EXAMINING PRICE SETTING BEHAVIOUR IN NAMIBIA: EVIDENCE FROM THE MANUFACTURING SECTOR

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ALARAPE.I. OYEDOKUN

200719483

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SUPERVISOR: PROF. JOHANNES P S SHEEFENI

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ABSTRACT

Price-setting behavior is a key variable to any central bank, as it determines the nature of price stickiness and the effect of monetary policy on inflation and real variables. As a result, this study examines the price setting behaviours (behavioural mechanisms) of companies in the manufacturing sector in Namibia by establishing the decision process companies followed in their price setting practices.

The study used an in-depth price setting behaviour questionnaire survey on 20 manufacturing companies based in Windhoek. It used quantitative analytical approach using confirmatory factor analysis (CFA) to tests propositions and hypothesis related to the linkages between the price setting practices and the manufacturing firms' pricing decisions.

The study found significant positive relationships between Price Review Strategies and Product Sales Pricing (beta = 0.282). The findings also revealed a direct positive relationship between Price Decisions and Price Review Strategies (beta = 0.539) while Market Structure was found to have a direct positive relationship with Price Decisions (beta = 0.607). This concludes that price decisions were linked to price setting behaviours by way of price review strategies that forces companies to make fixed price increases influenced by the market structure. The study recommends that managers should not only stick to one particular pricing approach. They should use a mix of cost based and value-based approaches that ensure that their price decisions process incorporates the distribution channels, cost effects, price hindrances, price setting methods, price review strategies, price elasticity and market structure.

Keywords: Price Stickiness; Price Decision-process; Price setting behaviors; Manufacturing; Confirmatory Factor Analysis

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

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CHAPTER ONE: INTRODUCTION

1.1. Orientation of the study

In theory firms are assumed to adopt a pricing strategy which meets a revenue or profit objective which ultimately ensures their continued survival. However, it is observed that for various reasons, after a demand shock, the prices of goods and services may not adjust instantly to the changing market conditions but rather remain rigid for some time and then adjust to reflect the new changes in the market conditions. This inflation dynamics and price rigidity has triggered interest among researchers, with a mas empirical studies done by (Nilsen, Pettersen, & Bratlie, 2018) shedding light on this subject. In recent years there has been a significant increase in access to good microeconomic datasets, with many studies examining the data underlying nationally-representative consumer and producer price indices from national statistical agencies (Klenow & Malin, 2010). Cornille and Dossche (2008) offers some insights on why it is important for economists to study producer price adjustments. They noted the important role prices play in micro – funded macroeconomic models, with price adjustments at the producer level responding to production cost shocks and demand for intermediate goods transmit to prices at the consumer level (Cornille & Dossche, 2008).

Cornille and Dossche (2008) showed that, the degree of producer price rigidity is decisive in an inflation-targeting central bank's relative to the weighing of inflation at the producer level versus the consumer level. Therefore, it is essential for policy makers to have a clear understanding of price setting, since inflation dynamics are driven by the manner in which companies set their prices. Specifically, the direction of price changes made by the pricing managers, the magnitude of these changes and how expectations of the market are formed. The method in which companies set prices also has an implication in the conduct of monetary policy

through the speed at which the monetary authorities are able to bring inflation back to its targeted range after a shock (Amirault, Kwan, & Wilkinson, 2006).

Nilsen et al. (2018) reported that existing micro evidence of firms' price changes tends to show a downward sloping hazard rate, where the longer the price of a product remained the same, the less likely it is that the price will change. This was supported by Ball and Mankiw (1994), who showed that theoretically in menu-cost models of price setting, the price increases were more frequent than decreases because of positive aggregate inflation. Yet, Honoré, Kaufmann, and Lein (2012) argued that price increases were more frequent than price decreases in many low inflation countries. Menu-costs refers to costs incurred by companies in order to change their prices, as such companies would front load future inflation into the prices they currently set (Honoré, Kaufmann, & Lein, 2012).

Consequently, an optimal choice for price decision makers would be to react less to negative shocks than to positive shocks of the same size. Since, inflation does part of the job of cutting relative prices without forcing companies to pay menu costs. Accordingly, price decreases would be just as frequent as price increases if inflation was stabilized at zero in support of Nilsen et al. (2018) assertions that in some periods, companies would experience lower menu costs. However, this would be in contrast to models, where downward rigidities are simply assumed, which is consistent with Honoré et al. (2012) assertions that, price increases are more frequent than price decreases, even in the absence of aggregate inflation.

These asymmetries in price adjustments highlights the pricing decision challenges facing managers today. Thus, making pricing decisions to be increasingly vexing, especially in periods of rapidly changing costs and market uncertainty (Smith & Woodside, 2009). For

instance, manufacturers and service providers wrestle frequently with how to pass on dramatic increases in raw material and commodity prices such as fuel, metals, and petrochemicals. As such, pricing decisions are particularly important and difficult to make because price changes may cause changes directly in multiple company objectives, which includes customer retention, profits, sales and market share (Smith & Woodside, 2009).

In theory, companies are assumed to have a pricing strategy which meets the revenue or profit objective set out by the owners of the company (Keeney, Lawless, & Murphy, 2010). Yet, companies may fail to meet this objective as prices of goods and services may not adjust immediately to changes in demand and supply conditions due to various endogenous or exogenous reasons (Keeney et al., 2010). In light of this, the research study seeks to understand the price setting behaviours, by focusing on the relationship between price setting behavior, price review strategies and price decision processes of Namibian manufacturing companies.

The purpose of this chapter is to provide an overview of the research study by looking at the background of the study and the research problem it addresses. As well as, outline the research objectives, research questions to be answered, the significance of the study, along with the limitations and delimitations of the study. The chapter ends with a brief summary of the structure of the thesis.

1.2. Background of the study

The interest in building better micro foundations for macroeconomic behaviour in general, and price stickiness in particular, is of critical importance to Namibia, which has been experiencing sustained negative economic growth in recent years (BoN, 2019 Quarterly report). This study looks at the microeconomic evidence on pricing behaviour among manufacturing companies

in Namibia, with the aim of examining how companies in Namibia set their prices. This is to gain perspectives on how price setting practices of manufacturing companies can be used to improve the depressed macroeconomic environment. However, the microeconomic evidence on pricing behaviour is relatively limited due to the lack of micro level data. Moreover, Loupias & Ricart (2006) notes that individual companies do not continuously adjust their prices in response to all the relevant shocks in the economy, which makes it very difficult to test theories of price rigidities with traditional econometric tools. As these theories all predict that prices adjust less rapidly than some unmeasured benchmark and often rely on variables that are not measurable themselves (Loupias & Ricart, 2006). Thus, making it difficult to distinguish among price stickiness theories with traditional methods. As such, the empirical assessment of price setting behavior by companies has remained relatively limited, despite the fact that pricing outcomes are crucial parameters in any micro-founded economic model (Honoré, Kaufmann, & Lein, 2012).

Loupias & Ricart (2006) argues that many economists are reluctant to use the survey approach because it can be easily influenced by the precise wording of the questions, and secondly, they may have no incentive to respond truthfully or thoughtfully. However, the survey approach has the advantage of allowing interviewers to ask decision makers directly why they do not adjust their price faster in response to shocks, thus providing a useful complement to more traditional tools. Consequently, the way companies set prices can be a key determinant of the dynamics of the inflation process. As a result, recent years have seen an increasing number of central banks conducting surveys of how companies set prices, how frequently they review and change their prices, and what factors influence these decisions (Park, Rayner, & D'Arcy, 2010).

1.3. Manufacturing Sector in Namibia

The manufacturing sector in developing economies has been identified as an engine for economic growth. This is because growth in this sector creates jobs with a higher spillover effect into other sectors of the economy, thereby increasing a country's intellectual capital and innovativeness, and driving growth in the demand for highly skilled workers and scientists (Deloitte and the U. S. Council on Competitiveness, 2010). In Namibia, this sector is known for its significant multiplier effect in the economy (The Economist, 2013). Accordingly, for each and every one Namibia dollar spent on this sector's development, it yields about N$1.50 to N$2.50 in rest of the economy through the products and services that it provides.

The manufacturing sector and services is the main focus of Namibia's Industrial Policy and Fourth National Development Plan (NDP4) in achieving the goals of Vision 2030. The main objectives are three-fold: to specifically increase the share of manufacturing in GDP, focus on domestic value addition and enhance competitiveness in the sector. The manufacturing sector in Namibia is dominated by fish processing, meat processing, other food and beverage as well as other manufacturing. Other manufacturing includes basic non-ferrous metals, fabricated metals, diamond processing, leather and related products, non-metallic mineral products etc. The manufacturing sector growth for the past 26 years has been volatile and relatively small, averaging 3.4 percent (National Accounts, 2015). These statistics are indicative of the volatility of the manufacturing sector and as such may hinder the goal of improving the manufacturing sector growth to the achievement of the target of above 7.0 percent per annum.

In 2017, the manufacturing sector recorded a contraction of 2.5 percent in the first quarter before recording slow growth of 3.1 and 0.8 percent in the second and third quarters, respectively. During 2016, the sector registered contractions of 4.3 and 4.1 percent in the first

and second quarters respectively, before accelerating to 11.9 percent in the third quarter. The sector's third quarter performance for 2017 is attributable to increases in real value adds recorded for diamond cutting and polishing, and fabricated metals which recorded 34.3 and 36.9 percent respectively. This was despite slower growths of 3.6 percent in beverages, 11.8 percent in non-metallic mineral products (NSA, 2018).

The manufacturing sector contributed N$17.7 billion (11.0 percent) to GDP in 2016. The manufacturing sector contribution to GDP target under NDP5 is to contribute N$20.6 billion by 2021/22. However, the latest growth statistics suggests that the country appears to be some distance towards achieving that target. Therefore, the country should continue boosting manufacturing and industrialization through the "Growth at Home" strategy if the Growth at Home and NDP5 targets are to be realized. The achievement of these targets will place the country on course towards the achievement of industrialized country status as articulated in Vision 2030 (MET, 2017).

1.4. Statement of the Problem

Price-setting behavior is a key variable to any central bank, as it determines the nature of price stickiness and the effect of monetary policy on inflation and real variables (Correa, Petrassi, & Santos, 2018). The macroeconomic effects of nominal shocks in many of the models used for policy analysis rely on the assumption of nominal rigidity (Correa et al., 2018). Nominal rigidity, also known as price-stickiness, is a situation in which a nominal price is resistant to change. When prices are sticky, then they respond slowly to changing economic conditions, thus allowing changes in monetary policy to have a real impact on output, at least in the short run. However, if prices are perfectly flexible , this means that they frequently and rapidly respond to changes in monetary policy. Therefore, the policy will lead only to either inflation

or deflation and there will be almost no change in output (Dinh, 2016). Therefore, there is need to understand the behavioral mechanisms underlying price setting of manufacturing companies in Namibia, as it will shed more light on Namibian firm's price- setting approach which is crucial to the central bank's management of domestic inflation dynamics and monetary policy transmission.

In Namibia, price stickiness is largely attributed to the currency peg with the South African Rand and the fact that 64% of Namibian imports are from South Africa (BoN, 2018) as such, Namibia effectively imports low inflation from South Africa. Product markets in Namibia are thus expected to be highly integrated with those in South Africa since South African retail chains dominate its supermarket industry in Namibia. In addition, the economic policies in Namibia are also integrated with the Southern African Customs Union and the Common Monetary Area, where its currency is pegged one-for-one with the South African Rand. Thus, leaving the Bank of Namibia, with limited influence on the domestically induced inflation (BoN, 2008). Therefore, understanding the price setting behavior of companies is a very important task for the Namibian Central bank, in designing and implementing their monetary policy.

1.5. Objective of the study

The aim of the study is to examine the price setting behaviours (behavioural mechanisms) of companies in the manufacturing sector in Namibia by establishing the decision process companies followed in their price setting practices, whilst the specific objectives are:

- Determine the factors affecting price setting practices and decision of the main products of manufacturing companies in Namibia;

- Determine the linkages between the price setting practices and the manufacturing firms' pricing decisions;
- Establish the relationship between price setting behavior, price review strategies and price decision process of Namibian manufacturing companies.

1.6. Significance of the study

This study contributes to the field of macroeconomics, inflation dynamics, behaviour economics, and price setting theory, research and practice, with emphasis on the decision process companies followed in their price setting practices in ensuring the firm's profit maximization. There are currently no previous studies conducted, which articulates the price setting behaviours of Namibian companies in general and manufacturing in particular. Therefore, this study contributes towards the literature on price setting surveys in Africa. This research is of great importance to the Central Bank of Namibia, which needs to understand the behavioral mechanisms underlying price setting of manufacturing companies in Namibia. As this is crucial to the Central bank's management of domestic inflation dynamics and monetary policy transmission. Furthermore, the study findings are expected to help economist, price setting decision makers, managers, regulators and policy makers on the price setting behaviours of manufacturing companies in Namibia.

1.7. Limitation of the study

The following aspects were some of the limitations to this study: -

- This study focused on the manufacturing sector due the lack of sufficient data in the consumer retail sector. Therefore, we focus on the producer side of the supply chain.

