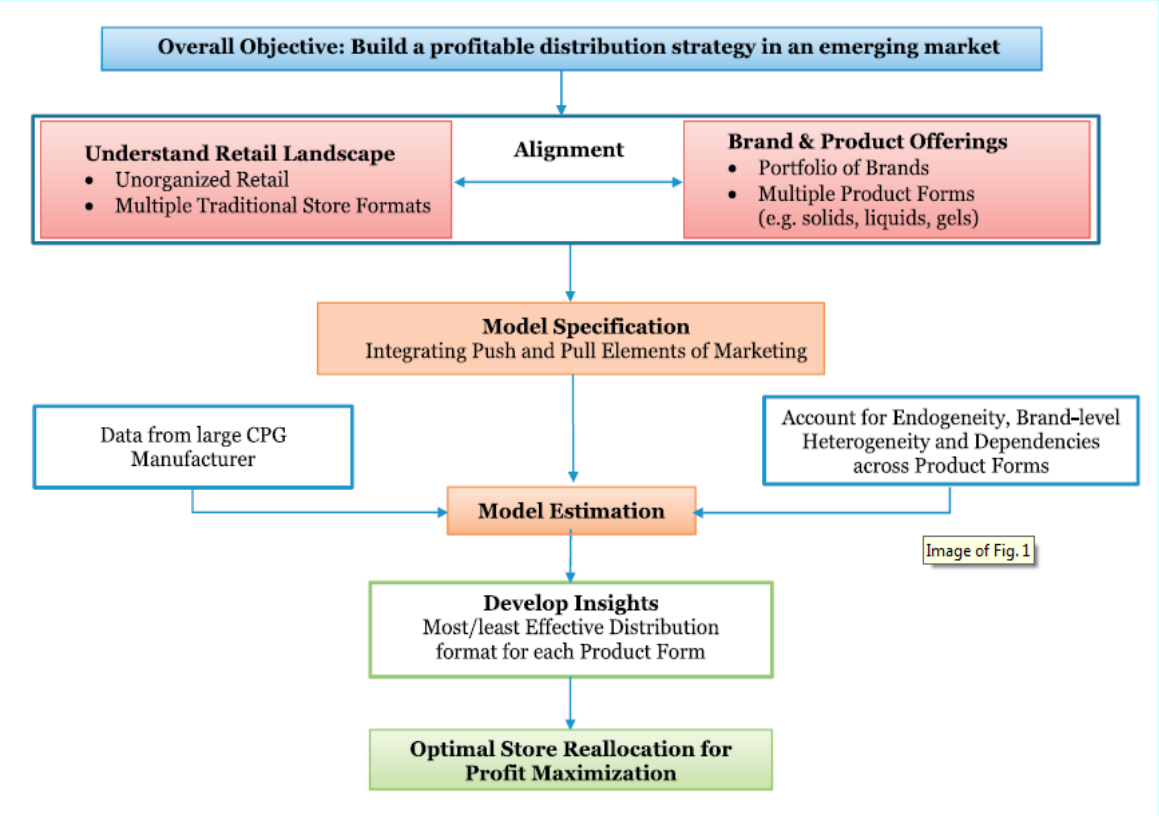
2.2.2 Importance of distribution in pack size variety

As Kumar et al. (2015) note in fig 4 below, it is also important to understand the most effective distribution format for different product forms. Clover’s efficient cold chain distribution network allows the flexibility to deliver any of their dairy products in any form or shape. Understanding the retail landscape and different store formats needs to be taken into consideration. A direct distribution model allows companies to influence the supply side decisions of the retailer ((Kumar, Fan, Gulati & Venkat, 2009; and Kumar, Sunder & Sharma, 2015).

Pornitakpan (2010) and Sy-Changco et al. (2010) analysed the importance of the distribution network for sachet marketing in the retail industry in Philippines. With a large number of small sari-sari stores, their equivalent of South African spaza shops, the extensive distribution network to these stores supported the success of small package items and sachets. Without sachets, a retail store would not have survived. As noted by Pornpitakpan (2010), the small formats and the small stores mutually served each other’s needs. It therefore goes to show that a solid distribution structure and understanding of store formats should be in place along with a clear understanding of what pack sizes suit which store formats in order to fully optimise tertiary selling (Sy-Changco et al., 2010).

As observed below, Kumar et al. (2015) highlight the important combination of a few key factors in successfully catering for the right pack sizes at the right price in the emerging market. Understanding of the retail landscape, knowing what portfolio of brands and product forms you are distributing in which distribution format and an understanding of brand level heterogeneity and dependencies across product forms are key considerations.

Figure 4: Building a profitable distribution strategy in emerging markets



Source: Kumar et al. (2015, p. 3)

As the studies by (Kumar et al., 2009) and Venkatesan et al. (2015) further add to the above, emerging markets should be paying more attention to optimal product lines. Brands need to concentrate on optimal product assortment combined with affecting outlet merchandising and outlet owner relationship programmes (Venkatesan et al., 2015).

Kumar et al. (2015), in summarising their study, noted that the usual marketing mix tools in the developed markets may not offer the same trend of success as it does in emerging markets. Variety of product, package size, product line optimisation and distribution are the tolls needed to improve sales in the emerging market along with pricing which will be discussed below.

2.3 Product pricing in emerging markets

Shankar and Bolton (2004) divided retailer pricing strategies into four main categories: price consistency, price-promotion intensity, price-promotion coordination, and relative brand price. In the emerging market environment, however, the manufacturer has more control over the decisions regarding pricing as the retailer is normally small and independently owned and does not have the buying power synonymous with large modern retail groups

(Kumar et al., 2015; and Shankar & Bolton, 2004). Regarding price elasticity, Kumar et al. (2009) noted earlier that in the laundry detergent category, emerging market consumers were price inelastic and firms could therefore benefit by increasing prices.

The study by Shankar and Bolton (2004) further showed that a retailer has high levels of brand consistency when competitors prices are lower and when competitor deals are more frequent. The other factors at play include market type, chain size and positioning, proximity of emerging market retailers, category assortment, own price elasticity, cross-price elasticity and the proximity to urban metropolitan areas versus rural areas.

From a South African perspective there is further complexity with a growing number of foreign nationals owning emerging market spaza stores (Moloi, 2014; and Mthimkhulu, 2015). In a study by Liedeman et al. (2013) on the reasons why foreign nationals are more successful than South Africans, pricing was found to be a key factor. This ethnographic study by Liedeman et al. (2013) compared South African-owned and foreign-run businesses in terms of the way they operated with respect to ownership dynamics (establishment process, labour and employment), financial investment (size of business and assets), stock procurement, business operations and operating times. The basic finding was that the business approach and scale of operations of foreign-run emerging market stores (spaza shops) contrasted markedly with the predominantly micro or small scale “survivalist” approach of most South African-owned emerging market stores. Social or community networks were identified as a key factor which provided access to cheap labour, predominantly by Somalians who through struggles in their home country know nothing better than to work hard for little money (Liedeman et al., 2013). Key aspects to their success were their ability to price more competitively by basing their operating model on collective procurement, their social distribution networks and their conservative living.

Liedeman et al. (2013) further explained that the South African spaza shop owners or managers, in contrast, usually operated within a fairly weak social network which was limited to members of the close family who supported with labour but little else, and they typically operated as survivalist micro-enterprises. Despite this being a challenge at a local level, the point is that pricing is a key determinant if emerging market retailers or spaza shops want to survive with the growing influence of formal or organised retailers entering this space. These foreign store owners have already shown in the recent studies (Liedeman et al., 2013; and Trade intelligence, 2016) that they have the ability to compete, but in order to do so more effectively will need continued collective procurement, social distribution networks and a

focus on smaller convenience packs targeting the high-frequency as opposed to the bulk month-end shopper.

Kumar et al. (2009) as well as Mukherjee and Patel (2005) pointed to the Maximum Retail Price (MRP) concept and declared that it warrants discussion. The MRP is the highest price that can be charged by the company and is actually required by law to be printed on the product package. In an Indian emerging market context, retailers across store formats tend to sell products at MRP instead of competing on price (Mukherjee & Patel, 2005). In a South African context, however, and without MRP being required by law, there may be less price compliance. Kumar et al. (2009) recognised that this could be a limitation of their study for other emerging markets where MRP did not apply or when large retailers commanded more bargaining power in the supply chain. However, the Indian and African contexts show similarity in the fact that, since most store formats comprise traditional, smaller vendors, they have very little power over deciding prices. These vendors might need to focus on smaller convenience packs targeting the high-frequency as opposed to the bulk month-end shopper However, as researched by Liedeman et al. (2013) and as per Trade Intelligence (2016), collective buying habits and the other characteristics of foreign nationals in South Africa mentioned above means that this may not necessarily be the case.

Results of research by Kumar et al. (2009) from three home insecticide products showed a positive effect of competitor sales on private brand or owned brand sales for the solid product form, a negative effect for the liquid product and a more positive effect for the gel product format. The results indicated that further investigation in terms of the dynamics of competitive actions on own sales would need to be conducted in future research, as higher dependency levels were noted across product forms and brand level heterogeneity. This needed to be accounted for in the Indian market, and according to Kumar et al. (2009) managers need to fine-tune their marketing mix prudently to ensure the absence of cannibalisation between the product forms. Further research is therefore needed to assess different types of consumers at different disposable income levels in emerging markets in terms of a tiered pricing strategy, and to an even deeper degree, the level of disposable income at varying times of the month for waged and salaried low-income earners.

Package downsizing has become more prevalent globally as an alternative to raising price and remaining price-sensitive in the face of intense competition (Akır & Balagtas, 2014; and Yang, Chen & Allenby, 2003). While significant research exists with regard to price-elasticities of demand, the study by Akır and Balagtas (2014) was the first to quantify consumer responses to package size. Simultaneous demand and supply data on ice cream

purchases for a panel of households in Chicago was used, and consumer responses to changes in package size were assessed. A key finding was that on average consumers were around four times more sensitive to pack price as they were to pack size.

This result is significant for marketers. Consider a competitive marketing environment in which managers have only limited room to increase product prices without affecting sales. Brand managers may prefer to maintain existing prices, or avoid relatively large increases if the range of acceptable prices as defined by the region between upper and lower-price thresholds is narrow (Akır & Balagtas, 2014; and Mazumdar & Jun, 1992). Kalyanaram and Little (1994) also analysed the factors affecting the price-insensitive area within the range of acceptable prices for sweetened and unsweetened drinks, and their suggestion was that 'marketers who want to increase prices should 'nibble' not 'bite'' (p. 416).

Another consideration for companies as recommended by Jaiswal and Gupta (2015) lies in revising their promotional strategy to recognise the low level of deal proneness and in tailoring the promotional campaigns to match the level of marketplace literacy in the bottom of the pyramid sector. Given that consumers in this segment are brand loyal, Jaiswal and Gupta (2015) have suggested that companies should rather channel promotional and discount offers into loyalty programmes, not only providing incentive to traders and consumers but also creating a more consistent price in the market.

2.4 The relationship between price and unit pack size

A study by Lennard, Mitchell, McGoldrick and Betts (2001) found that consumers used a proxy for the actual volume of product it contains. Research on consumer visual perceptions of product size and shape discovered that consumer perceptions of size were inelastic (Chandon & Krishna, 2009), and research by Akır and Balagtas (2014) confirmed that most consumers ignore size information, rather using visual assumptions of package volume. What this then suggests is that consumers underestimate the real changes in product unit size (Chandon & Wansink, 2007; and Chandon & Krishna, 2009).

According to the findings by Chandon and Ordabayeva (2009), the estimation bias of actual size is enhanced when package changes move from one-dimensional changes to three-dimensional changes. These findings make valuable contributions to the retailing literature and need to be considered in this study in terms of the relationship between product unit size and price. One of the limitations mentioned in the study by Chandon and Ordabayeva (2009) was that monthly averages of brand level variables were used and it was suggested that future research might want to use standard store level data to better show the effects of this

aggregation on the results. This is important and relevant to the current study as store level sales data were used which could enhance the studies by Chandon and Wansink (2007), Chandon and Ordabayeva (2009) and Lennard et al. (2001).

One challenge of downsizing is that consumers think smaller portions are not as economical (Chandon & Wansink, 2007). Another challenge is that the lower net price reduces the average consumer spending and may not be equalised by the average increase in number of customers (Chandon & Wansink, 2007; and Chandon & Ordabayeva, 2009). Between the discoveries by Chandon and Wansink (2007) and those of Chandon and Ordabayeva (2009) and even beyond, little has been done to identify whether consumers think that smaller portions are indeed less economical or that their spending reduces due to the lower net price of smaller unit sizes.

The key to this study is not in changing the pack or unit size but rather to extend the product line, creating more pack size options. The consumer then has the alternative of a larger or smaller product unit size of the self-same product. The importance here is that this study hopes to uncover a changing consumer environment with more and more emphasis on different consumption occasions and available, on-hand disposable income for less affluent consumers in emerging markets. Extensions of the product line in terms of unit pack size and price are indeed needed and especially smaller unit sizes to cater for the daily purchase occasion of the emerging market consumers. The above studies were limited in their not considering that smaller unit pack sizes at different price points may attract new consumers over and above attracting the existing consumers at different purchase occasions.

Studies by Berger et al. (2007) and others like Iyengar and Lepper (2000) referred to the importance of product line length. Berger et al. (2007) saw product line as an integral part of a company's competitive toolkit. Their results show that price and line length are complementary: if a firm's wants to increase price, it can control market share by extending product line length. Line length affects consumer behavior and production costs (Pornpitakpan, 2010). Results also suggested that product proliferation could even be counterproductive in the sense that market share decreases after a certain line length (Berger et al., 2007). These researchers found that on the organisation's side production costs increase exponentially as line length increases, therefore effective management of line length remains a critical consideration.

The results of the study by Berger et al. (2007) show the impact that product variety has on brand choice. Even when the exact same options were offered by both brands, consumers

were more inclined to select a chocolate when it was offered by the high-variety brand. Then, when the brand offered greater variety in the product line, participants found the same chocolates to be tastier and showed a higher likelihood of buying that brand. The results imply that a brand offering better variety has a higher likelihood of being tasted, and consumers are likely to perceive it as superior even against taste. Other previous studies have confirmed that product variety increases a company's market power, which in turn raises profit margins and market share (Bayus & William P. Putsis, 1999).

Another limitation to be addressed by the current study is the fact that Berger et al. (2007), Chernev (2011), and Iyengar and Lepper (2000) in all their experiments consistently used gourmet chocolate bars as the product to test for assortment size. These studies all recognised the limitation of only using one product and consistently using this same product over similar studies and across more than a decade of research. Although there have been other studies using other products, the work around the area of product line length and variety remains scant in terms of the products used. The current study therefore comprises an analysis of three different products in an attempt to show the impact of product line length and variety from the angle of product pack size as a form of product line length and variety.

Turri (2011) also indicated the need for future research to address some of the limitations mentioned in Chernev and Hamilton (2009), Chernev (2011) and Berger et al. (2007) by examining much of the same research in an actual retail setting. This points to yet another limitation addressed in this present study, as Turri (2011) mentioned that the use of a field study to tackle a few of the same hypotheses would make for a sample which would be more representative of the greater population. A more realistic environment would be created, although the drawback could be that it could be accompanied by a lack of experimental control.

Research by Chernev and Hamilton (2009) and Chernev (2011) emphasises that consumer choice among product assortments is a function of the attractiveness of the options found in these assortments. Smaller assortments are more likely to be preferred when consumers choose between attractive options than when deciding among assortments where there are less attractive options. Again, this research ends at this conclusion and does not delve deeply enough into the decision of product pack size as a form of product variety. Chipp, Corder and Kapelianis (2012) reminded us, however, that in the South African environment managers should make careful consideration when defining the bottom of the pyramid and must distinguish between individual and household purchase decisions. Marketing managers should be considering such decisions when deciding between alternative pack sizes (Chipp

et al., 2012). In fact, this requires further analysis of the results of this study. In the analysis of different pack sizes across a single branded product, it should be carefully considered that in some cases there may be purchase interplay between similar sizes, but when analysing the interplay between for example a 200 ml fruit juice and a 2 L of the same product variant, there may be different needs states and purchase behaviour and different occasions at play.

In a web article by Florio (2016), the recent term “price pack architecture” is discussed. The author builds on what the above studies suggest, stating that it is critical for organisations and marketers to understand the full value case. The right innovation, he argues, may be as simple as bundling or creating alternative pack sizes and that these adjustments can legitimately drive shopper desire to pay a higher price point. He furthermore argues that healthy snacking and convenience are playing more and more of a role in modern busy times and so creating reduced pack sizes for convenience at increased margins has an advantage for both the manufacturer or retailer and the consumer. However, this needs to be carefully assessed by the market and consumer. Price sensitivity in the emerging market will expose a company that creates more margins through a size reduction at the expense of value to the consumer, despite the convenience of the product.

Chipp et al. (2012) noted that price-performance trade-off may be one of the most important aspects of the value proposition for consumers in the emerging market setting. They stated that this result was in line with results by Dawar and Chattopadhyay (2002) who had pointed out that pricing strategies needed to be considered first when implementing marketing programs in the bottom of the pyramid.

Shaikh, Gandhi and Phau (2016) viewed retail margin as very important when a spaza shop owner chooses to stock a product or not. They looked at factors such as relationship, trust in the company supplying them, product information and the availability of the same product with their competitors. Above all the retail margin they make seems most important (Ailawadi, Harlam, César & Trounce, 2006; Arnold, Palmatier, Grewal & Sharma, 2009; and Venkatesan & Farris, 2012).

Jaiswal and Gupta (2015) built on recent studies in the emerging market context and their findings have been invaluable in determining the essence of this study, namely to analyse the impact of product variety in terms of unit pack size and price in an emerging market context, and to add another layer by assessing what was previously discussed regarding modern-day retailers and their impact on unit pack size and price.

In their study of Fair and Lovely fairness cream, Jaiswal and Gupta (2015) identified that to create significant impact in the BOP, one needs inexpensive unit packs or sachets catering for single serve portions and for the consumer's limited coinage at the time of purchase. Apart from single serve portions, another area of success is the rural distribution channel. Jaiswal and Gupta (2015) used in their research the distribution network known as Project Shakti, where rural women were recruited as sales agents doing door to door selling of Fair and Lovely. However, this to the knowledge of Jaiswal and Gupta (2015) and as far as research for this study is concerned, showed for the first time empirical support for criticism against marketing to the poor in the bottom of the pyramid. Santos and Laczniak (2000) stated that the poor are vulnerable and held back by their lack of education, income, opportunity and access of markets, and Jaiswal and Gupta (2015) agreed that door-to-door selling leads to diversion of scarce financial resources and prevents fulfilment of basic needs and purchase of non-essential products.

The findings by Jaiswal and Gupta (2015) did reflect that if the stated marketing goal is an improvement in life and the market exchange between the marketer and the poor is not exploited, therefore there is potential for companies to not only contribute to alleviating poverty but also build long term customer relationships in this segment. They acknowledged that future research on sachets and unit pack size would need to be done in emerging markets outside of India. Their study was also done on an urban population, and in the case of rural South Africa, BOP or emerging market consumers are not exposed to advanced media forms and aggressive advertising. Rural markets have a long way to go until they are fully penetrated by distributors and companies, and cultural nuances vary significantly between the consumers of urban and rural emerging markets (Kumar et al., 2015). Furthermore, something very fundamental to future research is the argument that the poor are part of the high-cost economic ecosystem and pay significantly higher prices for different products and services (Hammond & Prahalad, 2004; and Jaiswal & Gupta, 2015). From a South African perspective, this high-cost ecosystem may not be applicable considering the low-cost model foreign nations operate on as alluded to earlier.

In India, shampoo sachets contributed more than 95% of the haircare product industry's sales and 60% of sales value in the early 2000's (Hammond & Prahalad, 2004). Findings by Gerstner and Hess from as far back as 1987 showed that package size was a good way of segmenting the market. Dividing a large package into smaller sub-packages enabled people to control their consumption, according to Wansink and Huckabee (2005), and this has been seen as a clever marketing strategy in economic downturns (Quelch & Jocz, 2009; and

Sarkar, Kundu & Chaudhuri, 2016). If executed properly, this could lead to an increase in frequency and quantity of purchase.

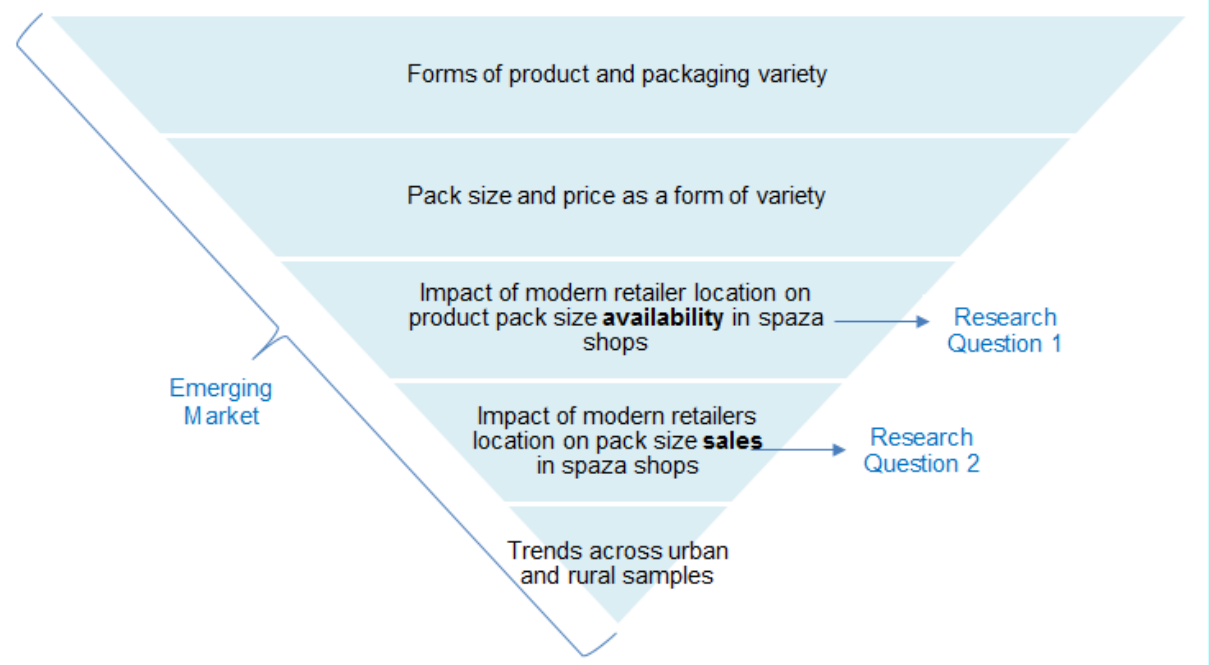
This study intends adding to the above research by delving deeper into and uncovering in greater detail the effects of unit package size and price on the decisions of spaza retailer decisions and consumer choices in emerging markets. Added to this, with the increasing impact of new large retailers entering the space, there has been a definite need to study how these modern retail formats affect consumers and spaza retailers alike. This study has therefore combined the study of unit pack size and price with the impact of large retailers on decisions in this regard.

