

Consumer-based factors in applying dynamic pricing in a digital context in South Africa

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Abstract

This study examined dynamic pricing, an academic field that analyses and determines the most advantageous selling prices for items or services.

The study found consumers are opposed to paying transactions, scarcity, urgency, and specific categories of goods and services fees. They are willing to pay more for personalised offers, fair pricing, transparent pricing strategies, and customer treatment. The study confirms the results of the Ariely experiment, suggesting that customer-based factors influence willingness to pay for a product or service.

The study suggests that dynamic pricing can effectively increase revenues and company valuations for online retailers, when implemented fairly and justifiably. Consumers are tolerant of price variations where fluctuating demand is expected, given the price differential is not excessive. Firms in industries with limited resources and fluctuating demand are more able to implement dynamic pricing. Online retailers must allocate resources and determine suitable artificial intelligence (AI) solutions to address negative customer reactions. AI and machine learning (ML) are pivotal in forecasting and facilitating tailored experiences in big data analytics. Adopting AI and ML is key for dynamic pricing, especially regarding price sensitivity and irrationality.

Recommendations for sellers include developing consistent, transparent, and simple policies that align with consumer expectations. Companies should carefully consider price discrimination and increase transparency to offset negative effects.

Future research should consider Consumer factors, pricing optimisation for lower-income consumers, and longitudinal studies. The study's limitations include insufficient data for younger generations, potential biases due to generational opinions, and a bias favouring individuals with higher socio-economic levels.

KEYWORDS:

Dynamic pricing, customer preferences, willingness to pay

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Dedication

I would like to dedicate this research to my late dad, Rajesh Demrugaram, whom unfortunately lost his battle to Covid-19 in 2021, whilst my masters was still in progress.

Dad, your dedication to the field of education and your resolve to always assist your students and go the extra mile as an educator has greatly inspired me to be a better person and learn that kindness is the greatest gift.

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List of Acronyms

AI	Artificial Intelligence
B2B	Business to Business
B2C	Business to Consumer
IoT	Internet of Things
ML	Machine Learning
VUCA	Volatile, Uncertain, Complex, Ambiguous

CHAPTER 1 INTRODUCTION

1.1 Purpose of the Study

This study aims to determine the Consumer factors that need to be considered when applying dynamic pricing strategies in South Africa. It explores elements such as willingness to pay, demographics, perceptions of price points, and some behavioural and psychological traits that may affect consumers' acceptance of pricing levels.

1.2 Background of the Study

Pricing levels within an organisation are one of the most pivotal elements in determining a company's success (Stasinski, 2020). They are a direct factor in the profit equation, where $\text{Profit} = (\text{Price} \times \text{Quantity}) - \text{Cost}$.

Pricing is thus an important element in determining profit margins and revenue (price x quantity). Some other important values that pricing brings to an organisation include being able to adjust pricing to be a valuable marketing tool and bringing a strategic advantage to a company in terms of positioning respective to competitors, the product and brand (ABC of Marketing, 2018).

Recent technological trends and digital growth have led to a change not just in the industries and competitive landscapes but also heavily in the way many businesses operate at a micro-level (Neubert, 2022). These changes have altered many important strategic processes and metrics, including pricing (Krämer & Kalka, 2016).

Firms in the e-commerce sector are now able to collect and analyse more information on customers (Chen & Chen, 2015). This knowledge can be used to set the most appropriate price points for a particular customer or segment of

customers. This practice is commonly referred to as a market of one or one-to-one pricing (Krämer & Kalka, 2016).

Consumer behaviour changes as new entrants come into the market and new products are introduced (Goga et al., 2020). Thus, companies need to adjust pricing to be optimal and ensure that pricing does not cause new digital products to radically cannibalise existing high revenue-generating products (Krämer & Kalka, 2016).

According to Krämer and Kalka (2016), the evolution of digital products and services, as well as digital business models, has led to the prominence of four main types of pricing models. A customer will purchase a product when their willingness to pay is equal to or more than the price of an item, and the pricing models aim to incorporate this theory (Krämer & Kalka, 2016).

The first dominant pricing model is a free model used by some digital companies like Facebook and Google, which attain revenue by charging third parties for advertising. The next is a freemium model, which offers basic services for free but charges clients for extra features or premium access. The third is subscription models, which charge a set fee per period for a certain agreed quantity or access to agreed products/services. The fourth and last method, which is the focus of this paper, is dynamic pricing, where customers are charged flexible prices based on demand and customer profiles/preferences (Krämer & Kalka, 2016).

This study, which is in the context of South Africa, is different from most other countries, as South Africa has a digitally savvy population in most of the country (Egan, 2021). However, there is still a substantial digital divide where many people do not yet have access to digital goods and services (NGO Pulse, 2020). The application of dynamic pricing in South Africa is still relatively immature, so this study provides good insights into how to apply it best.

Applying optimal pricing for lower-end customers is extremely important as this market tends to be very price-sensitive (Pasara & Garidzirai, 2020). Offering a

lower price when a firm can absorb the financial implications of doing so will likely assist in adopting and driving financial inclusion. Whilst not explicitly included in this study as the method of data collection is digital, understanding how the market that currently has access to digital services perceives pricing will give a head-start on thinking of effective strategies for the excluded market as well (Raza et al., 2022).

1.3 Research Problem

Dynamic pricing is a tool that can greatly benefit a company when used correctly (Neubert, 2022). It applies variable pricing to a product and assists in pricing clients at the price they are most likely to accept based on the perceptions of what price a customer is willing to accept (Gaille, 2018).

When dynamic pricing is applied correctly, it can increase profits. (Vomberg, 2021), states that dynamic pricing can increase profits by as much as from 3% to 21%. (Onramp Funds, 2025), further state a 10% increase in profit with just a 1% increase in price.

Digital sales create vast data for companies, which can be invaluable in creating customer insights, particularly on their response to price points and willingness and/or propensity to pay and purchase (Verma et al., 2021). Many companies do not know how to effectively exploit this data pertaining to historical searches or browser history and do not fully understand what customer-based factors influence what price a customer is willing to pay (Den Boer, 2015).

Advances in digital marketing and e-commerce have created the efficient enablement of dynamic pricing. With companies having vast customer data sources, many products on their platform, as well as AI at their disposal, they are able to implement price changes in seconds, with AI and data driven algorithms being able to determine optimal pricing with no intervention or effort. (Fast Company Executive Board). This provides a competitive and revenue-optimising edge, as companies can respond faster than competitors in an

extremely competitive environment, where the inability to respond to market and consumer factors leaves revenue on the table. (Fast Company Executive Board).

This study aims to investigate customer perceptions of dynamic pricing in a digital context and explore some of the factors that influence customer's acceptance of a price. These include willingness to pay, psychological factors, behavioural elements and knowledge. If these elements can be understood and incorporated correctly, they can assist firms in implementing successful and optimal dynamic pricing strategies (Burger et al., 2017).

This study provides additional insight into the current body of knowledge related to dynamic pricing. Much research has been conducted on this topic in recent times. However, not much has been explored in the context of customer perceptions and acceptance of pricing levels, especially in a digital context, in terms of the pricing of digital goods and services (Neubert, 2022). Krämer and Kalka (2016) discuss common and popular pricing models for digital products and services. The paper details the digital era's four central and commonly used pricing strategies, namely free, freemium, subscription and dynamic pricing and its importance in digital dynamic pricing models, as well how they contribute to increased profits and revenue (Kramer & Kalka, How digital disruption changes pricing strategies and pricing models, 2016).

Deksnyte and Lydeka (2012) also explored the factors enable dynamic pricing and form the basis on which price differentiation can occur. These are customer behaviour and characteristics, fairness, market Structure, product demand, the perception of product value and seasonality (Deksnyte & Lydeka, 2012)

There is nevertheless a reluctance to actively and explicitly apply dynamic pricing in companies due to customer pushback, perceptions of fairness and stipulations regarding discrimination from a competition and consumer law perspective in South Africa (Business Tech, 2023; Mashego, 2021; Modise, 2023).

There also remains a lack of the understanding of dynamic pricing in South Africa, especially in a digital context from both consumers and businesses.

1.4 Research Questions

This study aims to determine the Consumer factors that need to be considered when applying dynamic pricing strategies in South Africa. Therefore, the following research questions are addressed:

- Do customers expect to pay higher or lower prices for digital products and services?
- What behavioural, psychological, and personal factors (namely convenience, personal offers, fairness, irrationality and demographics, namely gender, age, employment status, income bracket and education level) influence the willingness to pay for a product in the context of dynamic pricing applications?

The research objectives for the first question are to determine if customers perceive that they should pay more or less for digital products as opposed to physical products. The reasoning behind this will be further assessed in the literature review.

The research objectives for the second question are to determine which consumer factors are significant when applying dynamic pricing, and which are more likely to result in a consumer accepting a fluctuating price.

1.5 Significance of the Study

Mastercard reported that, although 68% of consumers reported shopping more online since the National Lockdown associated with the COVID-19 pandemic, South African online retail represented only 2% of all retail transactions (the global average is 16%) (MasterCard, 2020). The potential for meaningful insights in the South African context, where the market is still in its infancy, cannot be overstated.

Correct pricing levels within an organisation are beneficial. They can greatly assist in getting maximum revenue benefit, particularly with the low cost associated with digital products and services, where, in most cases, the marginal cost is 0 (Maher & Bird, 2020). There is thus an opportunity to charge as high as the willingness to pay for a product, or if the product is incredibly scarce or valuable, to charge a higher premium on them as a firm is not constrained by cost-plus pricing (Ngwe et al., 2019).

Some of the other benefits associated with optimal pricing levels include the fact that senior management and business executives can use it to increase sales levels by dropping prices at times of poor sales (Chatterjee & Kumar, 2017). It can be utilised to maximise profitability where a customer's willingness to pay is higher than the price a firm would typically charge (Saha et al., 2020). If the company can predict that a customer will require a certain product, the firm will charge more than usual. It can also manipulate demand and can assist in creating demand by dropping prices when demand levels are lower (Gaille, 2018).

This study thus assists management in making correct pricing decisions about a digital product. It enhances the ability to apply dynamic pricing to digital and other products by ensuring that customer factors (Convenience, personal offers, fairness, irrationality and demographics, namely gender, age, employment status, income bracket and education level) are understood. As customer preferences and buy-in are important in a digitalised customer-centric world, it will assist with less pushback from customers in the context of changing prices, especially if prices and offers are tailored to customer needs and circumstances (Opata et al., 2019). The study aims to determine if customers will pay more for a digital product and if they are willing to accept higher and fluctuating pricing levels (implying higher revenue and profits for the firm, all else constant) under certain conditions influenced by consumer behaviour and characteristics.

1.6 Delimitations of the Study

There are three main delimitations in the application of this study:

There are many factors that influence optimal pricing levels. These include competition pricing levels, demand for a product, scarcity, value-added, and cost, to name a few. All these factors may not be analysed and unpacked in this study. The results of this study are related to customer influences. They are meant to be used in conjunction with an analysis of the industry landscape, which will include all the factors mentioned above and any others that may be applicable. This study is not a standalone reference or suggestion for creating optimal pricing points.

The second is that this study is customer-based. It is meant to be interpreted in a Business-to-Customer (B2C) setting and not Business-to-Business (B2B), where the pricing dynamics are different.

The last is that this study is meant to be used in the application of general products and services and excludes asset and interest-rate-based products, such as loans, investments and savings products. These products have different pricing structures, and these results may not be entirely relevant to their pricing levels.

1.7 Definition of Terms

Customer Preferences – In the context of this study, customer preferences refer to purchase decisions based on utility, individual tastes, motivations, inclinations, likes, dislikes and perceptions (Spacey, 2016).