- The sample was not stratified to represent a specific quota within the respective industry types within the manufacturing sector thus the overall findings may be different to that of a study where a sample with a weighted representation of each industry type was used.
- Only Namibian companies that are registered with Business and Intellectual Property Authority (BIPA) were considered as target companies.
- Pricing information is a sensitive subject to companies thus respondents may have not been entirely honest in the responses they provided.

1.8. Organization of the study

The organization of the study is as follows:

- Chapter one introduces the study and is divided into sub-sections that provides the orientation of the study, statement of the problem, objective of the study, significance of the study and lastly, the limitations of the study.
- Chapter two presents the theoretical and empirical literature on price setting behavior.
- Chapter three presents the data and methodology used in the study.
- Chapter four presents and discuss the results found in the study.
- Chapter five concludes the study with policy implications and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The aim of this chapter is to provide insight into the research area and establish the context for this study with regard to relevant literature on pricing.

The first section deals with the theoretical underpinnings for price stickiness.

The second section looks at the empirical and analytical discussions about the extent and existence of price stickiness in Namibia, within a mix of global and regional studies.

The third section dwells on the conceptual framework and proposes the linkages between price setting behaviour, price review strategies and pricing decisions.

2.2.Theoretical Literature review

Central argument in the theoretical literature provided by New Keynesians is that money and prices can have an impact on the real variables, at least in the short run due to price stickiness. Many theories have been developed to explain why prices are sticky. These include theories on the menu cost and costly information, implicit contracts, avoiding bothering customers as well as explicit contract theories, change in non-price factors, coordination failure theories, judging quality by prices, and cost-based pricing theories. The explanations on these theories and details on the issue of price stickiness are presented in the following sub-sections.

2.2.1. Contract based theories

Usually, most firms that trade goods and services have nominal agreements, which can be either explicit or implicit, that fix prices of goods and services for a pre-determined period of time.

The theory on explicit contracts assumes that prices are rigid to adjust to either demand or cost shocks under the written contracts (Kimolo, 2017). Under this theory, prices of goods and services are fixed for some specified period of time as an insurance against uncertainty and related transaction costs. Thus, companies cannot raise prices for existing customers without any contract renegotiation even with cost shocks or demand shocks (Carlton 1979).

Under implicit contracts, some sort of connection between clients and seller of the product develop when they transact with one another for specified periods. Therefore, any price adjustment for the good or service, consequently, can be a nuisance to clients when they think that the adjustments are irrational (Okun, 1981, Bergen et al., 2003; Zbaracki et al., 2004). The million-dollar question is to what extent will the explanations for price stickiness for the Namibian context be based on the theory of explicit and implicit contracts? Still, there may be circumstances where these theories may do well to interpret the stickiness especially in the education sector. Empirical research is necessary to establish whether this will be the case.

2.2.2. Cost based theories

The argument involved in this Cost-based pricing theory is that the costs of inputs are the most important determinant of a firm pricing decision. Thus, if costs of inputs do not change, prices of the firm's products will not change either (Correa et al., 2018). Ball and Romer (1990) cited in Kimolo (2017) argues that the existence of price stickiness implies that there are costs associated with changing or reviewing prices. Therefore, price stickiness among other things depends on whether the benefit of changing the nominal prices outweighs the costs. In this theory, price resetting is associated with 'fixed adjustment costs' also known as 'menu costs' (Mankiw, 1985). Menu costs are costs that are associated with adjusting price such as printing and distributing new price lists. When menu costs are high they may result into a situation

where prices remain rigid, and thereby bring about the price stickiness. In recent studies (Keeney, Lawless, & Murphy, 2010; Asare, 2016; Dinh, 2016; Ingenbleek & Van der Lans, 2013) menu costs have also been viewed as the managerial costs at firm level associated with time and efforts spent in collecting relevant data for price-decision making, Carlton (1997). It is worth noting that quantitative analysis of the menu cost theory is challenging as there is a general lack of cost of price adjustment-related data.

2.2.3. Information Asymmetries' based theories

Under asymmetric information, one party (for instance firm) is having more information on prices than the other (for instance clients), then clients are likely to transact with companies that offer reasonably stable price paths and avoid firms that make regular and/or large price adjustments (Kimolo, 2017). Additional explanation associated with information asymmetry as a reason for price stickiness in oligopolistic market structure is given by the kinked demand curve. The companies' negligence to reduce prices can be explained by the facts that the competitors will match price reductions and as a result the first company will lose market share (Hall and Hitch, 1939).

Additionally, Hall and Hitch (1939) recognized the difference between economic theory and pricing practice, because their interviews with managers suggested a mode of entrepreneurial behavior which economic doctrine tends to ignore. The company can also avoid raising price since the competitor will not match the price increase and ultimately the first company will lose market share (Asare, 2016). Thus, price stickiness can be a result of fear of the company to change price as a result of desire to retain market share under asymmetric information environment. Lastly, firm may be negligent to reduce prices with the fear that clients may interpret price reduction as a loss in the quality of the products (Kimolo, 2017).

2.2.4. Pricing threshold theories

Another explanation of price stickiness is the existence of pricing thresholds as clearly elaborated by Kashyap's (1995). Some companies set their prices at psychologically attractive thresholds. This threshold pricing strategy can lead to price stickiness, since companies may delay price adjustments as they consider that raising prices above these thresholds will lead to a disproportionate fall in demand.

2.2.5. Industry Concentration and Price Adjustment Behaviour

Industry concentration is related to coordination failure theories that emphasizes interactions between firms. Depending on the market structure, firms may not want to change their prices after a shock if other firms do not do so, in fear of sparking off a price war. Without coordination mechanisms that allow firms to move together, firms may prefer to wait and see what happens in the market before acting, producing price rigidities (Correa et al., 2018).

Kimolo (2017) argues that the extent of market competition has an impact on price adjustment behaviour of firms in the particular industry. He further argues that the conventional theories suggest that degree of competition increase when the number of market participants is higher. For instance, Ginsburgh and Michel (1988) and Martin (1993) found that companies in a more competitive environment are more likely to adjust prices in reaction to shocks than firms enjoying monopoly power. This argument was further supported by Domberger (1979) who found a positive correlation between the speed of price adjustment and market concentration. In their study, it was discovered that firms in the less concentrated markets tends to react to costs shocks faster due to easy availability of information unlike firms in the concentrated industries (Kimolo, 2017).

The market structure is therefore one of the critical variables that determines price-adjustment behaviour. Taylor (1999) cites several references going back to Arrow (1959) that highlighted that some degree of market power is required to make the price decision of a company significant. In the perfect competition market structure, all firms are assumed to trade at a single market-clearing price (Kimolo, 2017). The standard explanation for price stickiness in oligopolistic market structure is usually given by kinked demand curve (Hall and Hitch 1939), which explains the firm's reluctance to lower prices because competitors match price reductions and as a result the first firm cannot gain market share (Kimolo, 2017).

According to Clower (1965), the theory of coordination failure focuses on the interaction among companies within a particular industry as the source of infrequent price adjustment. The theory of coordination failure notes that a firm facing a shock may want to adjust the price but only if the other firms adjust their price too (De Munnik & Xu, 2007). Therefore, the price stickiness is explained by the fact that there is no coordination mechanism which can allow companies to move together in price adjustment following a shock within a certain market (De Munnik & Xu, 2007).

2.2.6. Asymmetries in Price Adjustments

In examining the extent of price rigidity researchers have also studied Asymmetric pricing or what is also known as Asymmetric price adjustment, see for example Peltzman (2000), Hannan and Berger (1991) and Pick et al. (1991). The Asymmetric price adjustment refers to a situation where prices of goods and services go up readily but decreases sluggishly (Vladova, 2012). Several studies (Hall et al., 2000; Fabian et al., 2005; Dhyne et al., 2005) in the literature provide evidence that price increases and price decreases do not occur with the same probability. For instance, Dhyne et al. (2005) indicated that within the Euro area, price

decreases are reasonably less frequent than price increases. The study revealed that four out of ten price changes were decreases.

2.2.7. Time-dependent and State-dependent rules

Theoretically, the price adjustment process usually involves two phases: 'price review phase' and 'price changing phase. During the price review phase, firms employ all relevant available information to come up with the best price to charge for the product or service (Asare, 2016). In this stage, the firms evaluate whether there is significant deviation of the prevailing price from the 'best' price to necessitate price change (Cornille & Dossche, 2008). After reviewing price, companies make decision to change or leave the price of the product or service unchanged. The theory considers two rules associated with price review strategy namely time dependent and state dependent rules.

For the case of time dependent rule, a firm adjusts its price periodically at certain time intervals. These intervals may possibly be deterministic (as per staggered contract model developed in Taylor 1980) or stochastic as in Calvo (1982, 1983). Therefore, the timing of the adjustment under this rule is exogenous and that it does not depend on particular state of the economy. Under a state dependent rule, a firm adjusts its price when the difference between the actual price and the optimal price has become large enough (due to a large enough shock) to make up the cost of adjustment (Sheshinski and Weiss (1977), Caballero and Engel (1993), or Dotsey et al., (1997). Hence, the basic difference between these two types of rules is that when a certain economic shock requires adjustment of price, a state-dependent rule assumes firms to react instantly, given that the shock is adequately large, while the time dependent rule assumes that firms will wait until the 'time has come' (Greenslade & Parker, 2012).

2.2.8. Time – Dependent Pricing Models

In Time-Dependent pricing models, price change is a function of calendar time and not the cost of demand disturbances that affects the company's desired price. Rather, it is exogenous to the company and is determined by the passage of time. In these models, the optimal price is determined, taking into consideration that prices are set to remain unchanged for a pre-determined period by multi - market contracts that administer a fraction of prices in each period even though there are large potential benefits from adjusting prices in other periods. In order words, the pattern by which prices change over time depends on the time itself. Two predominant models of Time–Dependent pricing are those developed by Taylor (1980) and Calvo (1983).

According to Taylor (1980), each company have a staggered contract in which prices are set to be fixed for the entire duration of the contract such that individual companies can set the price of goods having full information of the duration of the price before they initiate a price change. Prices are kept unchanged for a fixed time period, and all companies in the economy have full information about the timing of a price change (Correa, Petrassi, & Santos, 2018). For instance, companies that sell highly government regulated goods follow this pricing conduct, whereby prices are set at the beginning of the year and each firm is expected to sell their product at the regulated set price. Since prices are fixed for H periods of time, the hazard rate is 100 percent at given times and zero percent the rest of the times. The main drawback of this model is that heterogenous price changes are ignored, that is, the frequency and the duration of price changes as explained by State-Dependent pricing models (Greenslade & Parker, 2012). Thus, the hazard rate is zero, with the exception of the H^{th} period. Another weakness of the model is the assumption of the deterministic timing of price changes.

The order prominent model of Time–Dependent pricing is the model developed by Calvo (1983). The model assumes that price changes, are stochastically deterministic. That is the probability that a company is able to change its price is the same every period, regardless of when the last price change was implemented. Similar to Taylor's model, prices are predetermined and fixed between the times they are adjusted. This implies that there is a constant fraction of prices that change at any instant and thus the model postulates a constant hazard rate (Cornille & Dossche, 2008). The qualitative implications are also similar to those of Taylor. Suppose that at the start of the period, all prices in the economy is the same and there is a positive monetary shock in period 1. Companies that can adjust their prices will want to raise them in response to the monetary shock, however, the degree to which prices are sticky due to fixed contracts implies that not all companies would be able to adjust their prices (De Munnik & Xu, 2007). Thus, nominal rigidities (the fact that not all prices change each period) results in a gradual price level change. The main feature of this model is its ability to accommodate any degree of price stickiness. The main drawback of the Calvo (1983) model is that Calvo pricing is sub–optimal under menu costs. This is because of the assumption of constant prices, companies cannot respond to changes in economic conditions such as inflation.

To conclude this section, Taylor assumes that, opportunities to change prices arrive deterministically, and each price is in effect for the same number of periods (Asare, 2016). Whereas, in the Calvo model, opportunities to change prices arrive randomly, and so the number of periods a price is in effect is stochastic (Dinh, 2016). In keeping with the assumption of time-dependence rather than state-dependence, the stochastic process governing price changes operates independently of other factors affecting the economy. The qualitative implications of the Calvo model are the same as those of the Taylor model. Its appeal is that it yields simpler inflation dynamics than the Taylor model, and so is easier to embed in larger

models (Dinh, 2016). The main criticism of these models has been the exogenous nature of the timing of price changes and that the model only assumes a fraction of companies are able to change prices, thereby allowing the average size of price changes to reflect responses to shocks. The implication of this is that companies are not allowed to change their price even when the benefits of a price change outweighs the cost of doing so (Ingenbleek & Van der Lans, 2013).

2.2.9. State–Dependent Pricing Models

In State–dependent pricing models, companies are characterized by monopolistic competition in the sense that they have the power to set prices (Blanchard and Kiyotaki, 1987) and Rotemberg (1987). The timing of price changes is determined endogenously as companies choose to maximize profit. Developments within the company dictates the direction and magnitude of price change irrespective of the time period in which the development occurred. As a result, there is no routine in price setting conduct and companies would only change their prices when they experience a shock (Nilsen, Pettersen, & Bratlie, 2018). This implies that each company can choose either to adjust its price when discounted expected benefit of a price change outweighs the cost of adjustment. Since the cost of such price adjustment is heterogeneous across companies, the shape of the hazard function is increasing, that is, the probability of price adjustment benefits is higher for companies with the shorter price change duration (Honoré, Kaufmann, & Lein, 2012).