Evans (2011) pointed out that “we should not be surprised or distressed when certain types of retailing fall into disfavour and others emerge to replace them. Rather, it needs to be seen how and why specific retail institutions and practices have evolved and where they are headed and adapt strategies accordingly” (p. 11). This study has therefore attempted to add value to corporate companies that develop and sell products aligned to the emerging market, by adding understanding of the selection of products and pack sizes, and at what prices these items should be sold. It has also attempted to highlight the significance of distance between the spaza shops and new entrant retailers in determining what packs to stock and in which sizes.

Although marketing literature in the developed markets is rich, empirical research concerning marketing strategy remains fairly scarce in terms of emerging economies. Microeconomic theory predicts that consumers in emerging markets are more price-sensitive than those in developed markets due to tougher financial constraints (Gupta et al., 2011). However, evidence of the above in an emerging market context has been scarce and inconclusive (Kumar et al., 2015). Furthermore, by linking time-varying effects to income distribution, it can be explored whether consumers in emerging markets change their preferences according to income. In perhaps the most recent and most relevant study in this area by Kumar et al. (2015), limitations of regional and town level differences in demand due to data limitations are recognised. This study has therefore attempted to address the above limitations and build on previous studies with the aim of providing valuable marketing and pricing discoveries to this field.

2.5 Conclusion to the chapter

Diagram 1: Framework of this study



Source: Author's own

In reviewing the above diagram and the literature assessed in this chapter, detailed context to the importance of the broader concept of product variety emerged. It then narrowed theory down to product pack size as a form of variety and the pricing decisions that need to be considered when changing pack size or extending a product line with a greater number of stock-keeping units of different sizes. The literature review furthermore discussed the above factors in the context of an emerging market setting, as well as the impact that today's large modern retailers are having on the emerging market. Evidently, opportunity remains to analyse price and pack architecture more extensively, especially in the emerging market context and with the added complexity of formal retail entering the informal retail space. It requires a shift in thinking from all parties involved, from manufacturer right through to spaza shop owner.

CHAPTER 3

3. RESEARCH QUESTIONS

3.1 Introduction

The previous chapter discussed literature relating to product pack size, price, and the entrance of modern-day retailers into the emerging market. This research aims to understand how these aspects impact the emerging market space and the decisions spaza shop owners and manufacturers need to make to keep abreast of these changes.

3.2 Research objectives

The research intends to discover insights into the distribution of product stock keeping units (SKUs) and how the sales performance of existing SKUs will be influenced by the introduction of smaller SKU sizes. Further objectives are to discover insights around the influx of modern-day retailers, and whether distance between the emerging market spaza shop and modern-day retailer impacts the sales and assortment mix of brands.

3.3 Identification of research questions from the literature

The key literature, the limitations that emerged and the opportunities for future research were narrowed down to identify the research questions.

Dholakia and Dholakia (2012), Kumar et al. (2009) and Yadav, Verma, and Singh (2016) mentioned the need to study the impact of an increasing number of modern trade retailers entering the informal emerging market environment. This point was further noted by Liedeman et al. (2013), Madlala (2016) and Moloi (2014). In addition, little empirical research has been done on the value of pack architecture diversification of products in the emerging market environment with the influx of large retailers entering this space as attested by Kumar et al. (2015) as well as Sorescu et al. (2011).

Referring more specifically to pack unit size and as far back as Gerstner and Hess (1987), package size has been seen as a good way of segmenting the market. Dividing a large package into sub-packages allows people to control their consumption (Wansink & Huckabee, 2005), and this has been seen as an effective marketing strategy in economic downturns (Quelch & Jocz, 2009; Sarkar et al., 2016).

Trade Intelligence (2016) has noted that within the context of South Africa's informal, emerging market, spaza retailers can compete on price. Therefore, narrowing down all the above aspects means there remains opportunity to study how distance between modern

retailer and spaza shop impact product unit availability and sales performance. Uncovering this will help both spaza owners and suppliers to determine what product sizes to stock, considering the encroaching modern trade retailer. This then leads to the two research questions below:

3.3.1 Research Question 1:

Is the availability of product unit size in emerging market spaza shops influenced by distance between the emerging market spaza shop and modern-day retailer?

3.3.2 Research Question 2:

Are the sales of a product assortment in emerging market spaza shops influenced by distance between the emerging market spaza shop and modern-day retailer?

3.4 Conclusion

The above research questions intend to uncover important information which may assist the decision making of academia as well as business, particularly those of the informal spaza shop owners. The methodology behind how the research was conducted will now be identified, the results will be analysed and recommendations will be made.

CHAPTER 4

4. RESEARCH METHODOLOGY

4.1 Introduction

The study required obtaining secondary data from Clover, South Africa's largest dairy distributor. The key to Clover's data reliability lies in the direct distribution of the products analysed and the thorough measurement of the data over a four-year period. Pricing, availability (distribution) and sales data of certain product SKUs were analysed along with a time series analysis of the geographical plotting of spaza shops and modern retailers over the period to assess the impact of time and changes in numerical outlet growth. The research study focused on a number of stock-keeping units across three products namely Clover's Fruit Krush range, UHT long life milk and the Tropika fruit juice range. The objective lay not in the number of stock-keeping units across different product types but remained focused on a few lines as was the case in a similar study of the assortment size of chocolates (Chernev, 2011). The change in size assortment and sales performance over time was then observed, considering the introduction of smaller SKUs over time. The study also assessed the impact of numerical store growth of modern retailers on the changes in sales, availability and pack architecture.

4.2 Research design

Saunders and Lewis (2012) and Zikmund, Babin, Carr and Griffin (2012) divide research into three key areas namely exploratory, descriptive and causal studies. In exploratory studies, research is conducted into new phenomena where the problem is uncertain and exploration is required. This research is a first step conducted with the expectation that additional research will add more conclusiveness. Exploratory research is often used to guide and refine previous research efforts. Descriptive studies are research to more specifically describe the characteristics of the phenomenon, usually answering the question "what?". Causal research identifies cause and effect relationships between variables and answers the question "why?".

4.2.1 Exploratory research

This is a study using quantitative data such as sales figures, pack sizes and geographical coordinates (Saunders et al., 2012). Previous, similar studies of chocolate used consistently in literature by Berger et al. (2007), Chernev (2011) and Iyengar and Lepper (2000) all used exploratory research. The use of exploratory research seemed most appropriate for this current study, depending on the accuracy and reliability of the data.

Given the reputation of the data source and the credibility of Clover's data systems, there was even more reason to go with this option. Research was conducted as a first step that additional studies can build on, but it also contains aspects that could refine previous research (Zikmund et al., 2012). According to these authors, exploratory research is particularly useful in new product development and therefore has relevance in this study in terms of exploring existing unit pack sizes and prices and the impact of modern-day retailers entering the emerging market space. The study may uncover opportunities for new pack sizes and price points.

4.2.2 Generating secondary data

Secondary data is data that already exists in a processed format (Wegner, 2007, p. 14). The internally-sourced secondary data collected from Clover are normally used for purposes of analysis and performance management by their commercial team. According to Zikmund et al. (2012), when secondary data is reported in a format that does not meet the researcher's needs, data conversion may be needed to change the form of the data to more suitably achieve the research objective.

Secondary data generation was most suited to this research. The secondary data was accessible, could be acquired faster and was less expensive. The data was stored digitally and could be retrieved electronically. Since the study dealt with price and pack analysis as well as geographical coordinates, access to relevant fast-moving consumer goods data was important; this was made possible in this research study. This data, consisting of pack and store sales data, went back four years to the inception of the Clover Masakhane strategy aimed at the bottom of the pyramid in South Africa. This data was overlaid and analysed against retail outlet geographical coordinates to determine the impact of such modern retailers on the sales and pricing decisions of spaza stores and their choice of stock-keeping units.

Zikmund et al. (2012) also noted certain disadvantages to using secondary data, namely that the information is not relevant and recent and there is a lack of information to cross-check the relevance of the data. In this study, however, there was little risk of these disadvantages being applicable, as the data came from a reputable source, was recent going back four years, and was managed by the company for their own audit and reporting requirements.

Market-basket analysis is a certain type of data mining that assesses anonymous point-of-sale data to identify purchases that coincide or to pick up relationships between products purchased and other retail shopping information (Zikmund et al., 2012). The current study

was therefore designed to be a market-basket analysis of point-of-sale data by store of different products in different unit sizes.

4.3 Unit of analysis

Within the context of this study, the units of analysis were the following predetermined pieces of data:

- Unit pack size (measured in grams and/or litres)
- Unit pack sales (measured in rands)
- Distance between modern-day retailer and spaza shop (measured in kilometres)

100 spaza shops in terms of price and pack data in the three mentioned clusters were measured in the analyses.

4.4 Universe

'The population of a research study is the complete set of group members that meet the requirements of the study (Saunders & Lewis, 2012, p. 12). Using Clover South Africa's secondary data, the universe consisted of all retail outlets dispersed nationally where Clover delivers directly. Segmentation was done according to informal (traditional) trade and formal/modern trade, although the sample as noted above was restricted to three separate clusters to ensure less bias of the study only being in one area.

Clover's split between traditional and modern retailing channels can be defined as follows:

4.4.1 Traditional format stores

This is Clover's Masakhane channel, established in 2012 and aimed at penetrating 100 000 non-key account customers in the BOP emerging market. Masakhane is a specialised BOP distribution route to market, with a "cold calling / door to door" market-specific sales execution team to match this emerging market strategy. The Masakhane channel is an extension of Clover's core competitive strength in that Clover's national distribution network, infrastructure, sales and marketing mobility technology are used as a critical success factor to penetrate this market. Traditional-format stores can be defined as independently owned, smaller-sized stores (Polsa & Fan, 2011). In a South African context, the database of the All Media and Products Survey (AMPS®) provides the following definitions:

- Spaza Shop/ Spaza: a convenience retailer operating from a room in a house (Strydom, 2011).
- Independent neighbourhood supermarket: a general goods store independently owned; often family owned (Strydom, 2011).

However, from a Clover Masakhane perspective, only spaza shops are measured as part of this channel. Independent neighborhood supermarkets form part of the modern-format stores discussed below.

4.4.2 Modern-format stores

Modern-format stores are categorised as specialised, self-service chain stores, supermarkets and hypermarkets (Strydom, 2011). In a South African context, the AMPS database classifies the following as branded retailers:

- Pick n Pay
- Pick n Pay Hyper
- KwikSpar
- Boxer Superstore
- Cambridge Foods
- Checkers Hyper
- Buy Rite
- OK Foods
- OK Grocer
- U Save
- Shoprite

For the purposes of the study, only a specific modern retailer in each cluster was used and is named as Modern Retailer 1 for purposes of confidentiality. Chipp et al. (2012) used the Living Standards Measure (LSM) to describe lower-income consumers in South Africa as the “foundation” and “core” (p. 20) groups, measured at LSM1-4 and LSM5-6, respectively. This study is useful in understanding this sector of consumers. Even though the current research comprised only emerging market retail shops (spaza shops) in South Africa, the findings may also have relevance to emerging markets outside South Africa. The sample parameter

was narrowed down to all spaza outlets within three separate clusters in South Africa: an urban sample within Gauteng Province; rural samples on the outskirts of Polokwane, Limpopo Province; and in Kwa-Mashu, on the outskirts of Durban in KwaZulu Natal Province. The author found this necessary due to the limitations observed in Madlala (2016) and Jaiswal & Gupta (2015) where one context or one geography was studied. Given that this current study observes three different clusters, the variations and similarities of the findings can be measured and compared across geographies, cultures and population densities.

4.5 Sampling method and size

Non-probability sampling techniques were used, and specifically elements of quota and convenience sampling. Quota sampling was selected to ensure that the sample would contain a sufficient number of units satisfying certain criteria (Saunders et al., 2012). In this study the quota sampling was done by classifying emerging market spaza shops based on the distance or radii from modern-day retailers. This quota was applied to approximately 100 participants falling within three to four radii sections. A minimum number of 30 is based on the likely data saturation point for homogenous populations (Saunders et al., 2012), so the sample size of this research more than met these criteria. Convenience sampling is a selection based on ease (Saunders et al., 2012) and in this study, apart from ensuring that the relevant quota requirements were met, outlets within the geographical areas of the three separate clusters were selected based on ease of access.

4.6 Data measurement

According to Zikmund et al. (2012), reliability represents the consistency and repeatability of a measure. In this study the research measurement instrument was the sales and distribution data sheets captured for each unit of analysis representing each unit product. Validity is the degree to which the instrument measures the concept the researcher wants to measure (Zikmund et al., 2012). The instrument in this study was valid and addressed what needed to be measured. Lastly, according to Zikmund et al. (2012), sensitivity is the ability of the instrument to accurately measure variability in responses. This study measured the variability of each transaction over more than a 12-month period.

4.7 Data collection process

The data collected and analysed consisted of the following:

- Database of emerging market spaza stores and retailers within three selected clusters

- Geographical coordinates of each of the abovementioned data points
- Sales data of three pre-selected “fast-moving consumer good” (FMCG) products
- Pack size data of three varieties or SKUs of the three FMCG products as mentioned above

4.8 Data analysis approach

The data utilised, as mentioned previously, comprised secondary data obtained from market research in the emerging market. A cut-off point of 5% (i.e. 95% completed) for the missing data was employed to determine whether an observation was included in the analysis (Brown & Kros, 2003). The data were analysed using the Statistical Package for Social Science (SPSS) computer software version 23.

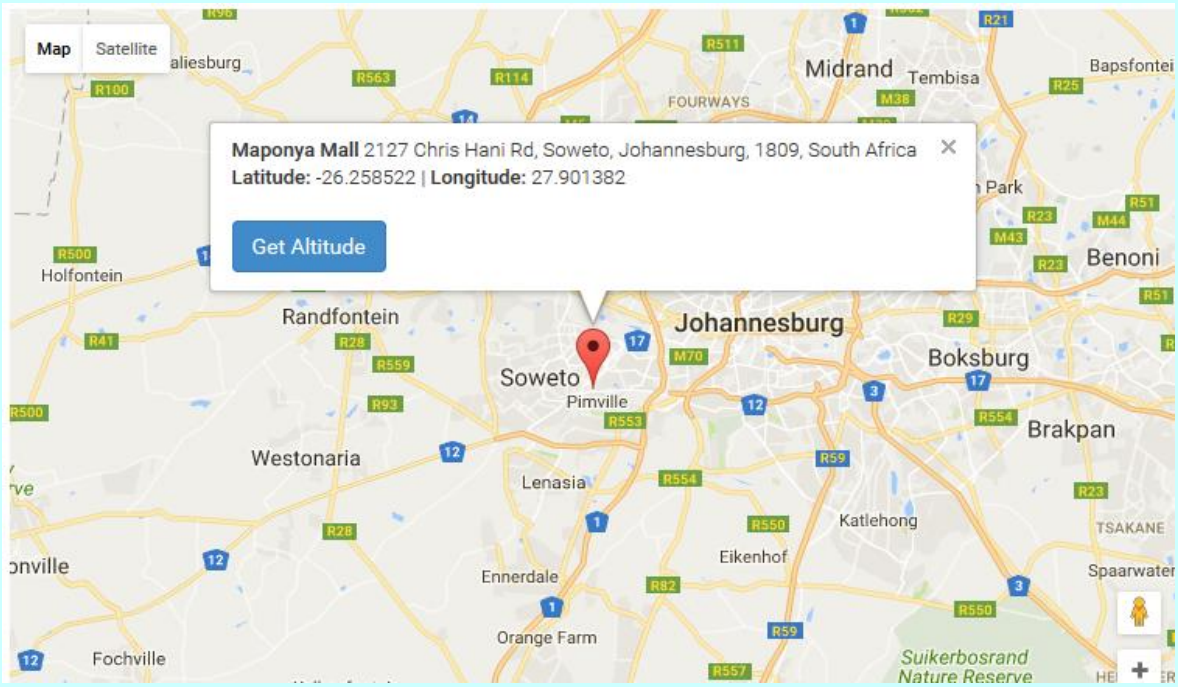
4.8.1 Distance between the spaza shop and modern retail store

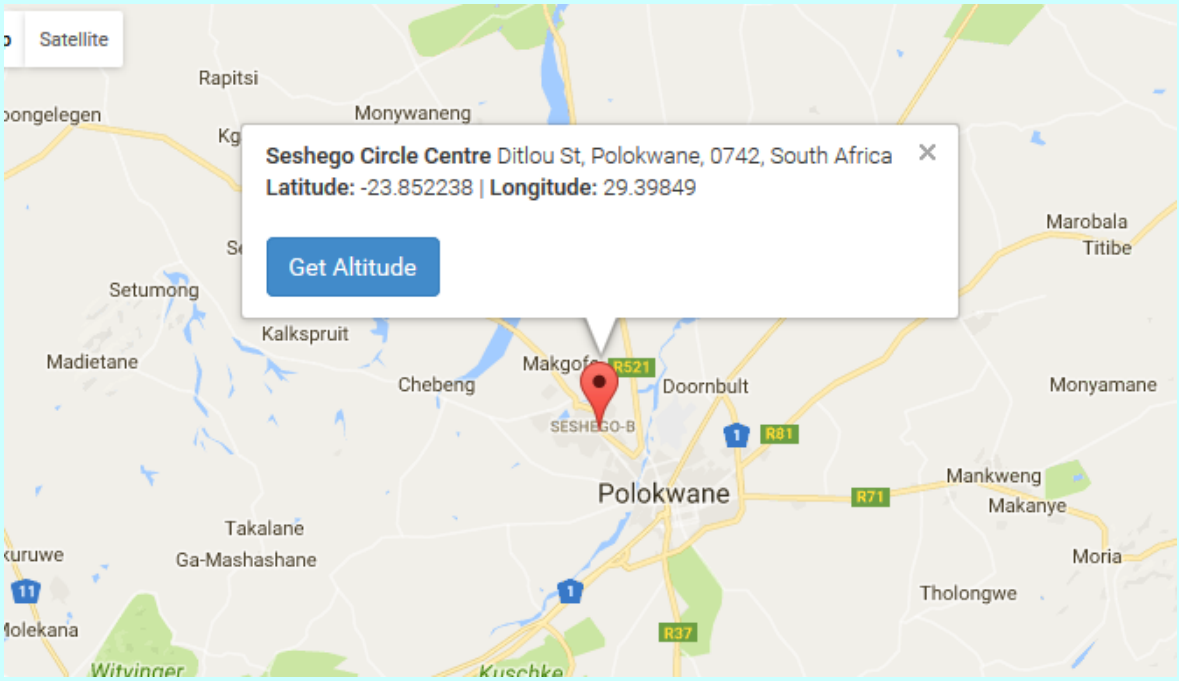
The data for each spaza shop included the coordinates of the stores. There were three central points of interest in the three regions. These included Maponya Mall in Soweto for Gauteng, KwaMashu Shopping Centre in KwaMashu on the outskirts of Durban for KwaZulu-Natal, and Seshego Circle Centre, Seshego, in Polokwane. The map of these three central points with their coordinates is given in Figure 1. A ten-kilometre radius was used as the cut-off point for selecting the spaza store sample and the modern-retail store sample. The additional requirement for the modern retailer was that it should be based within the three spaza store clusters. Table 1 below presents the selected stores for the study namely Modern Retailer 1 Pimville, Modern Retailer 1 KwaMashu and Modern Retailer 1 Seshego.

Table 1: The selected modern stores and their distance from central point

	Region	Modern Retailer 1 Group
Store	Gauteng	Modern Retailer 1 Pimville
Distance from central point		1.529 km
Store	KZN	Modern Retailer 1 KwaMashu
Distance from central point		0.597 km
Store	Polokwane	Modern Retailer 1 Seshego
Distance from central point		5.596 km

Figure 1: Maps of the central points with their coordinates





The range of distance between nearest and farthest spaza store to Modern Retailer 1 retailer was 0.099 km and 5.596 km, respectively. Distances were calculated using the following formula:

Equation 1: Distance calculating between two GPS coordinates

=6371*ACOS(COS(RADIANS(90–L2))*COS(RADIANS(90-L1))+SIN(RADIANS(90-L2))
(SIN(RADIANS(90 -L2)) COS(RADIANS(LN2-LN1))))

- The mean is the description of the location, which can also be regarded as the centre of mass of the data (Cajori, 1993).
- Sin and Cos are trigonometric functions of an angle. The Sin of an angle is the context of the right triangle, meaning for a specified angle, it is a ratio of the length of the side that is opposite that angle to the length of the longest side of the triangle (Cajori, 1993).
- Cos of an angle is the context of the right triangle, meaning the length of the adjacent side divided by the length of the hypotenuse (Cajori, 1993).
- Radian is the unit of measurement of angles equal to about 57.3degrees, equivalent to the angle subtended at the centre of a circle by an arc equal in length to the radius (Cajori, 1993).

L1 and L2 = Latitude1 and Latitude 2

LN1 and LN 2= Longitude 1 and Longitude 2

4.8.2 Descriptive statistics

Descriptive statistics are used to describe and summarise features of a large data (Zikmund et al., 2010). In this study the data for descriptive analysis were summarised using frequency distributions and percentage frequency, mean and standard deviation. The frequencies were used to provide the overview of the sample. This was aimed at acquiring the central tendency and spread of the sample. The frequency and percentage frequency was then used to understand the outlet spread or distribution across the radii from the formal retailer as well as to determine the pack size, sales volumes, brand and sub-brand categories (Zikmund et al., 2012).

