
Pricing as a marketing mix element: Investigating its effect on market share for supermarkets in the Ngaka Modiri Molema district of the North West province of South Africa

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Abstract: This paper propped up as a result of the lack of awareness on the role of pricing in market share gain or loss among retailers in general. The empirical focus of the study was at the Ngaka Modiri Molema district in the North-West province of South Africa. The researcher saw that the identified problem negatively affected the profits of retailers in the Ngaka Modiri Molema district. Thus, there was need to carry out this study in order to improve the awareness level of the role pricing has in market share gain or loss among Ngaka Modiri Molema retailers. It was also aimed at developing a pricing decision support system that can assist Ngaka Modiri Molema retailers in pricing decision making. The study was performed on 11 selected items commonly available in the database from the three largest supermarkets in the fast consumer goods retail sector at the Ngaka Modiri Molema district (Pick n Pay, Spar and Shoprite supermarkets). A panel data technique was used in determining the outcomes of this paper. The study revealed that pricing play a major role in market share gain or loss among Ngaka Modiri Molema retailers. Hence, there is need to increase retailers awareness with regards to the mentioned finding. Practical recommendations were made and a pricing decision support system was developed to assist Ngaka Modiri Molema retailers.

Keywords: Marketing Mix, Pricing, Market Share, Fast Consumer Goods, Retailing

1. Introduction

Rapsomanikis and Sarris (2009-2010) said that the world has currently experience a dramatic increase in the prices of commodities like maize, rice and wheat. Although the prices of such commodities have now declined, they continue to remain at a significantly high rate compare to the prices pre 2005. Rapsomanikis and Sarris alluded that in general, the changes in commodity prices are characterised by the increase or decrease in purchase. This is because these fluctuations in prices present a serious challenge to consumers buying power.

Balcombe (2009-2010) indicated that changes in price, either increase or decrease, impact on the trading position of retailers in a long-term. Whitehouse and Associates (2007:35) maintain that the Bureau of Marketing Research predicted a slower average growth in the South African fast moving consumer goods market from 2007 due to the economic

recession, which generated an indirect decline in consumers' income. Claessen et al. (2009) mentioned that an economic recession like the one during 2008, can affect consumers' consumption by more than one percent after every quarter in any economy. Roger (2003:1-2) said in such situation is key that retailers adopt their marketing mix strategy to changing consumer behaviour tendencies. Munusamy and Hoo (2008) have carried out a study in Malaysia to determine which marketing mix element was the most appropriate for the fast consumer goods retailer Tesco (a supermarket). In their study, results revealed that pricing had the largest impact on Tesco performance compared to any other marketing mix elements. As indicated by Lee and Griffith (2004), adjustment of prices to market conditions has a positive influence on the market share and adaptation of the pricing strategy could increase the market share of a business. This paper seeks to unpack the relationship between pricing strategies and market share of fast consumer goods retailers, provide applicable recommendations and a pricing decision support system for

Nkaga Modiri Molema district.

2. Literature Review

In this section, a brief empirical literature relating to the role of pricing in market share gain in South Africa and the Ngaka Modiri Molema district will be briefly discussed. The role of price in the market and its role as an important tool for market share gain will conclude this section. Marketing mix is the set of controllable marketing tools consisting of product, price, place and promotion (Shankar & Chin 2011:1542).

2.1. Marketing Mix Effectiveness in the North-West Retail Sector

Information supplied by Managers of the chosen supermarkets in this study (Shoprite, Pick n Pay and Spar), indicated that centralisation is a primary factor affecting their performance. Thus, one can say the high level of centralisation practised by these supermarkets is a clear indication of limited application of the marketing mix elements. Guruprakash and Sohn (2008:9) mentioned that centralisation impede the ability of departmental stores to appropriately respond to customer needs and improve customer service due to limited powers in decision making. De Jager (2004:112-113) performed a study using the Living Standard Model (LSM) to determine target consumers for Pick n Pay and Shoprite in (North-west province, Potchefstroom) Results obtained include:

Current market segment targeted by these retailers differ from their actual target market.

The marketing mix elements that were in place were not in any way appropriate to what was seen to be the actual market of these retailers.

De Jager's findings indicate a clear misapplication of the marketing mix. He further assumed that an inappropriate marketing mix to wrong target markets is likely to also be the case among supermarkets in other NW province areas. Furrer et al. (2007) has stressed that marketing activities has a great impact on the performance of a business in the market place or to achieve its market share. A large number of supermarket retailers in the Ngaka Modiri Molema district can be viewed to be offering poor business services thus, a possible misapplication of the marketing mix elements. As confirm by Southern African Legal Information Institute (2012) database, there were 14 court cases in 2012 concerning poor customer service with regard to the retail sector at the Ngaka Modiri Molema magistrate court in Mafikeng. However, it was earlier mentioned that Munusamy and Hoo (2008) confirmed that pricing play a major role in market share gain among all other marketing mix elements.

2.2. Pricing in the Market

Reviere (2009:1) pointed out that the price concept differs whether a person lives in a market economy, planned, command or traditional economy. Because pricing influence

the economic actions in a market economy, it is best to discuss pricing concept on a market economy basis. Palley (2004:1-2) alluded that in a market economy, the contemporary framework of neoliberalism emphasises the efficiency of market competition, which is based on the microeconomic theory of pricing, the key variable influencing the demand and supply in the market place. Pitner (2007:1) indicated that when understanding price in the market or how it works in business, all is about the demand and supply functions. Pitner, further indicated that from supply perspective, the higher the price of a product, the higher the supply, the lower the price of a product, the lower the supply. The demand perspective is connected to consumer behaviour in that if pricing affects consumers' buying behaviour negatively, the demand curve will slope downward, meaning a drop in purchase behaviour. Alternatively, if pricing is positive, consumer buying power will increase, leading to the demand curve sloping upward, more sales and market performance for the business.

Moutinho and Chien (2008:162) indicated that even though in recent decades other factors are also now playing a role in influencing consumer behaviour or decision to make a purchase, price still remains the most important element determining a business sales, profitability and market share. Wiid (2012:6) said consumers will always attach a certain value for the product they want to buy and these values is always reflected in the price of the product. The influence of price on sales and its consequent effect on market share can be analyse on the consumer buying decision model. Plessis and Rousseau (2007:260) refer to consumer decision model as the primary decisions consumers make whether to purchase or not, to spend or save their money when engaged in a particular buying situation.

Egan (2007:54) specify that the decision to make a purchase involved the following stages: problem recognition, information search, evaluation, decision, purchase and post-purchase evaluation. A consumer decision to purchase a product with regards to price may be based on; available income with regard to the offered price of a product, information on different price offers from competitors, evaluating the best price offer, purchasing from the retailer with the best price and if the is value for the price paid. Plessis and Rousseau (2007:269) said, repeat purchase of a product or service will depend on the post purchased experience by the consumer. If for example a consumer could experience a better value for the price paid, it may lead to repeat purchase of the product or service. Conferring to Khan (2011:43) consumer decision model is a good determinant to identify cause and effect relation in the market. From the above discussed influence that price has in the market, this study focuses on showing that price is an important tool for Ngaka Modiri retailers in gaining market share.