Dynamic pricing means changing and contextualising prices to specific customer preferences. This may also include demand fluctuations (Price Intelligently, 2015).

Willingness to pay – Willingness to pay refers to the maximum a customer will pay for a good or service. This usually differs amongst customers based on the

value or preference they attach to a product and circumstances (Market Business News, 2021).

1.8 Assumptions

This study assumes that the respondents have a reasonable knowledge of digital products and services. It also assumes that respondents have interacted with or purchased from an e-commerce site in the past, which is not unreasonable, given the adoption surge in e-commerce since the COVID-19 pandemic.

1.9 Chapter Outline

Chapter 1: Introduction provides the purpose as well as the background of this study. The research problem, questions, and significance of the study are also detailed in this chapter. Delimitation of the study, the definition of terms and research assumptions were also provided.

The next chapter (**Chapter 2: Literature Review**) details the relevant literature in the context of the study and introduces different theories and concepts related to the topic. It will also explore the hypotheses, theoretical perspectives and conceptual frameworks.

Chapter 3 discusses the **research methodology**, how the study has been designed, and how the data has been collected and analysed.

Chapter 4 presents the **study results** and begins with an overview of the sample before presenting the descriptive statistics. Next, the chapter outlines the reliability of data before presenting hypotheses testing.

Chapter 5 outlines the **discussion of the results** and compares the study's results with the literature outlined in Chapter 2. This exercise allows for the

thorough unpacking of the results in relation to what has already been established in the body of knowledge.

Chapter 6: Conclusion wraps up the study by reflecting on the primary research question, the methodology employed and the main results. Then, recommendations, areas for future study, and study limitations are presented before the study is concluded.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This study aims to determine the Consumer factors that need to be considered when applying dynamic pricing strategies in South Africa. It explores elements such as willingness to pay, demographics, perceptions of price points, and behavioural and psychological traits that may affect consumer acceptance of pricing levels. Pricing is pivotal in determining a company's success and provides strategic advantages in positioning against competitors, products, and brands.

Technological trends and digital growth have changed industries and competitive landscapes, altering strategic processes and metrics, including pricing. Digital companies now collect and analyse more customer information, especially with AI and technological advancements, which can be used to set the most appropriate price points for a particular customer or segment. The fourth and final method, dynamic pricing, is focused on adjusting pricing to be optimal and not causing new digital products to cannibalise existing high revenue-generating products.

South Africa has a digitally savvy population, but there is still a substantial digital divide where many people do not yet access digital goods and services. Applying optimal pricing for lower-end customers is essential, as this market tends to be very price-sensitive. Understanding how the market that currently has access to digital services perceives pricing will give a head-start on thinking of effective strategies for the excluded market.

E-commerce in South Africa has seen significant growth in recent years. In 2023, more than 76% of citizens used the internet, with this number expected to grow by 22% by 2029 (Statista, 2025). The actual number of e-commerce users

is also predicted to be on the rise, with 11 700 000 e-commerce users in 2025 expected to grow to 21 520 000 users by 2029 (Statista, 2025).

Digital payments in South Africa is also becoming increasingly popular, with innovation and technological advancements aiding the transformation of economies. According to a report by PricewaterhouseCoopers titled 'Payments 2025 and beyond', as cited by the South African Reserve Bank 2024, worldwide cashless payment transactions are predicted to grow more than 80% between 2020 to 2025, from approximately 1 trillion transactions to 1.9 trillion, and then to almost triple by 2030 (South African Reserve Bank, 2024).

Dynamic pricing is a tool that can be beneficial when used correctly, as it applies variable pricing to a product and assists in pricing clients at the price they are most likely to accept within this digital context, in both e-commerce and for a digital product on a site or platform. However, many companies do not fully understand what customer-based factors influence what price a customer is willing to pay. This study provides additional insight into the current knowledge related to dynamic pricing, particularly in a digital context.

Given that e-commerce and digital payments are on the rise in South Africa, dynamic pricing plays a crucial role in taking advantage of these dynamics. This has been seen by e-commerce retailer Amazon, which leverages sophisticated pricing algorithms to change prices to match competitors', as South Africa is viewed as a very price-sensitive market, often being willing to compare prices and wait longer for lower prices (Retail Brief Africa, 2024).

According to a recent Boston Consulting Group (BCG) survey as cited by Neethling, 2024, on South Africa's e-commerce landscape, the arrival of global e-commerce companies Shein, Temu, and Amazon has increased e-commerce competition, raising consumer expectations for lower pricing, convenience, and product variety (Neethling, 2024). This creates the need for pricing strategies to be quick, reactive and fully optimised to beat competition.

The use of dynamic pricing strategies have also already been successfully implemented in the hospitality industry in South Africa, with hotels and online hospitality booking platforms making use of demand, seasonality and location to influence prices (Federated Hospitality Association of South Africa, 2024)

Optimal pricing levels can help organisations maximise revenue, especially with low costs associated with digital products and services. They can be used by senior management to increase sales, maximise profitability, and manipulate demand. This study assists management in making correct pricing decisions about digital products and enhances the ability to apply dynamic pricing to digital and other products by understanding customer factors.

The study is customer-based, interpreting results in a Business-to-Customer (B2C) setting and excludes asset and interest rate-based products. Customer preferences refer to purchase decisions based on utility, individual tastes, motivations, inclinations, likes, dislikes, and perceptions. Dynamic pricing involves changing and contextualising prices to specific customer preferences, including demand fluctuations.

This chapter details the study's main themes, including the perception of what prices can or should be charged for digital services or products. It also examines what consumer-based factors influence willingness to pay and the acceptance of different or dynamic pricing levels to enable companies to implement them better.

The literature review begins by examining the cost structure of various digital products and services to understand how the marginal cost structure affects revenue and pricing decisions. It then examines the different pricing models relevant to the digital era and how the digital landscape has changed traditional pricing models. It unpacks the four pricing models: free, freemium, subscription and dynamic pricing. Dynamic pricing is expanded on as the focus of this paper. It then discusses the hypotheses, which are further explained and contextualised in the analytical framework.

2.2 Pricing Models in Digital Businesses

2.2.1 Zero Marginal Cost in Digital Business Models

Marginal cost is defined as the additional cost a firm incurs to deliver an extra product unit, and historically, many organisations have aimed for the lowest marginal cost possible (Cavallo, 2017). This approach allows them to sell products at a lower price, as the price is equal to marginal cost as a general economic rule of thumb (Maher & Bird, 2020). This assisted them in being more competitive via lower prices or by charging the same as competitors with higher marginal costs, thus allowing them to realise higher profit margins (Stasinski, 2020). In an increasingly digital society, marginal costs are brought down to near 0, leading to a change in how we think about pricing (Maher & Bird, 2020). Most firms now have the liberty to deviate from cost-based pricing and can charge as much as the customer is willing to pay to maximise profits.

Huang and Sundararajan (2011) discuss marginal costs in the context of digital services like Cloud. They argued that the marginal cost function for software providers is zero in the short run and discontinuous/variable in the long run. Such behaviour is attributed to periodic investments in infrastructure and other system upgrades required to scale a product and sell more so that access and speed on interfaces are not affected. For the purposes of this paper, a short-term view is taken. The digital landscape is innovative and constantly evolving, and a long-term view is seldom applicable as new products and ways of working are introduced (Ndung'u & Signé, 2020). A zero or very minimal marginal cost is thus assumed. Personalisation of pricing is thus beneficial in this context, as profit margins do not constrain firms and can gain the maximum revenue benefit from a customer.

In this way, companies are able to ignore underlying costs associated with many digital products and price them at the most competitive and revenue-maximising rates, without constraining profit margins too tightly. This applies to

products such as banking products like cheque accounts, where the underlying investment cost for infrastructure and hosting can be ignored in most cases

In an e-commerce context, underlying costs are still applicable as the physical product incurs a cost to source and deliver to a customer. Dynamic pricing however allows the price at which the product is sold at to be determined optimally, taking into account factors such as competitor pricing, demand, seasonality, scarcity, convenience, etc.

2.2.2 The Pricing Landscape for Digital Products and Services

Krämer and Kalka (2016) discuss common and popular pricing models for digital products and services. The paper details the digital era's four central and commonly used pricing strategies, namely free, freemium, subscription and dynamic pricing, as shown in Figure 2.1.

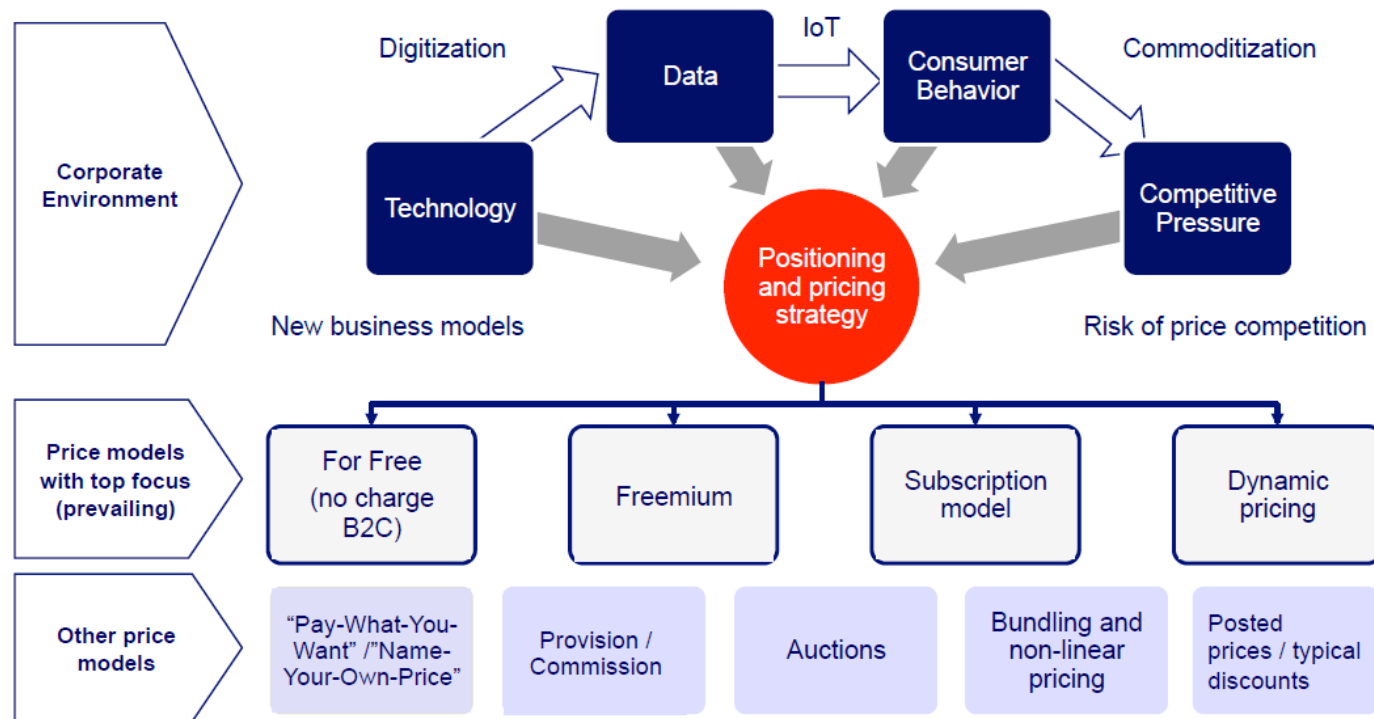


Figure 2-1: An Overview of Digital Pricing

Source: Krämer and Kalka (2016, p. 2).