A missing value analysis was conducted to analyse the missing values of the secondary data. This analysis described the patterns of the missing values by locating

them and by gaining insight into their extensiveness. If they were data extremities, it would show that the missing data were random. The guidelines as provided by Scheffer (2002) indicate that a cut-off of 5% should be used for missing data. If more than 5% there is a risk of bias that could be brought in by the particular respondent. All the data in this current study were therefore retained as there were no missing data above 5%.

4.8.3 Relationship analysis

A cross-tabulation which is a joint frequency distribution of the cases based on two categorical variables (pack size and distance from spaza shop to modern retail store) was used to analyse the research questions. Displaying the distribution of the values of the variables in common is known as contingency tables analysis. This analysis provided the pattern of the relationship between the independent variable (distance) and the dependant variables (pack size and sales). The significance of the relationship was analysed using Pearson's Chi -square test (χ^2) while the strength of the relationship was analysed using a Phi test or Cramer V test. Both the assumptions of the Chi-squared test were met, concluding that the variable categories and their groups were two or more. The p-value significance threshold was set at <.05. For cells with less than a 5 count, in violation of the significance, the exact Fisher test results were taken for significance.

Considering the testing level of 0.05, a standardised residual analysis which is a value similar to a z-score was done to understand which cell contributed to the statistical significance, meaning which level of independent variable accounted most for the relationship (Hinkle, Wiersma, & Jurs, 2003). For degrees of association the Cramer's V (φ) was analysed, with the strength of the association measured using the guidelines of Hinkle et al. (2003); with 0 indicating no relationship and 1.00 indicating perfect relationship. Hinkle et al. (2003) suggest the following parameters: 0.0 – 0.29 (Weak), 0.30 ≥ 0.49 (Low), 0.50 ≥ 0.69 (Moderate), 0.70 ≥ 0.89 (Strong); 0.90 ≥ 1.00 (Very Strong).

4.8.4 Differences between the groups

The analysis of variance (ANOVA) test was used to analyse the variance between and within the regions (Soweto, KZN and Polokwane) in this study. The analysis used a p-value of 0.05 for significance, with a p-value lower than 0.05 deemed as significant. The variables that were found to be significant were further analysed using a post-hoc

test. The post-hoc test by Bonferroni, due to its simplicity and versatility, was employed to get the details of the differences (Hair, Black, & Babin, 2010).

4.9 Research methodology limitations

The research conducted in this study had, inter alia, the following limitations:

- Although the study encompassed a large sample size across three areas, the use of non-probability sampling means that the sample may not represent the population statistically (Saunders & Lewis, 2012). The results may therefore not be validly generalised to the whole population.

- Saunders and Lewis (2012) warned that a small sample size in comparison may negatively affect the validity of the data, which could be a limitation in this study given the size of the population.

- The study shows the impact of modern-day retailers on spaza shops but did not consider large independent wholesalers or larger emerging market spaza stores acting as wholesalers. These stores could also impact the sales, price and pack decisions of spaza shops.

- A study by Kumar et al. (2015) on specific store formats in emerging markets shows that managers can gain a better understanding of the impact of distribution (type and quantity) on the firm's sales. This present study, however, did not consider different store formats and hence presents generalisation across all emerging market spaza type stores. Future studies could build on this research by using the store formats analysis from Kumar et al. (2015).

CHAPTER 5

5. RESULTS

5.1 Introduction

The objective of this exploratory research study was to gain a deeper understanding of unit pack sizes in the emerging market spaza retail sector while looking at the growing influence of formal retailers on stock-holding decisions related to unit pack size. The research questions were presented in Chapter 3 and the methodology was explained in Chapter 4. In this chapter, the findings of the study are presented following the format of the two research questions. The results are presented using both descriptive and inferential statistics.

5.2 Evaluation of missing data for reliability

The data set was completed with no missing values in all the variables of the 88154 observations, and no missing patterns were found (Table 2).

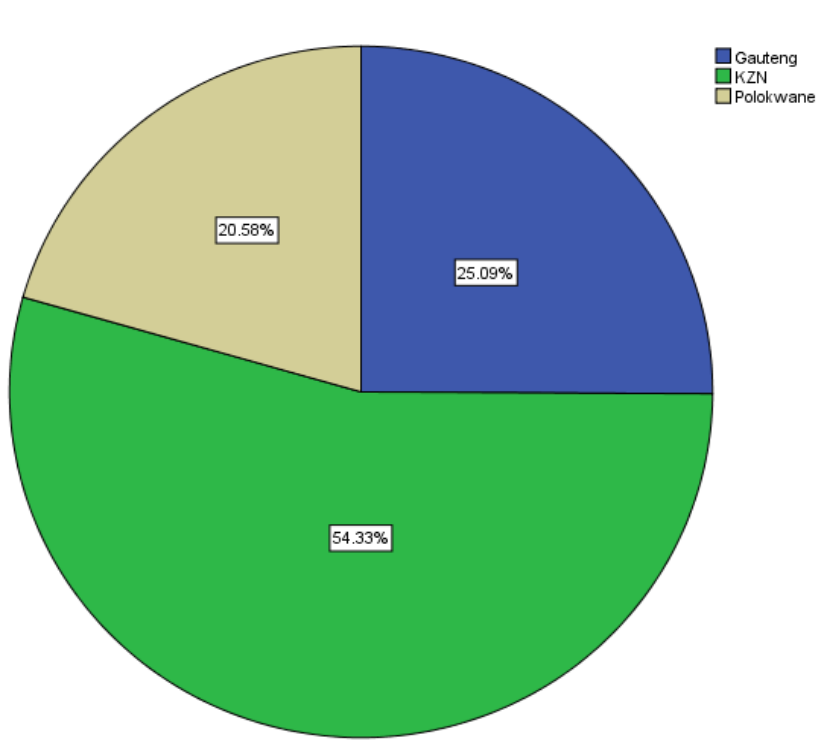
Table 2: Missing data analysis for the variables understudy

	N	Missing	
		Count	Percent
Group	88154	0	0,0
Account Manager	88154	0	0,0
Month	88154	0	0,0
ProdVLThree	88154	0	0,0
Pack size	88154	0	0,0
Actual Sales Value	88154	0	0,0
Price per Volume	88154	0	0,0
Distance PnP	88154	0	0,0
Distance Modern Retailer 1	88154	0	0,0
Distance Spar	88154	0	0,0
Distance wholesaler	88154	0	0,0

5.3 Characteristics of the sample

There were a total of 88,154 observations from 265 Clover Masakhane stores (the company term for spaza shops) in the three clusters sampled. The time frame for the observations was from November 2012 to June 2016. The distribution per region is provided in Figure 2. The highest observations were from KwaMashu, KwaZulu-Natal (KZN) at 54.3% (N= 47895), followed by Gauteng at 25% (N=22115) and Seshego in Polokwane at 20.6% (N = 18144).

Figure 2: The distribution profile of the Masakhane spaza stores per region



The above observations came from 100 spaza stores in Gauteng, 100 in KZN and 65 in Polokwane (Table 3).

Table 3: Distances between the four modern retailers and the Masakhane stores

Distance PnP	Frequency	Percentage	Valid Percentage	Cumulative Percentage
0 - 2 km	66048	74,9	74,9	74,9
2.01 - 4 km	306	,3	,3	75,3
4.01 - 6 km	6599	7,5	7,5	82,8
6.01 - 8 km	4189	4,8	4,8	87,5
8.01 - 10 km	11012	12,5	12,5	100,0
Distance Modern Retailer 1				
0 - 2 km	2520	2,9	2,9	2,9
2.01 - 4 km	3250	3,7	3,7	6,5
4.01 - 6 km	17145	19,4	19,4	26,0
6.01 - 8 km	35645	40,4	40,4	66,4
8.01 - 10 km	29594	33,6	33,6	100,0
Distance Spar				
0 - 2 km	40259	45,7	45,7	45,7
2.01 - 4 km	954	1,1	1,1	46,8
4.01 - 6 km	16182	18,4	18,4	65,1
6.01 km - 8 km	23145	26,3	26,3	91,4
8.01 - 10 km	7614	8,6	8,6	100,0
Distance wholesaler				
0 - 2 km	1889	2,1	2,1	2,1
2.01 - 4 km	3967	4,5	4,5	6,6
4.01 - 6 km	20496	23,3	23,3	29,9
6.01 - 8 km	33686	38,2	38,2	68,1
8.01 - 10 km	28116	31,9	31,9	100,0

The above distances were based on the locations of the stores within the emerging market in Soweto for Gauteng, KwaMashu for KZN and Seshego for Polokwane, with the comparative modern retailers (Pick n Pay, Modern Retailer 1 Group, Spar Group and wholesaler) within ten kilometres from the Masakhane spaza store.

The three principal subgroups under investigation were dairy fruit mix, fresh milk and juices, with the six products (labelled as ProdVLThree) being Clover Fresh Milk, Clover Fruit Nectar, Dairy Fruit Mix Danao Fresh, Dairy Fruit Mix Tropika Fresh, Dairy Fruit Mix Tropika UHT and Krush 100% Fruit Juice Blend (Table 4).

Table 4: The principal subgroups and ProdVLThree products

Principal Subgroup	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Dairy Fruit Mix	44061	50,0	50,0	50,0
Fresh Milk	29199	33,1	33,1	83,1
Juices	14894	16,9	16,9	100,0
Total	88154	100,0	100,0	
ProdVLThree				
Clover Fresh Milk	29199	33,1	33,1	33,1
Clover Fruit Nectar	8568	9,7	9,7	42,8
Dairy Fruit Mix Danao Fresh	856	1,0	1,0	43,8
Dairy Fruit Mix Tropika Fresh	40164	45,6	45,6	89,4
Dairy Fruit Mix Tropika UHT	3041	3,4	3,4	92,8
Krush 100% Fruit Juice Blend	6326	7,2	7,2	100,0
Total	88154	100,0	100,0	

These products were introduced in different pack sizes between 2013 and 2015, ranging from 200 ml to 2 L (Table 5). The largest pack size most often distributed was 500 ml at 36.2% (N = 31939), followed by 2 L at 20.8% (N =18335). The least distributed pack size was 1.5 litre at 3.3% (N=2901).

Table 5: Pack size of the products

Pack Size	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1 L	13942	15.8	15.8	15.8
1.5 L	2901	3.3	3.3	19.1
2 L	18335	20.8	20.8	39.9
200 ml	1322	1.5	1.5	41.4
250 ml	15730	17.8	17.8	59.2
330 ml	3985	4.5	4.5	63.8
500 ml	31939	36.2	36.2	100.0
Total	88154	100.0	100.0	

The actual case sales volume ranged from a minimum of 1 item to a maximum of 2125 items (Table 6) with a sales value range of ZAR9 to ZAR29 079 (Table 7). The unit sales volumes were measured in cases and their distribution shows 0-5 cases with the largest proportion (56.1%) and the lowest unit cases 11-15 at 4.4%, (N = 3881). The average sales value was ZAR138.84, with an average volume of about 12 (M=11.7 (SD =22.501)).

Table 6: Sales volume distribution

Sales Volume	Frequency	Percentage	Valid Percentage	Cumulative Percentage
0 - 5	49439	56.1	56.1	56.1
6 - 10	16962	19.2	19.2	75.3
11 - 15	3881	4.4	4.4	79.7
16 - 20	5881	6.7	6.7	86.4
21 - 25	5378	6.1	6.1	92.5
Higher than 25	6613	7.5	7.5	100.0
Total	88154	100.0	100.0	

Table 7: Descriptive statistics of the volume and sales value

	N	Minimum	Maximum	Mean	Standard Deviation
Sales Value	88154	9	29079	138.84	254.327
Sales volume	88154	1	2125	11.71	22.501

5.4 Influence of distance between modern retailer and spaza shop on product distribution or availability in emerging market

The availability results of the various ProductVLThree or sub-brands from various brands within the Clover brand stable were observed, after which the impact of distance on this availability from the modern retailer were noted. A Modern Retailer 1 retailer was used in each of the three clusters.

Research Question 1: Is the distribution or availability of the product unit pack size in the emerging market spaza shops influenced by the distance between the emerging market spaza shop and modern-day retailer?

5.4.1 Relationship of the distance between Modern Retailer 1 and spaza in terms of pack size

The Pearson's Chi-square test was used to analyse a possible relationship between the distance between the retail store and spaza shops (Masakhane outlet base) and the pack size of the product distributed to these spaza stores. The effect on each of the ProdVLThree namely Clover Fresh Milk, Clover Fruit Nectar, Dairy Fruit Mix Danao Fresh, Dairy Fruit Mix Tropika Fresh, Dairy Fruit Mix Tropika UHT and Krush 100% Fruit Juice Blend was tested. To test this relationship, a hypothesis was developed.

H_{01}: Distribution of the product unit size in the emerging market Spaza shops is not influenced by the distance between the emerging market Spaza shop and modern-day retailer.

H_{A1}: Distribution of the product unit size in the emerging market Spaza shops is influenced by the distance between the emerging market Spaza shop and modern-day retailer.

5.4.1.1 Clover Fresh Milk

Figure 3 and Table 8 present a cross tabulation of the distance between spaza shops and Modern Retailer 1, together with the pack size distributed per product brand. For the shortest distance of 0-2 km the 500-ml pack size was distributed to 5.5% of spaza shops, compared to the 24.3% for 1 L and 23.8% for 2 L. This is to some extent different to the cross tabulation of the longest distance of 8-10 km, where 1 L was the most dominant pack size at 34.9% as compared to 250 ml at 24.2%. A Chi-square test was conducted to determine the significance of the association. The results as presented in Table 14 indicate that they were significant: χ^2 (16, N=29199) = 1554.837, p <.05. There was a contribution of this product across the distance on distribution with most of these measurements with a standardised residual value higher than ±1.96. Having established the relationship between distance and pack size with respect to Clover Fresh Milk, the strength of the relationship was evaluated using Cramer V (φ). Based on Henkel's guideline, the strength of the relationship was weak with an φ value of 0.115 (Table15).

Figure 3: Clustered bar chart indicating distance between spaza shops and Modern Retailer 1 with pack size for Clover Fresh Milk

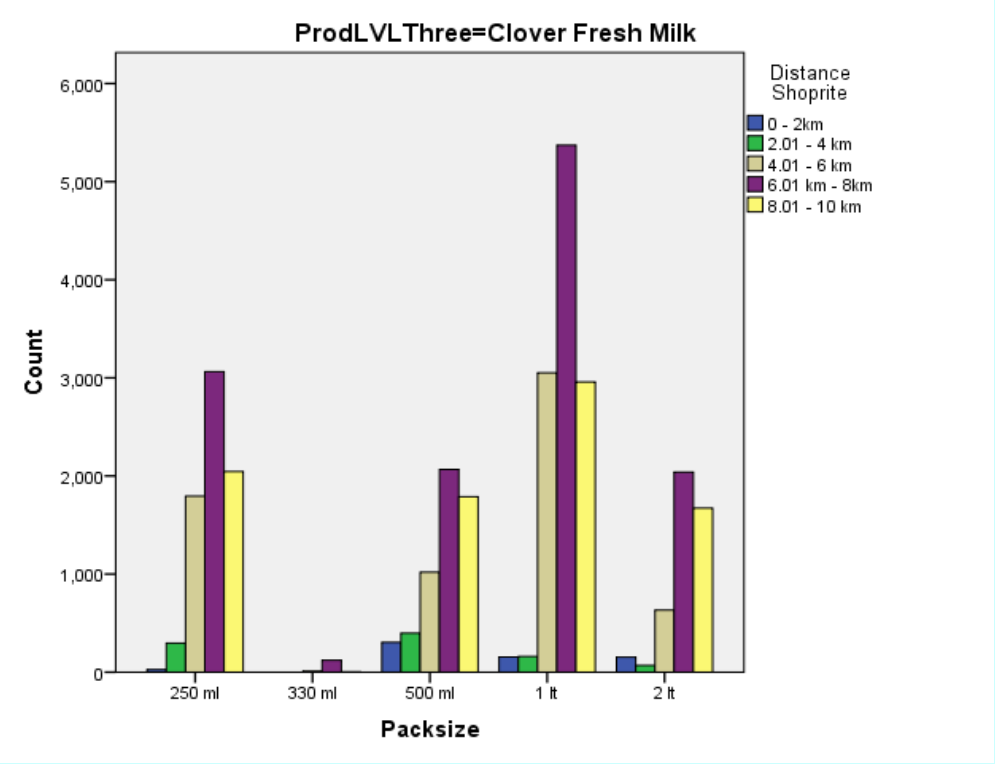


Table 8: A three-cross tabulation indicating distance between spaza shops and Modern Retailer 1 with the pack size distributed per product brand

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Clover Fresh Milk	Pack size	250 ml	Count	26	425	1907	2886	1982	7226
			% within Pack size	.4%	5.9%	26.4%	39.9%	27.4%	100.0%
			% within Distance Modern Retailer 1.	4.1%	31.9%	27.0%	23.5%	25.1%	24.7%
			% of Total	.1%	1.5%	6.5%	9.9%	6.8%	24.7%
		330 ml	Count	0	0	10	121	2	133
			% within Pack size	0.0%	0.0%	7.5%	91.0%	1.5%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	.1%	1.0%	.0%	.5%
			% of Total	0.0%	0.0%	.0%	.4%	.0%	.5%
		500 ml	Count	305	403	1183	2040	1646	5577
			% within Pack size	5.5%	7.2%	21.2%	36.6%	29.5%	100.0%
			% within Distance Modern Retailer 1.	47.8%	30.3%	16.8%	16.6%	20.9%	19.1%
			% of Total	1.0%	1.4%	4.1%	7.0%	5.6%	19.1%
		1 lt	Count	155	435	3164	5202	2741	11697
			% within Pack size	1.3%	3.7%	27.0%	44.5%	23.4%	100.0%
			% within Distance Modern Retailer 1.	24.3%	32.7%	44.9%	42.4%	34.7%	40.1%
			% of Total	.5%	1.5%	10.8%	17.8%	9.4%	40.1%
		2 lt	Count	152	69	790	2034	1521	4566
			% within Pack size	3.3%	1.5%	17.3%	44.5%	33.3%	100.0%
			% within Distance Modern Retailer 1.	23.8%	5.2%	11.2%	16.6%	19.3%	15.6%
			% of Total	.5%	.2%	2.7%	7.0%	5.2%	15.6%
	Total		Count	638	1332	7054	12283	7892	29199
			% within Pack size	2.2%	4.6%	24.2%	42.1%	27.0%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	2.2%	4.6%	24.2%	42.1%	27.0%	100.0%

5.4.1.2 Clover Fruit Nectar

Figure 4 shows that at a 0-4 km radius, the 500-ml pack size was exclusively distributed at 100%. This scenario changes as the distance increases, with 2 L products of Clover Fruit Nectar the most dominant at 49.7% as compared to 500 ml at 36.4% and 250 ml at 13.8%. The results as presented in Table 9 indicate that they were significant with a p-value of less than 0.05 (χ^2 (8, N=8568) = 196.016, p <.05. Each pack size had a different impact on the relationship between pack size and distance (Table 14). The 250-ml impacted this relationship for longer distances, mainly 6-8 km and 8-10 km, indicating the likelihood that this pack size will be distributed in distances further than 2 km (Figure 4). This was in contrast to the 500 ml, which shows its contribution towards low distance distribution (0-4 km) with standardised residual values of 3.1 and 7.5, whereas the other distances had a standardised residual value of less than ±1.96. The strength of the relationship was also weak with an φ value of 0.107 (Table 15).

Figure 4: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with pack size for Clover Fruit Nectar

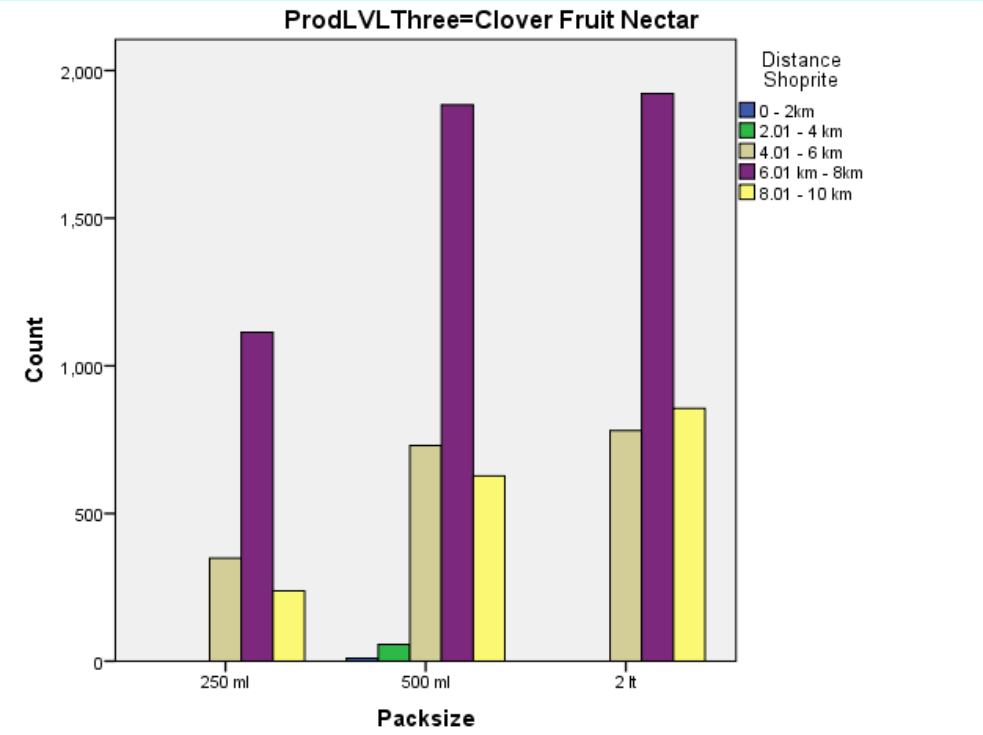


Table 9: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Clover Fruit Nectar	Pack size	250 ml	Count	0	28	412	1023	238	1701
			% within Pack size	0.0%	1.6%	24.2%	60.1%	14.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	13.9%	20.1%	22.3%	13.9%	19.9%
			% of Total	0.0%	.3%	4.8%	11.9%	2.8%	19.9%
		500 ml	Count	10	91	803	1780	624	3308
			% within Pack size	.3%	2.8%	24.3%	53.8%	18.9%	100.0%
			% within Distance Modern Retailer 1.	100.0%	45.3%	39.2%	38.7%	36.4%	38.6%
			% of Total	.1%	1.1%	9.4%	20.8%	7.3%	38.6%
		2 lt	Count	0	82	835	1791	851	3559
			% within Pack size	0.0%	2.3%	23.5%	50.3%	23.9%	100.0%
			% within Distance Modern Retailer 1.	0.0%	40.8%	40.7%	39.0%	49.7%	41.5%
			% of Total	0.0%	1.0%	9.7%	20.9%	9.9%	41.5%
	Total		Count	10	201	2050	4594	1713	8568
			% within Pack size	.1%	2.3%	23.9%	53.6%	20.0%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	.1%	2.3%	23.9%	53.6%	20.0%	100.0%

5.4.1.3 Dairy Fruit Mix Danao Fresh

Figure 5 representing the contingency for Diary Fruit Mix Danao Fresh shows that there were only two pack sizes that were distributed between November 2012 and June 2016 in the Masakhane spaza shops. At 0-2 km, the 330 ml shows a 73% distribution as compared to 26.1% for 1 L. This trend changes at 6-8 and 8.01-10 km, where the 1 L shows higher distribution in comparison with the 330 ml. For 6.01-8km, the 1 L was 74.1% compared to the 330 ml at 25.9%; whereas at 8.01-10 km the 1 L distribution was 81.9% as compared to 18.3% for the 330 ml (Table 10). The relationship, shown in Table 14, between distance and pack size was significant, with a p-value of less than 0.05 (χ^2 (4, N=856) = 79.903, p <.05. The strength of the relationship was weak with an φ value of 0.306 Table 15). This was better than Clover Fresh Milk and Clover Fresh Nectar, where the relationship was even weaker with even lower φ values.