2.3. Pricing Decision Making

Indounas and Avlonitis (2009) indicated that pricing is an important management tool to achieve the objectives of the organisation. Pellinen (2003:218) also mentioned that pricing

is one of the most important or central management tasks for any business. According to Dutta et al (2003) businesses without efficient pricing process may be unable to set prices that reflect the wishes of its target customers. Blyth (2006:448) and Escalana et al. (2012:159) indicate that pricing process involve all the steps in determining final price for products or services. Conferring to Hinterhuber and Liozu (2012) implementing a pricing structure requires a high degree of discipline from any business, and any business can improve its pricing performance so far as its pricing approaches are well-structured. Pricing process is represented in figure 2.1.

- Set pricing objective
- Develop pricing strategy
- Estimate cost
- Review competitive offerings
- Select pricing strategy
- Select pricing method
- Establishing pricing policies
- Determine final price

Figure 2.1. Pricing process Blyth (2006:448)

2.4. Market Share Scramble among South Africa Supermarket Brands

According to Venter & Van Rensburg (2011:118) a market share indicates how an organisation is performing relative to its competitors and a market share is calculated by dividing an organisation's share by the total sales of all organisations for a specified product-market (Venter & Van Rensburg, 2011:118). The market share of any business is considered to be the key element of the business performance. Ernst and Young (2004:39) indicate that the most pressing issue in the South African retail sector is currently the battle for market share. This is due to the rapid growth in the retail sector consequent with relative maturity. Retailers are highly competing against each other to achieve a positive market share position. McGregor (2013) indicated that there has

been a public battle in the media between Shoprite and Pick n Pay over who has the dominant market share. This indicates how important it is for retailers of fast consumer goods to be market share dominant. Derby (2013) mentioned that South Africa's oldest and most enduring retailer, Pick n Pay, has lost a great deal of its market share to rivals like Spar and Shoprite since 2012. Derby highlighted that Pick n Pay is still struggling to regain its lost position for two successive years.

Supermarket brands scrambling for market share is also the case in the North-West province. Dirkie (2011/2012:15) indicated how supermarket retailers like Choppies Limited (ltd) are performing relatively well. This has made Choppies a faster growing retailer in the Northwest province as compare to its competitors in terms of market share since its introduction in 2008 into the province. Keeping satisfying consumers loyal is a common tactic to increase sales and market share since supermarkets are often located within close proximity and sell more or less the same products. Thus, each retailer's ability to sell its merchandise sustainably largely depends on the strength of its marketing mix activities especially pricing (Marriri & Chipunza, 2009). Euromonitor International (2012) indicated that in South Africa supermarket retailers like Shoprite and Spar Group have increased their market share over competitors, due to their ability to implement pricing strategies that will provide commodities to consumers at reasonable prices. Scheer (2010) indicated that in South Africa consumer increase knowledge and expertise of industry and store prices, has led to repeat purchase or loyalty to certain store brands. This is because consumers are always interested on better offers by competitors.

3. Research Methodology

Table 3.1. Summary of data description

Dependent variables (sales of selected 11 items)		Independent variables (prices for the 11 selected items)	
Items	Code for items	Items	Code for items
White star maize meal 5 kg	Q1	White star 5 kg	P1
Tastic rice 2kg	Q2	Tastic rice 2kg	P2
Coke 2 litters	Q3	Coke 2 litters	P3
Lays potato chips 125g	Q4	Lays potato chips 125g	P4
Axe deodorant spray100ml	Q5	Axe deodorant spray100ml	P5
Sasko bread 700g	Q6	Sasko bread 700g	P6
Chicken braai cuts 2kg	Q7	Chicken braai cut 2kg	P7
Golden apple 1kg	Q8	Golden apple 1kg	P8
Nutriday yogurt 6x100ml	Q9	Nutriday yogurt	P9
Colgate tooth paste100ml	Q10	Colgate tooth paste100ml	P10
Styvensen cigarette (pack)	Q11	Styvensen cigarette (pack)	P11

The research design used in this study was based on a quantitative research method approach. This approach was used because, the occurrences of behaviour were counted, correct answers or errors were also counted and all recorded in quantity. Within this design the parameters of an

exploratory strategy was used. An exploratory research strategy was considered due to limited research done on the identified problem within the specified sample geographical area. This paper's empirical focus was on Ditsobotla, Mafikeng and Romotshere Moila municipalities. According

to Stat SA (2009) these focus municipalities represent 80% of the total Ngaka Modiri Molema District. The three indicated municipalities were targeted since the researcher aimed on selecting only supermarket stores with a large client base, which is reflected in the focus municipalities. All selected supermarkets for this study experienced a sales turnover above 15,000 product units (regardless of brand or trademark) and client base above 10, 000 monthly.

The paper made used of purposive sampling, which was employed in order to enable the researcher to select supermarkets with qualified reliable and applicable information. The largest supermarket store from each sampled supermarket brand (Pick n Pay, Spar and Shoprite) was selected as participants. This three supermarket brands together represent more than 80% of retail market share in the Ngaka Modiri Molema district. Participating employees included the regional marketing manager and branch manager of each supermarket brand. Data was collected from the point of sales application of the three participating supermarket stores database. Data was on a monthly basis from January 2011 to August 2013. The variables from the data collected included Selling Price Index (SPI) and the turnover rate (sales) for 11 selected items commonly available in the database of the selected supermarkets (Shoprite, Pick n Pay and Spar). The SPI was used to monitor the continuous change in the pricing of items in supermarkets and also monitor the impact of these price changes on consumer purchase tendencies. The monthly sales figures for selected items were used as estimation for market share for each supermarket. Thus the dependent variable was price and the independent variable was market share. A summary of data description based on the 11 selected are represented in table 3.1

The analytical technique used in this paper was based on the panel data analyses. The researcher used a panel of the three largest fast consumer goods retailers in the Ngaka Modiri Molema district to establish the relationship between their pricing and its effect on market share gain or lost. A panel data refer to pooling of observations on a cross-section of households, countries or business organisations and following them over several time periods (Baltagi, 2008:1). A panel data analyses was best suited for this study because it takes an organisations’ specific heterogeneity in to consideration. The second reason was that, due to the repeated cross section of observations, panel data are better suited in studying the dynamics of change. Lastly panel data analyses are very effective in evaluating strategies or policies among “organisation’s”. It was thus, clear that the researcher could effectively achieve the objective of the study by employing a panel data analyses. This objective was to

investigate the degree to which constant changes in pricing decisions by the three largest fast consumer goods retailers’ in the Ngaka Modiri Molema district impact on their market share gain or share lost. In order to run the linear regression, four panel data tests were run. These tests involve the panel unit root tests, poolability, model estimation tests and the diagnostic tests. After performing this panel data tests, results from model estimation were forecasted to predict the future.

3.1. Model Specification

The Panel Ordinary Least Square (POLS) model was used in running regressions. The model specification (relationship between the dependent - market share, and the independent variable - pricing) of this paper was then equated as $MSV_{it} = \beta_0 + \beta_1 P_{it} + \epsilon_{it}$ Formula (3.1). From formula (3.1) indications represented are as follows:

Market Share Value (MSV)= the dependent variable that the model is trying to predict

β_0 = the intercept of the equation.

β_1 = the slope coefficient of the price variable.

Price (P) = the independent variable that was used to predict the dependent variable.