One of the leading models of state–dependent pricing was developed by Dotsey *et al.* (1999), who developed a dynamic stochastic general equilibrium model with identically and independently distributed menu costs across companies over time. In this model, companies are monopolistically competitive with homogenous technology, market factors and marginal cost, such that price adjusting companies all choose the same price and face a continuous

randomly distributed stochastic price adjustment cost that is distributed independently over time for a given company (De Munnik & Xu, 2007). Companies considering a price change evaluate the expected benefits associated with the price change against the price adjustment cost in the current period (Nchake, Edwards, & Rankin, 2015). This implies that in equilibrium, not all companies will change their prices, but the decision to change prices will depend on the benefit of changing price and the current value of the costs of changing that price (Kimolo, 2017).

The fraction of companies changing prices and the frequency at which they change their prices varies with each monetary shock (Cornille & Dossche, 2008). A positive monetary shock in the form of an increase in inflation rate or money supply would have an impact on each firm's price adjustment costs thus inducing more companies to change prices in a given time period while, a negative monetary shock would induce fewer companies to change their prices (Özmen & Sevinç, 2015). Hence companies that faces these price adjustment cost will change their prices less frequently in comparison to other companies without such cost.

The model predicts an increasing hazard function because individual companies face different price adjustment cost each period (Honoré, Kaufmann, & Lein, 2012). At the beginning of each period, there is a discrete distribution of companies which changed their price at different periods in the past. If when there is a positive monetary shock, the benefits of adjusting prices would be greater for companies whose prices were last changed on the previous period. Thus, the probability of a price change is higher for such companies and the hazard rate increases. The principal contribution of this model to the theory of State–Dependent pricing is that it examines the dynamic responses of monetary shocks compared to time dependent pricing models (Correa, Petrassi, & Santos, 2018).

Another model on Time–Dependent pricing developed by Golosov and Lucas (2007) is that of a monetary economy in which individual companies are subject to idiosyncratic company–specific productivity shocks assumed to be independent across companies and monetary shocks. They posit that companies can change price only by incurring a real menu cost. Hence prices will remain constant over time and only jump to a new level when the menu cost is large.

The effect of a positive monetary shock contrasts with the model developed by Dotsey *et al*, (1999) in that the shock may result in a higher average magnitude of price change but not the frequency at which companies change their prices. Companies that charge a lower price, increase prices by a larger magnitude, meanwhile the positive monetary shock offsets negative idiosyncratic shock implying that the faction of companies that would have decided to reduce their prices would rather choose to wait (Parker, 2017). Hence the net effect of the shock would be reflected as an aggregate price level increase. The results presented by this model contrast to the Time-Dependent model developed by Calvo and Taylor, where price changes are exogenously determined by moments in time (Honoré, Kaufmann, & Lein, 2012). The hazard function is positively sloped due to the relative size of idiosyncratic productivity and monetary shocks in relation to the marginal cost each company faces, thus there is an increased probability of price changes as the time interval between two price changes increases (Correa, Petrassi, & Santos, 2018). The main contribution of this model is that it examines the effect of idiosyncratic productivity and monetary shocks on the menu cost faced by companies.

In general, State-Dependent pricing models predict that companies' pricing decisions is dependent on economic shock and the timing of such price change is endogenously determined. According to the literature, State-Dependent pricing models have been recommended when

attempting to analyse the effects price stickiness and the micro level because of the underlying assumption of the models that companies base their pricing decisions on a cost-benefit analysis (De Munnik & Xu, 2007).

The leading theories on monetary policy transmission mechanisms require some degree of price rigidity. A standard justification for discontinuous price changes in theoretical macroeconomic models are the existence of the costs involved in price adjustment (known as menu costs), usually assumed to be fixed (Cornille & Dossche, 2008). There are many explanations regarding the cost of price review and price change. One explanation is that these costs result from the decision and implementation of price changes. This treatment produces State-Dependent pricing models, where price adjustments are a function of the state of the economy (see, among others, Sheshinski and Weiss 1977; Caballero and Engle 1993; Golosov and Lucas 2007; Gertler and Leahy 2008). Another theory—the Sticky Information theory—assumes that gathering, absorbing and processing information is costly. Mankiw and Reis (2002) and Reis (2006), for example, shows that because information is costly, it may be rational for firms to be inattentive to some news, which may lead them to update their information set and prices infrequently.

2.3.Empirical Literature Review

Having laid down the theoretical underpinnings behind the subject of price stickiness, different studies were reviewed in order to gain knowledge of the micro price adjustments. The empirical studies have reached quite different conclusions for different countries on the price adjustment patterns and their implications for the conduct of monetary policy.

2.3.1. Studies in the Developed Countries

An extensive literature on studies assessing the empirical validity of nominal rigidities at micro level are growing, since the seminal work by Blinder (1991, 1994) and Blinder *et al.* (1998). The pioneering empirical study on price stickiness was undertaken by Blinder et al. (1998) in the US through intensive interviews of 200 private firms in United States. This led to a large number of follow-up surveys on price-setting behaviour, and the sources of price stickiness in other countries (Parker, 2017).

These include, among others, surveys for the United Kingdom (Hall, Walsh and Yates, 1997, and Greenslade and Parker, 2012), Sweden (Apel, Friberg and Halstern, 2005), Canada (Amirault, Kwan and Wilkinson, 2006), the euro area (Fabiani et al., 2006), Australia (Park, Rayner and D'Arcy, 2010), New Zealand (Parker, 2017) and Switzerland (Honoré, Kaufmann, & Lein, 2012). Interestingly, these surveys show considerable diversity in price setting behaviour, both between and within sectors. Not only does the median number of price changes vary considerably between sectors, but it is possible to find within the same sector firms that reset prices daily and others that reset on an annual basis (Parker, 2017). This diversity is present in the timing of both price reviews and price changes, suggesting that rigidities occur at both stages of the price-setting process.

Price Surveys in European countries suggest that small firms and providers of services to businesses follow more rigid price setting practices (Fabiani et al., 2007; Greenslade and Parker, 2012). However, contrasting view is given by Buckle and Carlson (2000) in their study on New Zealand firms, which found that large enterprises (as measured by number of workers) adjust prices more regularly than smaller enterprises, on account of lump sum menu costs, which are proportionately more expensive for smaller enterprises (Parker, 2017).

In the Netherlands, Ingenbleek and Van der Lans (2013) addressed the relationship between price strategies and price-setting practices using survey data of 95 small and medium-sized manufacturing and service firms. While, Vladova (2012) used survey evidence on price-setting behaviour of firms in Bulgaria, using 504 enterprises from manufacturing, trade and market services. The study analysed the key features of the price-setting practices of Bulgarian firms and draws conclusions on the relevance of these practices for the overall flexibility of the Bulgarian economy. While the Netherlands findings revealed that price strategies and price-setting practices were related through strategies that are implemented through price-setting practices related to the use of customer value, competition, and cost information (Ingenbleek & Van der Lans, 2013).

Ingenbleek and Van der Lans (2013) noted that some firms do not pursue any of the strategies indicated by pricing theory, some firms engage in practices for no clear strategic reasons, and some firms insufficiently engage in appropriate practices to implement their strategic choices. Findings from several empirical studies such as Dias, et al. (2015) noted that size matters for the speed of price adjustment. The findings suggest that in the face of cost shocks, large companies tend to adjust their prices slower than small companies because the importance of information costs is likely to be higher in large firms (Zbaracki et al., 2004).

2.3.2. Studies in Emerging and Developing Countries

Özmen and Sevinç, (2015) explored the evidence of price rigidity in Turkey by making use of an extensive micro level price dataset. The study sought to document the micro level stylized facts of consumer prices in Turkey, arguing that the analysis of pricing behavior using micro price data has important implications for determining the level of price stickiness in a country,

which is crucial in formulating monetary policy (Özmen & Sevinç, 2015). The study revealed that the level of micro price rigidity in Turkey was low and compared with other studies, the level of stickiness was in line with other emerging markets and significantly below advanced economies. The study also indicated that there exists a mixed pricing strategy which is a combination of Time-Dependent and State-Dependent pricing. Such evidence is generally reported for developed economies, but their study showed that this empirical regularity holds also for emerging market economies (Özmen & Sevinç, 2015).

The study by Correa, Petrassi and Santos (2018) used the Blinder (1991) price survey approach on 7,002 Brazilian firms from manufacturing, services and commerce. The survey raised several interesting findings on the price setting practices of Brazilian firms. On how to change their prices, the majority of firms' answers followed the State-Dependent practices, but they also consider elements of time dependency, particularly in the service sector. The findings also found a negative relationship between reported menu costs (in a broader sense) and the frequency of price reviews and changes while a positive correlation was observed between price reviews and price changes. The study used three theories to explain the price rigidities in Brazil; these were cost-based pricing, explicit contracts, and implicit contracts. The study also noted that Coordination Failure and adjustment in non-price factors were also minor obstacles to faster price changes in Brazil (Correa, Petrassi, & Santos, 2018).

Pham, Nguyen and Nguyen (2019) investigated factors that influence the speed of price adjustment in response to shocks by Vietnamese firms using a multivariate ordered probit model with survey data. The study used a multivariate ordered probit model system to study the price responses of Vietnamese firms to four different types of shock, including positive demand, positive cost, negative demand, and negative cost shocks (Pham, Nguyen, & Nguyen,

2019). The study found that the degree of competition, the market share, the size of firms, the practice of quantity discounts, the share of state ownership, and the sector where firms operate all matter to how quickly and asymmetrically firms react to shocks (Pham, et al., 2019).

The findings also indicated mixed results on whether state or time-dependence caused firms to adjust their prices faster after shocks. The mixed results were attributable to persistently high inflation of Vietnamese economy during the time before the survey. The study concluded that menu costs and contracts were the two most important theories in explaining price stickiness in Vietnam. However, they seem to induce firms to respond more slowly only to shocks that drive prices downwards, rather than to shocks that move prices upwards (Pham, et al., 2019).

2.3.3. Studies in SADC Countries

Ngarava and Mushunje (2019) assessed the pricing strategies in pork-based agribusinesses using evidence from Zimbabwe. Their study evaluated the current pricing strategies being employed in the Zimbabwean pork industry, through a cross-sectional survey of 166 pig producers, six pork abattoirs and 24 pork butchers. The study reveled that agribusinesses in Zimbabwe were using break-even pricing, which was cost-oriented, through a formula price and pursuing profit-oriented pricing objectives. They noted that the firms used a one-price policy that was aiming for a low-penetration pricing policy, with no discount policy and managing a profit-to-cost ratio between 0% and 4%. The study recommended that the Zimbabwean industry be flexible in its pricing mechanisms through utilising sales-oriented objectives and appropriate discount policies to induce "goodwill" within the industry. As well as, vertically integrate in order to spread and dilute price risk to allow flexibility in pricing, and to utilise premium pricing.

In Lesotho, Nchake, Edwards and Rankin (2015) used stylised facts from consumer retail prices to identify the main features of price setting behaviour by retail outlets over the period March 2002 to December 2009. The study followed Klenow and Malin (2011) approach of distinguishing between the various theories of price-setting using the the dynamic features of the data. The dynamic features of price changes employed includes the synchronization of price changes, the relationship between the frequency and size of price changes, and the duration of the existing price. The study also identified the stylized facts that characterize the setting of product prices by retail outlets in Lesotho. They used micro pricing data covering 229 product items collected from 345 retail outlets by the Lesotho Bureau of Statistics (BOS) as part of their Consumer Price Index (CPI) calculations. Their dataset was very similar in structure to those used in the studies of developed countries.

They found substantial heterogeneity in price setting behaviour across products, outlets and time. Additionally, the findings from their study were in line with Nilsen et al. (2018), in that variations in inflation were strongly correlated with the average size of price changes, but rising inflation raises the frequency of price increases and reduces the frequency of price decreases (Nchake, Edwards, & Rankin, 2015). Interestingly, they found that despite the presence of common retail chains and their joint membership in a customs union and common monetary area, the frequency and size of price changes differed substantially from those in South Africa. These findings are of particular interest to other SACU countries like Namibia.

Creamer and Rankin (2008 and 2012) investigated price adjustment behaviour of firms in South Africa and its implication on monetary policy. Using CPI and Producer Price Index (PPI) micro data from 2001, the studies found lower price duration compared to developed countries, averaging 5.0 months for domestically produced goods (CPI) and 6.1 months for the imported

component of PPI micro data. They concluded that the prices are less sticky than assumed in the New Keynesians DGSE models used for monetary policy analysis and forecasting.

Another South African study by Ruch, Rankin and Du Plessis (2016) used the micro-price data for consumer goods from 2008 to 2015 to decompose goods inflation into its sticky-price and flexible-price components. This study found the flexible-price inflation is more volatile than overall goods inflation and sticky-price goods inflation, and accounts for the majority of the volatility in overall goods inflation. Sticky-price inflation is more persistent and less volatile than overall goods inflation and the flexible-price inflation measure (Ruch et al., 2016).