Figure 5: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with pack size for Dairy Fruit Danao Fresh

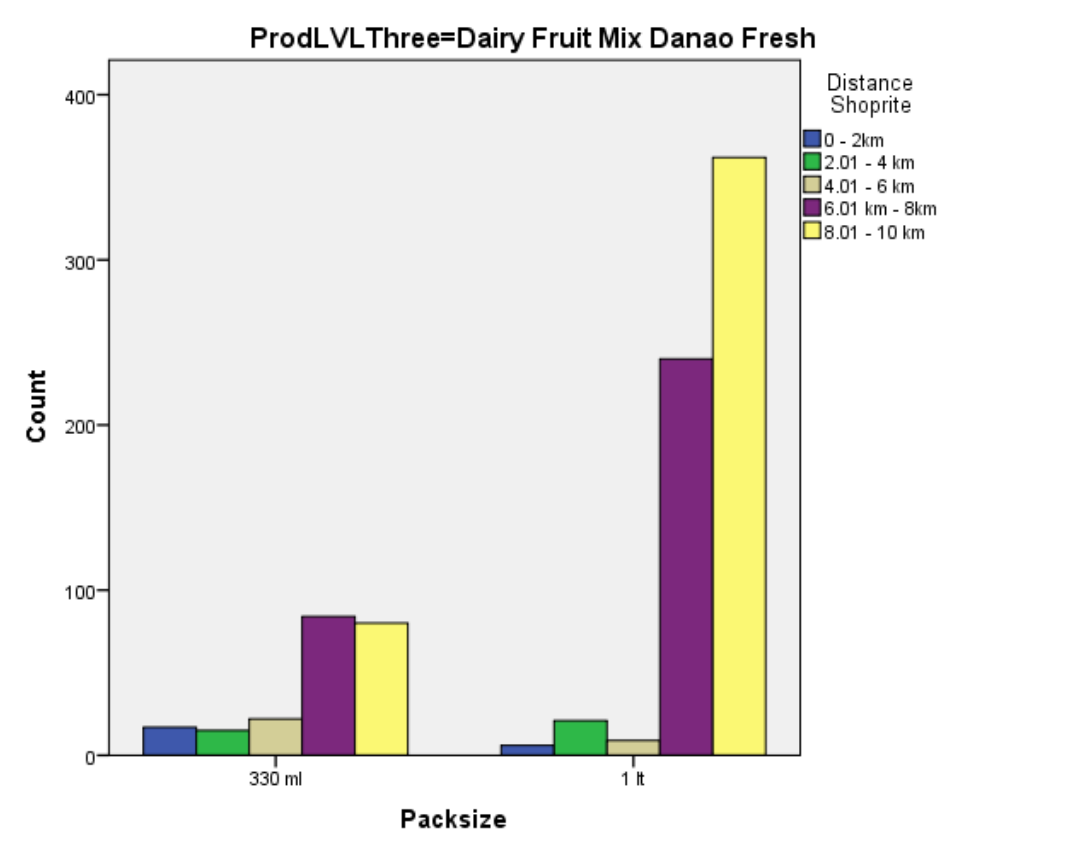


Table 10: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Danao Fresh	Pack size	330 ml	Count	17	15	22	87	77	218
			% within Pack size	7.8%	6.9%	10.1%	39.9%	35.3%	100.0%
			% within Distance Modern Retailer 1.	73.9%	41.7%	66.7%	26.8%	17.5%	25.5%
			% of Total	2.0%	1.8%	2.6%	10.2%	9.0%	25.5%
		1 lt	Count	6	21	11	238	362	638
			% within Pack size	.9%	3.3%	1.7%	37.3%	56.7%	100.0%
			% within Distance Modern Retailer 1.	26.1%	58.3%	33.3%	73.2%	82.5%	74.5%
			% of Total	.7%	2.5%	1.3%	27.8%	42.3%	74.5%
	Total		Count	23	36	33	325	439	856
			% within Pack size	2.7%	4.2%	3.9%	38.0%	51.3%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	2.7%	4.2%	3.9%	38.0%	51.3%	100.0%

5.4.1.4 Dairy Fruit Mix Tropika Fresh

Dairy Fruit Mix Tropika Fresh had five of the seven pack sizes distributed between November 2012 and June 2016. The pack sizes distributed were 250 ml, 330 ml, 500 ml, 1.5 L and 2 L (Figure 6). The highest distribution was 500 ml with 45.5% of the total distribution, followed by 2 L at 25.4% and 250 ml at 16.7%. The cross-tabulation in Table 11 shows that for 0-2 km, 500 ml comprised 86.1% compared to 2 L at 8.1%, with other pack sizes less than 5%. For 2.01-4 km, the 500-ml trend continued with 85.1% of the distribution as compared to 8.80% for the 330 ml. There was no distribution of 250 ml in the distance radius of 0-4 km. For the farthest distance (8.01-10 km), the 330 ml comprised 48.0% as compared to 43.2% for the 500 ml. As represented by Table 14, the relationship between the distance and pack size was significant, with a p-value of less than 0.05 (χ^2 (16, N=40164) = 3465.163, p <.05. The relationship strength was weak with an φ value of 0.114 (Table 15).

Figure 6: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with pack size for Dairy

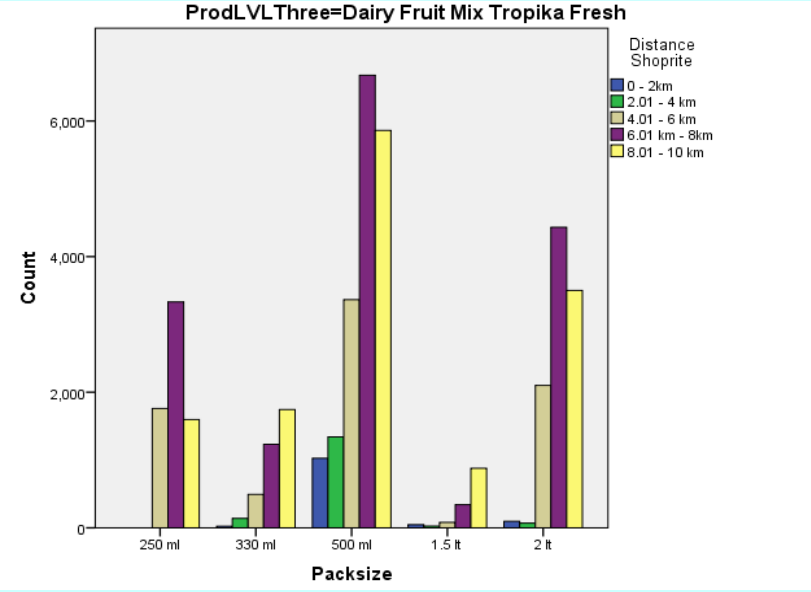


Table 11: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Tropika Fresh	Pack size	250 ml	Count	0	112	1865	3140	1574	6691
			% within Pack size	0.0%	1.7%	27.9%	46.9%	23.5%	100.0%
			% within Distance Modern Retailer 1.	0.0%	5.7%	22.1%	20.0%	12.2%	16.7%
			% of Total	0.0%	.3%	4.6%	7.8%	3.9%	16.7%
		330 ml	Count	23	139	551	1343	1576	3632
			% within Pack size	.6%	3.8%	15.2%	37.0%	43.4%	100.0%
			% within Distance Modern Retailer 1.	1.9%	7.0%	6.5%	8.6%	12.3%	9.0%
			% of Total	.1%	.3%	1.4%	3.3%	3.9%	9.0%
		500 ml	Count	1026	1415	3726	6644	5457	18268
			% within Pack size	5.6%	7.7%	20.4%	36.4%	29.9%	100.0%
			% within Distance Modern Retailer 1.	86.1%	71.6%	44.2%	42.3%	42.5%	45.5%
			% of Total	2.6%	3.5%	9.3%	16.5%	13.6%	45.5%
		1.5 lt	Count	46	25	80	344	876	1371
			% within Pack size	3.4%	1.8%	5.8%	25.1%	63.9%	100.0%
			% within Distance Modern Retailer 1.	3.9%	1.3%	.9%	2.2%	6.8%	3.4%
			% of Total	.1%	.1%	.2%	.9%	2.2%	3.4%
		2 lt	Count	97	286	2211	4236	3372	10202
			% within Pack size	1.0%	2.8%	21.7%	41.5%	33.1%	100.0%
			% within Distance Modern Retailer 1.	8.1%	14.5%	26.2%	27.0%	26.2%	25.4%
			% of Total	.2%	.7%	5.5%	10.5%	8.4%	25.4%
	Total		Count	1192	1977	8433	15707	12855	40164
			% within Pack size	3.0%	4.9%	21.0%	39.1%	32.0%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	3.0%	4.9%	21.0%	39.1%	32.0%	100.0%

5.4.1.5 Dairy Fruit Mix Tropika UHT

There were three product pack sizes distributed namely 200 ml, 250 ml and 1 L. The 1 L was the most widely distributed at 52.8%. The cross-tabulation in Figure 7 shows that 1 L was distributed at 68.8% as compared to 30.7% for the 200-ml at the shortest distance (0-2km). Although not excessively so, this trend changed at the furthest distance with 200ml at 51.7% as compared to 1 L at 45.3%. The relationship shown in Table 14, between the distance and pack size was significant, (χ^2 (8, N=3041) = 308.329, p <.05, with a weak strength (φ = 0.225) according to Table 15.

Figure 7: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with pack size for Dairy Fruit Mix Tropika UHT

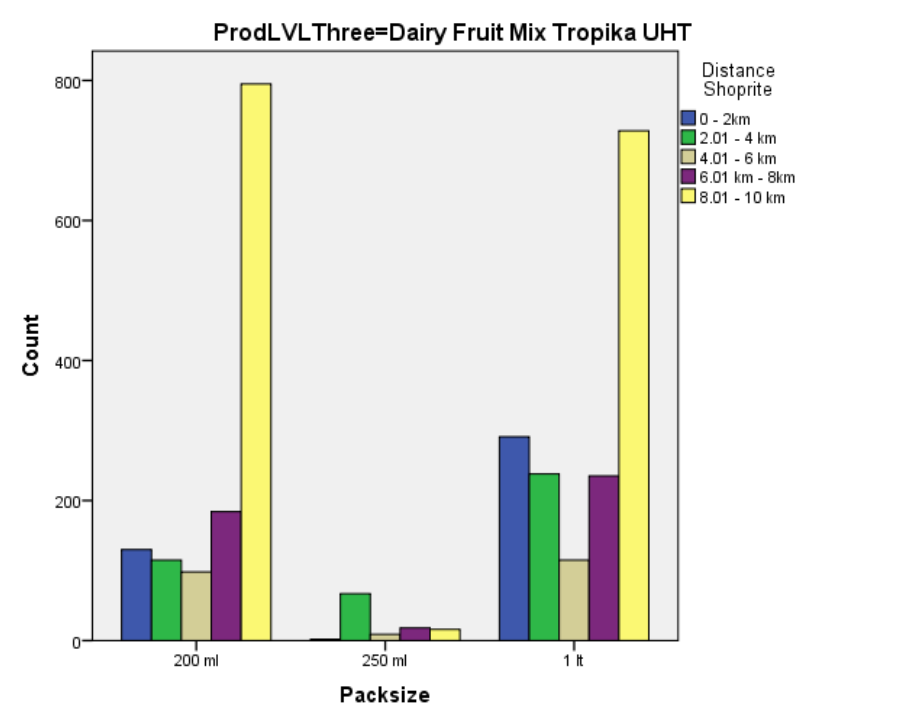


Table 12: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Tropika UHT	Pack size	200 ml	Count	130	115	128	171	778	1322
			% within Pack size	9.8%	8.7%	9.7%	12.9%	58.9%	100.0%
			% within Distance Modern Retailer 1.	30.7%	27.4%	45.4%	37.3%	53.4%	43.5%
			% of Total	4.3%	3.8%	4.2%	5.6%	25.6%	43.5%
		250 ml	Count	2	67	9	28	6	112
			% within Pack size	1.8%	59.8%	8.0%	25.0%	5.4%	100.0%
			% within Distance Modern Retailer 1.	.5%	16.0%	3.2%	6.1%	.4%	3.7%
			% of Total	.1%	2.2%	.3%	.9%	.2%	3.7%
		1 lt	Count	291	238	145	259	674	1607
			% within Pack size	18.1%	14.8%	9.0%	16.1%	41.9%	100.0%
			% within Distance Modern Retailer 1.	68.8%	56.7%	51.4%	56.6%	46.2%	52.8%
			% of Total	9.6%	7.8%	4.8%	8.5%	22.2%	52.8%
	Total		Count	423	420	282	458	1458	3041
			% within Pack size	13.9%	13.8%	9.3%	15.1%	47.9%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	13.9%	13.8%	9.3%	15.1%	47.9%	100.0%

5.4.1.6 Krush 100% Fruit Juice Blend

Overall, the 500 ml constituted 75.7% of the total distribution, with the 1.5 L at 18.4%. The 500 ml was most dominant across all distances.

Figure 8: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with pack size for Krush 100% Fruit Juice Blend

The short distance radius of 0-2 km showed 88.5% compared to 1.5 L at 10.7%. Even for the longest distance (8.01-10 km) the 500-ml was 55.9% compared to the 1.5 L at 18.4%. The relationship between the distance and pack size was significant (Table 14), with a p-value of less than 0.05 (χ^2 (12, N=6326) = 248.258, p <.05. The strength of the relationship was also low with an φ value of 0.147 (Table 15)

Table 13: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Krush 100% Fruit Juice Blend	Pack size	330 ml	Count	0	0	0	0	2	2
			% within Pack size	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	0.0%	0.0%	.1%	.0%
			% of Total	0.0%	0.0%	0.0%	0.0%	.0%	.0%
		500 ml	Count	207	202	772	1266	2339	4786
			% within Pack size	4.3%	4.2%	16.1%	26.5%	48.9%	100.0%
			% within Distance Modern Retailer 1.	88.5%	84.9%	92.5%	81.6%	67.4%	75.7%
			% of Total	3.3%	3.2%	12.2%	20.0%	37.0%	75.7%
		1.5 lt	Count	25	36	63	285	1121	1530
			% within Pack size	1.6%	2.4%	4.1%	18.6%	73.3%	100.0%
			% within Distance Modern Retailer 1.	10.7%	15.1%	7.5%	18.4%	32.3%	24.2%
			% of Total	.4%	.6%	1.0%	4.5%	17.7%	24.2%
		2 lt	Count	2	0	0	0	6	8
			% within Pack size	25.0%	0.0%	0.0%	0.0%	75.0%	100.0%
			% within Distance Modern Retailer 1.	.9%	0.0%	0.0%	0.0%	.2%	.1%
			% of Total	.0%	0.0%	0.0%	0.0%	.1%	.1%
	Total		Count	234	238	835	1551	3468	6326
			% within Pack size	3.7%	3.8%	13.2%	24.5%	54.8%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	3.7%	3.8%	13.2%	24.5%	54.8%	100.0%

Table 14: Chi square analysis test of the product brands on distance with pack size

ProdLVLThree		Value	df	Asymptotic Significance (2-sided)
Clover Fresh Milk	Pearson Chi-Square	1554.837	16	.000
	Likelihood Ratio	1541.449	16	.000
	Linear-by-Linear Association	60.030	1	.000
	N of Valid Cases	29199		
Clover Fruit Nectar	Pearson Chi-Square	196.016	8	.000
	Likelihood Ratio	218.475	8	.000
	Linear-by-Linear Association	31.858	1	.000
	N of Valid Cases	8568		
Dairy Fruit Mix Danao Fresh	Pearson Chi-Square	79.903	4	.000
	Likelihood Ratio	69.871	4	.000
	Linear-by-Linear Association	59.970	1	.000
	N of Valid Cases	856		
Dairy Fruit Mix Tropika Fresh	Pearson Chi-Square	3465.163	16	.000
	Likelihood Ratio	3916.106	16	.000
	Linear-by-Linear Association	133.553	1	.000
	N of Valid Cases	40164		
Dairy Fruit Mix Tropika UHT	Pearson Chi-Square	308.329	8	.000
	Likelihood Ratio	251.617	8	.000
	Linear-by-Linear Association	69.282	1	.000
	N of Valid Cases	3041		
Krush 100% Fruit Juice Blend	Pearson Chi-Square	248.258	12	.000
	Likelihood Ratio	277.379	12	.000
	Linear-by-Linear Association	180.742	1	.000
	N of Valid Cases	6326		
Total	Pearson Chi-Square	6406.215	24	.000
	Likelihood Ratio	6663.871	24	.000
	Linear-by-Linear Association	234.316	1	.000
	N of Valid Cases	88154		

Table 15: Strength of the relationship between pack size and distance between Spaza shops and Modern Retailer 1

ProdVLThree			Value	Approximate Significance
Clover Fresh Milk	Nominal by Nominal	Phi	.231	.000
		Cramer's V	.115	.000
	N of Valid Cases		29199	
Clover Fruit Nectar	Nominal by Nominal	Phi	.151	.000
		Cramer's V	.107	.000
	N of Valid Cases		8568	
Dairy Fruit Mix Danao Fresh	Nominal by Nominal	Phi	.306	.000
		Cramer's V	.306	.000
	N of Valid Cases		856	
Dairy Fruit Mix Tropika Fresh	Nominal by Nominal	Phi	.294	.000
		Cramer's V	.147	.000
	N of Valid Cases		40164	
Dairy Fruit Mix Tropika UHT	Nominal by Nominal	Phi	.318	.000
		Cramer's V	.225	.000
	N of Valid Cases		3041	
Krush 100% Fruit Juice Blend	Nominal by Nominal	Phi	.198	.000
		Cramer's V	.114	.000
	N of Valid Cases		6326	
Total	Nominal by Nominal	Phi	.270	.000
		Cramer's V	.135	.000
	N of Valid Cases		88154	

5.4.1.7 Pack size summary

In summary, in looking at all pack sizes across all brands in Table 16, 500ml was the most distributed pack size over the 10km, constituting 36.2% of the total distribution, followed by the 2L with 20.8%. Within the various distances, at 0 – 2km, 500ml was well distributed (61.4%) with 1Lt only 17.9% distributed. The high frequency of 500ml continued with 50.2% at 2.01 – 4km. As the 500ml distribution decreased over distance, 250ml increased from 1.1% (0-4km) to 22.4% (4.01- 6km) and remain at 20% in 6.01 -8km. The increase in distribution along with distance is also encountered with 2lt. The results show that 500ml, 200ml and 2lt distribution are influenced most by the distance.

Table 16: Pack size * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Total	Pack size	200 ml	Count	130	115	128	171	778	1322
			% within Pack size	9.8%	8.7%	9.7%	12.9%	58.9%	100.0%
			% within Distance Modern Retailer 1.	5.2%	2.7%	.7%	.5%	2.8%	1.5%
			% of Total	.1%	.1%	.1%	.2%	.9%	1.5%
		250 ml	Count	28	632	4193	7077	3800	15730
			% within Pack size	.2%	4.0%	26.7%	45.0%	24.2%	100.0%
			% within Distance Modern Retailer 1.	1.1%	15.0%	22.4%	20.3%	13.7%	17.8%
			% of Total	.0%	.7%	4.8%	8.0%	4.3%	17.8%
		330 ml	Count	40	154	583	1551	1657	3985
			% within Pack size	1.0%	3.9%	14.6%	38.9%	41.6%	100.0%
			% within Distance Modern Retailer 1.	1.6%	3.7%	3.1%	4.4%	6.0%	4.5%
			% of Total	.0%	.2%	.7%	1.8%	1.9%	4.5%
		500 ml	Count	1548	2111	6484	11730	10066	31939
			% within Pack size	4.8%	6.6%	20.3%	36.7%	31.5%	100.0%
			% within Distance Modern Retailer 1.	61.4%	50.2%	34.7%	33.6%	36.2%	36.2%
			% of Total	1.8%	2.4%	7.4%	13.3%	11.4%	36.2%
		1 lt	Count	452	694	3320	5699	3777	13942
			% within Pack size	3.2%	5.0%	23.8%	40.9%	27.1%	100.0%
			% within Distance Modern Retailer 1.	17.9%	16.5%	17.8%	16.3%	13.6%	15.8%
			% of Total	.5%	.8%	3.8%	6.5%	4.3%	15.8%
		1.5 lt	Count	71	61	143	629	1997	2901
			% within Pack size	2.4%	2.1%	4.9%	21.7%	68.8%	100.0%
			% within Distance Modern Retailer 1.	2.8%	1.5%	.8%	1.8%	7.2%	3.3%
			% of Total	.1%	.1%	.2%	.7%	2.3%	3.3%
		2 lt	Count	251	437	3836	8061	5750	18335
			% within Pack size	1.4%	2.4%	20.9%	44.0%	31.4%	100.0%
			% within Distance Modern Retailer 1.	10.0%	10.4%	20.5%	23.1%	20.7%	20.8%
			% of Total	.3%	.5%	4.4%	9.1%	6.5%	20.8%
	Total		Count	2520	4204	18687	34918	27825	88154
			% within Pack size	2.9%	4.8%	21.2%	39.6%	31.6%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	2.9%	4.8%	21.2%	39.6%	31.6%	100.0%

5.4.2 Effect of region on pack size

Table 17 provides the descriptive statistics of the point where the mean distance from 0-2 km to 8.01-10 km is broken down in the three regional clusters.