ϵ = the error term or the regression residual variable. It represented all other variables like (quality and advertising) that could have an effect on the market share other than the independent variable (P).

i = all the cross section (supermarkets) who participated in the study.

t = the time period under study (January 2011 to August 2013).

This studies objective was to determine relationships between dependent and the independent variables. Based on this, POLS seem best suited in determining the mentioned relationships.

4. Results and Discussion

The following section will present and discuss findings from the empirical research. The authors want to highlight that the three sampled supermarket brands represent more than 80% of the market shares in the fast consumer goods retail sector in Ngaka Modiri Molema district. Thus, the three supermarkets were a faire representation of the entire fast consumer goods retail sector in the Ngaka Modiri Molema district. Three panel data unit root tests were performed separately for each data category (sales data and price data). All the performed unit tests produced a stationary outcome in all levels. Unit root results are presented in table 4.1a and 4.1b

Table 4.1a. Panel data unit root tests for price data

Results for price data		
Test	Coefficients	pvalue
Levin, lin,Chu	-2.171	0.015**
Im, Pesaran& Shin	-5.468	0.000***
ADF-Fisher Chi-square	148.373	0.000***

Table.4.1b. Panel data unit root tests for sales data

Results for sales data		
Test	Coefficients	pvalue
Levin, lin,Chu	-3.101	0.001***
Im, Pesaran& Shin	-4.871	0.000***
ADF-Fisher Chi-square	137.863	0.000***

*/**/[***] denotes si9nificance level at 10%/ 5% and 1% respectively

After the panel data unit root test the authors carried out a poolability test between the pooled and the fixed effect models, to estimate which panel data model was appropriate in this paper. The random effect model was seen to be less effective for poolability testing. This is because Baltagi (2008:17) said random effect model is appropriate if draws are to be made randomly from a large population where N is significantly large. In this paper $N = 3$ (3 supermarkets) $< T = 2.066$ (2 years and 8 months), Thus, an insufficient size to permit the random effect model testing. To decide between the pooled and the fixed effect model, the F test and Chi-square test

were performed. In order to correct for heteroscedasticity the white cross section was used. After performing the relevant poolability test, the fixed effect model which assumes cross section heterogeneity was considered. A conducted test for individual fixed effects for sampled cross sections (supermarkets) rejected that cross sections are homogenous, implying that the behavioural relationship between price and market share is different for each individual supermarket. Thus, the fixed effect model confirmed to be the most robust and representative model specification. Results for the poolability test are depicted in table 4.2.

Table 4.2. Results for fixed effects

Input/output	FixedeffectEstimates	Q-Statistic	pvalue	Conclusion
P1&Q1	F-Statistics	2031.774	0.000***	H_0 was rejected
	Chi-square	365.799	0.000***	
P1&Q2	F-Statistics	937.920	0.000***	H_0 was rejected
	Chi-square	294.039	0.000***	
P3&Q3	F-Statistics	357176.083	0.000***	H_0 was rejected
	Chi-square	859.917	0.000***	
P4&Q4	F-Statistics	181.957	0.000***	H_0 was rejected
	Chi-square	153.649	0.000***	
P5&Q5	F-Statistics	31.845	0.000***	H_0 was rejected
	Chi-square	50.503	0.000***	
P6&Q6	F-Statistics	19987.053	0.000***	H_0 was rejected
	Chi-square	583.343	0.000***	
P7&Q7	F-Statistics	105436.831	0.000***	H_0 was rejected
	Chi-square	742.816	0.000***	
P8&Q8	F-Statistics	5858.161	0.000***	H_0 was rejected
	Chi-square	466.058	0.000***	
P9&Q9	F-Statistics	19491.564	0.000***	H_0 was rejected
	Chi-square	580.939	0.000***	
P10&Q10	F-Statistics	3264.471	0.000***	H_0 was rejected
	Chi-square	410.516	0.000***	
P11&Q11	F-Statistics	1933.121	0.000***	H_0 was rejected
	Chi-square	361.129	0.000***	

*[**]/[***] denotes significance level at 10%/ 5% and 1% respectively

Table 4.3. Model estimation results

Input/output	Supermarket	Coefficient	pvalues	R square
P1 & Q1	Pick n' Pay	-22.390	0.000***	0.980
	Spar	-15.824	0.000***	
	Shoptite	-27.194	0.000***	
P2 & Q2	Pick n' Pay	-20.928	0.053**	0.954
	Spar	-32.208	0.046**	
	Shoptite	-43.587	0.000***	
P3 & Q3	Pick n' Pay	-117.118	0.000***	0.999
	Spar	-48.438	0.000***	
	Shoptite	-72.176	0.000***	
P4 & Q4	Pick n' Pay	-34.208	0.000***	0.841
	Spar	-29.776	0.000***	
	Shoptite	-18.746	0.000***	
P5 & Q5	Pick n' Pay	-2.237	0.000***	0.823
	Spar	-2.089	0.003***	
	Shoptite	-4.112	0.000***	
P6 & Q6	Pick n' Pay	-68.204	0.000***	0.998
	Spar	-43.509	0.000***	
	Shoptite	-36.402	0.000***	
P7 & Q7	Pick n' Pay	-32.075	0.002***	0.999
	Spar	-44.993	0.003***	
	Shoptite	-65.857	0.000***	
P8 & Q8	Pick n' Pay	-46.967	0.000***	0.995
	Spar	-26.796	0.000***	
	Shoptite	-17.739	0.000***	
P9 & Q9	Pick n' Pay	-56.434	0.000***	0.998
	Spar	-21.872	0.000***	
	Shoptite	-50.339	0.000***	

Input/output	Supermarket	Coefficient	pvalues	R square
P10 & Q10	Pick n' Pay	-79.515	0.000***	0.986
	Spar	-47.507	0.017*	
	Shoprite	-85.588	0.000***	
P11 & Q11	Pick n' Pay	-9.261	0.051**	0.992
	Spar	-16.004	0.000***	
	Shoprite	-15.478	0.000***	

*/**/[***] denotes significance level at 10%/ 5% and 1% respectively

Poolability test reflected that, the null hypothesis that the data must be estimated by pooled model is rejected against the alternative that it must not. According to Gujarati (2004:642), the fixed effect try to indicate the differences in special features like managerial style, organisational philosophy or the target market of an organisation. After the poolability test was done, the model estimation was performed on all 11 studied items. The model estimation had to establish the level of trueness of the problem statement with regards to the model specification and the selected panel data model. Despite the fact that the fixed effect model was the considered model in this paper, model estimation was conducted for both fixed and pooled model. The aim was to perfectly establish that the fixed effect model was the most appropriate model to be considered. The R squares between the pooled and the fixed effect models were compared. R squares indicates the least results of 0.8228 and a high value of 0.9999 for fixed effect. The pooled model had a least result of -0.004280 and a maximum of 0.691226. Thus, the fixed effect model confirmed to be the most robust and representative model specification. Results showed that all independent variables (price) are all significant in explaining the dependent variables (market share) for all 11 tested items. Table 4.3 presents the model estimation results for fixed effects.