2.2.2.1 Free Pricing Model

A free pricing model provides services or products for free with a key objective of providing latent demand. The company creates revenue by selling to third parties, such as Google. Another strategy is to offer the service or product for free to create a new market, as with launch action. Other examples include a build-in to paid products, where children can travel free if accompanied by an adult. A free model allows customers to enjoy the benefits without the financial risk, aids in marketing and exposure and increases cross-sales. However, there are risks in terms of positioning; for instance, a customer could view the offering as inferior based on it costing nothing (Krämer & Kalka, 2016).

2.2.2.2 Freemium Pricing Model

A freemium model is a combination of free and premium. It provides basic products or services for free whilst asking users to pay for additional or premium features. Freemium models are a powerful marketing tool as social word of mouth quickly aids in adoption. Companies can scale up without incurring any costs on ads and campaigns, and it is an attractive way for businesses to secure funding, as investors and venture capitalists can benefit from paying customers (Tandon, 2020). The customer base is an asset to the company, whereas the customer base is an indicator of the value of a company. Another benefit to organisations is the usage of data gained from customers, providing powerful insights to management and senior executives on effective strategies to convert/retain customers and improve business (Krämer & Kalka, 2016).

2.2.2.3 Subscription Model

A subscription model allows customers access to a set quantity or value for a fixed price per period, usually monthly. This is not an entirely new pricing strategy; companies have used it before the digital era to drive loyalty and utilisation of products and marketing capacities (Shen et al., 2020). The benefit of this model is that the firm can limit the consumption of the product; also, the

customer can know the price upfront. It is an important model to drive customer loyalty via contractual methods. However, firms need to be aware of lock-in prices should there be a sudden and unexpected surge in their costs (Krämer & Kalka, 2016).

2.2.2.4 Dynamic Pricing Model

The last model is the dynamic pricing model, which refers to charging different prices for the same product to different customers or at different times. Dynamic pricing is also not a new pricing method; however, advancements in technology and available clients' data have resulted in a much more efficient landscape to apply this strategy (Dabija & Lung, 2019).

Dynamic pricing forms the focus of this paper, and can still be utilised in conjunction with other pricing models. The benefit is allowing a company to price at the most efficient and profitable price point for a product, irrespective of the pricing and revenue model used.

The first form of dynamic pricing as discussed by Shi and Chummumpan is adjusting prices due to demand or adjusting prices on days when clients with higher purchasing power are expected (Shi & Chummumpan, 2020). Another extreme form of dynamic pricing is price discrimination, which personalises prices to a unique or single customer based on data collected by an organisation (Moriarty, 2021). Table 2.1 further summarises the different types of dynamic pricing.

Table 2.1: Types of Dynamic Pricing

Type of Dynamic Pricing	Explanation
Time-Based Pricing	Prices are adjusted due to fluctuations in demand and seasonality.
Competitive-Based Pricing	Prices are adjusted in response to competitors'

Type of Dynamic Pricing	Explanation
	pricing strategies.
Distance-Based Pricing	This is based on how far away a customer is from a physical store.
Browsing-Based Pricing	A customer's browsing history gives an indication of their willingness to pay.
Past Behaviour Pricing	Customers' past transactions and loyalty influence the price they are charged.
Devices-Based Pricing	Prices are determined by the type of device the customer uses to access the interface/product.
Demographics-Based Pricing	Clients are priced based on demographics like age and gender.
Dynamic Merchandising	Prices are adjusted as a tool for stock and inventory management.

Source: Krämer and Kalka (2016, p. 7).

2.2.3 Dynamic Pricing Expanded

Deloitte differentiates between differential pricing and dynamic pricing. Differential pricing is based on price variations based on a customer's willingness to pay, and it has three degrees or types. The first refers to charging a different type for each product sold, and the second degree involves selling at different prices depending on quantities or scope. The third degree refers to different prices for different customer groups. Dynamic pricing is defined as the change in prices resulting from demand (Deloitte, 2020).

One of the earliest definitions is "selling a suitable product, to a suitable client, for a suitable price at a suitable time" by Weatherford and Bodily in 1992, as cited by Deksnyte and Lydeka (2012, p. 3). For the purposes of this paper, price

variation due to demand, customer factors, or any other applicable variables that may influence pricing will all be included in the definition of dynamic pricing.

Deksnyte and Lydeka (2012) also explored the factors that enable the application of dynamic pricing. These are described as:

- Customer Behaviour and Characteristics: this refers to purchase behaviour, propensities, and psychological factors, to name a few.
- Fairness: this pertains to perceptions of the fairness of prices between providers and other related parties.
- Market Structure: relates to competition and market power.
- Product demand: the demand for a product affects the pricing levels.
- The perception of product value: this affects how much a customer is willing to pay for a product.
- Seasonality: changes in seasonality affect the demand for goods and, hence, pricing.

All of these above-mentioned factors influence the price level that a customer will pay for a product. A customer will take these into consideration, when deciding on whether to make a purchase at the price quoted. (Deksnyte & Lydeka, 2012)

Dynamic pricing has been chosen as a focus for this paper due to the nature of its mechanism. It can be tailored to specific customer preferences, which can lead to an increase in customer-centricity (Lobel, 2020). It allows maximum revenue benefit and can be used in conjunction with other pricing models. For example, dynamic pricing models can be used to tailor prices for subscriptions and conversions on freemium models in a subscription and freemium model.

2.3 Customer Perceptions on Prices of Digital Products and Services

Understanding how customers perceive digital products and their willingness to pay for them is important in developing an optimal pricing strategy, particularly

dynamic pricing (Neubert, 2022). It is noted that customers' perceptions of pricing strategies are not purely rational but are driven by behavioural elements and preferences (Ahmed et al., 2022). Firms can thus gain a competitive edge by introducing a pricing model that is not common to the industry (Krämer & Kalka, 2016). This provides an avenue for an unconventional strategy that exploits a customer's willingness to pay – as these are based on behavioural and preference-based qualities, these price points will be different to each customer.

Deloitte (2020) discusses the shift from cost-based pricing to value-based pricing due to a change in pricing models, where the 0 marginal cost comes into play. Value-based pricing focuses on the value to the customer and prices for the value or benefits it adds to the end user (Deloitte, 2020). The value-add concept is important, as a product's value to customers will influence their willingness to pay for it (Boyer et al., 2020).

In general, customers perceive digital products as “cheaper” and less valuable than physical ones. This is due to the concept of ownership – customers do not feel like they actively own a digital product, partly because they cannot see, feel or control it, according to a study conducted (Atasoy & Morewedge, 2017).

This research addresses this first question: How do customers perceive the prices they should pay for digital products and services? Innovation in pricing models for digital goods and services is the key theme to be explored under this research question. The perceptions of these products in the context of costs and pricing will assist in establishing such themes. From the research questions, the following hypothesis is generated.

2.4 Analytical Framework

2.4.1 Theoretical Lens

Faith (2018) discusses consumer theory as one of the foundational principles to consider in a price-setting process. It is argued that customer behaviour and choices between product sets and alternatives are usually driven by rationality but are also influenced by preferences, comparability, and budget constraints. It

is thus important to understand these elements for enhanced price-setting and ensuring that the customer is understood (Kukla-Gryz et al., 2020).

Customer-perceived value is another element explored by Faith (2018). This value is perceived as the benefit or value from the rewards or sacrifices linked to a purchase. Value to the customer is, therefore, an important element in establishing price points, as customers will only pay as much as they value the benefit derived from a product or service (Lu et al., 2020).

Kellog et al. (1997), as cited by Faith (2018), discuss the nine laws of price sensitivity and consumer psychology. They are stated as reference price effect, difficult comparison effect, switching costs effect, price-quality effect, expenditure effect, end-benefit effect, shared-cost effect, fairness effect and framing effect. These customer elements are pivotal in understanding price and purchase decisions, and this study aims to broaden the body of knowledge in the context of digital products (Li et al., 2020).

Sergeev (2019) investigates the role of behavioural and demographical factors' role in a sustainable hotel context on willingness to pay. The importance of the effect of willingness to pay on pricing and sales initiatives within the industry is considered in evaluating how customer-based perceptions affect outcomes in terms of prices, sales level, and sales propositions.

2.4.2 Conceptual Framework

As stated by Spacey (2016), there are 11 customer factors that influence willingness to pay. The specific factors that were tested in this study are:

- Convenience
- Effort
- Communication and Information
- Marketing

These have been chosen as they are the most relevant to digital business models in the context of digital products and services and e-commerce. Many of

the other elements relate to the physical world and can not be applied to the pricing of digital products and services. For example, customer service is one of the elements that are not very pertinent in the pricing and buying decision – this would only come into play if there is a query or a return on a product bought online. Communication information and Marketing were examined in the context of push notifications and targeted/personalised deals and recommendations. Convenience and effort were grouped together as a common theme under psychological factors.

Further to this, demographic factors play a role in exploring willingness to pay and pricing levels. Stobierski (2020) discusses the extrinsic factors that Influence them:

- Age
- Gender
- Income
- Education
- Location

Intrinsic differences also exist and are stated as "unobserved differences" and include behaviour, feelings, inclinations and passions (Stobierski, 2020). These are linked to more behavioural and psychological factors and how offers are presented, packaged, and bundled. As behavioural and psychological factors can be vast, only a selected few were examined in this study. The ones most relevant to the dynamic pricing and digital landscape were explored.

2.4.2.1 Fairness

The first concept is fairness. Fairness is an assessment a customer makes on whether a fair price has been charged or not (Lu et al., 2020). Fairness is important as it is a huge driving factor in determining loyal, repeat customers (Moriarty, 2021). It also enables more confident and healthy sales pitches and assists firms in ensuring that they comply with regulatory limitations on pricing (Hayes & Miller, 2010).

Fairness is particularly a driving factor in dynamic pricing. Customers have a reluctance to buy into dynamic pricing, and many feel disadvantaged by price changes in the long run, even if customers might have benefited from dynamic pricing in the short run (Duan et al., 2019; Web Data Solutions, 2018). Transparency is thus an important factor to customers in ensuring that price changes are justified, and a reputational downfall is a real risk if dynamic pricing models are not implemented effectively (Opata et al., 2019).

2.4.2.2 Personalised Offers

Personalised offers and recommendations are one of the key marketing features of e-commerce (Aiello et al., 2020). It delivers personalised experiences dynamically by showing content, offers and recommendations based on past purchase behaviour, browsing history, demographics and other data that a firm may have on the customer (Grosso et al., 2020; Sahin, 2017).

As the key theme of customer centricity emerges here, this study will aim to explore if customers will be willing to pay a higher price for personalised offers specifically because they are tailored and reduce search effort.

2.4.2.3 Irrationality

Irrationality is another feature that can be used for customers' pricing and purchase decisions (Difrancesco & Huchzermeier, 2020). Two examples were used for the psychological factors to understand how to price, especially in the context of driving digital product and service adoption. The first element is irrationality in choices, especially when bundles are involved.

Ariely (2010), as cited by Krämer (2015), refers to an experiment where customers were presented with choices for a subscription to a magazine, with results as in Figure 2.5.