2.4. Conceptual Framework for the Analysis of Price Stickiness

In order to examine the existence of price stickiness, the study adopts Kimolo's (2017) framework for micro level price adjustment behaviour of firms. The conceptual framework is illustrated in figure 2.1.

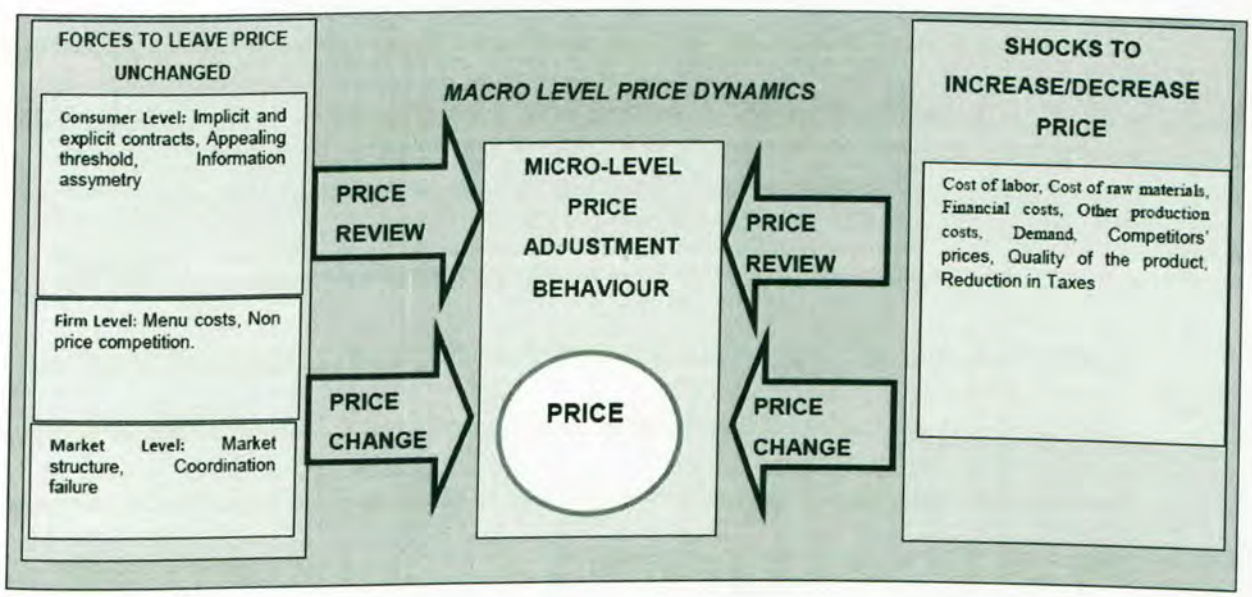


Figure 2.1: Conceptual Framework for Analyzing Price Stickiness

Source: (Kimolo, 2017)

In proposing the framework, Kimolo (2017) pointed out the need to validate this macro-level New Keynesians theoretical assumption of price stickiness employed in monetary policy analysis models. The framework provides a way to operationalize price stickiness within an African context, and assumes that the extent of price stickiness is determined by the frequency of price changes at the firm level within a particular period (Kimolo, 2017). Kimolo's framework assumed that if firms adjust prices of goods and services infrequently, then the macro level price is highly sticky and therefore cannot offset monetary policy shocks, while if micro level prices adjust frequently i.e. flexible, then the macro level price is flexible and therefore can offset the monetary policy shocks (Kimolo, 2017).

In this study, the framework together with the Time and State-Dependent theories are used to build propositions that operationalizes the research objectives within an exploratory and confirmatory factor analysis model using a price setting behaviour survey of Namibian Manufacturing firms. The study also explores the relevant shocks that bring about price decreases or increases and on the other hand, examines the relevance of forces that necessitate decisions and price review strategies and market structure, as depicted in Figure 2.1.

2.5. Summary

In conclusion, two things can be articulated from the literature review. The first observation is that price stickiness is relatively more pronounced in developed than emerging and developing economies as evidenced by frequencies of monthly price changes. Nevertheless, the extent of price stickiness differs depending on type of activity, size of firms as well as market

environment in which the firm operates. It is also evident that prices are generally sticky downward, more in developing countries, and firms respond to shocks in asymmetric fashion. The second observation from the literature is on methodology. There are two common methodologies available in examining nominal rigidities; the first one being the use of quantitative methodology to analyse consumer price index (CPI) and producer price index (PPI) disaggregated data and the second one being the use of interview surveys methodology.

In examining the behaviour of price adjustments, a lot of empirical studies make use of disaggregated micro data in order to get in depth description of the periodicity and magnitude of price changes. However, this approach is weak particularly in the quest to identifying the underlying qualitative behaviours of firms. An alternative empirical approach that has also been employed is the use of surveys to investigate the price adjustment behaviour at micro level as pioneered by the work of Blinder (1991, 1994) and Blinder et al. (1998) for the United States.

Following the initial study in the United States (Blinder et al., 1998), price-setting surveys have been conducted by the central banks of Canada, England, Japan, Sweden, New Zealand and Australia, as well as a number of Euro area central banks (Park, et al., 2010). More recently, the central banks in the developing countries have adopted a similar approach with price setting surveys done in Brazil, Vietnam, South Africa, Lesotho and Tanzania attesting to it. In all these studies, the motivating reason for using the survey approach was due to the lack of data on the individual companies. However, there has been no study on price setting behavior in Namibia. Therefore, this study contributes towards the literature on price setting surveys in Africa. Inasmuch, the manufacturing sector was pursued as the focal point of the study, as opposed to completing a comprehensive study across all sectors due to time constraints on the part of the

researcher. The manufacturing sector was chosen due to the role and importance of this sector in the Namibian economy.

In view of this and with good reasons, the current study has opted for the Blinder's (1998) price setting survey methodology as a technique to investigate price adjustment behaviour among firms in Namibia. While most studies that have used the price setting behaviour surveys have been mainly descriptive with large sample sizes. This study contributes by operationalizing a Tanzanian Conceptual framework by Kimolo (2017) using exploratory and confirmatory factor analysis to make inferences from a small manufacturing country like Namibia. The methodology employed is discussed in the next chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter specifies research approach used in the study. The research method, research design, the population and unit of analysis, the size and nature of the sample, the research instrument, the data collection and the analysis of the data is discussed. The chapter concludes with a brief overview of the potential limitations of this research.

3.2. Research Method

There are various approaches identified in the literature to examine price setting behavior and nominal rigidity. One approach which has recently gained increasing popularity is to conduct companies' survey whereby companies are asked directly about how prices are set and the reasons underlying such behind the development, implementation and communication of such pricing strategies. According to Greenslade and Parker (2010) and Amirault et al. (2006), conducting company-level surveys at the micro level where pricing decisions are actually made as opposed to using large sets of individual CPI and PPI data, offers the researcher the benefit of asking companies directly more detailed and specific information on prices, such as the factors considered when prices are reviewed for each product and the reasons why prices are sticky and are often missing in large consumer or producer data set. Therefore, this study took the survey approach to understand the behavioral mechanisms underlying price setting process and to examine the extent of price rigidity in the Namibian manufacturing sector.

3.3. Research Design

The study conducted was explorative in nature and followed a mixed method research design. An explorative research is a research conducted for a problem that has not been studied more

clearly, intended to establish priorities, develop operational definitions and improve the final research design. As such, exploratory research helps determine the best research design, data-collection method and selection of subjects (Zikmund & Babin, 2010). The objective of the study outlined in chapter one aimed to examine the price setting behaviours (behavioural mechanisms) of companies in the manufacturing sector in Namibia by establishing the decision process companies followed in their price setting practices. The study uses an inductive thematic analysis approach to identify, analyse and interpret patterns of meaning (or "themes") within a rich questionnaire survey. Thematic analysis is often understood as a method or technique that is an umbrella term for a variety of different approaches, rather than a singular method (Braun, Clarke, Hayfield, & Terry, 2019). Different versions of thematic analysis are underpinned by different philosophical and conceptual assumptions and are divergent in terms of procedure. As such, this study uses the thematic analytic approach to reduce the data to a more manageable set and the uses a quantitative approach to establish the linkages between price decisions and price setting behaviours in Namibian manufacturing companies.

3.4. Research Process

This research draws on the results of the price setting behavior of manufacturing companies in Namibia. The survey aims to obtain a comprehensive view of price setting behavior across companies in the manufacturing sector and was conducted from May – July 2018 via structured interviews with the senior management of 35 companies in Windhoek. The economic theory of price setting is based on the actions of a profit maximizing company, that is, companies that should be able to set their prices autonomously in response to market conditions. Hence, the sample was selected to be a representative of companies that are not in the public sector, or are subject to regulatory process controls. Companies who are price takers in international commodity markets where also excluded as their prices are determined by the global demand

and supply balance. These exclusions made in the study were in line with those carried out by Blinder et al. (1998) and Amitault et al. (2006).

The research study was carried out in the form of structured interviews among individuals that were responsible for the setting of prices at their respective companies. Saunders and Lewis (2012) state that in structured interviews the respondents are asked the same standard set of questions from a questionnaire by means of an interview conducted either telephonically or face to face.

The questions that were posed to the respondents for this study were standardized to ensure that the researcher asked all the respondents the same questions and in the same order. This process allowed the researcher to find similarities and differences across the companies interviewed. The respondents were selected by taking into consideration the exclusion criteria discussed in the research scope in chapter one.

3.5. Population

Zikmund and Babin (2010) defined the target population as the complete group of a specific population element that is relevant to the research. Hence, for this study the target population comprised of manufacturing companies in Namibia. The sampling framework was all companies in the manufacturing sector that were registered with the Business and Intellectual Property Authority (BIPA) at the time the study was undertaken.

The study excluded companies from the public sector, non-profit companies and those companies that were subjected to regulatory price controls. The companies interviewed comprised of small, medium and large businesses in the manufacturing sector in Namibia. The classification of the size of companies was based on the number of employees the companies

had employed at the stage when the interview was conducted. The company sizes were in accordance with the classification from the Ministry of Industry, Trade and SME Development (MITSMED). The classification was aligned to other international studies, such as the study that focused on the UK's price setting strategies completed by Greenslade and Parker (2010) to ensure consistency when comparisons were made between studies. The unit of analysis was individuals that were responsible for making price setting decisions in their respective companies.

3.6. Sampling

The study used convenient sampling techniques which were used to select a sample of 35 manufacturing companies' respondents based in Windhoek and responsible for making price setting behavior at their companies. Saunders, Lewis and Thornhill (2009) noted that non-probability sampling techniques are best used then the researcher uses his or her judgement to select the respondents that will best be able to answer the research questions and meet the objectives. The results should be interpreted with caution given the sampling techniques employed. It should be noted that the aim of the study, was not to claim that the findings can be generalized to the whole population from which the stakeholders were selected, but to establish whether there were patterns in their perceptions that were common to all or most of the stakeholders. Table 3.1 presents the summary of the sampling framework and sample size used in the study.

Table 3.1: Summary of the sampling framework and sample size used in the study

Target Quota	35
Target Base	50
Declined	8
No or Incomplete Response	7
Completed Surveys	20
Expected Response Rate	70%
Achieved Response Rate	40%

The researcher only managed to get 20 completed survey questionnaires from a targeted base of 50 possible companies, thus giving a response rate of 40%. The targeted response rate was initially 70% based on the researcher achieving the planned quota of 35. The decline rate and incomplete responses were a result of the following reasons:

- The topic of price setting is a very sensitive subject and some companies were reluctant to disclose any insights relating to their price setting.
- The data collection period was at a time when some of the targeted companies were busy with their financial year end reporting and due to more pressing commitments; they were unable to assist the researcher.
- A large percentage of the respondents that declined to participate in the survey where from small companies. In these companies the pricing specialist was usually the owner or someone very senior in the company, thus their availability to commit to an interview was a constraint.

3.7. Research Instruments

The researcher used a structured questionnaire (Appendix 1) adopted from a similar survey done in South Africa by Govender (2012). The survey questions were similar to those used in the UK study of Greenslade and Parker (2010), Canada study of Amirault et al. (2006) and the Brazilian study of Correa, Petrassi, & Santos (2018). The self-administered close-ended questionnaires consisted of 136 items which comprised of eight sections (Appendix 1) which comprised of questions pertaining to:

- The basic information of the company such as the average number of employees and the total revenue, which was used to determine the size of the company;
- The basic information on the main manufactured product such as its description, market share, as well as, its source and share of revenue;
- Detailed information on the market share structure, product competitiveness, distribution channels, price review strategies, product selling price and the direct price setting factors;
- In-depth questions on the factors affecting price setting behaviours in relation to pricing decisions, price influences and product costing effects.

The emphasis of the structured questionnaire instrument is on how accurately different participants' answers can be compared (reliability). As a highly structured instrument, it can collect a lot of quantifiable data and can work well in situations where you cannot record the interview in full (Creswell, 2009). An important advantage of structured instruments is their adaptability and ability to reach a large sample and ease to analyse. However, a limitation of using this instrument is that the primary researcher has limited control over what happens in the field (Zikmund and Babin, 2010).