To further elaborate on the interpretation of table 4.6 if considering input and output variable (P1 & Q1) for instance; the coefficient indicates that a R1 increase in the price for white star maize meal 5kg by any of the sampled

supermarket against competitors, sales will decrease by 22, 15 and 27 units for Pick n Pay, Spar and Shoprite respectively. Likewise a R1 decrease in the price for Whit star maize meal 5kg by any of the sampled supermarkets against competitors will increase sales by 22, 15 and 27 units for Pick n Pay, Spar and Shoprite respectively. The *p* values of Pick n Pay (0.0006), Spar (0.0009) and Shoprite (0.0002) indicates the level of significance in which the independent variable (price) explains the dependent variable (market share) for sampled supermarkets for White star maize meal 5 kg is 0% for Pick n Pay, Spar and Shoprite respectively. The adjusted R square of 0.980400 indicates that 98% of the variation in market share for sampled supermarkets for White star maize meal 5kg is been explain by price. Meaning only 2% of the variation in market share for sampled supermarkets is been explain by other determinants such as quality and advertising. Same explanations hold for all other tested items in table 4.3.

Lastly, the diagnostic tests were conducted. Brooks (2009: 43) mentioned that the diagnostic tests are required in a panel analyses because they show that estimation techniques like the (OLS) linear regression may have ignored a series of undesirable elements. Brook also said the diagnostic test also try to confirm if coefficient estimates from regressions are justifiable or fairly conducted. In this paper the diagnostic tests were conducted to ensure reliability of results from linear regression. The diagnostic tests conducted in this study were the normality, serial correlation and heteroscedasticity. Results from each of this test are presented in table 4.4.

Table 4.4. Diagnostic tests

Test	Measurement	Conclusion
Normality test H_0 : all <i>i</i> is normally distributed H_1 : not all <i>i</i> is normally distributed	Jarque-Bera	Errors were normally distributed. Thus regressions failed to reject H_0
Serial correlation test H_0 : $\rho = 0$ H_1 : $\rho \neq 0$.	Correlogram Q-statistics test (1st difference)	Authors concluded that no serial correlation was present in the models
Heteroscedasticity H_0 : $\sigma_i^2 = \sigma$ H_1 : not equal for all <i>i</i>	White's cross section	The white cross-section was used to correct the problem of heteroscedasticity.

Lastly forecasting was conducted. Forecasting was done in this paper to show how accurate were regression models in predicting the value of quantity demanded. Forecasting results is represented in appendix 1. The blue and the red line reflect the actual versus the fitted values. The first, second and third relationships in the figures represent Pick n Pay, Spar and Shoprite supermarkets respectively. With regards to the outcome from forecasting, the model of this study was concluded accurate since the predicted or forecasted values mimic the actual values. Thus, the model can be used for

forecasting future quantity demand for a specified price for a product.

5. Conclusions

The problem identified in this study was the lack of awareness among retailers in the Ngaka Modiri Molema district on the role of price in market share gain or loss. Thus, the main aim of this study was to increase the level of awareness of the influence of price on market share gain or

loss among Ngaka Modiri Molema retailers. After conducting an empirical research through a panel data analysis on the three largest supermarkets in the Ngaka Modiri Molema district, results reflect that price plays a major role in market share gain or loss among retailers in the Ngaka Modiri Molema district in general. The researcher recommends that retailers should dedicate more attention on pricing in order to increase their market share

All three sampled supermarkets in this paper had a positive outcome to this conclusion. Regression outcomes indicated that consumers' measures price transparency among retailers in order to make a purchase decision. Results showed that a supermarket that has the most moderate pricing for a certain product had the highest market share of that product. It was seen that an increase in price will affect consumers' behaviour negatively and consequently lost in market share. Likewise a decrease in price of a product will affect consumers' behaviour positively and consequently market share gain. Findings also indicated that market share domination is very important for supermarkets in the Ngaka Modiri Molema district. Extensive price wars were initiated by supermarkets for products in which they had a dominant market of share

However, critiques can argue the effectiveness of the role of price in influencing market share if other determinants (error term) were not taken in to consideration in the model specification. Hence, the used of the panel data analysis technique made available a solution to such criticisms. This is because regression results from the model estimations gave an indication of all changes of the dependent variable

influence by other determinants over the studied period. Results indicated that changes made by other determinants were not up to 20% for each tested items among all sample supermarkets. This is highly supported by the R square results were the least adjusted R square is 82%.

Thus, it was necessary that the authors should develop a pricing decision support system (framework) that will assist Ngaka Modiri Molema fast consumer goods retailers in developing appropriate pricing decision. The frame work that was developed in this paper was adopted from Kehagias et al. (2009). Kehagias et al. came up with a framework which suggested that pricing decision for any product category is to be guided by a specific objective. Thus retailers should guide pricing decision with the objective of increasing market share. The mentioned framework was modified to fit in to the context our paper.

This model assumed that pricing dimensions and pricing determinants are strongly connected. Hence, it is important that Ngaka Modiri Molema fast consumer goods retailers should simultaneously consider both pricing dimensions and pricing determinant in developing pricing decisions. The model indicates some internal and external factors that Ngaka Modiri Molema retailers should consider when making pricing decision. The model further suggested that a pricing decision for any product category in the fast consumer goods industry will involve either an increase or decrease in price. However, whatever pricing decision a retailer select, retailers objective should be towards market share gain.

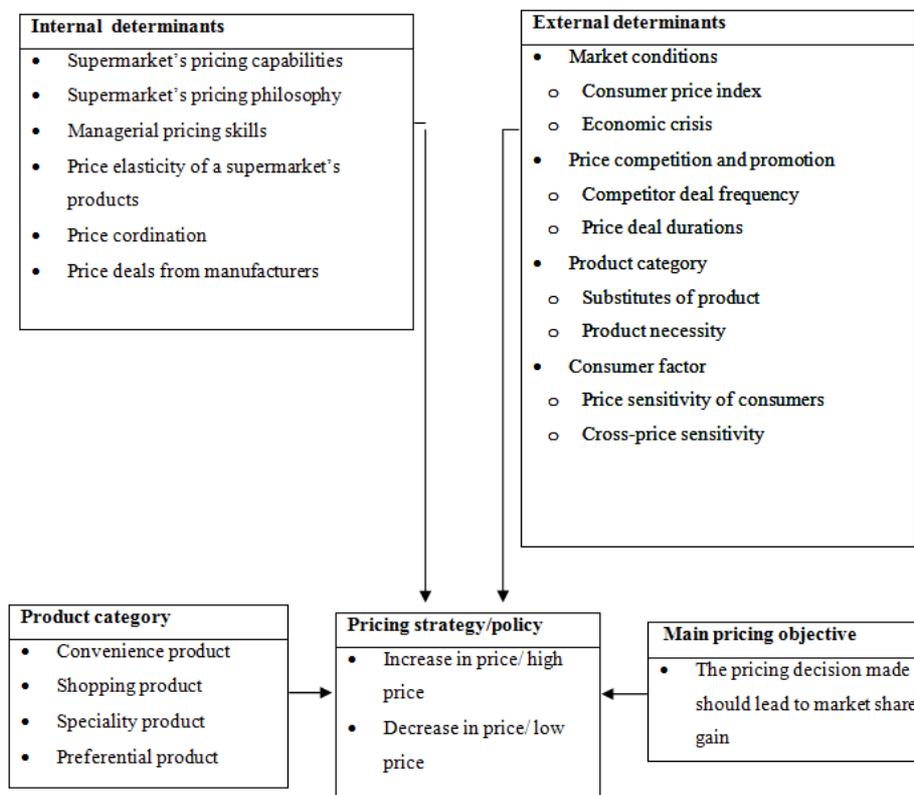


Figure 5.1.Pricing decision support system for Ngaka Modiri Molema retailers

5.1. Advantages of the Proposed Model

It will enable fast consumer goods retailers in the Ngaka Modiri Molema district to select the most appropriate pricing strategies and policies for their target market

It fits accurately in the Ngaka Modiri Molema fast consumer goods retail sector. Its implementation is straight and forward and easy to understand.