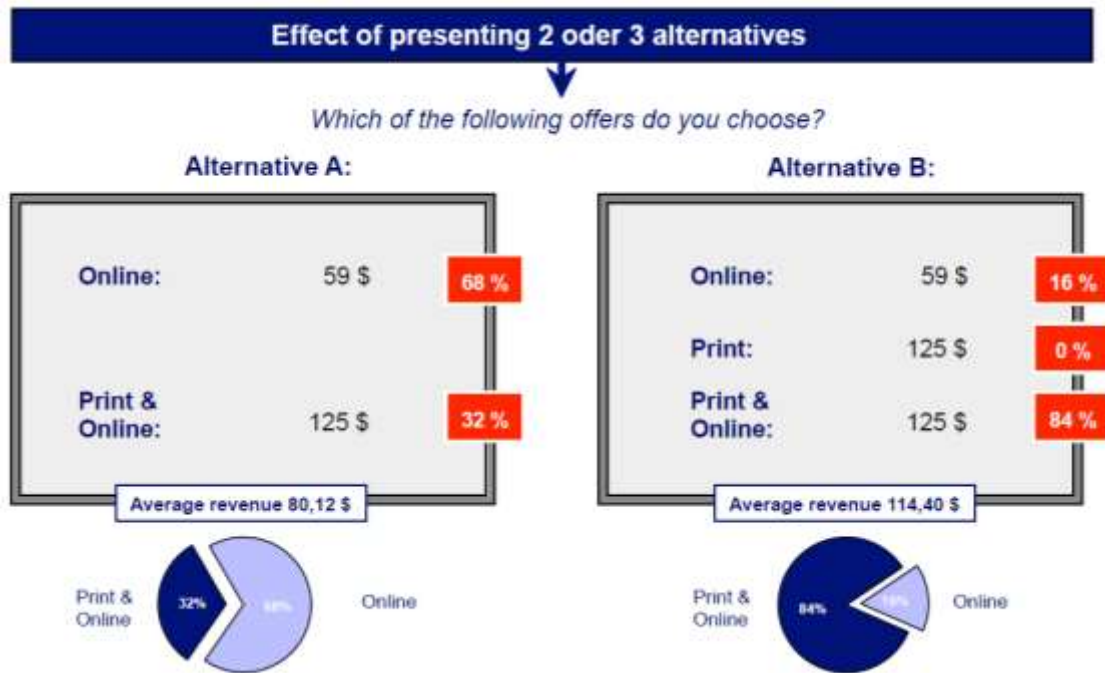


Figure 2-2: Ariely Experiment

Source: Krämer (2015, p. 12).

As noted, the inclusion of a bundle resulted in a much higher revenue benefit in this experiment. This option was recreated to determine its applicability in a South African context. This helps us to understand the willingness to pay for a digital versus physical product, and the perception of value that is created when bundling a physical product with a physical one. This perception of value can be used to drive adoption and sales of digital products, with a possibility of reverting digital product prices to the suggested level, gradually. This relates to hypothesis 1, and shows the willingness to pay for digital products.

Based on the factors explored above, a conceptual framework was developed in this study, which will aim to explain the effect of these factors on willingness to pay and, hence, the pricing level that can be charged in various situations. This can best be summarised as the conceptual framework in Figure 2.6. It describes the interaction between willingness to pay and the factors that will have an impact on it.



Figure 2-3: Conceptual Framework of the Study

Source: Author's Own.

Figure 2.6 explains the various factors that would influence the customer's willingness to pay, or the factors that feed into the decision to accept a product at a given price.

It begins with willingness to pay in the middle of the diagram, as that is the factor being explored.

Above, the first point mentions Behavioural factors, specifically irrationality. The irrationality in choices expressed in the Ariely experiment will be tested in the research study, with a question recreating the experiment to test the irrationality of the South African market.

The bubble to the right explores pricing perceptions of a digital product – do customers perceive a digital product to be worth more or less than a physical one?

The bubble below explores some psychological factors in the purchase decision/willingness to pay, namely fairness, personalised offers and convenience. These are the factors that will be focused on and investigated in this study.

The bubble to the left looks at the demographical factors of customers and whether the customer demographics may have an influence on willingness to pay. For example, intuitively customers in higher income brackets may be more likely to pay more for a product under certain circumstances.

2.4.3 Hypothesis 1

Null Hypothesis: Customers expect to pay less for digital goods and services

Alternate Hypothesis: Customers do not expect to pay less for digital goods and services

2.5 Factors that Influence the Willingness to Pay for a Product in a Dynamic Pricing Application

Krämer (2015) explains the factors that makeup pricing considerations in a volatile, uncertain, complex and ambiguous (VUCA) world. According to Krämer (2015), the main factors that should be considered when determining pricing are cited as cost, competition, and customers.

The elements are described as follows (Krämer, 2015):

- Cost is the basis on which to base pricing decisions,
- Competition elements refer to ensuring that pricing is competitive and at the correct level to attract customers and
- Customer elements speak to relationships, loyalty, and a customer's lifetime value, which can be maximised by ensuring correct pricing.

Figure 2.2 presents the framework for a pricing decision process.

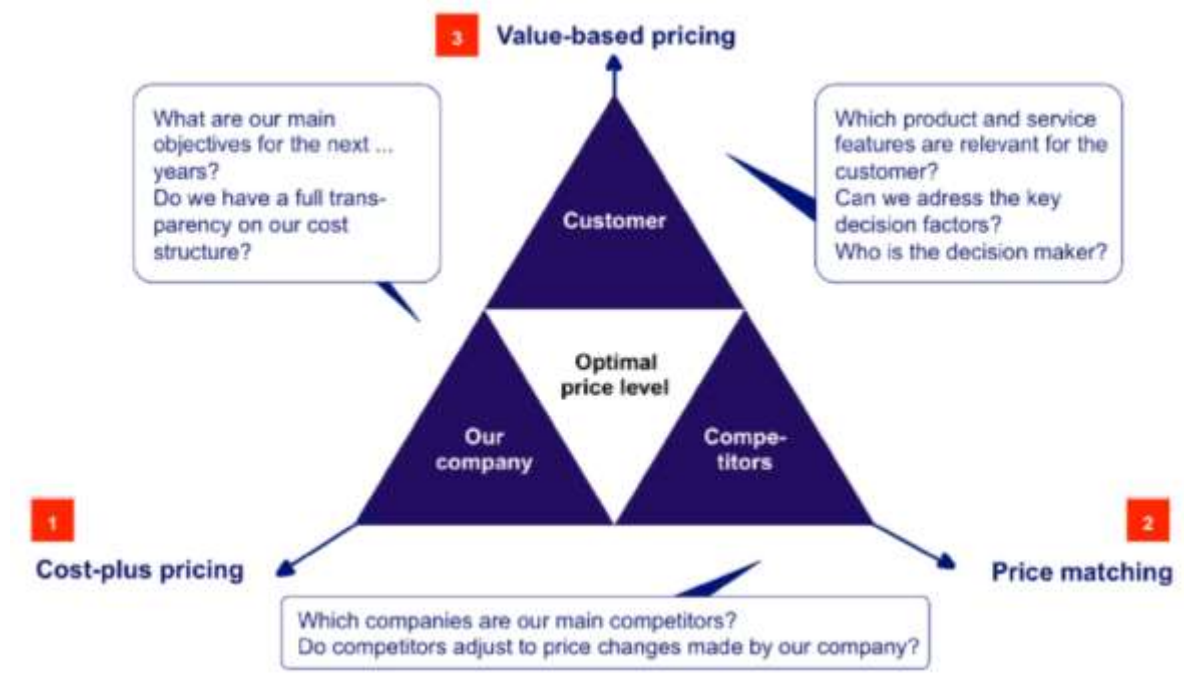


Figure 2-4: Framework for a Pricing Decision Process

Source: Krämer (2015, p. 6).

Based on Figure 2.2, Krämer writes of the many ways pricing can be determined and introduces the "pricing in 3D" approach, which considers different criteria, often simultaneously, when deciding on optimal price levels. These 3 criteria form the basis of the pricing decision and are namely Our company, Competitors, and Customer (Kramer, Pricing in a VUCA World, 2015).

The base factors, while serving as a guideline, still need to accommodate for other relevant factors, namely those that fall under the "Customer" segment of the pricing determination framework shown in Figure 2.2

The three base elements are further described in Figure 2.3.

As noted in Figure 2.3, customer preferences and willingness to pay feature prominently in this approach and Krämer's (2015) top three factors influencing pricing are also the basis of this study.

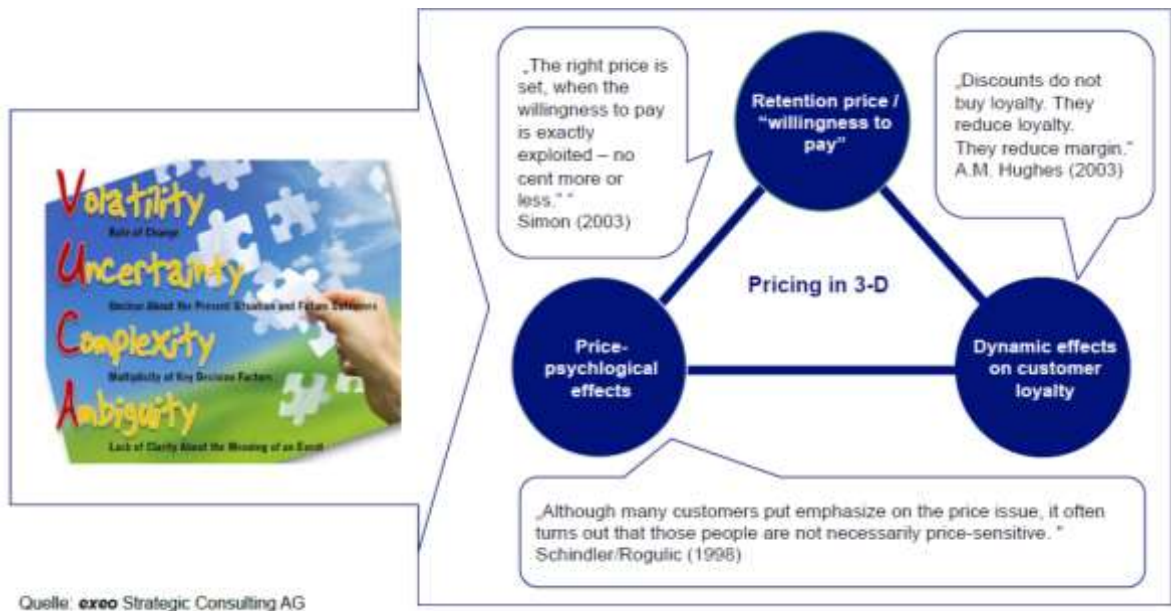


Figure 2-5: Pricing in 3D Approach

Source: Krämer (2015, p. 10).

Spacey (2016) also details the types of customer preferences and how they influence business decisions. The article describes 11 types of customer behaviours or preferences: Convenience, Effort, User Interfaces, Communication and Information, Stability vs Variety, Risk, Values, Sensory, Time, Customer service, customer experience, and marketing.

- Convenience: This relates to the human need to choose things that are easy to attain and within reach, like choosing a shopping mall that is closer to your location (Chatterjee & Kumar, 2017; Shen et al., 2020).
- Effort relates to the satisfaction gained from doing something and spending time or energy on it (Brand et al., 2020).
- User interfaces: Some customers prefer simple and intuitive user interfaces, and others prefer more complex ones – it is all a matter of

preference, which drives customer behaviour and decision-making (Dabija & Lung, 2019; Ngwe et al., 2019).

- Communication and information: This relates to how consumers prefer to receive information – some prefer story-type information, while others prefer detailed and factual representation (Ahmed et al., 2022).
- Stability vs Variety: This refers to customers who prefer a stable and unchanged supply of goods or services (for example, they only wear a particular brand and style of watch) versus customers who prefer variety in goods and services (they would prefer different colours, styles and brands of watches and are unlikely to repeat a purchase) (Son & Jin, 2019).
- Risk: This describes how risk-loving or averse a consumer is. This applies to the willingness to try a new brand or product (Yang et al., 2019).
- Values: This relates to a customer's personal beliefs or morals, for example, buying cruelty-free and environmentally friendly products over those that are not (Boyer et al., 2020).
- Sensory: These relate to the sensory experience – how products feel, smell, taste, look, etc. (Spacey, 2016).
- Time: Time describes a customer's preference for being given time versus feeling rushed in a particular setting (Shen et al., 2020).
- Customer Service: Preferences in customer service describe how a customer prefers to be interacted with – some prefer friendly service, whilst others prefer that customer service is professional and distant (Stasinski, 2020).
- Customer experience: This relates to the end-to-end customer experience and can include many elements such as customer service, look and feel, user interfaces, etc. (Lobel, 2020).