Table 17: Descriptive statistics indicating the distance and pack size in the three regions

Dependent Variable: Pack size				
Distance Modern Retailer 1	Region	Mean	Standard deviation	N
0 - 2 km	Polokwane	4.34	1.264	2520
	Total	4.34	1.264	2520
2.01 - 4 km	Gauteng	3.78	1.116	1720
	KZN	4.66	1.946	954
	Polokwane	4.07	1.234	1530
	Total	4.09	1.427	4204
4.01 - 6 km	Gauteng	4.10	1.167	3845
	KZN	4.34	1.881	11998
	Polokwane	4.48	1.596	2844
	Total	4.31	1.718	18687
6.01 - 8 km	Gauteng	4.29	1.459	5651
	KZN	4.50	1.851	23934
	Polokwane	4.26	1.460	5333
	Total	4.43	1.741	34918
8.01 - 10 km	Gauteng	4.39	1.546	10899
	KZN	4.56	1.934	11009
	Polokwane	4.51	1.512	5917
	Total	4.48	1.705	27825
Total	Gauteng	4.27	1.445	22115
	KZN	4.47	1.882	47895
	Polokwane	4.37	1.463	18144
	Total	4.40	1.701	88154

In Figure 9, the plot of the mean pack size score for each combination of the groups indicating the distance from Modern Retailer 1 and Spaza and the product brand is

measured. In Gauteng the mean pack size increases with the increase in distance, where this effect seems minimal for Kwazulu Natal and Polokwane.

Figure 9: Estimate marginal means for pack size

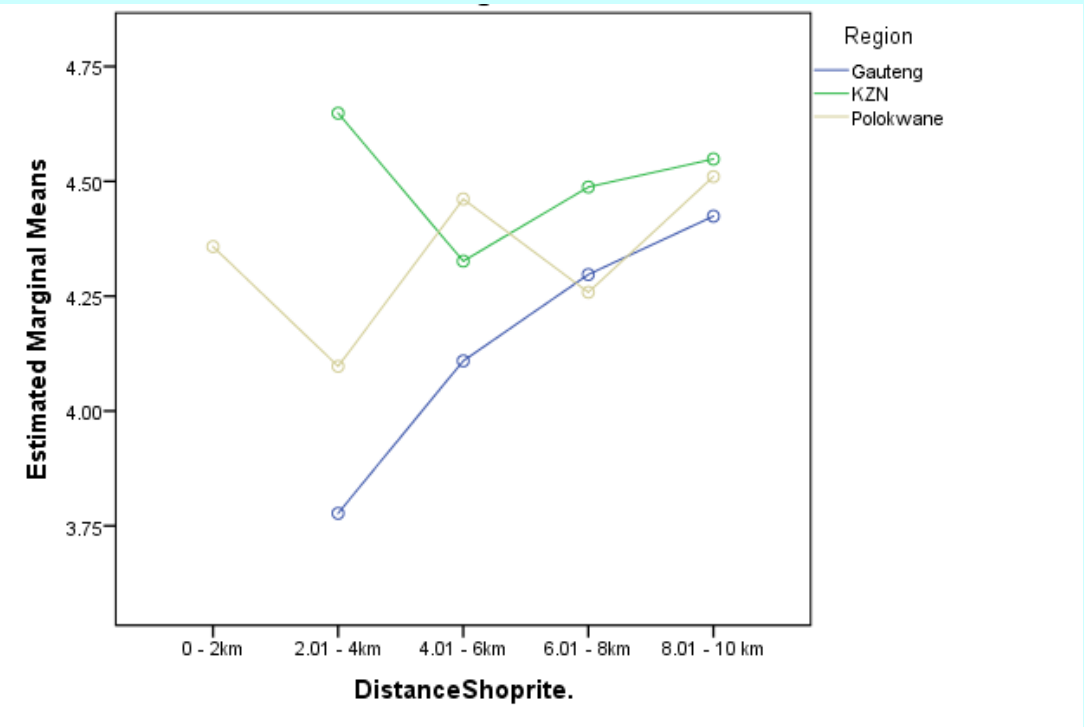


Table 18 presents the actual results of the three-way ANOVA to indicate whether any of the three independent variables and their interaction is statistically significant.

Table 18: Test of between-subjects effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	12512.457[a]	70	178,749	64,877	0,00	,049	4541,408	1,000
Intercept	19617,221	1	19617,221	7120,088	0,00	,075	7120,088	1,000
Distance	17,616	4	4,404	1,598	,172	,000	6,394	,498
Region	20,810	2	10,405	3,777	,023	,000	7,553	,691
ProdVLThree	1764,349	5	352,870	128,074	,000	,007	640,372	1,000
Distance Region	357,172	6	59,529	21,606	,000	,001	129,636	1,000
Distance ProdVLThree	686,769	20	34,338	12,463	,000	,003	249,263	1,000
Region ProdVLThree	1042,612	10	104,261	37,842	,000	,004	378,417	1,000
Distance Region ProdVLThree	1038,344	23	45,145	16,386	,000	,004	376,868	1,000
Error	242685,717	88083	2,755					
Total	1962532,000	88154						
Corrected Total	255198,174	88153						

a. R Squared = .049 (Adjusted R Squared = .048) b. Computed using alpha = ,05

The region is statistically significant regarding pack size, with a p-value of less than .05. More importantly, there was statistically significant interaction between the effects of the region and product brand, F (10, 2.755) = 37.842, p <.5. In addition, testing the effect of distance, region and product brand, their effect was found to be significant, F (23, 2.755) = 16.386, p <.05.

5.5 Influence of distance on product sales in emerging market

Research Question 1 observed the influence of distance on pack size distribution or availability. The section below discusses the findings related to unit pack sales and how this is impacted by distance between spaza stores and modern retailer.

Research Question 2: Are the sales of a product pack size assortment in emerging market spaza shops influenced by the distance between them and modern-day retailer?

5.5.1 Relationship of distance between Modern Retailer 1 and spaza and sales volume

The Pearson's Chi-square test was used to analyse a possible relationship between the distance between the retail store and spaza shops (Masakhane outlet base) and the sales of the product distributed to these spaza stores. The effect on each of the ProdVLThree namely Clover Fresh Milk, Clover Fruit Nectar, Dairy Fruit Mix Danao Fresh, Dairy Fruit Mix Tropika Fresh, Dairy Fruit Mix Tropika UHT and Krush 100% Fruit Juice Blend was tested. To test this relationship, a hypothesis was developed.

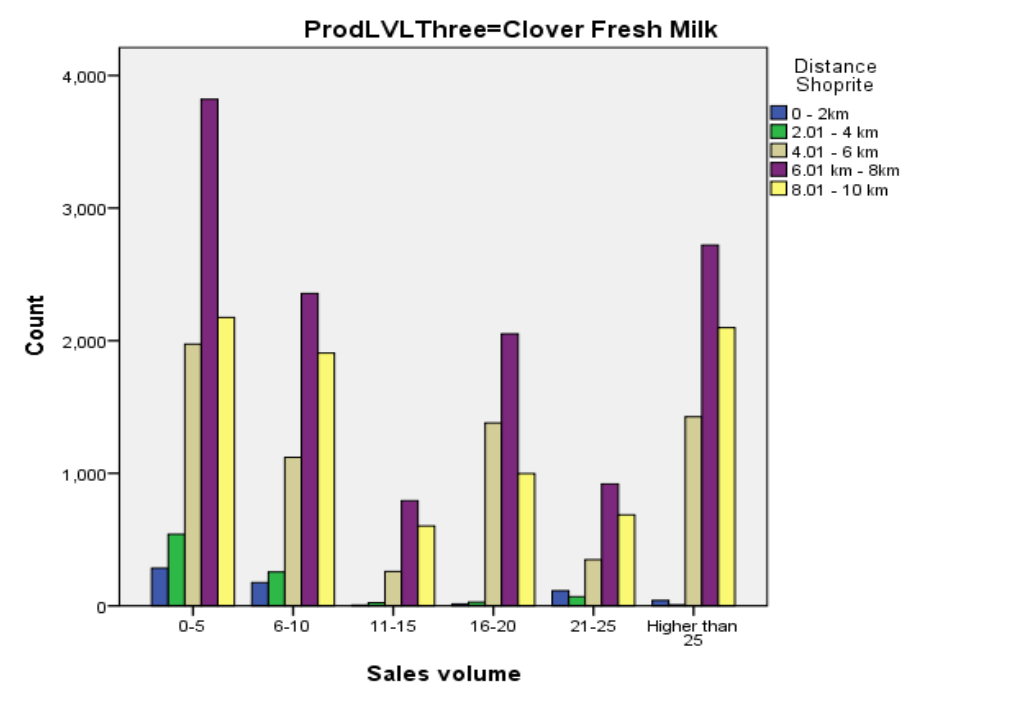
H_{02}: Sales of a product assortment in the emerging market spaza shops is not influenced by the distance between the emerging market spaza shop and modern-day retailer.

H_{A2}: Sales of a product assortment in the emerging market spaza shops is influenced by the distance between the emerging market spaza shop and modern-day retailer.

5.5.1.1 Clover Fresh Milk

The Clover Fresh Milk was sold most frequently in sales of 0-5 units per transaction, which comprised a contribution of 30.1% followed by sales per transaction of greater than 25 items or units per transaction comprising 21.6% (Table 19). Figure 10 shows that at the shortest distance, 0-5 units were sold as compared to 27.6% for 6-10 items. For the longer distance of 8.01-10 km, the highest order was 24.8% as compared to 25.7% for 0-5 items and 22.5% for 6-10 items. The distribution of the sales volume with count is provided in Figure 10.

Figure 10: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with sales volume for Clover Fresh Milk



A Chi-square test was conducted to determine the significance of the association (Table 25). The results as presented were significant: χ^2 (20, N=29199) = 1379.079, p <.05. The strength of the relationship was evaluated using Cramer V (φ) and was found to be weak with an φ value of 0.109 (Table 26).

Table 19: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Clover Fresh Milk	Sales volume	0-5	Count	285	671	2149	3698	1992	8795
			% within Sales volume	3.2%	7.6%	24.4%	42.0%	22.6%	100.0%
			% within Distance Modern Retailer 1.	44.7%	50.4%	30.5%	30.1%	25.2%	30.1%
			% of Total	1.0%	2.3%	7.4%	12.7%	6.8%	30.1%
		6-10	Count	176	263	1316	2293	1765	5813
			% within Sales volume	3.0%	4.5%	22.6%	39.4%	30.4%	100.0%
			% within Distance Modern Retailer 1.	27.6%	19.7%	18.7%	18.7%	22.4%	19.9%
			% of Total	.6%	.9%	4.5%	7.9%	6.0%	19.9%
		11-15	Count	6	24	336	729	590	1685
			% within Sales volume	.4%	1.4%	19.9%	43.3%	35.0%	100.0%
			% within Distance Modern Retailer 1.	.9%	1.8%	4.8%	5.9%	7.5%	5.8%
			% of Total	.0%	.1%	1.2%	2.5%	2.0%	5.8%
		16-20	Count	15	214	1289	2007	948	4473
			% within Sales volume	.3%	4.8%	28.8%	44.9%	21.2%	100.0%
			% within Distance Modern Retailer 1.	2.4%	16.1%	18.3%	16.3%	12.0%	15.3%
			% of Total	.1%	.7%	4.4%	6.9%	3.2%	15.3%
		21-25	Count	114	69	423	902	630	2138
			% within Sales volume	5.3%	3.2%	19.8%	42.2%	29.5%	100.0%
			% within Distance Modern Retailer 1.	17.9%	5.2%	6.0%	7.3%	8.0%	7.3%
			% of Total	.4%	.2%	1.4%	3.1%	2.2%	7.3%
		Higher than 25	Count	42	91	1541	2654	1967	6295
			% within Sales volume	.7%	1.4%	24.5%	42.2%	31.2%	100.0%
			% within Distance Modern Retailer 1.	6.6%	6.8%	21.8%	21.6%	24.9%	21.6%
			% of Total	.1%	.3%	5.3%	9.1%	6.7%	21.6%
	Total		Count	638	1332	7054	12283	7892	29199
			% within Sales volume	2.2%	4.6%	24.2%	42.1%	27.0%	100.0%
			% within Distance Modern Retailer 1.	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0%
			% of Total	2.2%	4.6%	24.2%	42.1%	27.0%	100.0%

5.5.1.2 Clover Fruit Nectar

This is a product ordered mainly between 0-10 items, with 65.4% for 0-5 items and 20.3% for 6-10 items (Figure 11). The contingency Table 20 shows that at a 0-2 km radius the 0-5% items were 80% of sales as compared to 20% for 6-10km. This same trend continued with 2.01-4 km with 84.2% for 0-5 items as compared to 15.8% for 6-10 items. None of the pack sizes were sold within the first 4 km. There was a significant relationship with a p-value of less than 0.05 (χ^2 (20, N=8568) = 141.287, p <.05 (Table 25). The strength of the relationship was virtually non-existent with an φ value of 0.064 (Table 26).

Figure 11: Clustered bar chart for distance between Spaza shops and Modern Retailer 1 with sale volume for Clover Fruit Nectar

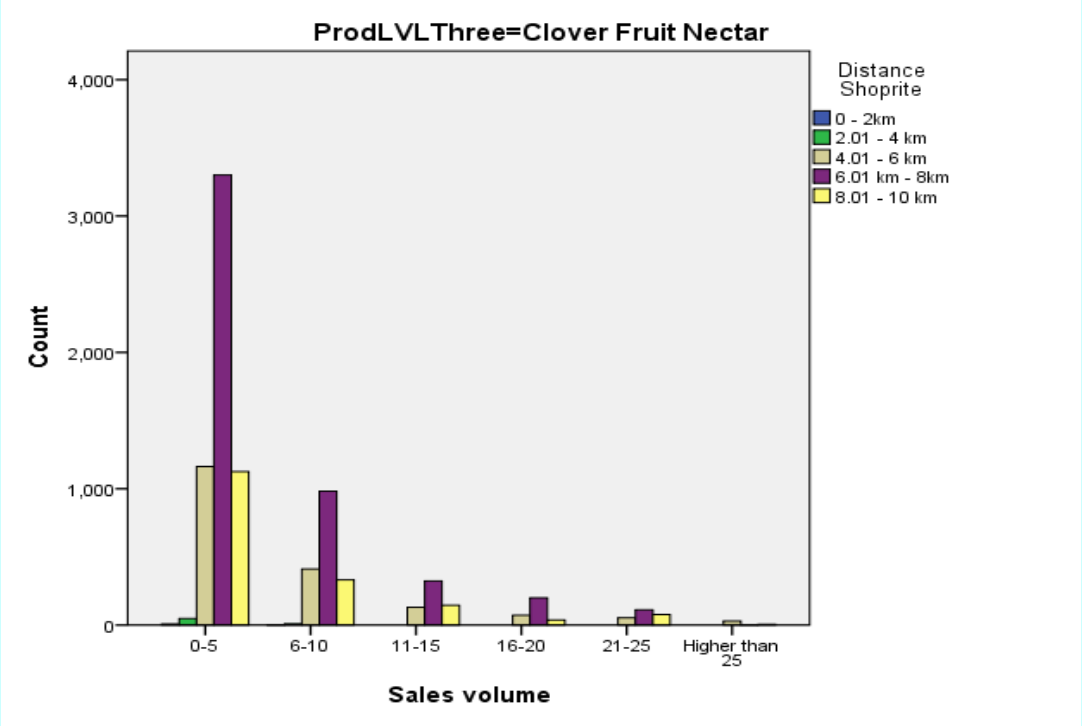


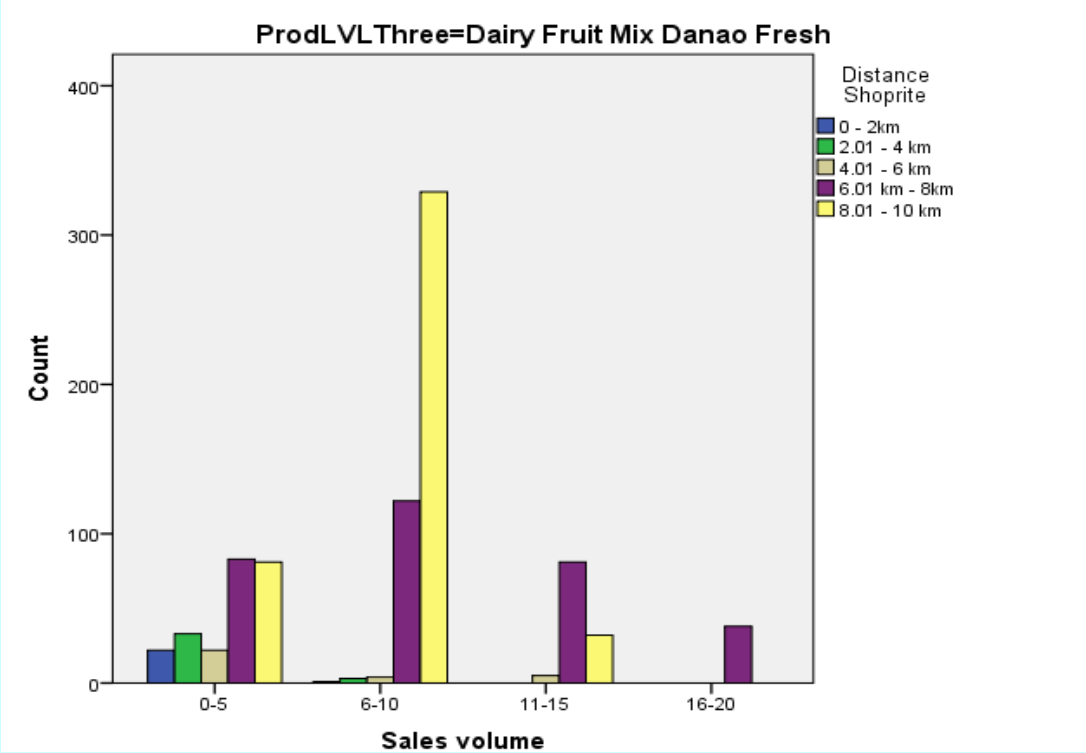
Table 20: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Clover Fruit Nectar	Sales volume	0-5	Count	8	153	1300	3065	1119	5645
			% within Sales volume	.1%	2.7%	23.0%	54.3%	19.8%	100.0%
			% within Distance Modern Retailer 1.	80.0%	76.1%	63.4%	66.7%	65.3%	65.9%
			% of Total	.1%	1.8%	15.2%	35.8%	13.1%	65.9%
		10-Jun	Count	2	44	433	927	330	1736
			% within Sales volume	.1%	2.5%	24.9%	53.4%	19.0%	100.0%
			% within Distance Modern Retailer 1.	20.0%	21.9%	21.1%	20.2%	19.3%	20.3%
			% of Total	.0%	.5%	5.1%	10.8%	3.9%	20.3%
		11-15	Count	0	3	157	293	145	598
			% within Sales volume	0.0%	.5%	26.3%	49.0%	24.2%	100.0%
			% within Distance Modern Retailer 1.	0.0%	1.5%	7.7%	6.4%	8.5%	7.0%
			% of Total	0.0%	.0%	1.8%	3.4%	1.7%	7.0%
		16-20	Count	0	1	76	195	37	309
			% within Sales volume	0.0%	.3%	24.6%	63.1%	12.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	.5%	3.7%	4.2%	2.2%	3.6%
			% of Total	0.0%	.0%	.9%	2.3%	.4%	3.6%
		21-25	Count	0	0	54	112	77	243
			% within Sales volume	0.0%	0.0%	22.2%	46.1%	31.7%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	2.6%	2.4%	4.5%	2.8%
			% of Total	0.0%	0.0%	.6%	1.3%	.9%	2.8%
		Higher than 25	Count	0	0	30	2	5	37
			% within Sales volume	0.0%	0.0%	81.1%	5.4%	13.5%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	1.5%	.0%	.3%	.4%
			% of Total	0.0%	0.0%	.4%	.0%	.1%	.4%
	Total		Count	10	201	2050	4594	1713	8568
			% within Sales volume	.1%	2.3%	23.9%	53.6%	20.0%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	.1%	2.3%	23.9%	53.6%	20.0%	100.0%

5.5.1.3 Dairy Fruit Mix Danao Fresh

The contingency tables for Danao Fresh show that there were only two pack sizes that were distributed between November 2012 and June 2016 in the spaza shops.

Figure 12: Clustered bar chart for distance between Spaza shops and Modern Retailer 1 with sale volume for Dairy Fruit Mix Danao Fresh



About 81.8% of the orders were between 0-10 items. The relationship between the distance and sales volume was significant (Table 25), with a p-value of less than 0.05 (χ^2 (12, N=856) = 323.718, p <.05. The strength of the relationship was weak with an φ value of 0.355 (Table 26).

Table 21: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Danao Fresh	Sales volume	0-5	Count	22	33	22	86	78	241
			% within Sales volume	9.1%	13.7%	9.1%	35.7%	32.4%	100.0%
			% within Distance Modern Retailer 1.	95.7%	91.7%	66.7%	26.5%	17.8%	28.2%
			% of Total	2.6%	3.9%	2.6%	10.0%	9.1%	28.2%
		6-10	Count	1	3	6	120	329	459
			% within Sales volume	.2%	.7%	1.3%	26.1%	71.7%	100.0%
			% within Distance Modern Retailer 1.	4.3%	8.3%	18.2%	36.9%	74.9%	53.6%
			% of Total	.1%	.4%	.7%	14.0%	38.4%	53.6%
		11-15	Count	0	0	5	81	32	118
			% within Sales volume	0.0%	0.0%	4.2%	68.6%	27.1%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	15.2%	24.9%	7.3%	13.8%
			% of Total	0.0%	0.0%	.6%	9.5%	3.7%	13.8%
		16-20	Count	0	0	0	38	0	38
			% within Sales volume	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	0.0%	11.7%	0.0%	4.4%
			% of Total	0.0%	0.0%	0.0%	4.4%	0.0%	4.4%
	Total		Count	23	36	33	325	439	856
			% within Sales volume	2.7%	4.2%	3.9%	38.0%	51.3%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	2.7%	4.2%	3.9%	38.0%	51.3%	100.0%

5.5.1.4 Dairy Fruit Mix Tropika Fresh

Most of the products sold were between 0-5 items in order size (Figure 13). The relationship between the distance and pack size was significant (Table 25), with a p-value of less than 0.05 (χ^2 (20, N=40164) = 1427.202, p <.05. The strength of the relationship was also low with an φ value of 0.094 (Table 26).