5.2. Drawbacks of the Proposed Model

The might be issues of limited information with respect to new products and actions of competitors. However it is important to have a contingency plan for handling such shortcomings

The application of the model may only permit decision making in the fast consumer goods industry.

Most fast consumer goods retailers in the Nkaga Modiri Molema district may lack analytical abilities in handling most dynamics in the model. However skills can be improve through training programs

It is hoped that the findings of this paper will encourage retailers to take pricing seriously and will also implement the propose pricing decision support system in making more appropriate and effective pricing decisions in order to improve their market shares.

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Professor Hein Prinsloo is a senior lecturer at the North-West University Business School. He supervised my masters studies in the area of pricing and market share. Email:Hein.prinsloo@nwu.co.za.

Appendix 1

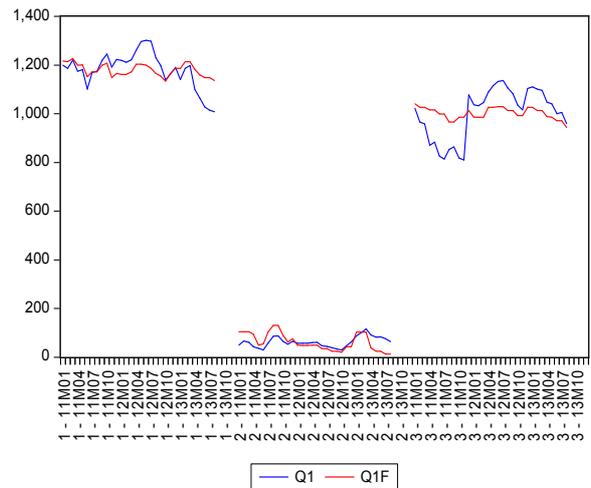


Figure 1. Forecasting results for White star maize meal