All these factors will thus affect the willingness to pay for a product or service and determine pricing levels. This showcases the complexity in determining

optimal pricing. There are various factors to consider in the pricing level, and these can be very qualitative and not formally measurable

One of the other central frameworks relevant to this research is, once again, from Andreas Krämer. Krämer (2015) describes three primary ways willingness to pay can be measured. These are Sales/Transaction Data, Buying Options and Customer Preferences. The focus of this paper is customer preferences. However, as mentioned previously, this is not the only factor to be considered, and the results are considered in conjunction with other factors. The breakdown regarding the factors can be described below:

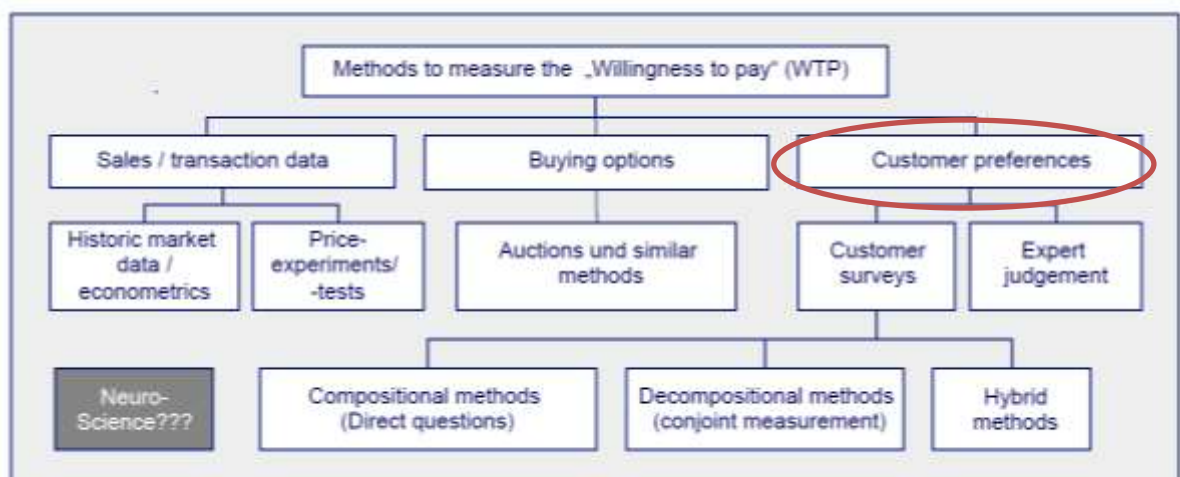


Figure 2-6: Methods to Measure Willingness to Pay

Source: Krämer (2015, p. 11).

Krämer (2015) mentions that willingness to pay is a dynamic variable, and hence, pricing needs to be adjusted and considered a moving variable over time. Krämer (2015) suggests using modern IT systems to implement these changes as they will require a fast response and action. The increased popularity of AI and fast-acting algorithms make the use and implementation of dynamic pricing easier, quicker and more accurate, hence optimising the value gained from practicing dynamic pricing within an organisation.

The various identified factors across the reviewed literature that explains what influences the customer's decision to purchase at a given price led to the

second research question to be addressed by this research study: What behavioural, psychological, and personal factors influence the willingness to pay for a product in the context of dynamic pricing applications?

2.5.1 Hypothesis 2

Null Hypothesis: There are customer-based factors that influence the willingness to pay for a product or service: Convenience, personal offers, fairness, irrationality and demographics, namely gender, age, employment status, income bracket and education level

Alternate Hypothesis: There are no customer-based factors that influence the willingness to pay for a product or service

2.6 Consistency Matrix

In research, a consistency matrix is a tool used to make sure that a study makes sense and is consistent within itself. It checks that different elements, like the title, primary research question, and hypotheses, are lined up correctly. See Table 2.2, which demonstrates the study's alignment below.

Table 2.2: Consistency Matrix: Research Questions

RQ #	State Research Question	Hypothesis #	State Hypothesis
1	How do customers perceive dynamic pricing for digital products and services?	1	Customers expect to pay less for digital goods and services

2	What behavioural, psychological, and personal factors influence the willingness to pay for a product in the context of dynamic pricing applications?	2	There are customer-based factors that influence the willingness to pay for a product or service namely Behavioural (irrationality), Demographics (Age, Gender, Employment status, Education level, Income bracket) and Psychological factors (Fairness, Personalised offers and convenience)
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2.7 Chapter Summary

This study explores Consumer factors in applying dynamic pricing strategies in South Africa, focusing on factors such as willingness to pay, demographics, perceptions of price points, and behavioural and psychological traits. Pricing is crucial for a company's success and provides strategic advantages in positioning against competitors, products, and brands. Digital companies now collect and analyse more customer information via AI and advanced data analytics, which can be used to set the most appropriate price points for a particular customer or segment. Dynamic pricing is a tool that can be beneficial when used correctly, as it applies variable pricing to a product and assists in pricing clients at the price they are most likely to accept. Understanding customer-based factors influencing willingness to pay and accepting different or dynamic pricing levels can help organisations maximise revenue, maximise profitability, and manipulate demand.

Krämer and Kalka (2016) discuss four common pricing models for digital products and services: free, freemium, subscription, and dynamic pricing. Free pricing provides services or products for free, creating revenue through third-party sales or market expansion. Freemium models combine free and premium

features, allowing customers to enjoy benefits without financial risk. Subscription models offer customers a set quantity or value for a fixed price per period, driving loyalty and usage. Dynamic pricing adjusts prices based on demand, competition, distance, browsing history, past behaviour, device type, demographics, and dynamic merchandising. These pricing strategies are not new but have evolved with technological advancements and client data and dynamic pricing can be applied to various pricing and revenue models

Dynamic pricing is a strategy that changes prices based on demand and customer factors. It can be tailored to specific customer preferences and used with various business models. Understanding customer perceptions of digital products and services is crucial for developing optimal pricing strategies. Firms can gain a competitive edge by introducing unconventional pricing models exploiting customers' willingness to pay. This research explores how customers perceive the prices they should pay for digital products and services, focusing on innovation in pricing models. The research hypothesises that customers do not expect to pay less for digital goods and services. Factors influencing the willingness to pay for a product in a dynamic pricing application include cost, competition, and customer elements.

Spacey (2016) identifies 11 types of customer preferences that influence business decisions, including convenience, effort, user interfaces, communication and information, stability vs variety, risk, values, sensory, time, customer service, customer experience, and marketing. These factors affect the willingness to pay for a product or service and determine pricing levels. Andreas Krämer (2015) provides three primary ways to measure willingness to pay: sales/transaction data, Buying Options, and customer preferences. This research study aims to identify behavioural, psychological, and personal factors influencing the willingness to pay for a product in dynamic pricing applications. The consistency matrix ensures the study makes sense and is consistent within itself.

This study explores the role of consumer theory in price-setting and customer behaviour, focusing on digital products and services. It considers customer perceived value, price sensitivity, and the nine laws of price sensitivity and

consumer psychology. The conceptual framework includes 11 customer factors influencing willingness to pay: convenience, effort, communication and information, and marketing. Demographic factors, such as age, gender, income, education, and location, also play a role in understanding willingness to pay and pricing levels. Fairness, a key concept, is essential for determining loyal customers and ensuring compliance with regulatory limitations on pricing. Personalised offers and irrationality are also explored to understand how to price digital products and services adoption.

The next chapter outlines the study's methodological choices.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

This study aims to understand Consumer factors when applying dynamic pricing strategies in South Africa. It addresses questions about customer perception of prices for digital products and services and the behavioural, psychological, and personal factors that influence willingness to pay for a product. The study is significant as South African online retail represents only 2% of all retail transactions, highlighting the potential for meaningful insights in the market's infancy.

The literature review section centred on various types of pricing models and how they have evolved over time. Dynamic pricing is the focus of this paper, and the hypotheses are stated in a consistency matrix. The study's theoretical lens and conceptual framework were also explored in the previous chapter to underpin the purpose of the study.

This chapter outlines the research methodology that is adopted for this study. It begins by detailing the research approach and design before discussing data collection methods. The population and sample are considered next, and then the research instrument is outlined. The chapter ends with the data analysis and considerations around validity, reliability, limitations, and ethical considerations.

3.2 Research Approach

An overview of the literature presented in Chapter 2 indicates the relatively established body of knowledge applicable to this study. Edmondson and McManus (2007) explained that when examining a topic within a mature theory base, it is best to collect quantitative information that can be systematically coded with the goal of formal hypothesis testing.

This study seeks new insights into customer perceptions of the prices they should pay for digital products and services and which behavioural, psychological, and personal factors influence the willingness to pay for a product. New insights lead to new questions, and this study seeks to add specificity to supported theories within the South African context (Edmondson & McManus, 2007; Saunders et al., 2012).

3.3 Research Design

This study is quantitative – a cross-sectional study that captures customer perceptions at one point in time (Zikmund et al., 2013), unlike a longitudinal study with multiple interactions over time. The quantitative research was conducted using online questionnaires with structured questions. The researcher questions the respondents and obtains their responses via a survey link as per the communication method of data collection (Saunders et al., 2012). This approach means that the researcher has not been able to manipulate or control any outcomes. It is also an ex-post-facto design because the collected data can only report on what is happening at one point in time (Saunders & Lewis, 2018).

3.4 Population and Sample

3.4.1 Population

The population of the study consisted of customers who had previously purchased goods and services online. No master population list for such customers exists, but estimates were that there were 18.43 million eCommerce users in South Africa in 2019 (Flickerleap, 2019). Flickerleap estimated that this population would grow to 24.79 million eCommerce users in 2021, supported by forecasts by Statista that the population will grow to 33.4 million users in 2025 (Statista, 2021).

3.4.2 Sample and Sampling Method

Without a master population list to indicate the sample size, the study used the available estimates for the total population, i.e. 24.79 million eCommerce users in 2021 (Flickerleap, 2019).

Using Qualtrics' Sample Size Calculator with a confidence level of 90% and a margin of error of 5%, the ideal sample size was 271 (Qualtrics, 2021). Thus, the web survey was distributed at the researcher's judgement to the accessible population, and the target sample size was 271; however, after the missing value analysis was completed, the final sample size was 200. This represented a response rate of 74%, which may indicate better data quality and representativeness of the sample (Dong & Peng, 2013).

The study thus employed a purposive sampling technique to select respondents based on their qualities. It was not done at random, and the researcher used their judgement to select the individuals due to their previous experience as eCommerce users (Saunders & Lewis, 2018).

3.5 Data Collection Methods

The data has been collected using a questionnaire administered online. The respondents were able to access the questions via the web through a link to capture and record their individual responses. Questionnaires allow for collecting data about similar issues from large numbers of respondents (Leedy & Ormrod, 2012). The questionnaire was sent through to multiple friends, family members, acquaintances and posted online for interested participants to respond. The survey was hosted on Qualtrics on the Wits site, and data was downloaded from the platform before data analysis could commence. The survey was open to all to respond and no specific restrictions were imposed on who could respond.

3.6 The Research Instrument

A questionnaire was designed based on the insights collected during the Literature Review. The questions are structured and contain questions where respondents can select an answer from available options or a 5-point Likert scale on the agree or disagree scale.

There are three sections with 24 questions. Section A is for demographic information (5 questions), while Section B contains the Likert scale questions (17 questions). The final two questions are in Section C, where the respondents were invited to select their responses from available options. See Appendix B for the Research Instrument.