Figure 13: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with sale volume for Fruit Mix Tropika Fresh

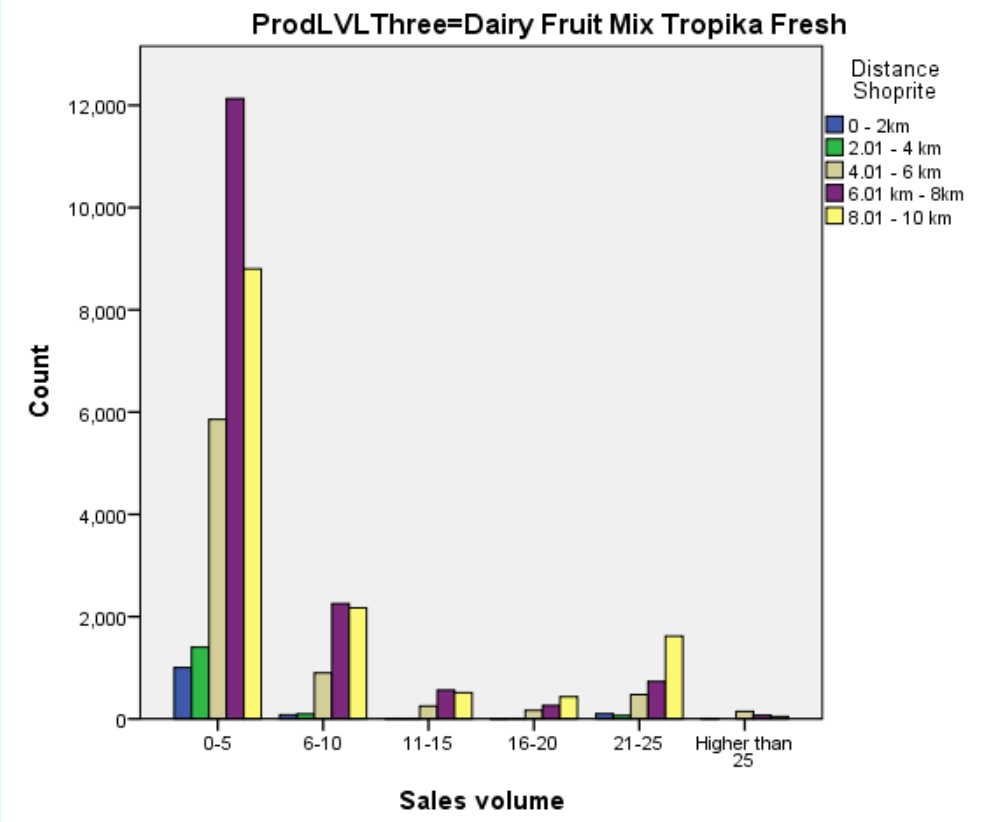


Table 22: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Tropika Fresh	Sales volume	0-5	Count	1001	1717	6298	11989	8190	29195
			% within Sales volume	3.4%	5.9%	21.6%	41.1%	28.1%	100.0%
			% within Distance Modern Retailer 1.	84.0%	86.8%	74.7%	76.3%	63.7%	72.7%
			% of Total	2.5%	4.3%	15.7%	29.9%	20.4%	72.7%
		6-10	Count	81	180	984	2114	2144	5503
			% within Sales volume	1.5%	3.3%	17.9%	38.4%	39.0%	100.0%
			% within Distance Modern Retailer 1.	6.8%	9.1%	11.7%	13.5%	16.7%	13.7%
			% of Total	.2%	.4%	2.4%	5.3%	5.3%	13.7%
		11-15	Count	5	5	312	500	512	1334
			% within Sales volume	.4%	.4%	23.4%	37.5%	38.4%	100.0%
			% within Distance Modern Retailer 1.	.4%	.3%	3.7%	3.2%	4.0%	3.3%
			% of Total	.0%	.0%	.8%	1.2%	1.3%	3.3%
		16-20	Count	1	6	168	261	433	869
			% within Sales volume	.1%	.7%	19.3%	30.0%	49.8%	100.0%
			% within Distance Modern Retailer 1.	.1%	.3%	2.0%	1.7%	3.4%	2.2%
			% of Total	.0%	.0%	.4%	.6%	1.1%	2.2%
		21-25	Count	100	69	523	772	1529	2993
			% within Sales volume	3.3%	2.3%	17.5%	25.8%	51.1%	100.0%
			% within Distance Modern Retailer 1.	8.4%	3.5%	6.2%	4.9%	11.9%	7.5%
			% of Total	.2%	.2%	1.3%	1.9%	3.8%	7.5%
		Higher than 25	Count	4	0	148	71	47	270
			% within Sales volume	1.5%	0.0%	54.8%	26.3%	17.4%	100.0%
			% within Distance Modern Retailer 1.	.3%	0.0%	1.8%	.5%	.4%	.7%
			% of Total	.0%	0.0%	.4%	.2%	.1%	.7%
	Total		Count	1192	1977	8433	15707	12855	40164
			% within Sales volume	3.0%	4.9%	21.0%	39.1%	32.0%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	3.0%	4.9%	21.0%	39.1%	32.0%	100.0%

5.5.1.5 Dairy Fruit Mix Tropika UHT

Again, the largest amount of product sold was between 6-10 items per order (Figure 14). The relationship between the distance and sales volume (Table 25) was significant, (χ^2 (20, N=3041) = 237.273, p <.05, with a weak strength (φ = 0.140) as seen in Table 26.

Figure 14: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with sale volume for Dairy Fruit Mix

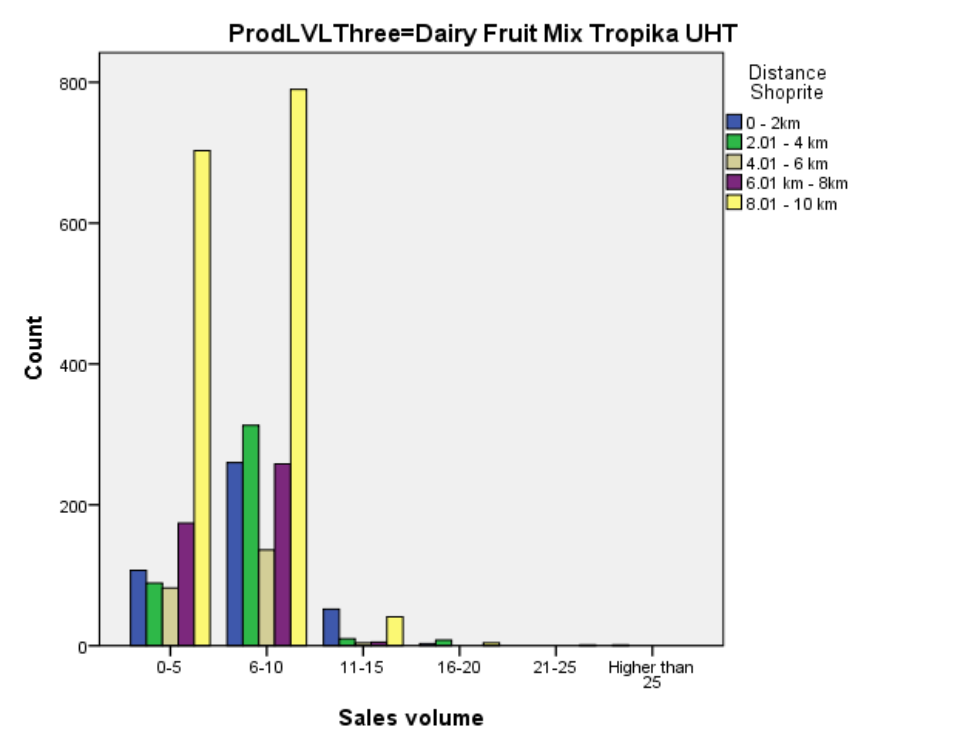


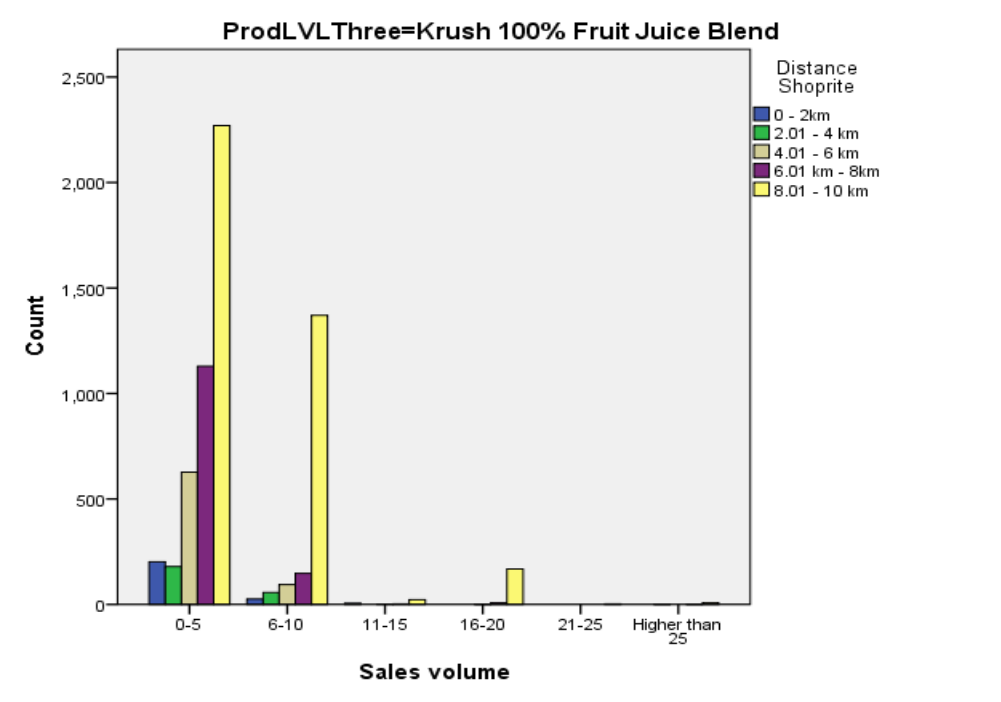
Table 23: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Dairy Fruit Mix Tropika UHT	Sales volume	0-5	Count	107	89	111	162	686	1155
			% within Sales volume	9.3%	7.7%	9.6%	14.0%	59.4%	100.0%
			% within Distance Modern Retailer 1.	25.3%	21.2%	39.4%	35.4%	47.1%	38.0%
			% of Total	3.5%	2.9%	3.7%	5.3%	22.6%	38.0%
		6-10	Count	260	313	166	292	726	1757
			% within Sales volume	14.8%	17.8%	9.4%	16.6%	41.3%	100.0%
			% within Distance Modern Retailer 1.	61.5%	74.5%	58.9%	63.8%	49.8%	57.8%
			% of Total	8.5%	10.3%	5.5%	9.6%	23.9%	57.8%
		11-15	Count	52	10	5	4	41	112
			% within Sales volume	46.4%	8.9%	4.5%	3.6%	36.6%	100.0%
			% within Distance Modern Retailer 1.	12.3%	2.4%	1.8%	.9%	2.8%	3.7%
			% of Total	1.7%	.3%	.2%	.1%	1.3%	3.7%
		16-20	Count	3	8	0	0	4	15
			% within Sales volume	20.0%	53.3%	0.0%	0.0%	26.7%	100.0%
			% within Distance Modern Retailer 1.	.7%	1.9%	0.0%	0.0%	.3%	.5%
			% of Total	.1%	.3%	0.0%	0.0%	.1%	.5%
		21-25	Count	0	0	0	0	1	1
			% within Sales volume	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	0.0%	0.0%	.1%	.0%
			% of Total	0.0%	0.0%	0.0%	0.0%	.0%	.0%
		Higher than 25	Count	1	0	0	0	0	1
			% within Sales volume	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
			% within Distance Modern Retailer 1.	.2%	0.0%	0.0%	0.0%	0.0%	.0%
			% of Total	.0%	0.0%	0.0%	0.0%	0.0%	.0%
	Total		Count	423	420	282	458	1458	3041
			% within Sales volume	13.9%	13.8%	9.3%	15.1%	47.9%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	13.9%	13.8%	9.3%	15.1%	47.9%	100.0%

5.5.1.6 Krush 100% Fruit Juice Blend

Overall, orders of 0-10 items constituted 75.3% of the total distribution, at 56.1% for 0-5 items and 19.2% for 6-10 items (Figure15).

Figure 15: Clustered bar chart for distance between spaza shops and Modern Retailer 1 with sale volume for Krush 100% Juice Blend



The relationship between the distance and sales volume was significant (Table 25), with a p-value of less than 0.05 (χ^2 (20, N=6326) = 577.783, p <.05. The strength of the relationship was weak with an φ value of 0.151 (Table 26).

Table 24: Sales volume * Distance Modern Retailer 1. * ProdVLThree Cross tabulation

ProdVLThree				Distance Modern Retailer 1. 0 - 2km	2.01 - 4km	4.01 - 6km	6.01 - 8km	8.01 - 10 km	Total
Krush 100% Fruit Juice Blend	Sales volume	0-5	Count	202	180	730	1360	1936	4408
			% within Sales volume	4.6%	4.1%	16.6%	30.9%	43.9%	100.0%
			% within Distance Modern Retailer 1.	86.3%	75.6%	87.4%	87.7%	55.8%	69.7%
			% of Total	3.2%	2.8%	11.5%	21.5%	30.6%	69.7%
		6-10	Count	26	57	102	179	1330	1694
			% within Sales volume	1.5%	3.4%	6.0%	10.6%	78.5%	100.0%
			% within Distance Modern Retailer 1.	11.1%	23.9%	12.2%	11.5%	38.4%	26.8%
			% of Total	.4%	.9%	1.6%	2.8%	21.0%	26.8%
		11-15	Count	6	0	2	3	23	34
			% within Sales volume	17.6%	0.0%	5.9%	8.8%	67.6%	100.0%
			% within Distance Modern Retailer 1.	2.6%	0.0%	.2%	.2%	.7%	.5%
			% of Total	.1%	0.0%	.0%	.0%	.4%	.5%
		16-20	Count	0	0	1	8	168	177
			% within Sales volume	0.0%	0.0%	.6%	4.5%	94.9%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	.1%	.5%	4.8%	2.8%
			% of Total	0.0%	0.0%	.0%	.1%	2.7%	2.8%
		21-25	Count	0	0	0	0	3	3
			% within Sales volume	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	0.0%	0.0%	0.0%	.1%	.0%
			% of Total	0.0%	0.0%	0.0%	0.0%	.0%	.0%
		Higher than 25	Count	0	1	0	1	8	10
			% within Sales volume	0.0%	10.0%	0.0%	10.0%	80.0%	100.0%
			% within Distance Modern Retailer 1.	0.0%	.4%	0.0%	.1%	.2%	.2%
			% of Total	0.0%	.0%	0.0%	.0%	.1%	.2%
	Total		Count	234	238	835	1551	3468	6326
			% within Sales volume	3.7%	3.8%	13.2%	24.5%	54.8%	100.0%
			% within Distance Modern Retailer 1.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			% of Total	3.7%	3.8%	13.2%	24.5%	54.8%	100.0%

Table 25: Analysis of product brand unit sales on distance between spaza and Modern Retailer no 1 1

ProdVLThree		Value	df	Asymptotic Significance (2-sided)
Clover Fresh Milk	Pearson Chi-Square	1379.078	20	.000
	Likelihood Ratio	1558.765	20	.000
	Linear-by-Linear Association	251.782	1	.000
	N of Valid Cases	29199		
Clover Fruit Nectar	Pearson Chi-Square	141.287	20	.000
	Likelihood Ratio	136.340	20	.000
	Linear-by-Linear Association	.515	1	.473
	N of Valid Cases	8568		
Dairy Fruit Mix Danao Fresh	Pearson Chi-Square	323.718	12	.000
	Likelihood Ratio	319.753	12	.000
	Linear-by-Linear Association	30.010	1	.000
	N of Valid Cases	856		
Dairy Fruit Mix Tropika Fresh	Pearson Chi-Square	1427.202	20	.000
	Likelihood Ratio	1463.918	20	.000
	Linear-by-Linear Association	425.746	1	.000
	N of Valid Cases	40164		
Dairy Fruit Mix Tropika UHT	Pearson Chi-Square	237.273	20	.000
	Likelihood Ratio	208.843	20	.000
	Linear-by-Linear Association	139.560	1	.000
	N of Valid Cases	3041		
Krush 100% Fruit Juice Blend	Pearson Chi-Square	577.783	20	.000
	Likelihood Ratio	641.193	20	.000
	Linear-by-Linear Association	262.437	1	.000
	N of Valid Cases	6326		
Total	Pearson Chi-Square	2212.058	20	.000
	Likelihood Ratio	2583.991	20	.000
	Linear-by-Linear Association	277.082	1	.000
	N of Valid Cases	88154		

Table 26: Strength of the relationship between pack unit sales and distance between spaza shops and Modern Retailer 1

ProdVLThree			Value	Approximate Significance
Clover Fresh Milk	Nominal by Nominal	Phi	.217	.000
		Cramer's V	.109	.000
	N of Valid Cases		29199	
Clover Fruit Nectar	Nominal by Nominal	Phi	.128	.000
		Cramer's V	.064	.000
	N of Valid Cases		8568	
Dairy Fruit Mix Danao Fresh	Nominal by Nominal	Phi	.615	.000
		Cramer's V	.355	.000
	N of Valid Cases		856	
Dairy Fruit Mix Tropika Fresh	Nominal by Nominal	Phi	.189	.000
		Cramer's V	.094	.000
	N of Valid Cases		40164	
Dairy Fruit Mix Tropika UHT	Nominal by Nominal	Phi	.279	.000
		Cramer's V	.140	.000
	N of Valid Cases		3041	
Krush 100% Fruit Juice Blend	Nominal by Nominal	Phi	.302	.000
		Cramer's V	.151	.000
	N of Valid Cases		6326	
Total	Nominal by Nominal	Phi	.158	.000
		Cramer's V	.079	.000
	N of Valid Cases		88154	

5.5.1.7 Unit sales summary

Table 27 presents the contingency table which is a cross tabulation of distance of Modern Retailer 1 and Masakhane spaza stores with sales volume. So, 64.5% (N = 1625) of the sales of 0-5 units per case were within 0-2 km of Modern Retailer 1 from a Masakhane store as compared to 21.7% at 6-10km.

Table 27: The cross tabulation of the distance with sales volume

			Distance Modern Retailer 1					Total
			0 - 2km	2.01 - 4 km	4.01 - 6 km	6.01 km - 8km	8.01 - 10 km	
	0-5	Count	1625	2290	9728	20640	15156	49439
		% within Sales Volume	3.3%	4.6%	19.7%	41.7%	30.7%	100.0%
		% within Distance Modern Retailer 1	64.5%	70.5%	56.7%	57.9%	51.2%	56.1%
		% of Total	1.8%	2.6%	11.0%	23.4%	17.2%	56.1%
	6-10	Count	546	734	2665	6118	6899	16962
		% within Sales Volume	3.2%	4.3%	15.7%	36.1%	40.7%	100.0%
		% within Distance Modern Retailer 1	21.7%	22.6%	15.5%	17.2%	23.3%	19.2%
		% of Total	0.6%	0.8%	3.0%	6.9%	7.8%	19.2%
	11-15	Count	69	39	649	1767	1357	3881
		% within Sales Volume	1.8%	1.0%	16.7%	45.5%	35.0%	100.0%
		% within Distance Modern Retailer 1	2.7%	1.2%	3.8%	5.0%	4.6%	4.4%
		% of Total	0.1%	0.0%	0.7%	2.0%	1.5%	4.4%
	16-20	Count	19	40	1622	2560	1640	5881
		% within Sales Volume	0.3%	0.7%	27.6%	43.5%	27.9%	100.0%
		% within Distance Modern Retailer 1	0.8%	1.2%	9.5%	7.2%	5.5%	6.7%
		% of Total	0.0%	0.0%	1.8%	2.9%	1.9%	6.7%
	21-25	Count	214	138	877	1766	2383	5378
		% within Sales Volume	4.0%	2.6%	16.3%	32.8%	44.3%	100.0%
		% within Distance Modern Retailer 1	8.5%	4.2%	5.1%	5.0%	8.1%	6.1%
		% of Total	0.2%	0.2%	1.0%	2.0%	2.7%	6.1%
	25+	Count	47	9	1604	2794	2159	6613
		% within Sales Volume	0.7%	0.1%	24.3%	42.3%	32.6%	100.0%
		% within Distance Modern Retailer 1	1.9%	0.3%	9.4%	7.8%	7.3%	7.5%
		% of Total	0.1%	0.0%	1.8%	3.2%	2.4%	7.5%
Total		Count	2520	3250	17145	35645	29594	88154

	% within Sales Volume	2.9%	3.7%	19.4%	40.4%	33.6%	100.0%
	% within Distance Modern Retailer 1	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0%
	% of Total	2.9%	3.7%	19.4%	40.4%	33.6%	100.0%

5.5.2 The effect of region on sales volume

The plot of the mean sales volume score by brand pack size, for each of the radii from Modern Retailer 1 to spaza, is broken down in the three regional clusters. The general trend is that the mean (sales volume) increases as the distance increases for both the Gauteng and Polokwane clusters. This effect is marginally the same in KZN.