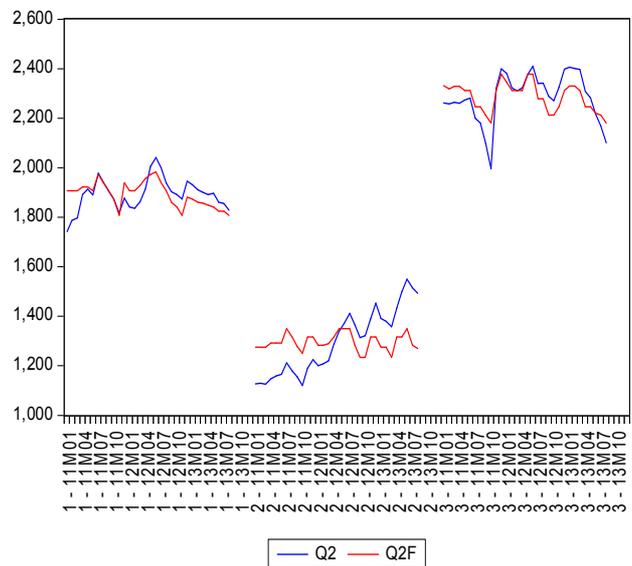


Figure 2. Forecasting results for Tastic rice

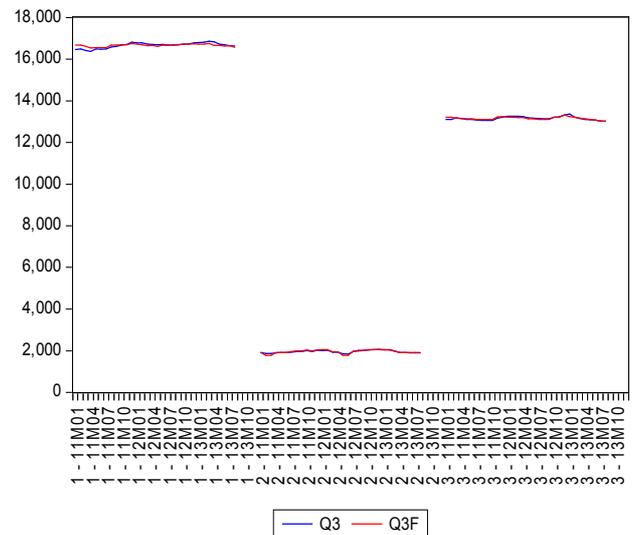


Figure 3. Forecasting results for coke 2 litres

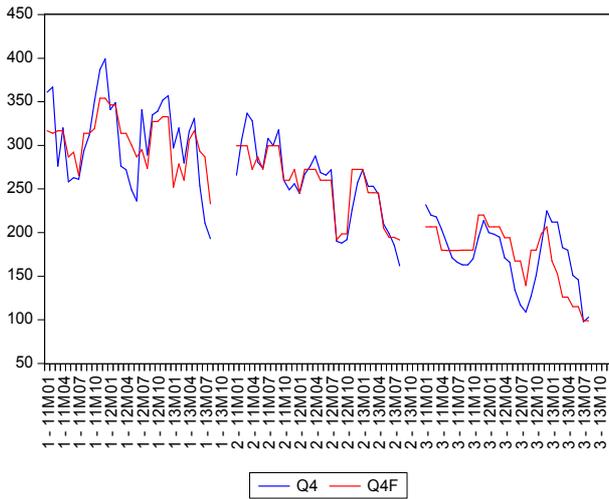


Figure 4. Forecasting results for potato chips

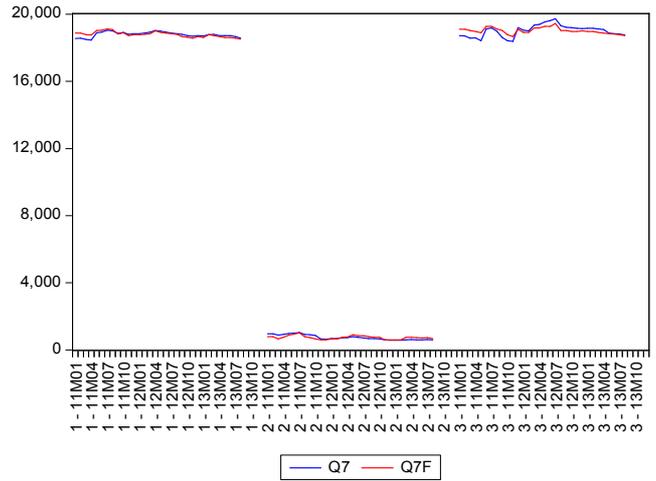


Figure 7. Forecasting results for Chicken braai cuts

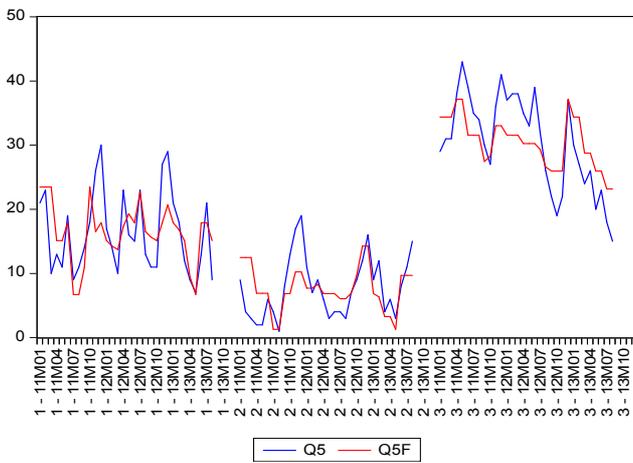


Figure 5. Forecasting results for axe deodorant spray

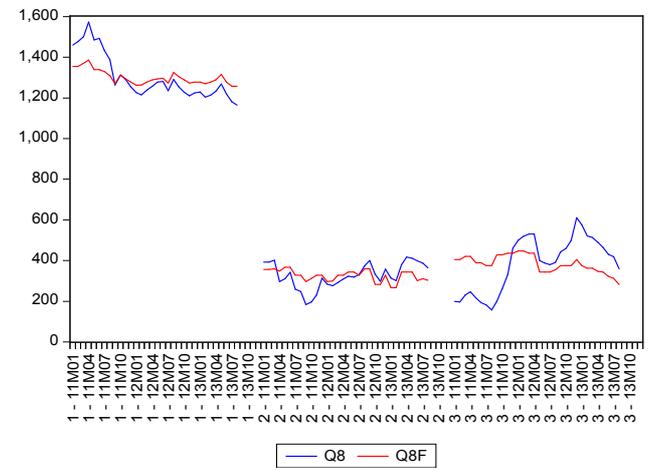


Figure 8. Forecasting results for Golden delicious apple

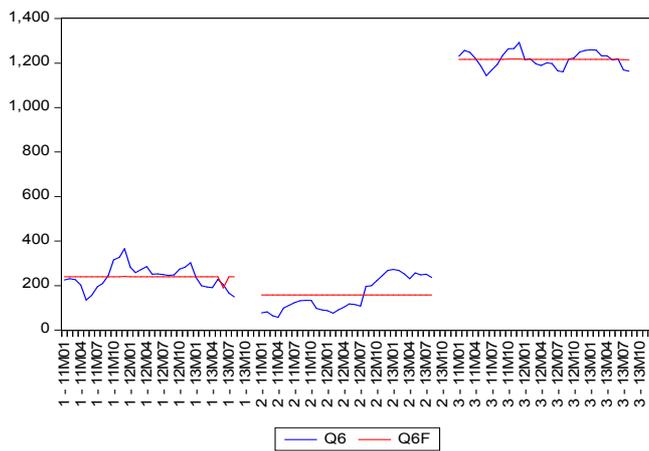


Figure 6. Forecasting results for sasko bread

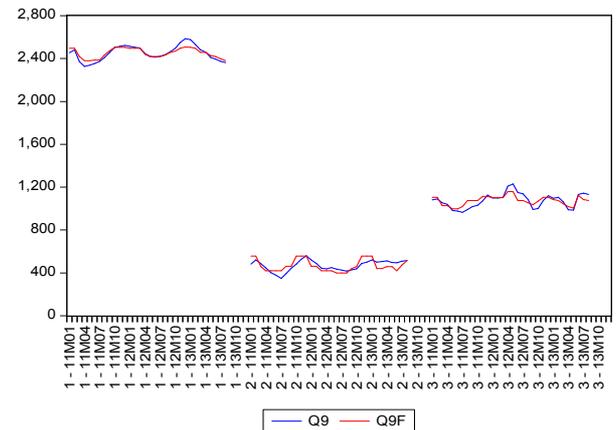


Figure 9. Forecasting results for Nutriday yogurt

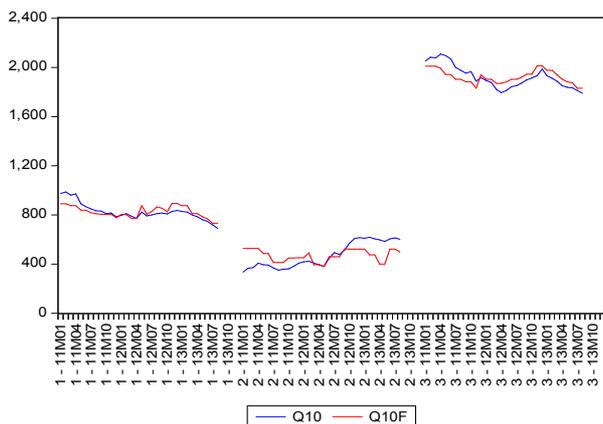


Figure 10. Forecasting result for Colgate tooth paste

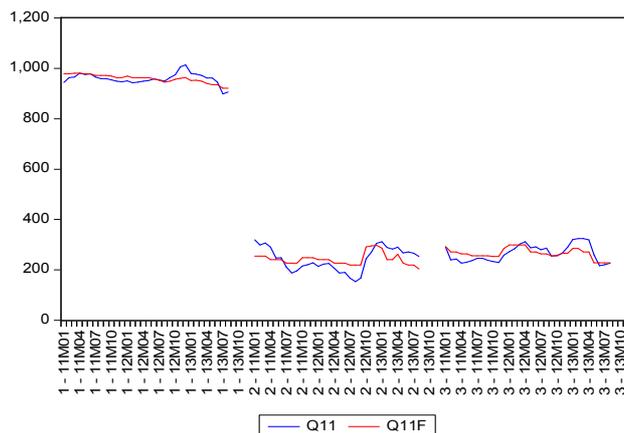


Figure 11. Forecasting results for Styvensen cigarette

Appendix 2

Table 1. Data used in analysing price change for the sampled Pick n Pay supermarket for (P1 to P11); from 2011 January to 2013 August