3.7 Procedure for Data Collection

The web-based questionnaires were distributed via mobile text messaging through professional networks and working groups. The link to the questionnaires was shared through text-based messaging and distributed via social media platforms. See Appendix A for the information that accompanied the link and outlined the conditions of participation.

3.8 Data Analysis and Interpretation

The data collected was inspected, transformed, and statistically interrogated for further interpretation and strengthening insight. The in-depth analysis was performed using Qualtrics, Excel, and the SPSS software. The demographic information was analysed with descriptive statistics. After that, the normality of the data was established to determine which inferential statistical tests are appropriate to test the hypotheses as outlined in the Literature Review.

The variables in the study were defined according to the hypotheses. For hypothesis 1, the independent variables are behavioural, psychological and demographical factors, and the dependent variable is customer perception. For hypothesis 2, the independent variables are behavioural, psychological and demographical factors, and the dependent variable is willingness to pay.

3.9 Limitations of the Study

Though every care was taken to perform this study according to the methods and standards prescribed by scientific research design and methodological decision-making, the following limitations are anticipated:

- There is no master list; the sample does not consider every member of the target population, so there is a possibility of sampling frame error, the full extent of which cannot be judged (Cooper & Schindler, 2006).
- Depending on the actual sample size, there may be random sampling errors, which are a function of sample size and decrease as the sample size increases (Zikmund et al., 2013). Every effort was thus made to increase the sample size as much as possible.
- There may also be the possibility of non-response errors. These errors arise from any of the many reasons why respondents may not complete the questionnaire (from technical reasons, like the link not working or if the respondents do not receive the links for any reason) (Leedy & Ormrod, 2012). To mitigate this, the researcher sent out reminders that the questionnaire was open for responses.
- Response bias is a cognitive bias that affects respondents' ability to answer questions untruthfully due to societal norms (Saunders & Lewis, 2018). This was mitigated by not asking leading questions and also by offering anonymity and data confidentiality to all respondents.
- Using a non-random sampling technique limits the generalisability of the results; however, this was the only way to access the target population, considering time and cost constraints. For the same reason, country-specific research was the only option for this study.

3.10 Validity and Reliability

As its primary aim, any study has the tabling of valid results that can be relied upon (Byrne, 2017). Results that are confirmed as valid and reliable can enable effective decision-making and create new questions in the larger body of knowledge. There are two types of validity, namely external and internal validity. Both types of validity and reliability are discussed below.

3.10.1 External Validity

External validity considers the generalisability of the study results beyond the research context (Leedy & Ormrod, 2012). The use of non-probability sampling techniques will reduce the generalisability of the results of this study, but every effort was made to increase the sample size. Using a 90% confidence level and a 5% margin of error also improves the external validity of the study results.

3.10.2 Internal Validity

Internal validity, in contrast, is the degree to which the research instrument actually measures what it is supposed to measure (Saunders & Lewis, 2018). There are several types of internal validity, but the most important two are content validity and criterion-related validity (Sürücü & Maslakci, 2020). Content validity, as has already been explained and confirmed, was attained by ensuring that the questionnaire promised in Appendix C is rooted in the relevant theory based on the Literature Review.

The second type of internal validity is criterion-related validity, which examines the actual relationship between variables that are thought to be related through correlation analysis (Zikmund et al., 2013). Correlation analysis seeks to show that relationships do exist and to what extent future predictions can be made (Byrne, 2017).

3.10.3 Reliability

The study's reliability (or internal consistency) comes from the research instrument and the results generated from the data collected using the instrument (Sürücü & Maslakci, 2020). Reliability thus considers the consistency of the research instrument's questions and examines how well the questionnaire measures a particular behaviour or quality (Byrne, 2017). The most widely used method to determine reliability is according to the classification of Cronbach's Alpha value (Cooper & Schindler, 2006; Leedy & Ormrod, 2012). In terms of this, a Cronbach's Alpha coefficient of 0.7 and above is an indicator of reliability and internal consistency (Sürücü & Maslakci, 2020).

3.11 Demographic Information Collected

There are four questions collecting demographic information in Appendix C (Research Instrument), namely:

1. Gender: Male | Female | Prefer not to say
2. Age Category: 18-25 | 25-35 | 35-45 | 45-55 | 55+
3. Employment Status: Employed | Unemployed | Student
4. Income Category per annum: 0-R 250 000 | R 250 001 – R 500 000 | R 500 001 – R 750 000 | R 750 001 – R 1 000 000 | R 1 000 000 +
5. Education: Grade 12 | Diploma | Degree | Honours | Masters | Doctorate

3.12 Ethical Considerations

The researcher first obtained the approval of the Wits Business School Ethics Committee before commencing data collection. In Appendix A (participant information form, which formed the intro of the online survey), respondents

received clear and transparent information on the scope and purpose of the study. No compensation was offered in exchange for participation, and respondents were able to exit the survey at any point. Participation was noted as being voluntary, with no reward or incentive offered in exchange for participation.

The Supervisor reviewed the survey instrument to ensure that all data collected was expressly required to answer the research questions. Along with the consent requested, respondents' anonymity and data confidentiality were maintained. Responses could not be tracked to a given individual, and no specific information that could identify a respondent was requested.

The data collected was stored in a password-protected online database and will be deleted after five years. The raw data was not shared with anyone other than the Supervisor, and confidentiality of the responses was maintained.

No harm could come to any respondent from partaking in the survey, and if a respondent felt uncomfortable to continue, they were able to exit the survey.

3.13 Chapter Summary

The research methodology adopted for this study includes a quantitative approach a cross-sectional study that captures customer perceptions at one point in time. Data collection methods include online questionnaires administered via a survey link, with respondents accessing the questions via the web through a link to capture and record their individual responses.

The study population consisted of customers who have previously purchased goods and services online, with estimates of 24.79 million eCommerce users in South Africa in 2021. The planned sample size was 271, and the final sample was 200, representing a response rate of 74%, which may indicate better data quality, and sample representativeness.

The research instrument was a questionnaire based on the insights collected during the Literature Review. The web-based questionnaires were distributed

via mobile text messaging through professional networks and working groups, and the link to the questionnaires was shared through text-based messaging and social media platforms.

Data analysis and interpretation were performed using Qualtrics, Excel, and the SPSS Software tool. Hypotheses 1 and 2 were defined according to the independent variables, focusing on behavioural, psychological, and demographical factors and customer perception, and hypotheses 2 and 3 were defined according to the dependent variables, focusing on willingness to pay.

The study has limitations, including the lack of a master list, potential sampling frame error, random sampling error, non-response errors, response bias, and using a non-random sampling technique. These limitations are expected to affect the generalisability of the results and the use of country-specific research.

External validity refers to the generalisability of the study results beyond the research context. In contrast, internal validity is the degree to which the research instrument measures what it is supposed to measure. Content validity is achieved by ensuring the questionnaire is rooted in relevant theory and criterion-related validity, which examines the relationship between variables through correlation analysis. Reliability was determined by Cronbach's Alpha value, which indicates reliability and internal consistency.

Ethical considerations include obtaining approval from the Wits Business School Ethics Committee before data collection, providing clear and transparent information about the study's scope and purpose, maintaining anonymity and confidentiality of respondents, and storing data in an online database password-protected and deleted after five years. Respondents were allowed to exit the survey at any point and were not required to provide specific information.

In conclusion, the study's design has limitations, but it provides valuable insights into the reliability and validity of the research instrument, data collection and analysis.

The next chapter presents the results of the data collection and analysis.

CHAPTER 4 RESULTS OF THE STUDY

4.1 Introduction

This study aims to determine the Consumer factors that need to be considered when applying dynamic pricing strategies in South Africa. It explores elements such as willingness to pay, demographics, and perceptions of price point and explores some behavioural and psychological traits that may affect consumers' acceptance of pricing levels. The study population consisted of customers who had previously purchased goods and services online.

The study's results are presented in this chapter, starting with the profile of respondents, followed by descriptive statistics, reliability of data, and answering the study's objectives using Chi-square analysis for association and Cramer's V for the strength of the association.

4.2 Profile of the Respondents

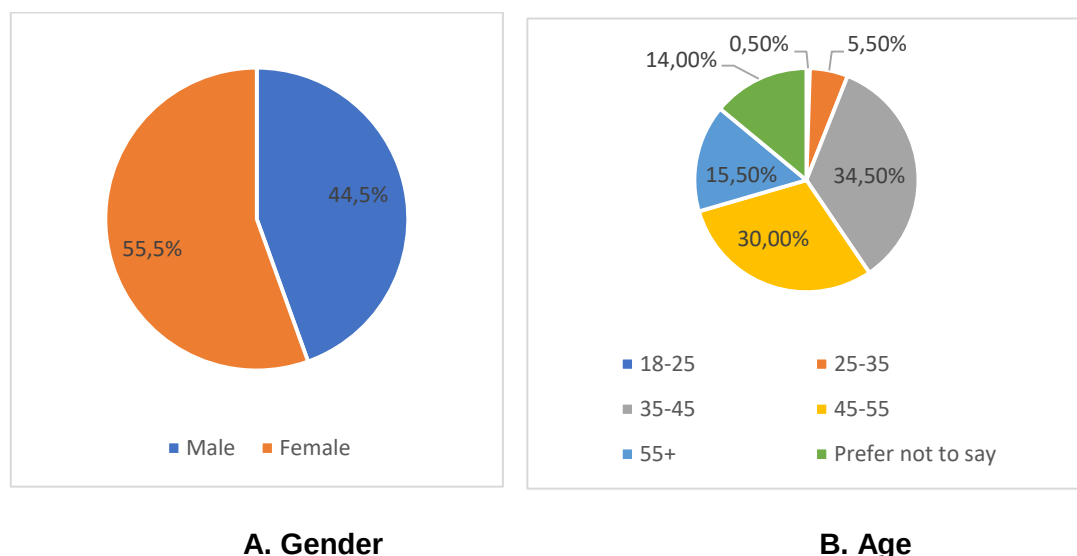
After removing the extreme outliers based on three times interquartile range guidelines and a few responses with missing values higher than 10% (Dong & Peng, 2013), the final responses were 200. The study profile comprises respondents who have previously used online platforms to purchase goods and services; the study results are discussed in this section and displayed in Figure 4.1A-E.

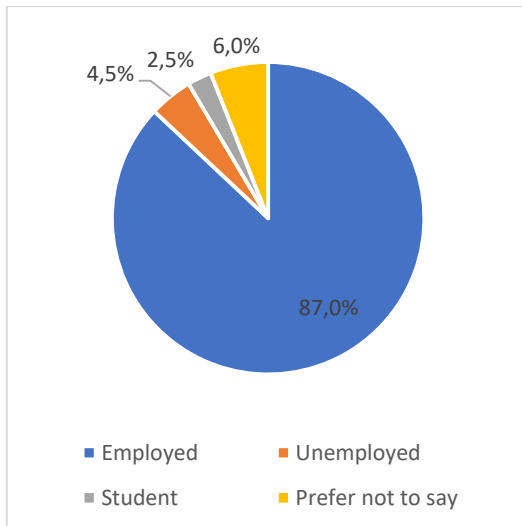
According to the survey results, the respondents' profile showed that most respondents were female at 55.5%, and the rest were male at 45.5%. Of the 200 respondents, 34.5% were in the age group 35–45 years, 30% were in the age group 45–55 years, 15% belonged to the age group 55+ years, 14% preferred not to say, while 5.5% were between ages 25–35 years and 0.5 were between 18–25 years. This meant that most of the respondents were of mature age.

Furthermore, the employment status results showed that many of the respondents were employed (87%), while 6% preferred not to say, 4.5% were unemployed, and 2.5% were students. Most of the respondents were in the income bracket of R250 001 to R500 000 per annum at 31%, followed by 29% of the respondents who were in the income category R0 to R250 000 per annum, 18% of the respondents earned between R500 000 and R750 000 per annum (Figure 4.1D).