3.8. Data Processing and Analysis

Data entry or capturing involved the direct input of coded data into a software package that will ultimately allow the researcher to manipulate and transform the raw data into useful information. Quantitative data collected from the survey was analysed using SPSS version 25 and SPSS AMOS version 23. Data cleaning followed, which entailed an error checking process of data entered. As such, data cleaning identifies and corrects any omissions, ambiguities and errors in the responses made during data entry. The dataset was searched for missing values, and the questionnaires with substantive missing data or poor-quality responses were removed prior to analysis (Hair, Black, Babin, Anderson, & Tatham, 2013), since the research used a multivariate inference analysis which cannot be performed efficiently if there is any missing data; as missing data would introduce biases in multivariate statistical analysis. After screening, the study applied the SPSS version 25.0 Missing Value Analysis (MVA) to ensure that all questions with missing data were removed.

3.8.1. Confirmatory Factor Analysis

For the multivariate analysis, the study used SPSS AMOS version 23 to estimate a Structural Equation Model (SEM) of the significant factors in line with price stickiness theories discussed in Chapter 2. SEM, which is an extension of the general linear model (GLM) and provides a more comprehensive multivariate analysis by combining multiple regression, path analysis, factor analysis and analysis of covariance in one procedure (Hair et al., 2013). As such, the study carried out a Confirmatory Factor Analysis (CFA), which is a specific form of structural equation modelling that is more focused on the covariant relationships and modification indices used to improve the model. The CFA was used to evaluate and compare different a priori models developed on the basis of price stickiness theories discussed in Chapter 2.

CFA was used to produce information about the hypothesized causal parameters, which are path coefficients that are presented as beta weights (Polit & Beck, 2010). These coefficients indicate the expected amount of change in the latent endogenous variable that is caused by a change in the latent causal variable. When there is evidence of an adequate fit of the data to the hypothesized measurement model, the theoretical causal model is tested by structural equation modelling (Polit & Beck, 2010). The overall fit of the causal model to the research data was tested by means of several statistics, such as the ratio of the standardized chi-square and degrees of freedom (CMIN/DF), the goodness of fit index (GFI) and the standardized root mean square residual (SRMR). The model fit measures and thresholds followed recommendations of Gaskin and Lim (2016)'s Model Fit Measures which guided the model fitness of the model.

3.9. Reliability and Validity

Reliability is defined as the extent to which independent administration of the same instrument (or similar instrument) consistently yields the same results under comparable conditions (Creswell, 2007). The commonly used measures of scale reliability include information about the relationships between individual items in the scale such as Intra-class correlation coefficients that are used to compute inter-rater reliability estimates (Pallant, 2013). The study tested for the reliability of constructs using Cronbach's Alpha and Exploratory Factor Analysis (EFA). Since, the reliability of an instrument refers to the consistency with which it measures a construct. This study used reliability analysis to determine the extent to which the items in the questionnaire were related to each other. Thus, the properties of the questionnaire items were assessed by exploring the dimensionality of the relevant variables and internal consistency of the scales by calculating the Cronbach's alpha scores for all the variables. The higher the Alpha is, the more reliable the test (alpha > 0.7). Saunders et al. (2005) notes that validity is concerned with whether the findings are really about what they appear to be about.

Internal validity in relation to questionnaires refers to the ability of the questionnaire to measure what it intended to measure. Content validity refers to the extent to which the measurement instrument provides adequate coverage of the investigative questions. Criterion-related validity refers to the ability of the measures to make accurate predictions. Construct validity refers to the extent to which the measurement questions actually measure the presence of those constructs that the researcher intends them to measure (Saunders, Lewis, & Thornhill, 2005).

The study uses the data screening wand reduction to ensure that normally distributed items are used for the multivariate analysis. The multivariate analysis used factor analysis in measuring the reliability and validity of the research. As such, the study focused on sample size issues, and the strength of the relationship between the variables (or items) in determining whether a particular data set was suitable for factor analysis. The Confirmatory factor analysis was performed to validate the results through an inductive thematic analysis where the extracted factors were used as the emergent themes from the data (Braun, Clarke, Hayfield, & Terry, 2019).

3.10. Ethical Considerations

Prior to distributing the questionnaires to the respondents, the researcher first sought permission through ethical clearance letters. The research first sought a clearance certificate for conducting research and this was obtained upon approval by the UNAM Postgraduate research committee. All respondents in the study participated on voluntary basis and those who wished to withdraw their participation were permitted to do so at any given time of the study. The cover letter (Appendix 6) explaining the research purpose and rights of the respondent was presented first. This is done in compliance of meeting ethical demands in this nature of studies, which requires that participants get involved after an informed consent. The study followed the principle of

beneficence that imposes a duty on researchers to minimize harm and maximize benefits to the respondents (Polit & Beck, 2012). In line with this principle, the researcher protected the participants from any discomfort and harm by ensuring that information was adequately coded and anonymised, so as not reveal their identities. In addition, the respondents were also assured that their involvement in the study will not place participants at a disadvantage or expose them to damages. In addition, the data collected during the study will be kept in a safe place and will not be made available to a third party, unless otherwise authorized by the UNAM.

3.11. Summary

This chapter presented the methodology and procedures used to carry out the study. It highlighted the research design, population, sampling and research instruments used in the study. The chapter also presented the data processing and analysis, reliability, validity and research ethics. The next chapter presents the research findings.

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF RESULTS

4.1. Introduction

This chapter presents findings of the study which have been discussed under subsections in line with the study objectives. The findings were based on a total of 20 survey respondents. This chapter presents the findings from multi-stage sequential analysis methodology used to address the research objectives.

The chapter is presented in four sections. The first section, involves the descriptive statistical analysis of the basic information of the company, the main manufactured product and the market structure of the manufacturing companies surveyed.

The second section presents the data screening and reduction, which addresses research objective 1 and 2 by determining the factors affecting the companies' price setting practices and pricing decisions.

The reliability and validity is presented in the third section, which seeks to validate the findings from the data screening and reduction. Inferential analysis in the fourth section presents the findings on the pair sample T-test analysis that were used to test the research propositions and hypothesis espoused in objective 3 and 4. The reduced factors which were found to be significantly different were analysed using linear regression to establish the strength and significance of the links and relationships between price setting behaviour, price review strategies and price decision process of Namibian manufacturing companies.

The chapter ends with a summary of the results to support the discussion in chapter 5.

4.2. Business and Market Profile of the Manufacturing Businesses

4.2.1. Basic Information of the Company

The companies that participated in the survey were classified into company size, based on the average number of employees that were employed at the respective companies. As well as, their total revenue in the year 2017. Table 4.1 presents the results.

Table 4.1: Basic Information of Company (N=20)

MTSMED Classification	The average number of employees in your company in 2017	The total revenue of your company in 2017				Total
		up to NAD 100.000	NAD500.001 - NAD 1,500.000	NAD 1,500.000+	I don't know	
Micro Enterprise	1-50 employees	3			3	**30%**
Small Enterprise	1-50 employees		4			**20%**
Medium Enterprise	1-50 employees		0	7		**35%**
	50-199 employees		1	0		**5%**
	Medium		**1**	**7**		**40%**
Large Enterprise	50-199 employees			1		**5%**
	200+ employees			1		**5%**
	Large			**2**		**10%**
Total	1-50 employees	3	4	7	3	**85%**
	50-199 employees	0	1	1	0	**10%**
	200+ employees	0	0	1	0	**5%**
	Total	**3**	**5**	**9**	**3**	**100%**

Table 4.1 results indicated the results on the company sizes in accordance with the classification from the Ministry of Industry, Trade and SME Development (MITSMED). The results show that 30% (6) of the respondent companies were Micro enterprises with revenues

up to N$100, 000 (60%), while 50% of these did not know their annual revenue for 2017. The results also showed that 20% (4) of the respondent companies were Small enterprises with revenues between N$500, 001 to N$1,500,000. While, 40% were Medium enterprises with revenues above N$1,500,000(35%) and employees between 50-199 (5%). Lastly, 10% of the respondents were large enterprises with revenues above N$1,500, 000 and employees 50 to above 200.

4.2.2. Basic Information of the Main Manufactured Product

The companies were asked what percentage of the total sales revenue was from their main product in relation to the Namibia market and regular customers. They were also asked how much that main product contributed to their total revenues for 2017. The results are presented in Table 4.2 on the next page.

Table 4.2 indicates that the market shares of the main products in the Namibian market ranged from less than 5% to 100%. The results show that Heavy Industrial Products with market share ranging from 5-20% contributed an average of 35% to the firm's 2017 sales revenue and of the amount 75% came from their regular customers. While, a market share of 21-50% guaranteed more than 50% of the revenue with 78% coming from regular customers. At the same time, companies with 51-100% market share completely relied on the main products for their 2017 revenue, with the bulk of the sales (80-95%) coming from their regular customers.

Table 4.2 also indicates that the Light Industrial products with market shares of less than 5 % relied on revenue from regular customers (80%). While, those with market shares up to 20% relied less on regular customers (66.7%), with at least a third of their main product sales coming from occasional customers and their main product only contributing 70% of their 2017 revenue.

Table 4.2: Basic Information of the Main Manufactured Products

Variable	The main product in the Namibian market	Market share of your main productin the namibian market					
		less than 5%	5-20%	21-50%	51-99%	1.00	Total
Share revenues from the main product in the total sales revenue in 2017	Heavy Industrial Products		35.00	54.00	100.00	100.00	**61.71**
	Light Industrial Products	100.00	70.00	0.00		78.00	**64.67**
	Household Cleaning & Cosmetic Products	95.00	99.00	37.50			**67.25**
	Groceries & Fast Moving Consumer Goods		80.00	0.00			**26.67**
	Total	**97.50**	**65.57**	**29.62**	**100.00**	**89.00**	**58.45**
Revenues from the main product in the Namibian market - regular customers %	Heavy Industrial Products		75.00	78.33	95.00	80.00	**80.00**
	Light Industrial Products	80.00	66.67	100.00		80.00	**76.67**
	Household Cleaning & Cosmetic Products	90.00	98.00	89.00			**91.50**
	Groceries & Fast Moving Consumer Goods		90.00	85.00			**86.67**
	Total	**85.00**	**76.86**	**85.38**	**95.00**	**80.00**	**82.30**

Overall, the results suggest that most of the companies had their revenues for the main products coming from their regular customers (76 – 95%) while the main products contributed

considerably to the companies' 2017 revenue, with averages above 60%. The exception was in the household cleaning & cosmetic products which despite having regular customers share of 89% had the main products contributing an average 37.5% of the 2017 sales revenue of the company

4.2.3. Basic Information of the Market Structure

The respondents were asked information related to the market structure of their main products. The questions focused on the main sources of revenue, the number of major competitors and main distribution channels of the firm's products. The results as presented in Table 4.3.

Table 4.3 Basic Information about the Market Structure (N=20)

Private versus Public Sources of Revenue	**The main distribution channels for sales**	**Major competitors for your main product in the Namibian market**			**Total**
		Less than 5	**Between 5 - 20**	**20+**	
Only Private	Private distribution only	20.0%	20.0%	20.0%	**60.0%**
	Public distribution channel	25.0%	62.5%	12.5%	**100.0%**
	Directly to consumers			16.7%	**16.7%**
	Total	**15.0%**	**30.0%**	**15.0%**	**60.0%**
Both private and public sources	Private distribution only	20.0%	20.0%		**40.0%**
	Government distribution only	100.0%			**100.0%**
	Directly to consumers	50.0%	16.7%	16.7%	**83.3%**
	Total	**25.0%**	**10.0%**	**5.0%**	**40.0%**
Total	Private distribution only	40.0%	40.0%	20.0%	**100.0%**
	Government distribution only	100.0%			**100.0%**
	Public distribution channel	25.0%	62.5%	12.5%	**100.0%**
	Directly to consumers	50.0%	16.7%	33.3%	**100.0%**
	Total	**40.0%**	**40.0%**	**20.0%**	**100.0%**

Table 4.3 results indicated the basic information on the market structure of the main product. The findings shows that 60% of the firms' main source of revenue was from the private sector,

with only 40% revenue coming from the public or government procurement. The results also show that the largest competition was from the revenue acquired from the private sector. The majority of products having more than 20 major competitors coming from the only private revenue (15%) and 5% from both public and private sources.

It also shows that those supplying government had less than 5 major competitors. 50% of those supplying to consumers directly had less than 5 competitors, 33.3% was for companies with more than 20 competitors and 16.7% for companies having between 5 to 20 competitors.
In addition, the findings suggests that the largest competition was found in the only private sources of revenue, distributed using private only. Followed by private sources of revenue and publicly distributed, where the major competitors range between 5 to 20. The findings imply that sales to government customers were the most uncompetitive, which often results in prices being high compared to those distributing to the private sector and individual customers.