Pick n Pay price data											
2011	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	27.79	19.99	12.99	9.89	19.99	9.29	32.99	11.99	9.99	6.79	20.99
FEB	27.99	19.99	12.99	9.99	19.99	9.29	32.99	11.99	9.99	6.79	20.99
MAR	26.99	19.99	13.99	9.89	19.99	9.89	34.99	10.99	11.99	6.99	20.79
APR	28.99	19.49	14.99	9.89	22.99	9.89	35.17	10	12.99	6.99	20.79
MAY	28.89	19.49	14.79	10.99	22.99	10.49	29.99	12.99	12.99	7.49	21
JUN	32.49	19.99	14.79	10.79	21.99	10.29	29.49	12.99	12.79	7.49	21
JUL	30.99	17.99	14.69	11.79	25.99	9.99	27.99	13.65	12.79	7.79	21.39
AUG	30.99	18.99	12.99	9.99	25.99	9.99	28.99	14.99	11.59	7.89	21.39
SEP	28.99	19.99	12.99	9.99	24.49	9.49	33.99	17.49	10.59	7.99	21.39
OCT	28.49	20.99	12.79	9.79	19.99	9	32.49	14.74	9.79	7.99	21.59
NOV	32.79	22.99	12.79	8.49	22.49	8.92	35.99	15.99	9.79	7.99	21.99
DEC	31.49	18.99	11.99	8.49	21.99	8.49	34.89	16.99	9.79	8.39	21.99
2012	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	31.79	19.99	12.49	8.79	22.99	9.49	34.89	17.99	9.99	7.99	21.59
FEB	31.79	19.99	12.79	8.79	23.29	9.99	34.49	17.95	9.99	8	21.99
MAR	30.99	19.29	13.49	9.99	23.49	9.59	33.49	16.99	9.99	8.47	21.99
APR	28.79	18.49	13.29	9.99	22.19	9.35	30.29	16.29	11.49	8.47	21.99
MAY	28.79	17.99	13.79	10.49	21.49	9.99	31.99	15.99	11.99	6.99	22
JUN	28.99	17.69	12.99	10.99	21.99	9.99	32.79	15.79	11.99	7.99	22.39
JUL	29.99	18.99	13.26	10.69	20.29	10	33.49	17.29	11.99	7.65	22.75
AUG	31.49	19.99	12.99	11.49	22.49	10	34.29	13.89	11.59	7.15	23.29
SEP	32.29	21.39	12.79	9.49	22.79	9.99	36.99	15.29	11	7.29	22.99
OCT	33.79	21.99	12.49	9.49	22.99	9.59	37.89	16.29	10.69	7.69	22.49
NOV	31.49	22.99	12.49	9.29	21.99	9.29	39	17.29	9.99	6.75	22.19
DEC	29.99	20.75	12.19	9.29	20.99	8.99	37	16.99	9.69	6.75	21.99
2013	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	29.99	20.99	12.49	12.29	21.99	10.29	38	16.99	9.79	6.99	22.79
FEB	27.99	21.39	12.29	11.29	22.39	10.99	34.89	17.49	9.99	6.99	22.75
MAR	27.99	21.49	12	11.99	22.99	10.99	35.99	17	10.99	7.89	23
APR	30.29	21.75	13.29	10.26	24.99	9.99	37.29	16.29	10.99	7.89	23.59
MAY	31.99	21.99	13.29	9.89	25.99	9.49	37.99	14.51	11.79	8.29	24
JUN	32.75	22.49	13.65	10.75	21.99	99.99	38	16.99	11.99	8.49	24
JUL	32.75	22.49	13.39	10.99	21.99	10.69	38.99	18.29	12.49	8.99	24.99
AUG	33.59	22.99	14.45	12.99	22.99	10.99	39.99	18.29	12.99	8.99	24.99
SEP	-	-	-	-	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-	-	-	-

Table 2. Data used in analysing market share variation with regards to price change for the sampled Pick n Pay supermarket for (Q1 to Q11); from 2011 January to 2013 August.

Pick n pay sales data											
2011	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1200	1742	16457	361	21	225	18543	1459	2453	974	944
FEB	1186	1787	16490	367	23	231	18571	1477	2481	986	964
MAR	1220	1797	16411	276	10	227	18489	1500	2370	960	966
APR	1175	1892	16364	320	13	203	18456	1573	2328	969	981
MAY	1181	1913	16495	258	11	135	18900	1485	2338	889	976
JUN	1101	1890	16472	263	19	157	18935	1492	2352	866	978
JUL	1169	1978	16492	261	9	195	19042	1433	2374	849	966
AUG	1174	1940	16586	294	11	209	19006	1388	2410	832	960
SEP	1219	1906	16622	312	14	247	18847	1264	2456	829	960
OCT	1245	1873	16670	351	18	315	18913	1312	2505	811	954
NOV	1191	1817	16705	387	26	327	18797	1290	2513	814	950
DEC	1223	1877	16811	399	30	366	18834	1255	2523	784	947
2012	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1219	1841	16778	341	17	283	18842	1226	2514	795	951
FEB	1212	1836	16778	349	14	258	18878	1215	2506	810	943
MAR	1221	1863	16725	276	10	273	18933	1239	2500	789	946
APR	1261	1913	16700	272	23	286	19022	1257	2447	772	949
MAY	1296	2005	16687	249	16	251	18981	1278	2421	823	952
JUN	1302	2041	16699	236	15	252	18923	1281	2412	791	958
JUL	1298	2000	16673	341	23	250	18866	1236	2420	799	954
AUG	1230	1938	16685	289	13	246	18833	1291	2436	811	949
SEP	1199	1903	16690	335	11	248	18790	1254	2464	816	964
OCT	1139	1891	16713	339	11	274	18715	1227	2498	807	975
NOV	1162	1874	16722	352	27	282	18677	1210	2550	827	1006
DEC	1190	1946	16780	357	29	302	18724	1225	2585	835	1014
2013	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1141	1932	16804	297	21	237	18689	1229	2576	828	980
FEB	1187	1911	16816	320	18	199	18772	1204	2530	822	977
MAR	1198	1900	16871	280	12	193	18795	1213	2483	800	973
APR	1100	1892	16819	316	9	190	18726	1233	2462	785	962
MAY	1063	1897	16720	331	7	228	18712	1269	2409	761	962
JUN	1027	1860	16687	254	13	204	18709	1220	2395	749	945
JUL	1015	1856	16650	211	21	167	18660	1181	2374	718	899
AUG	1009	1829	16631	193	9	150	18575	1165	2363	690	907
SEP	-	-	-	-	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-	-	-	-

DEC

Table 3. Data used in analysing price change for the sampled Spar supermarket for (P1 to P11); from 2011 January to 2013 August.

Spar price data											
2011	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	28.92	20.25	14.99	8.99	22	9.85	34.29	14.19	9.99	6.92	25
FEB	28.92	20.25	16.99	8.99	22	9.85	34.49	14.19	9.99	6.92	25
MAR	28.92	20.25	16.99	8.99	22	10.29	37	13.99	12.49	6.92	25
APR	29.65	19.75	14.99	9.99	23.99	10.29	34.99	14.63	13.49	6.92	25.99
MAY	32.95	19.75	14.99	9.45	23.99	9.89	32.19	13.41	13.49	7.51	25.99
JUN	32.49	19.75	14.99	9.99	23.99	9.89	31.29	13.41	13.49	7.51	25.99
JUL	28.9	17.99	14.21	8.99	25.99	9.85	29.99	15.99	13.49	8.52	27
AUG	27	18.99	13.79	8.99	25.99	9.85	34.49	15.99	12.45	8.52	27
SEP	27	20.15	13.79	8.99	24	9.85	35.39	17.99	12.45	8.52	27
OCT	29.99	20.99	13.29	10.45	24	9.85	37.17	16.99	9.99	8	25.45
NOV	32	18.99	13.79	10.45	22.79	10	37.99	15.99	9.99	8	25.45
DEC	31	18.99	13.17	9.99	22.79	10	37.99	15.99	9.99	7.99	25.45
2012	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	32.92	19.99	13	10.99	23.71	10.49	36.99	17.99	12.45	7.99	25.99
FEB	32.99	19.99	13	9.99	23.71	10.49	36.99	17.79	12.45	7.45	25.99
MAR	32.99	19.79	14.45	9.99	23.49	9.85	34.99	15.99	13.49	8.79	25.99
APR	32.95	18.99	14.45	9.99	24	9.85	34.79	15.99	13.49	8.79	27
MAY	32.95	17.99	16.95	10.45	24	9.85	31.99	14.95	13.49	8.99	27
JUN	33.99	17.99	16.95	10.45	24	9.99	32.99	14.95	13.99	7.89	27
JUL	33.99	17.99	13.99	10.45	24.29	11.69	32.99	15.99	13.99	7.89	27.49

Table 5. Data used in analysing price change for the sampled Shoprite supermarket for (P1 to P11); from 2011 January to 2013 August.