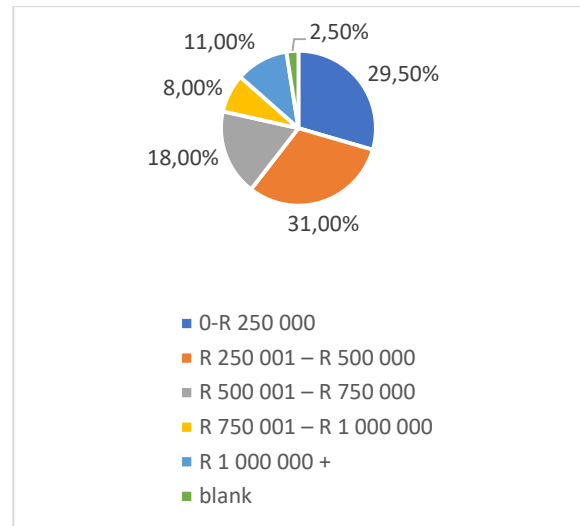
The minority of respondents earned in the highest earning brackets, with 11% earning R1 000 000+ per annum and 8% earning between R 750 001 and R 1 000 000 per annum. The remaining 2.5% did not answer this question in the survey. Figure 4.1E shows the education level of the respondents. The results of the study show that the majority of the respondents had acquired an honours degree as their highest education level, followed by 23.5% of the respondents had a master's degree, 22.5% had a degree, and 16% of the respondents had a diploma as their highest education level. None of the respondents had matric as their highest education level. The results further show that the least number of respondents, 7.5%, had a doctorate as their highest level of education, and 4.5% preferred not to say. The responses indicate that the sample was biased towards people of higher socio-economic status.

Figure 4-1: Demographics of the Respondents

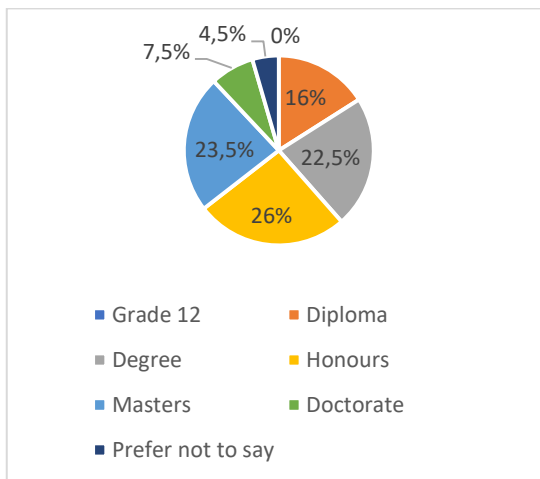




C. Employment status



D. Income Category



E. Education Level

Demographics of respondents	
Gender	
Male	44.5%
Female	55.5%
Age	
18-25	15.5%
25-35	5.5%
35-45	34.5%
45-55	30.0%
55+	0.5%
Prefer not to say	14.0%
Employment Status	
Employed	87.0%
Unemployed	4.5%
Student	2.5%

Prefer not to say	6.0%
Income Category	
R0-R250000	29.5%
R250001-R500000	31.0%
R500001-R750000	18.0%
R750001-R100000	8.0%
R1000000+	11.0%
Blank	2.5%
Education level	
Grade 12	0.0%
Diploma	16.0%
Degree	22.5%
Honours	26.0%
Masters	23.5%
Doctorate	7.5%
Prefer not to say	4.5%

4.3 Descriptive Statistics

In this section, the respondents' answers were recorded using a 5-point Linkert scale, with one strongly disagreeing and five strongly agreeing. This means that the variables with mean values less than 3 are the ones respondents disagreed or strongly disagreed with, and those with values above 3 are the variables respondents agree with or strongly agree with. The means of the results were recorded in Table 4.1.

The consumer variables that will be analysed here are convenience, personal offers, fairness and irrationality. The corresponding questions which pertain to each theme are:

- Convenience: Variable 4,6,7
- Personal offers: Variable 8 and 9
- Fairness: Variable 10, 11, 12, 13, 14, 15, 17
- Irrationality: Variables 18 and 19

These variables will help us understand the way customers view pricing and how they are influenced to make pricing decisions in the context of flexible prices.

Table 4.1: Descriptive Statistics of the Variables in the Study

Variable	Description	Mean	Median	Std. Deviation	Skewness	Kurtosis
Var 1	Digital services and products, like access to digital music and books, should be free.	3,47	4,00	1,442	-0,519	-1,162
Var 2	I am subscribed to and pay for premium versions of apps like YouTube, Dropbox, Google Drive, etc.	2,91	3,00	1,596	-0,160	-1,605
Var 3	I should pay more for an item if it is digital (for example, music on iTunes compared to a CD).	1,72	1,00	1,063	1,403	0,967
Var 4 (Convenience)	I don't mind paying for the convenience of a digital product (for example, paying a transaction fee when purchasing prepaid airtime or electricity).	2,85	3,00	1,527	-0,260	-1,600
Var 5	Digital products and services are cheaper to produce.	3,52	4,00	1,201	-0,425	-0,788
Var 6 (Convenience)	I am willing to pay more for an item if it is difficult to find/scarce.	3,61	4,00	1,307	-0,846	-0,466

Variable	Description	Mean	Median	Std. Deviation	Skewness	Kurtosis
Var 7 (Convenience)	I am willing to pay more for an item if I need the product urgently.	3,78	4,00	1,332	-1,011	-0,220
Var 8 (Personal offers)	There are certain categories of purchases that I will make irrespective of the price (for example, sports and gym equipment, cosmetics, or clothing).	3,23	4,00	1,399	-0,241	-1,304
Var 9 (Personal offers)	I would be more likely to purchase without considering the price if it was a personalised offer for something I really required.	3,40	4,00	1,348	-0,552	-0,972
Var 10 (Fairness)	I would be upset if I were charged more than someone else for the same product.	4,89	5,00	0,326	-3,008	11.60
Var 11 (Fairness)	I expect companies to be fair in their pricing strategies.	4,94	5,00	0,222	-4,044	17.35
Var 12 (Fairness)	I would be comfortable with companies using my historical purchase data to price me better.	3,57	4,00	1,454	-0,658	-0,978

Variable	Description	Mean	Median	Std. Deviation	Skewness	Kurtosis
Var 13 (Fairness)	I am aware of programs such as eBucks rewards, where my behaviour and preferences for transactions and products determine the level of rewards I get.	4,43	5,00	1,015	-2,068	3,775
Var 14 (Fairness)	If companies price me differently from other customers, I would like to understand the factors that led to me getting a specific price.	4,80	5,00	.402	-1.492	3.226
Var 15 (Fairness)	I think using an eBucks-like structure (tiered based on behaviour or characteristics) to determine pricing levels is a good idea.	3,72	4,00	1,202	-904	-.610
Var 16 (Irrationality)	I would be willing to change my behaviour to get better prices.	3,78	4,00	1,238	-929	-.410
Var 17 (Fairness)	I think transparency as to how pricing is determined is important.	4,73	5,00	.549	-1.896	5.601

The variables with the highest means in the study were (in descending order): Variable 11, $M = 4.94$, $SD = 0.222$; Variable 10, $M = 4.89$, $SD = 0.326$; and Variable 14, $M = 4.72$, $SD = 0.645$, respectfully. This meant that respondents agree with the following statements: I expect companies to be fair in their pricing strategies, I would be upset if I were charged more than someone else for the same product and If companies price me differently from other customers, I would like to understand the factors that led to me getting a specific price, respectfully.

The variables with the lowest means and most disagreed with statements were (in ascending order): Variable 3, $M = 1.72$, $SD = 1.063$, I should pay more for an item if it is digital (for example, music on iTunes compared to a CD): Variable 4, $M = 2.85$, $SD = 1.527$ I don't mind paying for the convenience of a digital product (for example, paying a transaction fee when purchasing prepaid airtime or electricity) and variable 2, $M = 2.91$, $SD = 1.596$.

The skewness and Kurtosis indicate that mainly the variables are normally or near normally distributed [Skewness = ± 2 , Kurtosis ± 7 (Hair, Black, Babin, & Anderson, 2010)] except for variables 10 and 11, which are not normally distributed.

4.4 Reliability of Data

The study generated four constructs: convenience, personal offers, fairness, and irrationality, listed in Table 4.2. The constructs comprised 15 variables, each comprising 3, 2, 7, and 3 variables, respectively. The reliability of the constructs is measured using internal consistency, which assesses the correlation between multiple items in a test that are intended to measure the same construct (Wrisley et al., 2004). In this study, Cronbach's Alpha statistic was used. According to Ursachi et al. (2015), a Cronbach alpha statistic of 0.6 – 0.7 indicates an acceptable level of reliability and 0.8 and higher indicates a very good level of reliability.

Table 4.2: Cronbach's Alpha Reliability Statistic for the Constructs of the Study

Variable	Number of items	Items	Cronbach's Alpha	Decision
Convenience	3	Var 4, var 6 and var 7	0.562	Not acceptable
Personal Offers	2	Var 8 and var 9	0.652	Acceptable
Fairness	7	Var 10, var 11, var 12, var 13, var 14, var 15 and var 17	0.006	Not Acceptable
Irrationality	3	Var 16, var 18 and var 19	0.288	Not acceptable

The study results show that the constructs were generally unreliable except for personal offers (Table 4.2). This indicated that variables should be used for further analysis instead of constructs.

4.5 Objectives of the Study

The objective of this study was to determine the Consumer factors that need to be considered in the application of dynamic pricing strategies in South Africa. Therefore, the following research questions are addressed: How do customers perceive the prices they should pay for digital products and services? What behavioural, psychological, and personal factors influence the willingness to pay for a product in the context of dynamic pricing applications?

4.6 Hypothesis 1: Customer Price Perception for Digital Products/ Services and Traditional Products

The first research question was how customers perceive the prices they should pay for digital products and services. To answer this research question, a frequency table (Table 4.3) displays the percentage frequency of the price preferences of the surveyed customers, which is then followed by a chi-square table of association (Table 4.4), which focuses on the role the demographics of the study population play in price perception of digital products and services. Survey respondents were asked to choose between a digital or traditional physical product or service at a certain price. For research question one, hypothesis 1 was to be tested, with the null hypothesis being: Customers expect to pay less for digital goods and services.

Hypothesis 1

Null Hypothesis: Customers expect to pay less for digital goods and services.

Alternate Hypothesis: Customers do not expect to pay less for digital goods and services.

4.6.1 Percentage Frequency

In the simulation of the Ariely experiment in variables 18 and 19, The results in Table 4.3 show that 82.3% of the respondents preferred to purchase digital products only at R60 over the 17.7% of respondents who preferred to pay double the price of R120 for the physical product when asked to pick only between a physical and digital product.

In variable 20, the respondents are then asked the same question, only this time a third option is given to choose to have the physical and digital product for double the price and the majority of the respondents, about 49.5% of them, preferred this option, followed by 45.5% of the respondents who still preferred to

get the digital price cheaper compared to the 5% that still preferred to pay double for the physical product.

In the first question (Var 18), the respondents chose the digital option as it was 50% cheaper than the physical product; however, in the second question (Var 19), the majority of the respondents chose the third option to get the same product twice for double the price of the digital product and for the same price as the physical product, meaning that with the third option, they have bought the physical and digital product at R60 each.

This pattern in the results shows that the price of the product, whether digital or physical, played a role in a decision to buy a product. This also meant that should the price of the physical copy be less than that of the digital copy, respondents would have preferred it over the digital one. Thus, the results are in favour of the null hypothesis: customers expect to pay less for digital goods and services. The most notable difference in the results is that in the original Ariely experiment, respondents majorly preferred a bundle product at 84% of respondents. In the South African context, the majority of respondents still preferred the bundle, but there was an almost even split of the digital product and bundle at 45.5% and 49.5%, respectively.