4.3. Data Screening and Reduction

The study employed a pre-estimation screening on the data to improve the reliability and reduce the dimensionality of the survey questionnaire items. Data screening was done to ensure that items with a low variance and a normal distribution are used for the multivariate analysis. The screening relied on comparing each questionnaire item to the scale that is composed of the other questionnaire items. The Cronbach's alpha if the item were to be deleted from the scale was used to improve the questionnaire's Cronbach's alpha values from 0.410 (N=136 items) to 0.810 (N=129 items), with the seven items removed from the scale to improve reliability. The survey had a poor response rate with only 20 usable questionnaires from the 50 sent out. The study further used data aggregation methods in SPSS version 23 to further reduce the questionnaire from 136 to 56 variables which had a Cronbach's alpha of 0.824.

To further improve the reliability of the results, the study used both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Bandalos & Finney (2018) noted that these two methods both model the observed covariation among variables as a function of latent constructs. In EFA, the purpose of such models is typically to identify the latent constructs or to generate hypothesis about their possible structures, while the purpose of CFA is to evaluate hypothesized structures of the latent constructs and/or to develop a better understanding of such structures (Bandalos & Finney, 2018).

Accordingly, in this study both EFA and CFA were used to reduce the number of variables from 56 to 12 main factors. This section presents the summary statistics of the 12 main factors and their respective dimension reduction inferences. The factors were deduced from two main factor models, which were the Price Setting Factor Model (4.3.1) and the Pricing Decisions Factor Model (section 4.3.2).

4.3.1. Price Setting Factors

The Price Setting Factors were deduced from an EFA using Principal Component Analysis (PCA) to see if the observed variables loaded together as expected, were adequately correlated, and met criteria of reliability and validity. The Confirmatory Factor Analysis (CFA) in SPSS AMOS was used to evaluate and develop a better understanding of the factor latent factors. The resultant model is presented in Figure 4.1.

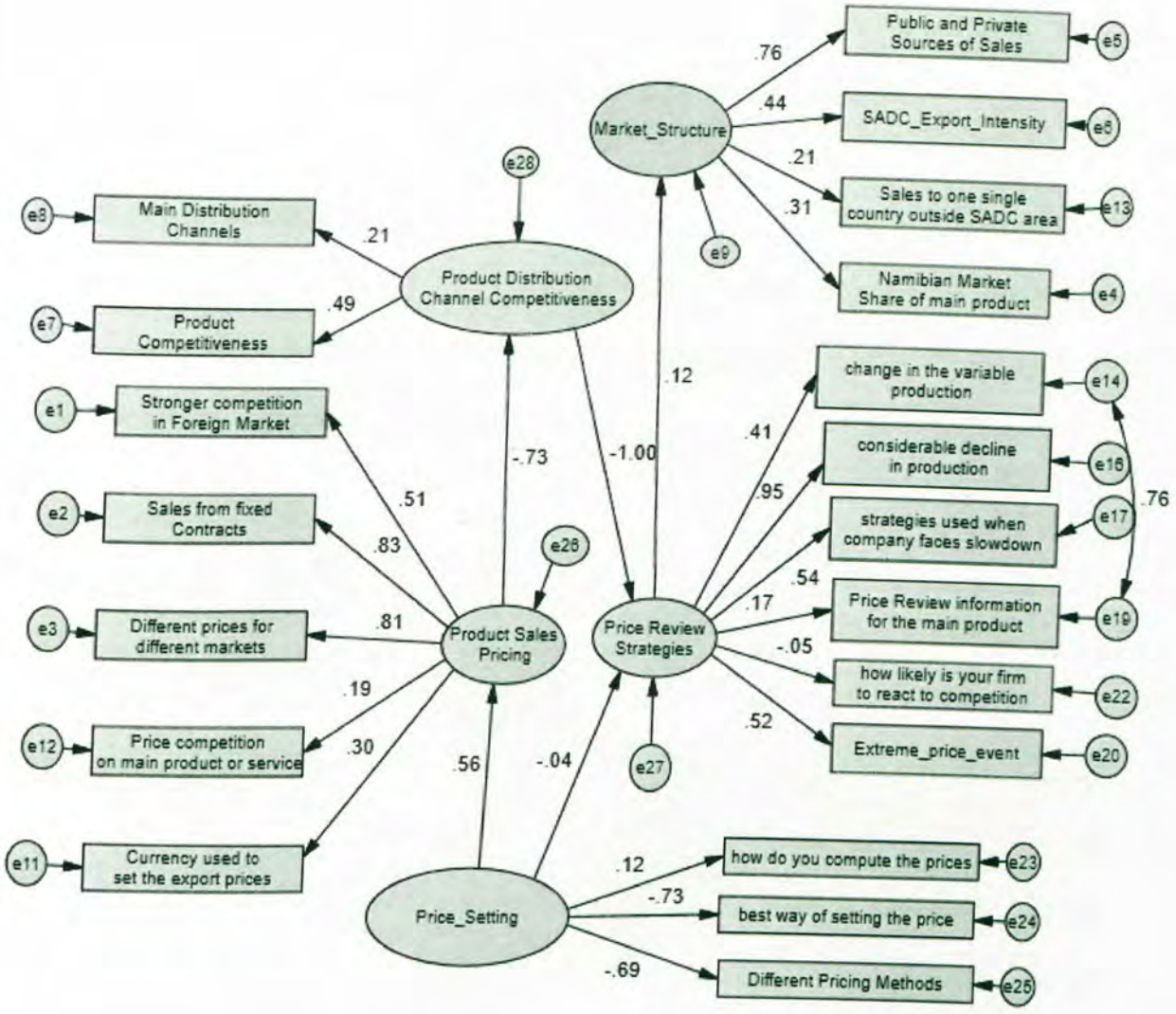


Figure 4.1: Five-Factor Price Setting Mechanism Framework

Figure 4.1 presents the factor analysis of the 20-items related to market share structure, product competitiveness distribution channels, price review strategies, product selling price and the direct price setting factor. In interpreting the result, the research focuses more on the signs of the relationships more than the magnitude. The directions of the relationships between the latent variables shows that 'Price Setting' has a negative relationship with 'Price Review Strategies' and a positive relationship with the 'Product Sales Pricing'. While the 'Product

Sales Pricing' factor is negatively impacted by the 'Product Distribution Channel Competitiveness', which in turn is negatively related to the 'Price Review Strategies'. Yet, the 'Price Review Strategies' are positively affected by the 'Market Structure'.

4.3.2. Pricing Decisions Factors

The Pricing Decisions Factors were similarly deduced using a combination of Principal Component Analysis (PCA) and Confirmatory Factor Analysis (CFA) in SPSS AMOS. The resultant model is presented in Figure 4.2.

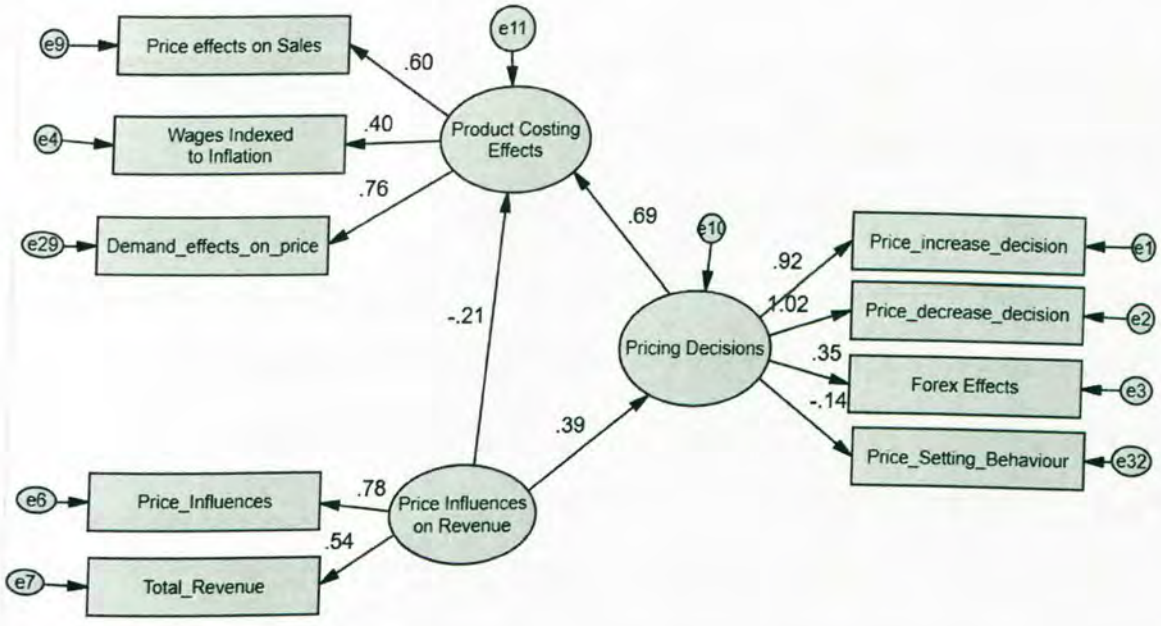


Figure 4.2: Three-Factor Price Decision Framework

Figure 4.2 presents the factor analysis of the 9-items related to price decision, price influences and product costing effects. In interpreting the result, the research focuses more on the signs of the relationships more than the magnitude. The directions of the relationships between the

latent variables shows that 'Price Influences on Revenue' has a negative relationship with 'Price Costing effects' and a positive relationship with the 'Product Decisions'.

4.3.3 Descriptive Statistics of the Composite Variables

The variables of interest were effectively reduced to twelve composite factors whose descriptive statistics are presented in Table 4.4.

Table 4.4 Descriptive Statistics and Distribution of the Composite Variables (N=20)

Factor	Mean	Std. Dev	Skewness	Kurtosis	Min	Max
Revenue_Price_Effects	10.65	2.74	-0.15	-0.86	5.00	15.00
Product_Sales_Pricing	6.50	3.73	0.27	-0.77	0.00	13.00
Price_Review_Strategies	10.35	3.92	-0.71	-0.42	2.00	16.00
Product_Distribution_Channel	4.55	1.43	-0.17	-0.39	2.00	7.00
Price_Influence_Revenue	15.90	9.49	0.25	-0.33	1.00	34.00
Price_Setting_Methods	4.25	2.02	0.94	-0.32	2.00	8.00
Price_Decisions	7.20	5.12	0.30	-0.26	0.00	18.00
Fixed_Price_Increase	8.70	3.18	-0.80	0.65	1.00	13.00
Product_Cost_Effects	4.28	2.99	1.20	1.29	0.50	12.00
Price Elasticity	4.85	1.50	1.02	2.17	2.00	9.00
Price Hindrances	14.30	5.20	1.46	2.25	8.00	28.00
Market Structure	6.65	5.67	3.52	13.99	3.00	29.00

Findings from Table 4.4 indicates high values for price and revenue related variables like price effects on revenue (M = 15.90, S.D = 9.49), revenue effects on price (M = 10.51; SD = 2.74),

price review strategies (M =10.35, S.D = 3.92) and fixed price increases (M=8.70, S.D = 3.18). The results also show medium values for price setting factors, like the effects of product cost (M = 4.85, S.D =1.50), distribution channels (M = 4.55, S.D = 2.02) and low values for Market Structure factor (M= 6.65, S.D = 5.67).

In order to test whether or not the data was distributed normally, the study relies on the measures of kurtosis and skewness (Hair et al., 2013). Kurtosis looks at the distribution's peak or flatness relative to the normal distribution, while skewness describes distributions that are unbalanced and shifted to one side, i.e. right-negative skewness or left-positive skewness, and 0 in the case of balanced normal distribution (Hair et al., 2013).

Hair et al. (2013) posits that the critical values should be within the 'range of ± 2.58', for both skewness and kurtosis, in order to accept that data distribution is not far from normal. Table 4.4 results shows that most of the variables have negative skewness values which are closer to zero, which implies the sample follows a normal distribution curved lightly skewed to the right, and the skewness means most of the responses were on lower side of the high value mean variables. The Market Structure variable's skewness and kurtosis values were greater than or less than 2.58 indicating a potentially problematic kurtosis and therefore, lack of sufficient variance.

4.4 Reliability and Validity

Data screening was done to ensure that items with a low variance and a normal distribution are used for the multivariate analysis. In addition, Cronbach's alpha test for reliability was used to test for internal consistency among the factor variables. Hair et al. (2013) argues that Cronbach's alpha coefficients values above .700 are indicative of acceptable, good or excellent

reliability. As such, the study relied on the Cronbach's alpha test to remove factors that reduces the reliability of the results. The results are presented in Table 4.5.

Table 4.5 Reliability Results

Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Fixed_Price_Increase	28.9	122.4	0.52	0.45	0.70	
Price_Review_Strategies	27.3	104.5	0.62	0.45	0.66	
Prod_Sales_Pricing	31.1	107.3	0.62	0.58	0.66	**0.745**
Price_Decisions	30.4	94.0	0.49	0.38	0.74	
Price Elasticity	32.8	147.6	0.54	0.42	0.74	
Market Structure	26.6	107.5	.129	.022	.185	
Price_Influence_Revenue	17.3	43.5	.170	.043	.177	**0.328**
Revenue_Price_Effects	22.6	133.5	.218	.047	.169	
Product Distribution Channel	22.8	54.6	.530	.320	.398	
Price_Setting_Methods	23.1	59.4	.139	.159	.539	**0.647**
Prod_Cost_Effects	23.1	44.3	.366	.203	.376	
Price Hindrances	13.1	19.5	.462	.259	.341	

The results shows that 7 out of the 12 factors have good internal consistency above 0.7. While, the remaining factors scales have poor internal consistency with the alpha values ranging from 0.328 to 0.647. The seven factors that form the scale with good internal consistency included Fixed_Price_Increase, Price_Review_Strategies, Prod_Sales_Pricing, Price_Decisions and Price Elasticity while Market Structure, Price_Influence_Revenue and Revenue_Price_Effects show poor internal consistency with 0.328. The last scale shows a consistency of 0.647 for the

Product_Distribution_Channel, Price_Setting_Methods, Prod_Cost_Effects, and Price Hindrances.