2011	Shoprite price data										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	28	19.39	12.49	8.99	18.99	9.45	33.29	11.99	9.17	6.49	25.45
FEB	29	19.79	12.49	8.99	18.99	9.45	33.29	11.99	9.17	6.49	26.99
MAR	29	19.49	12.94	8.99	18.99	9.45	34.99	10.99	11.21	6.49	26.99
APR	29.79	19.49	13.17	9.99	17.99	9.99	35.99	10.99	11.21	6.75	27.45
May	29.79	19.99	13.49	10	17.99	10.99	37.29	12.99	12	7.45	27.45
JUN	30.99	19.99	13.49	10	19.99	11	29.99	12.99	12	7.45	27.99
JUL	30.99	21.99	13.99	10	19.99	10.29	29.99	13.99	11.45	8	27.99
AUG	33.47	21.99	13.99	9.99	19.99	9.99	32.99	13.99	10	8	27.99
SEP	33.47	22.99	13.99	9.99	21.45	9.49	34.99	10.45	10	8.29	27.99
OCT	32	23.99	13.99	9.99	21.17	9	39.99	10.45	9.99	8.29	28.21
NOV	32	19.99	12.17	8.49	19.45	8.99	41.99	9.99	8.99	8.99	28.21
DEC	29.99	17.99	11.99	8.49	19.45	8.45	33.29	9.99	8.99	7.49	25.99
2012	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	31.99	18.99	12.45	8.99	19.99	9.45	36.89	9.24	9.29	7.99	25
FEB	31.99	19.99	12.45	8.99	19.99	9.45	36.89	9.24	9.29	7.99	25
MAR	31.99	19.99	12.75	8.99	19.99	9.99	31.99	10	9.29	8.47	24.99
APR	28.99	19.99	12.75	9.45	20.45	9.99	31.99	10	7.89	8.47	24.99
May	28.99	17.99	13.49	9.45	20.45	10.29	29.99	15.99	7.89	8.29	26.99
JUN	28.79	17.99	13.49	10.45	20.45	10.29	29.99	15.99	10	7.99	26.99
JUL	28.79	20.99	13.99	10.45	20.79	11	26.45	15.99	10	7.99	27.49
AUG	29.99	20.99	13.99	11.49	21.75	11	34.99	15.29	10.49	7.79	27.49
SEP	29.99	22.99	13.99	9.99	21.99	9.99	34.99	13.99	11	7.39	28
OCT	31.45	22.99	12.29	9.99	21.99	9.99	35.99	13.99	10.17	7.39	28
NOV	31.45	21.99	12.29	9.29	21.99	9.45	35.99	13.99	9.19	6.45	27.29
DEC	28.99	19.99	11	8.99	17.99	9.45	35.29	11.99	9.19	6.45	27.29
2013	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
JAN	28.99	19.45	11.99	10.45	18.99	9.39	35.99	13.99	9.75	6.99	26
FEB	29.99	19.45	12.49	10.99	18.99	9.39	35.99	14.75	9.99	6.99	26
MAR	29.99	19.99	12.99	11.99	20.99	10.29	36.99	14.75	10.75	7.49	26.99
APR	31.75	21.99	13.49	11.99	20.99	10.29	37.99	15.75	11.45	7.99	26.99
May	31.99	21.99	13.99	12.39	21.99	10.99	38.79	15.99	11.79	8.29	29.99
JUN	32.99	22.75	14.29	12.39	21.99	10.99	38.99	17.39	8.79	8.39	29.99
JUL	32.99	22.99	14.99	12.99	22.99	11.99	39.99	17.99	9.75	8.99	29.99
AUG	34.99	23.99	14.99	12.99	22.99	11.99	40.99	19.99	9.99	8.99	29.99
SEP	-	-	-	-	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-	-	-	-
DEC	-	-	-	-	-	-	-	-	-	-	-

Table 6. Data used in analysing market share variation with regards to price change for the sampled Shoprite supermarket for (Q1 to Q11); from 2011 January to 2013 August.

2011	Shoprite sales data										
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1023	2262	13100	232	29	1231	18714	200	1080	2051	290
FEB	966	2258	13111	220	31	1257	18689	197	1091	2081	240
MAR	958	2264	13177	218	31	1249	18560	231	1053	2076	243
APR	871	2260	13150	204	38	1221	18593	247	1039	2109	227
MAY	883	2273	13112	187	43	1186	18420	217	982	2094	231
JUN	826	2281	13109	171	39	1143	19113	194	977	2069	237
JUL	814	2200	13062	166	35	1170	19182	183	964	1998	246
AUG	853	2180	13058	163	34	1193	18985	157	993	1975	246
SEP	864	2100	13053	163	30	1236	18600	200	1017	1953	239
OCT	817	1996	13056	170	27	1264	18412	263	1031	1966	233
NOV	810	2321	13174	195	36	1266	18376	332	1072	1888	229
DEC	1077	2400	13208	214	41	1292	19200	461	1126	1915	259
2012	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1037	2381	13259	200	37	1215	19032	501	1099	1891	273
FEB	1033	2322	13262	198	38	1219	19003	519	1100	1877	284
MAR	1046	2311	13248	195	38	1196	19347	530	1103	1820	303
APR	1089	2323	13244	171	35	1190	19388	531	1208	1794	312
MAY	1116	2376	13182	166	33	1201	19530	400	1230	1811	288
JUN	1133	2411	13175	134	39	1198	19611	388	1150	1843	292
JUL	1137	2340	13146	117	32	1165	19719	380	1137	1851	281
AUG	1107	2342	13138	109	26	1161	19309	391	1084	1872	287

2011	Shoprite sales					data					
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
SEP	1083	2289	13133	127	22	1218	19225	443	993	1897	255
OCT	1036	2271	13219	151	19	1222	19187	460	999	1913	257
NOV	1016	2325	13227	186	22	1250	19158	500	1075	1930	266
DEC	1103	2399	13311	225	37	1256	19145	611	1120	1986	291
2013	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
JAN	1111	2406	13364	212	30	1259	19153	576	1097	1930	321
FEB	1101	2401	13213	212	27	1258	19150	521	1105	1911	325
MAR	1096	2397	13155	183	24	1233	19115	514	1062	1888	325
APR	1047	2309	13103	180	26	1232	19075	490	990	1851	319
MAY	1040	2283	13080	151	20	1214	18866	465	984	1837	260
JUN	1000	2217	13063	146	23	1219	18841	431	1133	1831	217
JUL	1006	2169	13025	98	18	1169	18810	419	1145	1812	221
AUG	960	2100	13011	103	15	1164	18757	360	1132	1789	227
SEP	-	-	-	-	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-	-	-	-
DEC	-	-	-	-	-	-	-	-	-	-	-

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