Figure 16: Estimate marginal means for pack size

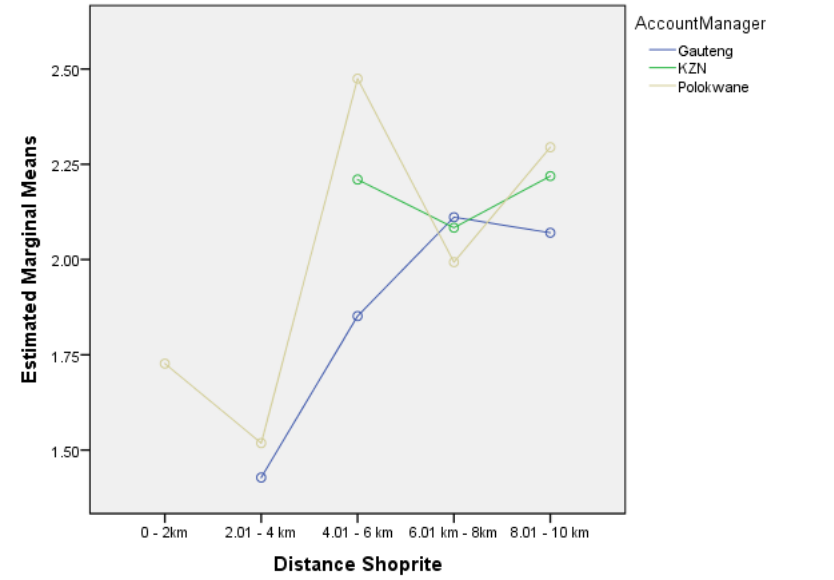


Table 28 presents the actual results of the two-way ANOVA to indicate whether any of the three independent variables and their interaction is statistically significant. The region is statistically significant with pack size with the p-value being less than .05. More importantly, there was a statistically significant interaction between the effects of the region and distance, F (6, 1.959) = 8.448, p <.5. In addition, testing the effect of distance, region and product brand, their effect was found to be significant, F (23, 1.959) = 10.449, p <.05.

Table28: Actual results of the two-way ANOVA

Dependent Variable:								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	57584.554[a]	70	822,636	419,833	0,000	,250	29388,335	1,000
Intercept	3306,498	1	3306,498	1687,474	0,000	,019	1687,474	1,000
Distance	28,042	4	7,010	3,578	,006	,000	14,311	,875
Region	15,238	2	7,619	3,888	,020	,000	7,777	,704
ProdLVLThree	12062,589	5	2412,518	1231,231	0,000	,065	6156,155	1,000
Distance * Region	99,323	6	16,554	8,448	,000	,001	50,690	1,000
Distance* ProdLVLThree	453,338	20	22,667	11,568	,000	,003	231,361	1,000
Region * ProdLVLThree	2697,864	10	269,786	137,686	,000	,015	1376,858	1,000
Distance * Region * ProdLVLThree	470,917	23	20,475	10,449	,000	,003	240,333	1,000
Error	172592,979	88083	1,959					
Total	618830,000	88154						
Corrected Total	230177,533	88153						
a. R Squared = .250 (Adjusted R Squared = .250)								
b. Computed using alpha = ,05								

5.6 Summary and conclusion

In this study, 88,154 observations were made at 265 Masakhane spaza shops in Gauteng, KwaZulu-Natal and Polokwane (Limpopo) regions. There were two research questions in this study. The outcomes are summarised in Table 29. It is obvious from the above statistics that both the pack size and sales volumes are influenced by the distance between the spaza shop and modern retailer, which in this study was Modern Retailer 1 group.

Table 29: Summary outcomes of the study

Research Question	Hypotheses	Outcome	Conclusion
Research Question 1 Is the distribution of the product unit size in the emerging market Spaza shops influenced by the distance between the emerging market Spaza shop and modern-day retailer?	**Hypothesis 1** H_{01}: Distribution of the product unit size in the emerging market Spaza shops is not influenced by the distance between the emerging market Spaza shop and modern day retailer. H_{A1}: Distribution of the product unit size in the emerging market Spaza shops is influenced by the distance between the emerging market Spaza shop and modern day retailer.	**1.Clover Fresh Milk** χ^2 (16, N=29199) = 1554.837, p <.05. (φ) = 0.115 **2.Clover Fruit Nectar** (χ^2 (8, N=8568) = 196.016, p <.05. (φ) = 0.107 **3.Dairy Fruit Danao Fresh** (χ^2 (4, N=856) = 79.903, p <.05. (φ) = 0.306 **4.Dairy Fruit Mix Tropika Fresh** χ^2 (16, N=40164) = 3465.163, p <.05. φ = 0.114 **5.Dairy Fruit Mix Tropika UHT** χ^2 (8, N=3041) = 308.329, p <.05. (φ = 0.225). **6. Krush 100% Fruit Juice Blend** χ^2 (12, N=6326) = 248.258, p <.05. φ = 0.147	**Weak to Low relationship** **Decision**: Rejected the null hypothesis, accepted the alternative hypothesis
Research Question 2 Are the sales of a product assortment in the emerging market Spaza shops influenced by the distance between the emerging market Spaza shop and modern-day retailer?	**Hypothesis 2** H_{02}: Sales of a product assortment in the emerging market Spaza shops is not influenced by the distance between the emerging market Spaza shop and modern day retailer. H_{A2}: Sales of a product assortment in the emerging market Spaza shops is influenced by the distance between the emerging market Spaza shop and modern day retailer.	**1.Clover Fresh Milk** χ^2 (20, N=29199) = 1379.079, p <.05. (φ) = 0.115 **2.Clover Fruit Nectar** (χ^2 (20, N=8568) = 141.29, p <.05. (φ) = 0.064 **3.Dairy Fruit Danao Fresh** (χ^2 (12, N=856) = 323.72, p <.05. (φ) = 0.355 **4.Dairy Fruit Mix Tropika Fresh** χ^2 (20, N=40164) = 1427.20, p <.05. φ = 0.094 **5.Dairy Fruit Mix Tropika UHT** χ^2 (20, N=3041) = 237.27, p <.05. (φ = 0.140). **6. Krush 100% Fruit Juice Blend** χ^2 (20, N=6326) = 577.78, p <.05. φ = 0.151	**Weak to low relationship** **Decision**: Rejected the null hypothesis, accepted the alternative hypothesis

CHAPTER 6

6. ANALYSIS OF RESULTS

6.1 Introduction

Chapter 5 detailed the results of the current study and looked at the impact of distance between the encroaching modern retailer and the informal emerging market spaza shops on product pack size. It assessed each product and SKU by pack size and showed its distribution and sales performance in spaza shops at various radii from the Modern Retailer 1 retailer. It also assessed differences across three clusters in terms of sales performance. Measuring distribution shows whether the product was bought by the spaza shop and measuring sales assessed the rate of sale of each SKU available.

This chapter discusses the research results on the distribution of six dairy products from Clover South Africa. Conclusions on each research question are formulated and compared to the findings of past research previously discussed in Chapter 2. The distribution and sales results of each pack size within these six products are discussed with reference to prior research and the intention of setting a platform from which to conclude the principal findings and suggestions for future research.

Research Question 1: Is the distribution of product unit size in emerging market spaza shops influenced by distance between the emerging market spaza shop and modern-day retailer?

6.2 The influence of geographical distance between the emerging market spaza shop and modern-day retailer on product unit size distribution

6.2.1 Introduction

The author of the current study highlighted the importance of product variety. Previous work by Ampuero and Vila (2006), S.T. Wang (2013) and Rundh (2013) all focused on packaging as a differentiating factor. Other studies such as those by Sorenson (2000), Berger et al. (2007) and Ford et al. (2012) show how the study of product and packaging variety can aid future research with reference to different products and product sizes. The hypothesis was therefore informed by the literature. It narrowed the study down from the importance of variety to the importance of product unit size as a form of product variety. Previous studies have confirmed that product variety increases a company's market power, which in turn raises profit margins and market share (Bayus & William P. Putsis, 1999).

In their study on Fair and Lovely fairness cream, Jaiswal and Gupta (2015) identified that, to create significant impact in the BOP (bottom of the pyramid), one needs inexpensive unit packs or sachets catering for single-serve portions and for the consumer's limited coinage at the time of purchase. This channelled the current study into the area of emerging markets where research by Shankar and Bolton (2004), Bianchi (2014), Kumar et al. (2009) and Reinartz et al. (2011) showed that despite research around product variety, granular analysis on product unit pack size and price in emerging markets needs more work.

However, to convert product pack size variety into successful sales and market share, one needs the distribution and availability of product in the outlet (Kumar et al., 2009). The current study therefore aims to build onto the recent study by Kumar et al. (2015) where they acknowledge that the study did not extrapolate aggregate data from an emerging market; also that they had not been able to study information on the distribution intensity of stores at a regional or town level. The below section will therefore discuss the results against the distribution of product unit size in emerging market spaza shops and how such results could be influenced by the distance between the emerging market spaza shop and modern-day retailer.

6.2.2 Discussion of research results

Clover Fresh Milk

For the shortest distance (0-2 km) from the sampled stores, distribution of the 500 ml pack size scored at only 5.5% whereas the 1 L and 2 L pack sizes scored significantly better at 24.3% and 23.8%, respectively. For the longest distance of 8-10 km the 1 L was the most dominant pack size at 34.9% distribution whereas the 250 ml was only 24.2% distributed.

The results indicate a significant association namely χ^2 (16, N=29199) = 1554.837, p <.05. Having established the relationship between distance and pack size with respect to Clover Fresh Milk, the strength of the relationship was evaluated using Cramer V (φ). The strength of the relationship was weak with an φ value of 0.115. This result was unexpected and may well show that spaza shop owners are not concerned about stocking 1 L and 2 L pack sizes despite their being in close proximity to the modern-day retailer, in this case within 2 km of the Modern Retailer 1 outlet. Logic would say that they would focus on convenience (Pornpitakpan, 2010; and Sy-Changco et al., 2010), given that modern retail formats focus on larger packs (Wansink & Huckabee, 2005). This could well point to analysis done by Trade Intelligence (2016) that such spaza stores are just as price-competitive as their modern retail competitors. It will be interesting to note how sales compare, which will be

analysed as part of Research Question 2. The sales results could therefore indicate that those spaza stores within a 0-2 km and 2-4 km radius are missing an opportunity by not stocking smaller pack sizes. However, the purchasing decision around Fresh Milk versus long life milk also needs to be considered. One of the views may well be that, depending on the product (for example its perishability or shelf life), separate strategies may be needed regarding which packs to focus on when either closer or further away from large modern retail competitors.

Clover Fruit Nectar- Danao

The results show that within a 0-4 km radius, the 500 ml pack was 100% distributed but as distance increased, the larger 2 L Danao Fruit Nectar became more readily available and better distributed. This was opposite to the 500 ml, which shows better distribution within 0-4 km from the modern retailer. However, the 250 ml Danao had a different impact on the relationship between pack size and distance with regard to longer distances, mainly 6-8 km and 8-10 km, indicating better distribution further from the modern retailer. These results are therefore somewhat mixed. However, they remain significant in the sense that without a common pattern of results, there remains opportunity not only to better educate trader and supplier alike as to the advantages of SKU assortment and pack size variety but also to improve distribution.

As recently researched by Sy-Changco et al. (2010), in the emerging market context of the Philippines, a 5 Peso pack or a 10 Peso pack are affordable but if marketed “beyond the coinage” (p. 759) it will not appeal to the people because the coinage has formed a limit. They further acknowledge how tough it then is to reduce pack sizes in emerging markets as you need to play with the coinage (Rundh, 2013; and Sy-Changco et al., 2010). There therefore needs to be more science behind purely providing more variety and offering alternative pack sizes as researched by Gerstner and Hess (1987), Hammond and Prahalad (2004) and Sy-Changco et al. (2010). The likes of Clover and Kellogg Company South Africa who are entering the emerging market will need to take note of certain recommendations from this prior research. As can be seen by the above results in relation to both the Danao Fruit Nectar and the Clover Fresh Milk, consumer behaviour and spending habits play a role in the emerging market but the need has emerged to also consider the distance from the modern retailer and the effect on stocking different product pack sizes.

Dairy Fruit Mix Danao Fresh

The results showed that with only two pack sizes there may be room for further pack size considerations. The trend showed a high availability of the 1 L closer to the Modern Retailer 1 retailer and, in contrast, a very low availability of the 330 ml. Furthermore, the 1 L availability improved even more the further the distance from the modern retailer. This might indicate that significantly more opportunity exists for smaller pack sizes closer to the modern retailer. A more focused approach on convenience and single purchase consumption as evidenced by Florio (2016) in his examples of proven price and pack architecture effectiveness should therefore be examined.

Dairy Fruit Mix Tropika Fresh

Tropika Fresh had 5 pack sizes across a number of different flavours distributed. The pack sizes distributed were 250 ml, 330 ml, 500 ml, 1.5 L and 2 L. In analysing the results, it is noteworthy that the 500 ml had the best distribution and was above 80% availability in the 0-2 km as well as the 2-4 km radii, whereas the 2 L and 250 ml showed far less distribution penetration. The 330 ml and 250 ml were poorly distributed and hardly available the closer the distance from the Modern Retailer 1 retailer. With 7 pack sizes of this product, the analysis shows disappointing distribution results for such a well-recognised brand name in the South African emerging market. As Kuben Govender from Clover stated, a lack of focus on what pack sizes to concentrate on and in which retail environments is confirmed by the distribution performance (Kuben Govender, personal communication, July 7, 2016).

Two key studies previously referred to by the author in this current study are noted, the first being that of Kumar et al. (2015) in which different retail formats are analysed and marketing mix recommendations are aligned to each format, and the second Wan et al.'s (2014) research where the value of product line and pack size was measured. It is evident in the current study that in the performance of this product there are a few significant recommendations addressed in the next chapter. As previously found in the study of Chipp et al. (2012), it is important to distinguish between individual and household purchase decisions. Not only should unit pack sizes be segmented by retail format (Kumar, Fan, Gulati & Venkat, 2009; and Kumar, Sunder & Sharma, 2015), but also by individual versus family consumption (Chipp et al., 2012).

Dairy Fruit Mix Tropika UHT

Three product pack sizes were distributed namely 200 ml, 250 ml and 1 L, of which the 1 L was most widely distributed except at the furthest radius where the 200 ml was better distributed with higher availability. Again, there may be a significant amount of analysis to be

considered here by combining these scores with the distribution scores of the Tropika Fresh above. The smaller pack sizes across both Tropika Fresh and UHT are relatively poorly distributed within 4 km of the Modern Retailer 1 retailer.

It must also be noted that Clover grew this product line from three SKUs to seven to take advantage of the single consumption occasion in emerging markets (Kuben Govender, personal communication, July 7, 2016). As noted earlier in this study, Sloot et al. (2006) introduced line extensions and package downsizing as a means of further meeting consumer needs and choices. Wan et al. (2014) added that companies could block out the threat of new entrants by providing an ever-increasing variety of products, thereby segmenting the market into thinner slices. However, unless there is a clear understanding of an organisation's competitive toolkit, (Berger et al., 2007)(Berger et al., 2007)(Berger et al., 2007)(Berger et al., 2007)(Berger et al., 2007)(Berger et al., 2007)(Berger et al., 2007) results can also suggest that product proliferation can even be counterproductive in the sense that market share decreases after a certain line length (Berger et al., 2007). These researchers found that on the organisation's side, production costs increase exponentially as line length increases, therefore effective management of line length remains a critical consideration. As the study by Akır and Balagtas (2014) observed, there may be a myriad of responses to packaging downsizing and as researched by De Matta, Lowe and Wu (2014), managing product variety in light of consumer expectations is critical in supply chain. Several recommendations may be made to Clover arising from the distribution results of the current study and in particular those of their number one brand, Tropika Fresh. More consideration will need to be given to the mix of products and pack sizes between the UHT sizes and flavours and the fresh alternative. Occasions, regional differences, single-serve versus family purchase decisions and flavour alternatives will need to be considered

Krush 100% Fruit Juice Blend

Overall, the 500 ml achieved 75.7% of the total distribution and had even better distribution over shorter radii. Further distances also showed good distribution figures for the 500 ml, whereas the 1.5 L showed less than 20% availability overall and was less available the further the distance from the Modern Retailer 1 retailer. Pornpitakpan (2010), Sy-Changco et al. (2010) and Wan et al. (2014) all showed that there is indeed a definitive case for different pack sizes although a common thread in their argument was that the context and type of product mattered.

In the study of package unit sizes with Thai undergraduates (Pornpitakpan, 2010, p. 289), the participants read scenarios and poured products into containers. The study showed that the effect of pack size, unit costs and fill amounts varied by product type. Some consumers of certain products like cooking oil used a greater product amount when the package size was larger versus smaller, and some consumers used a greater amount when the product unit cost was lower. This was especially evident in the case of detergent. The Thai study has particular relevance to Clover's Krush 100% Fruit Juice Blend. It is evident that the 500 ml is a popular choice at the size and price and with only two size options of this brand it is worth considering the impact of a smaller 250 ml or 300 ml and a larger 1 L pack. Berger et al. (2007) does warn against product proliferation but given the sales data at Clover's disposal and the fact that distribution costs would be minimised due to the smaller moulds already in use in other products (Govender, personal communication, July 7, 2016; and De Matta et al., 2014), a trial with a smaller and larger pack could be a prudent move. According to Kuben Govender from Clover (personal communication, July 7, 2016), and G.G. Alcock from Minanawe (personal communication, October 20, 2016), an analysis of competitor pack sizes would need to be clearly understood.

6.2.3 Summary

As previous studies by Venkatesan et al. (2015), Chandon and Ordabayeva (2009) and Kumar et al. (2015) conclude, managers in emerging markets need to focus on the optimal product line length and variety for each retail channel served. This should be coupled with a strong relationship programme, effective in-store merchandising and an extensive distribution network to drive product distribution. Furthermore, consistent with the literature reviewed in Chapter 2, product variety, specifically unit pack size, and the influence of formal retailers are both factors that affect brand distribution in the emerging market.

Research Question 2: Are the sales of product unit size in emerging market spaza shops influenced by the distance between the emerging market spaza shop and modern-day retailer?

6.3 The influence of geographical distance between emerging market spaza shop and modern-day retailer on product unit size sales

6.3.1 Introduction

Measuring distribution shows the effectiveness of the combined elements of distribution, sales and marketing in getting the product on shelf. Measuring sales obviously assessed the rate of sale of each SKU available. The findings of the results from Chapter 5 with specific emphasis on the impact of sales and conclusions are examined, formulated and compared to the findings of past research in Chapter 2. In the study by Ali et al. (2010), the mean value of the consumer responses on a range of product attributes showed that approximately 70% of all respondents considered packaging and convenience as important when making a purchase. The analysis of sales results of each of Clover's ProductVLThree sub-brands in question will be explained and concluded separately in the next section.

6.3.2 Discussion of research results

Clover Fresh Milk

The shorter the distance from the Modern Retailer 1 retailer, the less fresh milk was sold by the spaza shop. For the longer distances of 6-8 km and 8-10 km, the number of transactions was far higher for each of the sales volume segments. In other words, those consumers living further away from the Modern Retailer 1 store were inclined to visit their local spaza shop more frequently than consumers purchasing from spaza shops closer to the Modern Retailer 1 retailer. In assessing the impact of the modern retailer it must also be noted that all the unit pack sizes namely 250 ml, 500 ml, 1 L and 2 L struggled in terms of distribution, number of sales transactions and sales volume the closer the proximity of the Modern Retailer 1 retailer.

The results of the study by Madlala (2016) show that smaller informal spaza shops struggle to compete on price with larger chains, even though the entry of a new large retailer significantly impacts only those stores that operate within a tight radius of the larger, formal retailer. In contrast, the latest pricing survey by Trade Intelligence (2016) has noted that such small informal spaza shops can compete on price. In this current study it may again amount to focusing on the right pack sizes the closer the proximity to the modern retailer. Ligthelm (2008) and Liedeman et al. (2013) identified that proximity to customers' dwellings, long and flexible business hours, satisfaction of emergency needs, credit facilities, the availability of merchandise in small units as well as good and friendly customer service were key to the survival of these spaza retail shops. Given the modern retailer's focus on larger pack sizes (Liedeman et al., 2013), it may be a case of not only variety but which careful selection of unit pack size variety the spaza retailer should be focusing on.

The Clover Fresh Milk results may also be impacted by the nature and seasonality of the product (Ali et al., 2010). UHT (long life milk) stays fresh considerably longer and may be a safer choice in summer or when the customer needs to make sure his milk stays fresh in the absence of refrigeration facilities.

Clover Fruit Nectar

This is a product that is being ordered mainly in transactions of 0-10 units, with 65.4% in 0-5 units and 20.3% in 6-10 units. However, none of the order volumes were sold in the first 4 km radius due to a lack of distribution closer to the Modern Retailer 1 retailer. The 500 ml and 1 L exceeded the 250 ml sales, the former taking place mainly in the 6-8 km radius. These results show a definite opportunity for a more focused strategy. Research results by Wan et al. (2014) note that taking advantage of product variety such as product lines may have a positive result on sales performance while increasing other aspects of variety like pack size may have a negative impact. Different product attributes need to be assessed in view of the fact that the positive total effect of product-line variety on sales at a certain point reduces as the number of items increases (Iyengar & Lepper, 2000; and Wan et al., 2014). In the results of Clover Fruit Nectar there clearly seems to be room and opportunity to increase the product line with smaller unit pack sizes.

Danao Fruit Mix Fresh

More than 90% of the sales of Danao fruit mix occurred between 6-10 km, and 81.8% of the orders were between 6-10 units. With only two different pack sizes namely 330 ml and 1 L, it was clear from the distribution of the products that the 1 L was far better distributed and available more often than the 330 ml, especially in the 6-10 km radius. A significant amount of work therefore needs to be done on seeding the smaller pack. As studies by Kekre and Srinivasan (1990), Neuwirth (2014), Payaud (2014) and more recently that of Shaikh et al. (2016) noted, product line length decisions are an important consideration for market share growth in the emerging market. Given the seemingly high number of pack sizes in certain products analysed in the Clover stable in this current study as well as the seemingly low number of unit pack size alternatives of other products in the same stable, it is evident that significant insights could be drawn from the studies mentioned above coupled with those by Sy-Changco et al. (2011) and Pornpitakpan (2010). Sy-Changco et al. (2010) noted that sachet marketing or marketing in small unit pack sizes is a way of introducing products to new consumers. These smaller unit sizes also allow spaza owners to offer more product variety in their small shops.