4.4.1 Correlational Matrix

A Bivariate analysis using Pearson correlation coefficient was done to explore any association between the variables in preparation for the regression analysis. Table 4.6 presents the results.

Table 4.6 Correlational Matrix

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	Product_Distribution_Channel	1.00										
2	Fixed_Price_Increase	-0.08	1.00									
3	Market Structure	-0.28	0.06	1.00								
4	Price_Review_Strategies	-0.20	.464*	0.07	1.00							
5	Price_Setting_Methods	0.28	-0.27	0.04	0.01	1.00						
6	Prod_Sales_Pricing	-0.28	.528*	0.37	0.35	-0.20	1.00					
7	Prod_Cost_Effects	0.30	0.02	0.08	0.01	-0.01	0.09	1.00				
8	Price_Influence_Revenue	0.02	-0.27	-0.10	-0.32	0.15	-0.24	-0.03	1.00			
9	Price_Decisions	-0.37	0.22	.495*	.454*	-0.20	.456*	0.27	0.00	1.00		
10	Price Hindrances	0.32	-0.07	0.36	-0.13	0.05	-0.27	0.39	-0.03	-0.01	1.00	
11	Price Elasticity	-0.21	.481*	.555*	0.36	0.05	.766**	0.25	-0.34	0.31	0.08	1.00
12	Revenue_Price_Effects	-0.26	-0.19	0.02	-0.25	0.15	-0.07	0.11	0.26	0.22	0.12	-0.09

Note. Significance level set at * p < .10; **p < .05; ***p< .01.

Table 4.6 shows the pairwise relational effects of the factor variables and indicates small to strong relationships between the variables, ranging from -0.01 to 0.766 with a significance level varying ($p < .1$, $p < .05$). The findings indicates that a few variables with significant mild (0.454) to strong (0.766) positive relationships. The significant variables include Fixed_Price_Increase factor, which has significant relationships with Price_Review_Strategies ($r = 0.464$, $p < 0.1$), Prod_Sales_Pricing ($r = 0.528$, $p < 0.1$) and Price Elasticity ($r = 0.481$, $p < 0.1$) while Price_Decisions had significant relationships with Market Structure ($r = 0.495$, p

4.4.3 Price setting behaviour and Pricing decisions process links

Findings from Table 4.4 shows a Cronbach's alpha value of 0.745 which shows good reliability. The results further show the Cronbach's alpha if item is deleted, which shows the resulted alpha values if the item is removed from the scale. These results show that removing either Price_Review_Strategies or Prod_Sales_Pricing from the scale the reliability reduces to a value below the 0.7 threshold (alpha = 0.66). Therefore, these two variables provide a critical link between the price setting behaviour and price decision process of the manufacturing companies in Namibia. Additionally, the Fixed Price Increase factor and the Pricing Decision factor variables are then used as dependent variables representing price setting behaviors and the price decision process of the manufacturing companies in the multivariate analysis.

4.5 Inferential Analysis

The study used Paired Sample T-Testing to estimate the relationships between the 12 factors in order to address the research objectives. The study used the paired sample testing to determine the variables to use in the multivariate analysis, which seeks to address the following research objectives:

- Determine the linkages between the price setting practices and the manufacturing firms' pricing decisions;
- Establish the relationship between price setting behavior, price review strategies and price decision process of Namibian manufacturing companies.

The findings for the hypothesis testing using the T-distribution are presented in Table 4.7 on the following page. Table 4.7 presents the findings of 11 paired sample T-tests of significance to answering research objectives and testing the hypothesis of the relationships between the factors. The results show the mean and standard deviation of the individual factors, as well as

their differences. The p-value gives the probability of observing the test results under the null hypothesis. If the p-value is above 0.05, then there is no significant difference between the two groups. The focus of the T-Test is to identify variables that are significantly different, in order to come up with variables that would give meaningful results in the regression models.

Table 4.7 Paired Sample T-Tests for the 12 Factors of Price Decisions and Price Setting

Pair	Variable	Mean	Std. Deviation	Correlation	Sig.	Mean difference	Std. Deviation	t	Sig. (2-tailed)
Price_Decisions & Price_Elasticity	Price_Decisions	7.20	5.12	**0.29**	0.22	**2.35**	**4.90**	**2.14**	**0.05**
	Price_Elasticity	4.85	1.50						
Price_Decisions & Price_Review_Strategies	Price_Decisions	7.20	5.12	**0.54**	**0.01**	**-3.15**	**4.46**	**-3.16**	**0.01**
	Price_Review_Strategies	10.35	3.92						
Price_Decisions & Prod_Sales_Pricing	Price_Decisions	7.20	5.12	0.42	**0.07**	0.70	4.92	0.64	0.53
	Prod_Sales_Pricing	6.50	3.73						
Price_Decisions & Fixed_Price_Increase	Price_Decisions	7.20	5.12	0.22	0.35	-1.50	5.39	-1.24	0.23
	Fixed_Price_Increase	8.70	3.18						
Revenue_Price_Effects & Market_Structure	Revenue_Price_Effects	10.65	2.74	**0.12**	0.60	**4.00**	**5.98**	**2.99**	**0.01**
	Market_Structure	6.65	5.67						
Price_Influence_Revenue & Revenue_Price_Effects	Price_Influence_Revenue	15.90	9.49	**0.19**	0.42	**5.25**	**9.36**	**2.51**	**0.02**
	Revenue_Price_Effects	10.65	2.74						
Market_Structure & Price_Influence_Revenue	Market_Structure	6.65	5.67	**0.10**	0.66	**-9.25**	**10.53**	**-3.93**	**0.00**
	Price_Influence_Revenue	15.90	9.49						
Price_Setting_Methods & Price_Decisions	Price_Setting_Methods	4.25	2.02	**-0.26**	0.27	**-2.95**	**5.97**	**-2.21**	**0.04**
	Price_Decisions	7.20	5.12						
Fixed_Price_Increase & Price_Setting_Methods	Fixed_Price_Increase	8.70	3.18	**-0.30**	0.20	**4.45**	**4.25**	**4.68**	**0.00**
	Price_Setting_Methods	4.25	2.02						
Price_Elasticity & Price_Setting_Methods	Price_Elasticity	4.85	1.50	0.03	0.90	0.60	2.48	1.08	0.29
	Price_Setting_Methods	4.25	2.02						
Price_Setting_Methods & Price_Hindrances	Price_Setting_Methods	4.25	2.02	**0.12**	0.61	**-10.05**	**5.35**	**-8.41**	**0.00**
	Price_Hindrances	14.30	5.20						

Note: The ones shaded in grey shows no significant difference among the two groups

Table 4.7 findings indicates that Price Decision had significant differences with Price Elasticity ($p = 0.05$), price review strategies ($p = 0.01 < 0.05$) and price setting methods ($p = 0.04 < 0.05$). While, Fixed Price increase was significantly different from price setting methods ($p < 0.05$).

Yet, Price elasticity and Price setting methods were found to be same ($p = 0.29 > 0.05$). Similarly, Price Decisions was found similar to both Product Sales Pricing ($p = 0.23 > 0.05$) and Fixed Price Increase ($p = 0.53 > 0.05$). Thus, allows for the inferential conclusions on the links and relationships between price setting behaviour, price review strategies and price decision process of Namibian manufacturing companies. Therefore, valid linkages between the factors affecting price decision process and price setting behaviour practices of the main products of manufacturing companies in Namibia, were established using Pricing Decisions, Fixed Price increase, Product Sales Pricing, Price Elasticity.

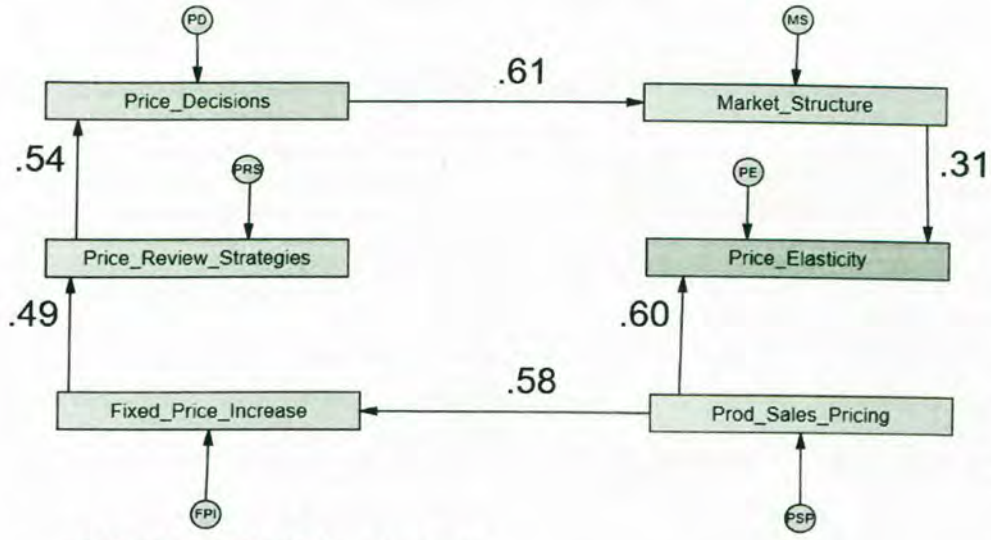
Additionally, the Fixed_Price_Increase variable can be used as a proxy variable for price setting behaviour since Fixed price increase has significant positive correlation with Price Elasticity ($r = 0.481$, $p < 0.1$). The Price Decisions had significant relationships with Market Structure ($r = 0.495$, $p < 0.1$), Price_Review_Strategies ($r = 0.454$, $p < 0.1$) and Prod_Sales_Pricing ($r = 0.456$, $p < 0.1$). Therefore, six factors were selected for the Confirmatory Factor Analysis; these includes Pricing Decisions, Fixed Price increase, Product Sales Pricing, Price Elasticity, Price Review Strategies and Market Structure.

4.5.1. Confirmatory Factor Analysis

This section tests propositions and hypothesis relating the linkages between the price setting practices and the manufacturing firms' pricing decisions as well as establish the relationships between price setting behavior, price review strategies and price decision process of Namibian manufacturing companies. With the aid of the price stickiness theories discussed in Chapter 2, CFA/SEM was used to propose causal linkages using the software SPSS AMOS version 23.

The study used a stepwise iterative modelling guided by a model fitting plugin in SPSS AMOS by Gaskin & Lim (2016). The final model and fitness statistics are presented in Figure 4.3.

Figure 4.3: Price Setting, Review and Decision Process Framework



Model Fit Measures

Measure	Estimate	Threshold	Interpretation
CMIN	9.544	--	--
DF	9	--	--
CMIN/DF	1.060	Between 1 and 3	Excellent
CFI	0.985	>0.95	Excellent
SRMR	0.094	<0.08	Acceptable
RMSEA	0.056	<0.06	Excellent
PClose	0.427	>0.05	Excellent

Cutoff Criteria*

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

*Note: Hu and Bentler (1999, "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives") recommend combinations of measures. Gaskin & Lim, (2016) further recommends combination of CFI>0.95 and SRMR<0.08. To further solidify evidence, add the RMSEA<0.06.

Figure 4.3 presents the model linkages and goodness of fit measures of the Price Setting, Review and Decision Process Framework. CFA was used to produce information about the hypothesized causal parameters, which are path coefficients that are presented as beta

weights (Polit & Beck, 2010). The beta weight coefficients indicate the expected amount of change in the latent endogenous variable that is caused by a change in the latent causal variable. These causal relationships are supported by adequate fit of the data to the hypothesized measurement model. The findings indicate that the overall fit of the causal model was acceptable to excellent within the cut off criterion from both Hu & Bentler (1999) and Gaskin and Lim, (2016). The results of the interaction tests are summarized in the Hypothesis Summary table below (Table 4.8).