Dairy Fruit Mix Tropika Fresh

The majority of Dairy Fruit Mix Tropika Fresh was sold between 0-5 unit sales per transaction, and between 6-10 km. Figure 6 shows that of a proliferation of seven unit pack sizes in this product line, only three are really proving successful. The 330 ml and 1.5 L are insignificant in terms of distribution and volume, whereas the 250 ml, 500 ml and 2 L dominate availability in the 4-10 km radius. Again, it must be considered that smaller pack size sales and distribution should be better the shorter the distance to the modern retailer. Competitive and differentiated packaging solutions can help the consumer to better estimate the value of what they can get for their money (Rundh, 2013), but results also suggest that product proliferation can be counterproductive in the sense that market share decreases after a certain line length (Berger et al., 2007). In this current research it therefore seems that a SKU rationalisation process may be needed to reach the optimal balance between cannibalising on own pack sizes and optimal market share.

Dairy Fruit Mix Tropika UHT

Three product pack sizes were distributed namely 200 ml, 250 ml and 1 L, of which the 1 L was most widely distributed except for the furthest radius where the 200 ml was better distributed with a higher availability. In terms of volume of sales, smaller size unit transactions were sold, mainly in units of between 0-10 per transaction and mainly in the 8-10 km radius. It is logical that th

e 200 ml and 1 L will dominate distribution and sales, considering that the 250 ml, 500 ml and 2 L dominate in the Tropika fresh product line.

As mentioned before, Scavarda et al. (2010) and Bezuidenhout (2014) looked at previous research done on “late configuration” (Scavarda, 2010, p. 220), a term given to variety and assortment created in products post the manufacturing stage. This is a pertinent aspect to consider where the above two interplaying product lines, Dairy Fruit Mix Tropika UHT and Dairy Fruit Mix Tropika Fresh, with ten different pack sizes between them, need considerable attention towards production costs. Packaging of the different pack sizes and the costs associated form a significant consideration of how far variety can be taken advantage of. Again, the balance between cost and market share needs to be carefully considered.

Krush 100% Fruit Juice Blend

According to the sample studied the 500 ml distribution is this brand's strength. Overall orders of 0-10 units per transaction constituted 75.3% of the total sales showing that potentially most were for immediate consumption but less likely as a monthly bulk purchase. This could justify an argument for a smaller pack size in this brand to enhance immediate consumption (Ampuero & Vila, 2006; and Guoying & Qingfeng, 2009). For this to happen, Clover's distribution network through their Masakhane channel represents a competitive advantage and mirrors that of the Philippine archipelago which feeds a distribution network of goods to many of the small sari-sari stores (Sy-Changco et al., 2010). Powder oils, cologne and other products are distributed in very small bottles. They do this because given the wide distribution network and economies of scale they can distribute products which, albeit making limited money, create a conversion to the larger pack sizes of the same product or brand (Sy-Changco et al., 2010).

6.3.3 Summary

Sales cannot materialize without effective and efficient distribution of the product to make it available (Kumar et al., 2015; and Payaud, 2014). The more tailored the distribution network and the more customised the variety of the brand to emerging markets (Jaiswal & Gupta, 2015.; and Rundh, 2013), the more likely distribution of the product can provide on-shelf availability of the product which can then materialise into sales. However, there is no point in having a brand available in a pack size that does not sell, or missing the opportunity to create sales through a pack size despite having great distribution (Kumar et al., 2015). From the above observations of the six products within the Clover portfolio, it is evident that ongoing optimisation of product pack size is necessary to achieve optimal sales and grow market share.

6.4 Comparison of regional clusters

Table 16 illustrated the actual results of the two-way ANOVA which showed the region to be statistically significant with pack size. The general trend showed that sales volumes increased as the distance increased for both the Gauteng and Polokwane clusters. This effect was only marginally the same for KZN.

The current study was done to analyse the regional similarity between clusters. The observation in this study that the further away the spaza shops are from the Modern Retailer 1 retailer the better their performance in terms of sales, goes uncontested.

Liedeman et al. (2013), Ligthelm (2008), Madlala (2016) and Moloi (2014) all suggest that further research should be conducted on the structural changes in the retail environment of emerging markets, and Ataman and Heerde (2010) as well as Venkatesan et al. (2015) note the opportunity that exists in assessing the impact of such structural changes on the pack size alternatives spaza shop owners and their suppliers should be addressing. The similarity in sales trend in three different clusters provides further evidence that Clover and other suppliers and distributors need to consider the impact of pack size variety on their sales performance and, more importantly, how similar or dissimilar this can be by region.

The analysis of these three regions further highlights that, despite differences in population, spaza shop density and number of modern retailers, the same trend exists namely that spaza stores closer to the modern retailer sell less of a given product.

6.5 Overall Summary

From the current study the author has uncovered further analysis alluding to the opportunity that exists and where, in the context of brand and pack examples from Clover SA, companies and spaza shop owners need to consider the variables of location and proximity to modern retailers. At the same time identifying which brands and in which pack sizes they need to be made available to maximize sales is an important consideration. The analysis by product identified several noteworthy observations with opportunity to lengthen, reduce or reformulate the pack sizes within a product line. Other factors like the cost of production, the cost of distribution and cannibalisation within the product line were also noted. However, in summary, when looking at the products analysed it should be acknowledged that the entry and impact of larger retailers and the effect this has on product pack and price strategies will remain an important study to build on to.

CHAPTER 7

7. CONCLUSION

7.1 Introduction

This chapter will summarize the objectives of the research and also provide insight into the effect that modern retail and the distance between spaza shop and modern retailer has on the pack size decisions of these spaza shop owners. Although the context is South Africa, the aim, through a comparison of three different clusters, is to show the similar pack size and proximity complexities that different emerging markets face. Recommendations for business

from the perspective of the spaza shop owner and suppliers are also discussed and conclusions are made on the limitations and implications for future research.

7.2 Research background and objectives

As evidenced by Shankar and Bolton (2004), Bianchi (2014), Kumar et al. (2009) and Reinartz et al. (2011), granular analysis on product unit pack size and price in emerging markets needs more work to more clearly understand how brands, through variety, can capture the diverse needs of consumers. To date there is no study in a South African context and very little related research in emerging markets globally that deals specifically with the impact of the ever encroaching modern retailers and their impact on product assortment decisions in emerging markets (Liedeman et al., 2013; Moloi, 2014; and Mthimkhulu, 2015). The research aims to specifically address challenges relating to unit pack size in order to better inform spaza shop retailers and suppliers of the pack size assortment decisions they need to make to ensure that spaza shops not only survive, but remain competitive in the face of such modern retailers entering emerging markets.

The research aimed to go one step further by comparing the results of three different geographical clusters. The overarching objective therefore was to contribute to rethinking about the way spaza shop owners and managers look at pack size in the emerging market and to understand that a key factor to ensuring spaza shop survival is ensuring that those pack sizes that are stocked are done so with the increased competition of modern-day retailers in mind (Ramakrishnan, 2010; Strydom, 2015; and Yadav et al., 2016).

The research objectives were identified as follows:

- To establish to what degree the distribution of pack size is affected by the proximity of spaza shop to modern-day retailer
- To establish to what degree the sales of pack size is affected by the proximity of spaza shop to modern-day retailer
- To understand the impact that different geographies play in the relationship between availability or sales and the proximity of spaza shop to modern-day retailer

7.3 Summary of key findings

As highlighted in the objectives, the study examined the impact of modern-day retailers in two areas, namely their impact on distribution of pack sizes and their impact on the sales of different pack sizes. The findings will be unpacked according to these two levels looking at the specific impact on branded products and their respective pack sizes in the Clover dairy product range.

7.3.1 Impact of modern retailer on distribution of unit pack size

Clover Fresh Milk distribution findings showed little impact of the modern retailer on spaza shop distribution of larger 1 L and 2 L packs in contrast to the fact that large modern retail formats focus on larger packs (Rundh, 2013; and Wansink & Huckabee, 2005) This may well point to the fact that recent pricing data from the South African emerging market (Trade Intelligence, 2016) show that such spaza stores are just as price-competitive as their modern retail competitors. In fact, as Strydom (2015) described it, the current scenario is literally a “David versus Goliath phenomenon” (p. 463) with the foreign national spaza owner transforming the industry as Liedeman et al. (2013) emphasizes and through reasons described in the current study.

Rundh, (2013) and Sy-Changco et al. (2010) acknowledge how tough it is to reduce pack sizes in emerging markets as there needs to be an awareness of the coinage denominations. The finding here is that to the admission of Kuben Govender, emerging market head at Clover, companies currently do not put enough science behind alternative pack sizes (personal communication, July 7, 2016) , as noted by Gerstner and Hess (1987), Hammond and Prahalad (2004) and Sy-Changco et al. (2010) and do not clearly articulate their price pack architecture and match it to the coinage denominations which define the daily purchase occasion of those in the bottom of the pyramid (Hammond & Prahalad, 2004).

The availability results of Dairy Fruit Mix Tropika Fresh showed that with 7 pack sizes, Clover has suffered from a lack of focus in terms of what pack sizes to concentrate on and in which retail environments to distribute to (Kuben Govender, personal communication, July 7, 2016). As previously found in the study of Chipp et al. (2012), it is important to distinguish between individual and household purchase decisions. Not only should unit pack sizes be segmented by retail format (Kumar, Fan, Gulati & Venkat, 2009; and Kumar, Sunder & Sharma, 2015), but also by individual versus family consumption (Chipp et al., 2012). Between the UHT and Fresh versions of Tropika, the current study noted 10 pack sizes in the market. Unless there is a clear understanding of an organisation’s competitive toolkit,

results can suggest that product proliferation can even be counterproductive in the sense that market share decreases after a certain line length (Berger et al., 2007).

Krush 100% Fruit Juice Blend results showed that with only two pack sizes there may be room for further pack size considerations. The trend showed a high availability of the 1 L closer to the Modern Retailer 1 retailer and, in contrast, a very low availability of the 330 ml. This might indicate that significantly more opportunity exists for smaller pack sizes closer to the modern retailer. Studies have confirmed that product variety increases as a company's market power rises, which in turn raises profit margins and market share (Bayus & William P. Putsis, 1999). The opportunity therefore, to extend the Krush product line into more pack sizes can further drive profit and market share for Clover.

7.3.2 Impact of modern retailer on sales of unit pack size

In assessing the impact of the modern retailer on Clover Fresh Milk sales it must also be noted that all the unit pack sizes namely 250 ml, 500 ml, 1 L and 2 L struggled in terms of distribution, number of sales transactions and sales volume the closer the proximity of the Modern Retailer 1 retailer. In fact, it seems that of all the products analysed, fresh milk was most impacted by proximity to the modern retailer. The finding here is that different products, even within Clover's dairy product category, are influenced by different purchase decisions.

Danao Fruit Mix Fresh had seemingly low numbers of sales in the smaller unit pack size alternatives. In this, significant insights could be drawn from the studies by Sy-Changco et al. (2010) and Pornpitakpan (2010). Sy-Changco et al. (2010) noted that sachet marketing or marketing in small unit pack sizes is a way of introducing products to new consumers. These smaller unit sizes also allow spaza owners to offer more product variety in their small shops.

In terms of Dairy Fruit Mix Tropika Fresh, with a proliferation of seven pack sizes in this product line, only three have really proved successful. Product proliferation can be counterproductive (Berger et al., 2007) and in this current research it therefore seems that a SKU rationalisation process may be needed to reach the optimal balance between cannibalising on own pack sizes and using certain pack sizes to enhance the sales of others. In assessing Dairy Fruit Mix Tropika UHT, it is logical that the 200 ml and 1 L will dominate distribution and sales, considering that the 250 ml, 500 ml and 2 L dominate in the Tropika fresh product line. Therefore, between Dairy Fruit Mix Tropika Fresh and Dairy Fruit Mix Tropika UHT the opportunity is presented to refocus and refine the strategy through a SKU rationalisation process.

The sales results of Krush 100% Fruit Juice Blend 500 ml indicate that there could be an argument for a smaller pack size. With this pack size as the standalone sales driver in this product, it presents the opportunity to introduce a smaller pack size in this brand to enhance immediate consumption (Ampuero & Vila, 2006; and Guoying & Qingfeng, 2009).

7.3.3 Impact of geographical location on the relationship between modern-day retailer and availability and sales of unit pack size

The analysis of these three regions further highlights that, despite differences in population, spaza shop density and number of modern retailers, the same trend exists namely that spaza stores closer to the modern retailer sell less of a given product. The results show that across regions in emerging markets, manufacturers and retailers face the same challenge of catering for daily consumption needs, portion control and convenience (Chernev, 2011; Dawar & Chattopadhyay, 2002; and Pornpitakpan, 2010).

7.4 Implications for management

The studies by Scavarda et al. (2010), Jaiswal and Gupta (2015), (Kumar, Fan, Gulati and Venkat (2009) and Kumar, Sunder and Sharma (2015) focused on the role of product and packaging variety in emerging markets. More specifically, Pornpitakpan (2010), Sy-Changco et al. (2010) and Wan et al. (2014) conducted research on the value of package downsizing, pack size and product line. Berger et al. (2007) viewed product line as an integral part of an organisation's competitive toolkit. Their results show that price and line length are complementary. Other previous studies have confirmed that product variety increases a company's market power, which in turn raises profit margins and market share (Bayus & William P. Putsis, 1999).

Although the research by Kumar et al. (2015) highlights the importance of distribution, they also stated that the success of a brand in an emerging market depends on the extent to which its marketing mix is customised to the unique characteristics of its market. The findings and recommendations of the current study in relation to Clover's brand pack sizes show that refining packs sizes, rationalising product lines and catering for the impact of the encroaching modern retailer are all important management considerations in lieu of changing consumer trends and increased competition in emerging markets.

Wan et al. (2014), asked why firms offer multiple flavours of a particular brand, and why companies produce specific products in a range of sizes. As mentioned by Sloot et al. (2006), the answer, in short, would be to meet consumer needs and choices. In certain

instances in the current study, these needs and choices seem to have been met, considering the good distribution and sales of certain pack sizes. In other instances, certain pack sizes were more affected by proximity to the modern retailer, and in some instances the recommendation was to consider extending or simplifying the range of pack sizes in order to either increase market share or reduce the threat of cannibalisation within the same product line. Wan et al. (2014) suggested that managers could block out the threat of new entrants by providing an ever-increasing variety of products, thereby segmenting the market into thinner slices but results in the current study also suggested that product proliferation can be counterproductive and can negatively affect market share and sales after a certain line length (Berger et al., 2007). However, in discussions with Govender (personal communication, July 7, 2016), he noted that managers must realise that product variety, especially through the use of sachets and small pack sizes, can also foster repeat purchase and encourage the buyer to trade up to larger sizes (Berger et al., 2007; and Guoying & Qingfeng, 2009).

Managers of organisations and spaza shop owners need to adapt their product and price strategies to cater for high frequency purchases. Being more flexible, adaptive and responsive and by offering better service to the encroaching modern retailers may be the answer to managers and owners of spaza shops and to the survival and long-term success of their business. Ultimately, one of the key factors to success is being able to offer better service than the modern retailer entering the spaza shop's space (GG Alcock, 2015).

7.5 Limitations of the research

The study encompasses the analysis of distribution and sales data of Clover South Africa's dairy product range. As was the case with the numerous studies of chocolate by Berger et al. (2007), Chernev (2011) and Iyengar and Lepper (2000), all their experiments consistently used gourmet chocolate bars as the product to test for assortment size. These studies all recognised the limitation of using only one product and consistently using this same product across similar studies and over more than a decade of research. Although this current study was a little more diverse in the sense that it analysed more than 30 pack sizes across six brands in the Clover dairy stable, future studies could try to assess a broader range and a more diverse cross-section of fast-moving consumer goods.

The second limitation that needs to be noted is the fact that in assessing the impact of modern-day retailers, only one retailer within each sample cluster was analysed. Given the

complexity of using more than one, the current study does not assess the impact of other wholesalers or retailers within each cluster and a study beyond the simplistic view of the impact on distribution and sales by the Modern Retailer 1 retailer in each of the three geographical clusters needs to be taken.

Moreover, there are many factors that could affect the distribution and performance of pack size. Clover themselves may have had logistical decisions for such performances, consumer demand may have played a role, and so other factors such as relationships, competition, price and promotion as well.

The impact of pricing and the interplay between price and unit pack size is a crucial area of study and due to the vastness of such analysis and for the purpose of keeping the current study focused and simple, such analysis was omitted. Moreover, the impact of promotions on different pack sizes and products was also a limitation of the study.

Lastly, although the analysis and results have value for other emerging markets globally, it was a study of three clusters within South Africa's borders. This has limitations given that one cannot assume the same trends and tendencies in other countries.

7.6 Suggestions for future research

Future studies can investigate additional ways in which the variety of options from which an individual makes a selection or decision affects the perception of the chosen option (Berger et al., 2007; Guoying & Qingfeng, 2009; and Rundh, 2013). The psychology of purchase therefore plays an important role in the unit pack size consumption decisions of buyers.

Furthermore, a very important study to further assess and which was recognised in the analysis of this study is the theoretical and empirical evidence provided by Waller and Tangari (2008) and Eroglu et al. (2011) showing that the number of units per retail shipping container or case pack quantity has a significant impact on retail market share. These authors' findings indicated that the effect of case pack quantity on market share depends upon the rate of sale of a particular stock-keeping unit (SKU). For faster-selling SKUs, market share increases with larger case packs but for slower-selling SKUs, market share reduces the larger the case pack.

Price pack architecture is an important area of study for future research. Although there have been studies around the decision to either reduce pack size or increase price, there is definitely more work that can be done around emerging markets and the impact of widening

a portfolio of pack sizes within a product portfolio whilst assessing the impact of price (Pornpitakpan, 2010; and Wan et al., 2014)

Lastly, the impact of the encroaching modern retailer needs to be further assessed. The next few years will most certainly be, as noted in Strydom (2015), a David versus Goliath scenario.

7.7 Conclusion

The opportunity recognised in this study was that of a granular section of the marketing mix, namely product variety in the form of product unit pack sizes. Despite research around marketing mix recommendations, granular analysis on product unit pack size and price in emerging markets was under-researched and the assumption that “stable competition equilibrium is assumed” (Shankar & Bolton, 2004, p. 47) showed the need for further study in terms of the growth of formal or organised retail entering the emerging market space.

Both the availability of the product unit size and the sales of the product size assortment were found to be influenced by the distance between the spaza shops and the modern-day retailers. The study therefore has important managerial and academic implications from which future studies can be built on to further enhance the value of pack size variety as a driver of profit for spaza shops and manufacturers alike.

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Appendices

Appendix 1: GIBS Ethical Approval Letter

Dear Mr Nicholas van Woerkom

Protocol Number: **Temp2016-01287**

Title: **Product pack size and pricing decisions in the emerging market spaza retail sector**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

Adele Bekker

Appendix 2: Company permission letters

1: Clover

2: The Brand & Beverage Company

3: Kellogg Company South Africa

Clover S.A (Pty) Ltd
Reg No. 1994/001064/07

HEAD OFFICE (ROODEPOORT)
Clover Park, 200 Constantia Drive
Constantia Kloof, Roodepoort, 1709
South Africa

PO Box 6161
Weltevredenpark, 1715

Tel: +27 11 471 1400
Fax: +27 11 471 1504

To whom it may concern

14 June 2016

Dear Sirs,

CONFIRMATION OF RESEARCH

We hereby confirm that Nicholas van Woerkom may undertake the research on the basis as set out in Annexure A hereto.

Should you have any further queries please do not hesitate to contact me.

Yours faithfully

Jacques van Heerden
Executive: Legal, Secretarial and Human Resources

THE BRAND & BEVERAGE COMPANY
Brand Specialists

Units 2, 3 & 4
Mansal Park
292 Albert Amon Road
Meadowdale, Edenvale
Johannesburg, 1609

PO Box 763, Isando, 1600

T: 011 454 6236 ▪ F: 011 454 6988
info@tbbc.co.za ▪ www.tbbc.co.za

8 June 2016

To whom it may concern at the Gordon Institute of Business Science,

This letter serves as confirmation of our knowledge that Nick van Woerkom will be doing his thesis on product pack size and price decisions in the emerging market spaza retail sector. We acknowledge that the study aims to encourage business to incorporate decisions on price and pack assortment and aims to highlight these benefits to emerging market retailers or spaza store owners as well as distributors and manufacturers of such products. We grant permission for Nick to use our data where necessary for his study and which cover the following aspects:

- *list of spaza shops and retailers with geographical coordinates and addresses in two separate clusters*
- *unit sales price of maximum 12 product sku's to be confirmed (measured in Rands)*
- *unit pack size of maximum 12 product sku's to be confirmed (measured in grams and or litres)*
- *unit pack sales of maximum 12 product sku's to be confirmed (measure in Rands)*
- *distance between modern day retailer and spaza shop (measured in kilometres)*

We are aware that participation is voluntary and that we can withdraw at any time without penalty.

Alfred John Beard

Kellogg's

10th July 2016

The Gordon Institute of Business Science
26 Melville Road
Johannesburg

To whom it may concern at the Gordon Institute of Business Science,

This letter serves as confirmation of our knowledge that Nick van Woerkom will be doing his thesis on product pack size and price decisions in the emerging market spaza retail sector. We acknowledge that the study aims to encourage business to incorporate decisions on price and pack assortment and aims to highlight these benefits to emerging market retailers or spaza store owners as well as distributors and manufacturers of such products. We grant permission for Nick to use our data where necessary for his study and which cover the following aspects:

- list of spaza shops and retailers with geographical coordinates and addresses in two separate clusters: an urban sample with Gauteng Province and a rural sample outside of the Gauteng Province
- unit sales price of maximum 12 product sku's to be confirmed (measured in Rands)
- unit pack size of maximum 12 product sku's to be confirmed (measured in grams and or litres)
- unit pack sales of maximum 12 product sku's to be confirmed (measure in Rands)
- distance between modern day retailer and spaza shop (measured in kilometres)

We are aware that participation is voluntary and that we can withdraw at any time without penalty.

Should you require any further information, please do not hesitate to contact the undersigned on (011) 233-6600.

Yours sincerely

KELLOGG COMPANY OF SOUTH AFRICA (PTY) LTD

DARREN MOFFAT
SALES DIRECTOR

Kellogg Company of South Africa (Pty) Ltd.
Kellogg House; 7 Woodmead Estate; 1 Woodmead Drive; Woodmead; Sandton; 2148. Private Bag X16; Gallo Manor; 2052

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