Table 4.8 Hypothesis Summary Table of the Factor Relationships

Dependent	Independent	Direct Effects	Indirect Effects	Total Effects	Relationship
Fixed_Price_Increase	Prod_Sales_Pricing	0.58		**0.58**	Direct
Price_Review_Strategies	Fixed_Price_Increase	0.485		**0.485**	Direct
	Prod_Sales_Pricing		0.282	**0.282**	Mediated
Price Decisions	Price_Review_Strategies	0.539		**0.539**	Direct
	Prod_Sales_Pricing		0.152	**0.152**	Mediated
	Fixed_Price_Increase		0.262	**0.262**	Mediated
Market Structure	Price Decisions	0.607		**0.607**	Direct
	Prod_Sales_Pricing		0.092	**0.092**	Mediated
	Fixed_Price_Increase		0.159	**0.159**	Mediated
	Price_Review_Strategies		0.327	**0.327**	Mediated
Price Elasticity	Market Structure	0.313		**0.313**	Direct
	Prod_Sales_Pricing	0.601	0.029	**0.63**	Direct + Mediated
	Fixed_Price_Increase		0.05	**0.05**	Mediated
	Price_Review_Strategies		0.102	**0.102**	Mediated
	Price Decisions		0.19	**0.19**	Mediated

Table 4.8 indicates the summary of relationships and linkages between the six factor variables. The findings indicates a direct relationship between Product Sales pricing and Fixed Price Increase (beta = 0.58) while the relationship between Price Review Strategies and Product Sales Pricing (beta = 0.282) is mediated by Fixed Price Increase (beta = 0.485). It also indicates a direct positive relationship between Price Decisions and Price Review Strategies (beta = 0.539) while Market Structure was found to have a direct

positive relationship with Price Decisions (beta = 0.607). Overall, the results indicates that Price Stickiness or elasticity is directly linked to Market Structure (beta = 0.313) and Product Sales Pricing or Price setting behaviour (beta = 0.601). These findings are interpreted using the research objectives 3 and 4

4.5.2. The linkages and relationships between the price setting practices, price review strategies and the manufacturing firms' pricing decisions

The findings also indicate that Price Decisions is linked to Price setting behaviours (beta = 0.152) through the direct mediation of Price Review Strategies (beta = 0.539) and Fixed Price Increase (beta = 0.262). The findings imply that Price decisions which are influenced by the Market structure (beta =0.607), will lead to price review strategies that would lead a fixed price increase that results in the Product Sales Pricing (beta = 0.19).

These findings are consistent with the menu cost theory studies, such as Kimolo (2017), who argued that the existence of price stickiness implies that there are costs associated with changing or reviewing prices. Therefore, price stickiness among other things depends on whether the benefit of changing the nominal prices outweigh the costs. In this theory, price resetting is associated with 'fixed adjustment costs' also known as menu costs, Mankiw's (1985).

Menu costs are costs that are associated with adjusting price such as printing and distributing new price lists. When menu costs are high they may result into a situation where prices remain rigid, and thereby bring about the price stickiness. As such, manufacturing companies have employed price review strategies that involve reducing the pack sizes of their products by a percentage equivalent to a fixed price increase, while maintaining the product's selling price. For instance, products such as 100 grams dairy yoghurt packs have been reduced to 75 grams,

while products such as washing powder and ice cream have seen reductions from 2 kg or 2 litres to 1.8 kg or 1.8 litres respectively.

4.6 Summary

This chapter presented findings of the study. This included the business and market profiles of the manufacturing companies interviewed. The chapter also presents the results of the data screening and data reduction done to come out with thematic factors on pricing decisions and price setting behaviours. The study found significant positive relationship between product sales price and the fixed price increase approach within the cost-based price setting framework. The factors affecting price decision process of the main products of manufacturing companies in Namibia was found to follow a value-based pricing framework, which involves significant positive influences from price review strategies and the market structure. The value-based framework is notable for its reduction of pack sizes, while maintaining the price elasticity of the products. The next chapter presents the summary of findings, conclusions, recommendations and recommendations for future research.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter concludes this research with a summary of key findings from Chapter 4, in line with the stated research objectives and literature review in Chapter 2. Following the presentation and discussion of the empirical results in the Chapter 4, this chapter provides a summary of the entire study, draws conclusions, outlines policy implications of the findings, makes policy recommendations, and offers suggestions for further research.

5.2. Summary of Findings

The main objective of the study was to examine the price setting behaviours (behavioural mechanisms) of companies in the manufacturing sector in Namibia by establishing the decision process companies follow in their price setting practices. In Chapter 2, the study reviewed the various theories that have been developed to explain price setting behaviour, within the field of inflation dynamics and price rigidity. The study noted the important role prices play in macroeconomic models, with price adjustments at the producer level responding to shocks to production costs and demand for intermediate goods, transmit to prices at the consumer level (Cornille & Dossche, 2008). These includes theories on the menu cost and costly information, implicit contracts and avoiding bothering costumers as well as explicit contract theories, change in non-price factors, coordination failure theories, judging quality by prices, and cost-based pricing theories.

This study locates itself within an extensive literature of studies assessing the empirical validity of nominal price rigidities at micro level, which was pioneered by the seminal work of Blinder (1991, 1994) and Blinder et al. (1998), who empirically measured price stickiness through

intensive interviews of 200 private firms in United States. This led to a large number of follow-up surveys on price-setting behaviour mainly in developed countries and more recently in African countries like South Africa, Lesotho and Tanzania. Consequently, this study, as the first price-setting behaviour survey in Namibia, experienced a poor response rate of 20%, with more than 55% of the companies declining and 25% with no responses. As such, the study was limited to using a convenient sample survey of 20 manufacturing companies based in Windhoek. Faced with such a limitation, the study employed a sequential analysis approach that relied on a multi-stage methodology to reduce the dimensions and extract relevant themes or factors.

The data analysis was thus conducted in three phases. The first phase involved descriptive statistical analysis of the basic information of the company, the main manufactured product and the market structure of the manufacturing companies surveyed. The second phase used an inductive thematic analysis approach to identify, analyse and interpret patterns of meaning (or "themes") within a rich questionnaire survey, which addressed research objectives 1 and 2 and sought to determine the factors affecting the companies' price setting practices and pricing decisions.

The third phase of inferential analyses tested the research propositions and hypothesis espoused in research objectives 3 and 4.

On the basis of MTSMED company size classification, the study findings indicates that 30% of surveyed manufacturing companies were Micro enterprises with revenues up to N$ 100,000 and 20% were Small enterprises with revenues between N$500, 001 to N$1,500,000. 40% were Medium enterprises with revenues above N$1,500,000, and 10% were large enterprises with revenues above N$1,500, 000 and employees above 200. The findings also indicates that the market shares of the main products in the Namibian market ranged from less than 5% to 100%,

with companies whose main manufacturing product was in the Heavy Industrial Products averaging 35% of the firm's 2017 sales revenue, and 75% of that revenue came from their regular customers. At the same time, companies with 51-100% market share completely relied on their main products for their 2017 revenue, with the bulk of the sales (80-95%) coming from their regular customers.

The study also shows that companies whose main manufactured product was in the Light Industrial product segment had a market share of less than 5 %, with 80% of their revenues coming from their regular customers. Those with market shares up to 20% relied less on regular customers (66.7%), with at least a third of their main product sales coming from occasional customers while their main product only contributed 70% of their 2017 revenue.

Overall, the results suggest that most of the companies had their revenues for the main products coming from their regular customers (76 – 95%), while, the main products contributed considerably to the companies' 2017 revenue, with averages above 60%.The exception to this were companies in the Household cleaning & cosmetic products which despite having regular customers share of 89% had the main products contributing an average 37.5% of the 2017 sales revenue of the company.

Regarding the market structure of the main product, the findings reveals that 60% of the companies' main source of revenue was from the private sector, with only 40% revenue coming from the public or government procurement. The findings also indicates that the companies were faced with stiff competition when selling to the private sector than selling to government or public sector customers. 15% of the products sold to private sector had more than 20 major competitors compared to only 5% for products sold to both public and private sources.

- Determine the factors affecting price decision process of the main products of manufacturing companies in Namibia;
- Determine the linkages between the price setting practices and the manufacturing firms' pricing decisions;
- Establish the relationship between price setting behavior, price review strategies and price decision process of Namibian manufacturing companies.

5.2.1. Objective 1a: The factors affecting price setting practices of the main products of manufacturing companies in Namibia.

On the basis of the findings, the study concludes that the factors affecting price setting practices of the main products of manufacturing companies in Namibia, includes the Product Distribution Channel, Price Setting Methods, Product Costing Effects and Price Hindrances. These factors fall within the argument of Cost-based pricing theory, which states that the costs of inputs are the most important determinant of a firm's pricing decision. Thus, if costs of inputs do not change, prices of the firm's products will not change either (Correa et al., 2018). The price setting practices among other things depends on whether the benefit of changing the nominal prices outweighs the costs. In this theory, price resetting is associated with 'fixed adjustment costs' also known as menu costs. The study concludes that when the menu costs are high they may result into a situation where prices remain rigid, and thereby bring about the price elasticity.

5.2.2 Objective 1b: The factors affecting price decision process of the main products of manufacturing companies in Namibia.

On the basis of the findings, the study concludes that the factors affecting the price decisions of the main products of manufacturing companies in Namibia were Fixed Price Increase, Price

Review Strategies, Product Sales Pricing, Pricing Decisions, and Price Elasticity. These factors are best explained by the Contract based theories; specifically in relation to the implicit contracts that denotes some sort of connection between clients and seller of the product which is developed when they transact with one another for a time period, and therefore any price adjustment for the good or service, consequently, can be a nuisance to clients when they think that the adjustments are irrational. Thus, companies cannot raise prices for existing customers without any contract renegotiation even with cost shocks or demand shocks. The study concludes that most manufacturing firms in Namibia have nominal agreements which are either explicit or implicit that fix prices of goods and services for a pre-determined period of time. Moreover, the market structure and relationships with the big four retail giants: Pick n Pay, Shoprite, Checkers and Spar makes it imperative to have such contracts.

5.2.3. Objective 2: The linkages between the price setting practices and the manufacturing firms' pricing decisions.

The study concludes that any price decisions are linked to price setting behaviours by way of price review strategies that forces companies to make fixed price increases that are influenced by the market structure. As such, the price elasticity of manufactured products in Namibia, highlights the existence of pricing thresholds, where companies set their prices at psychologically attractive thresholds. This threshold pricing setting practices can lead to price stickiness, since companies may delay price adjustments as they consider that raising prices above these thresholds will lead to a disproportionate fall in demand. Moreover, the retail industry concentration in Namibia is consistent with the coordination failure theories that emphasizes interactions between firms. Thus, based on the market structure, manufacturing companies in Namibia may not want to change their prices after a shock if other firms do not do so, in fear of sparking off a price war. Therefore, without coordination mechanisms that

allow firms to move together, the manufacturing companies often prefer to wait and see what happens in the market before acting, thus producing price rigidities.

5.2.4. Objective 3: The relationship between price setting behaviour, price review strategies and price decision process of Namibian manufacturing companies.

The study concludes that the price decisions processes of Namibian manufacturing companies are influenced by the market structure related price elasticities. As such, the companies employ price review strategies within a fixed price threshold that often results in a Product Sales Pricing mechanism that supports increasing price rigidities, and favours the concentrated retail industry. Therefore, the study concludes that the price decision process of the main products of manufacturing companies in Namibia follow a value-based pricing framework based on the time dependent rules that are exogenous and do not depend on particular state of the economy. The time dependent rule assumes that firms will wait until the 'time has come' to adjust prices. As such, the companies prefer to wait and see what happens in the market before acting, producing price rigidities in the market. Thus, limiting the companies to a value-based framework that is notable for its reduction of pack sizes, while maintaining the price elasticity of the products.

5.4. Recommendations

On the basis of the findings and conclusions of the study, the following recommendations were made:

A careful study of clients' buying behaviours is one of the most successful ways to know consumers' interests when making a purchase decision. It is also recommended to segment consumers based on demographic characteristics and study carefully their needs and willingness to buy the company's main product.

It is important to complements industry knowledge and experience with that of experts in the field of pricing. The support of experts such as cost management experts or financial accountants should be sought when setting prices. The right price will always trigger positive response from customers and have a direct impact on revenue to achieve organisational objectives.

Also, a mix of pricing approaches should be adopted. There should be a mix of cost-based and value-based approaches that ensure that price decision process incorporates the distribution channel, cost effects, price hindrances, price setting methods, price review strategies, price elasticity and market structure. Due to the ever-changing nature of the business environment, a single pricing approach may not be effective and efficient in attaining the business objectives.

Consideration should be given to the prices of both local and international competitors when setting prices, especially for products that are identical in all respect. It is also very prudent to ensure that the prices set do not significantly deviate from the industry's average prices.

Businesses should also, try to differentiate their products from that of their competitors. As product differentiation is particularly essential when products offered are very identical to that of competitors. A unique product can attract a higher but justifiable price. This can be done

through corporate social responsibility (CSR), where the companies can announce that a portion of the price of selected products will be donated to charitable causes, such as the food bank project, which will encourage consumer to select the products impulsively.

In conclusion, businesses should not over-emphasize price as the channel for revenue generation, but see to it that customers' needs are met. This can be achieved by giving customers value for their money.

5.5. Recommendations for Future Research

This study focused specifically on the manufacturing sector of Namibia. A more extensive study which includes other economic sectors like the retail, wholesale, business services, transportation and construction sectors is recommended. The study of this scope will need the support of other stakeholders such as the Bank of Namibia, Namibia Manufacturers Association and the Namibia Chamber of Commerce to ensure a better survey response rate and allow for comparisons on price setting behaviours across sectors. A study of this magnitude will be time consuming and should be taken into consideration by the researcher. However, the insights generated from such a study will be beneficial to policy makers in having a broader view of pricing behaviours and their effect on inflation dynamics.

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