Table 4.3: Frequency of Chosen Variables

Question	Variable	Variable items	Frequency	Percentage Frequency
If you had to purchase a digital vs traditional/physical product magazine and were presented with the following options, which would you choose?	Var 18	a. Digital only R 60	163	82.3%
		b. Physical product only R 120	35	17.7%
If you had to purchase a digital vs traditional/physical magazine product and were presented with the	Var 19	Digital only R 60	91	45.5%
		Physical only R 120	10	5.0%

following options, which would you choose?		Digital and Physical R 120	99	49.5%
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4.6.2 Demographic Association

Furthermore, the study wanted to understand if any of the respondents' demographic factors played a role in customers' expectations to pay less for digital products and services. A Pearson's Chi-square analysis was performed to investigate if there was an association between the demographic factors of the respondents and the customer's expectation to pay less for digital products and services (Frost, n.d.). The Chi-square analysis uses the equation:

$$X^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

A p-value of 0.05 or lower is generally considered statistically significant. For those factors that are statistically significant, the strength of the association was analysed using Cramer's V test (ϕ), with weak strength, $\phi < 0.30$. The results are depicted by the Chi-square values (Table 4.4), which determine whether there is an association between the categorical values (Frost, n.d.). The results show that there was no association with any of the demographical factors (gender, age, employment, income, and education) with the customers' expectation to pay less for digital products and or services as the p-values of all the factors were higher than 0.05, $p > 0.05$.

Table 4.4: Association Between Demographic Factors and Customers' Expectation to Pay Less for Digital Products and Services

Variable	Var 18 - Chi-Square	P – Value	Cramer's V	Var 19 - chi-square	P- Value	Cramer's V
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Variable	Var 18 - Chi-Square	P – Value	Cramer's V	Var 19 - chi-square	P- Value	Cramer's V
Gender	2.92	0.09	0.12	2.60	0.27	0.11
Age	3.03	0.70	0.12	6.76	0.75	0.13
Employment	1.22	0.75	0.08	8.40	0.21	0.15
Income	1.58	0.81	0.09	7.74	0.46	0.14
Education	0.36	1.00	0.04	8.41	0.58	0.15

4.7 Hypothesis 2: Factors Influencing Customer Willingness to Pay for a Product in the Context of Dynamic Pricing

The second research question was: what behavioural, psychological, and personal factors influence the willingness to pay for a product in the context of dynamic pricing applications? To answer this research, the question of the reliability of the data constructs was tested using Cronbach's alpha statistic (Table 4.5), followed by a chi-square analysis of the individual items within the four constructs (Convenience, personal offers, fairness and irrationality) was run to see which of the individual items (factors) could possibly influence customers willingness to pay for a product in the context of dynamic pricing application. In this section, the study aims to decide whether to accept or reject the null hypothesis, which was: There are customer-based factors that influence the willingness to pay for a product or service.

Hypothesis 2

Null Hypothesis: There are customer-based factors that influence the willingness to pay for a product or service.

Alternate Hypothesis: There are no customer-based factors that influence the willingness to pay for a product or service.

4.7.1 Customer-based Factors Influence the Willingness to Pay for a Product or Service

In this section of the study, the chi-square of each of the variables of the constructs was measured against the independent variables, which were variable 18 and variable 19. The independent variables measured the customers' willingness to pay for a product or service, whether digital or physical. The same formula and significance level were applied, as stated in section 4.5, to assess the association of the variables in the constructs with the two independent variables.

The results show no association between the variables comprising constructs 1 and 2, which were convenience and personalised offers and the independent variables (Var 18 and 19) as $p > 0.05$. This meant that convenience and personal offers were not customer-based factors that influenced the willingness of customers to pay for a product or service. When analysing the association between the variables of the fairness construct, there was no significant association between the dependent variables of the construct and the independent variables of the study except for one variable, variable 17, $X^2 = 10.03$, $p = 0.02$, $\phi = 0.23$; this association was, however, weak as measured by the Cramer's V statistic $\phi \leq 0.3$.

Furthermore, the results show a weak association between irrationality variable 16 and the independent variables, $X^2 = 11.73$, $p = 0.02$, $\phi = 0.24$. Variable 16 was the customers' willingness to change behaviour for better prices (I would be willing to change my behaviour to get better prices), and variable 17 was the transparency of price determination (I think transparency as to how pricing is determined is important). This meant that fairness in pricing and irrationality when it came to behaviour were two small-scale customer-based factors

influencing willingness to pay for a product or service. Thus, the null hypothesis could not be rejected.

Table 4.5: Chi-square Values for Variables Comprising the Four Constructs

Variable	Var 18 - Chi-Square	P – Value	Cramer's V	Var 19 - chi-square	P- Value	Cramer's V
Convenience						
Var 4	3.86	0.43	0.14	8.17	0.42	0.14
Var 6	2.20	0.70	0.11	11.33	0.18	0.17
Var 7	1.76	0.78	0.09	5.96	0.65	0.12
Personal Offers						
Var 8	1.76	0.78	0.09	5.94	0.65	0.12
Var 9	4.62	0.32	0.15	4.32	0.83	0.10
Fairness						
Var 10	5.68	0.22	0.17	11.90	0.16	0.17
Var 11	2.22	0.68	0.11	12.21	0.14	0.17
Var 12	2.08	0.72	0.10	6.43	0.60	0.13
Var 13	6.19	0.19	0.18	9.34	0.16	0.15
Var 14	1.22	0.75	0.08	9.34	0.16	0.15
Var 15	7.10	0.13	0.19	13.98	0.08	0.19
Var 17	10.03	0.02	0.23	6.75	0.78	0.13

Variable	Var 18 - Chi-Square	P – Value	Cramer's V	Var 19 - chi-square	P- Value	Cramer's V
Irrationality						
Var 16	11.73	0.02	0.24	12.06	0.06	0.17

4.8 Chapter Summary

This study examines Consumer factors in South Africa's dynamic pricing strategies, focusing on willingness to pay, demographics, and price perceptions. The sample consisted of 200 customers who had previously purchased goods and services online. The majority were female (55.5%), aged 35-45, with 87% employed (87%). Most had an honours degree, followed by a master's, degree, or diploma. The study found that the sample was biased towards individuals of higher socio-economic status.

The study surveyed respondents on their expectations of digital services and products, their willingness to pay more for digital items, their willingness to pay more for convenience, their willingness to pay more for urgent needs, their willingness to purchase without considering price, their expectations of fair pricing strategies, their comfort with using historical purchase data, their awareness of eBucks rewards, their willingness to understand factors leading to specific pricing, their willingness to change behaviour to get better prices, and their belief in transparency in pricing determination. The variables with the highest means were respectfully agreed upon, while the lowest means were disagreed with. The study's skewness and Kurtosis indicate that the variables are normally distributed.

The study aimed to determine Consumer factors in the application of dynamic pricing strategies in South Africa. It generated four constructs: convenience, personal offers, fairness, and irrationality, with 15 variables. The constructs were generally unreliable except for personal offers. The study aimed to determine Consumer factors that need to be considered in the application of

dynamic pricing strategies. The results showed that customers perceive the prices they should pay for digital products and services, with 82.3% preferring digital products at R60 and 49.5% preferring both. The results are in favour of the null hypothesis that customers expect to pay less for digital goods and services.

The study investigated the relationship between demographic factors and customers' expectations to pay less for digital products and services. A Pearson's Chi-square analysis was performed, revealing no association between demographic factors and customers' expectations to pay less. The research also examined factors influencing customer willingness to pay for a product in the context of dynamic pricing. The results showed no association between convenience and personal offers, fairness, and irrationality, suggesting that fairness in terms of pricing and irrationality in behaviour were small-scale customer-based factors that influenced willingness to pay for a product or service. The null hypothesis two could not be rejected.

Table 4.6 shows the results of the hypothesis testing, showing that for both hypotheses 1 and 2, the result failed to reject the null hypothesis.

Table 4.6: Results of Hypothesis Testing

RQ #	State Research Question	Hypothesis #	State Hypothesis	Result
1	How do customers perceive the prices they should pay for digital products and services?	1	Customers expect to pay less for digital goods and services	Fail to reject the null hypothesis
2	What behavioural, psychological, and personal factors influence the willingness to pay for a product in the context of dynamic pricing	2	There are customer-based factors that influence the willingness to pay for a product or service	Fail to reject the null hypothesis

	applications?			
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This shows that fairness in pricing, pricing transparency, and rationality in terms of customer behaviour standards could possibly be Consumer factors that need to be considered when applying dynamic pricing strategies in South Africa.

CHAPTER 5 Discussion of the Results

5.1 Introduction

This study examines Consumer factors influencing dynamic pricing strategies in South Africa, focusing on willingness to pay, demographics, and price perceptions. It highlights the importance of understanding the digital divide and the impact of digital products on lower-end customers. Dynamic pricing helps organisations maximise revenue, increase sales, and manipulate demand.

This chapter outlines the results of the statistical analysis conducted in Chapter 4. It also discusses the results in relation to the descriptive statistics and hypotheses presented and tested. The chapter will also relate this to the literature discussed in Chapter 2 and outline key differences and similarities between the results and literature.

5.2 Demographic Profile of Respondents

The demographic profiles of the respondents are unpacked in this section as the demographic factors were identified as one of the consumer side factors affecting willingness to pay during the literature review.

5.2.1 Gender

Most respondents were female at 55.5%, and the rest were male at 45.5%. This shows an approximately equal gender split, meaning the data set was almost evenly split and approximately representative of the South African gender split (Egan, 2021).

5.2.2 Age

The age category split was a lot more diversified in the breakdown. Of the 200 respondents, 34.5% were in the age group 35–45 years, 30% were in the age group 45–55 years, 15% belonged to the age group 55+ years, 14% preferred not to say, while 5.5% were between ages 25–35 years and 0.5 were between 18-25 of age.

This shows that the data was biased to an older population, with 79.5% of the respondents being older than 35 years. This shows that the sample did not have enough data points on the younger population (Gen Z and younger millennials), which may influence the study results, as generational attitudes and preferences will differ in many ways. Every generation possesses different opinions, partialities, and shared experiences, and this influences their behaviour (Dabija & Lung, 2019). Cultural, socio-political and economic influences, like technological developments and financial stability, are some of the most important drivers for their behaviour and purchase decisions (Wong, 2021).

5.2.3 Employment Status

The employment status results showed that many of the respondents were employed (87%), while 6% preferred not to say, 4.5% were unemployed, and 2.5% were students. As the majority of the respondents were employed, the results were more likely to make sense as the respondents have an income and are able to make purchasing decisions. However, this is not representative of the South African landscape, as unemployment remains a key challenge in this developing country's context, especially among the youth (Pasara & Garidzirai, 2020). Though not a core focus of this study, it was hoped that this study could contribute to understanding how digital services pricing is perceived by typically excluded markets (NGO Pulse, 2020). Unfortunately, this study is unable to comment on pricing optimisation for lower-income consumers.

5.2.4 Income Bracket

Most of the respondents were in the income bracket of R250 001 to R500 000 per annum at 31%, followed by 29% of the respondents who were in the income category R0–R 250 000 per annum, 18% of the respondents earned between R500 000 and R750 000 per annum (Figure 4.1D). The minority of respondents earned in the highest earning brackets, with 11% earning R1 000 000+ per annum and 8% earning between R 750 0001 and R 1 000 000 per annum. The remaining 2.5% did not answer this question in the survey. The sample was thus biased towards respondents from the top 2 million households in South Africa (i.e., the middle class, upper-middle class and top end); see Figure 5.1 (Egan, 2021).

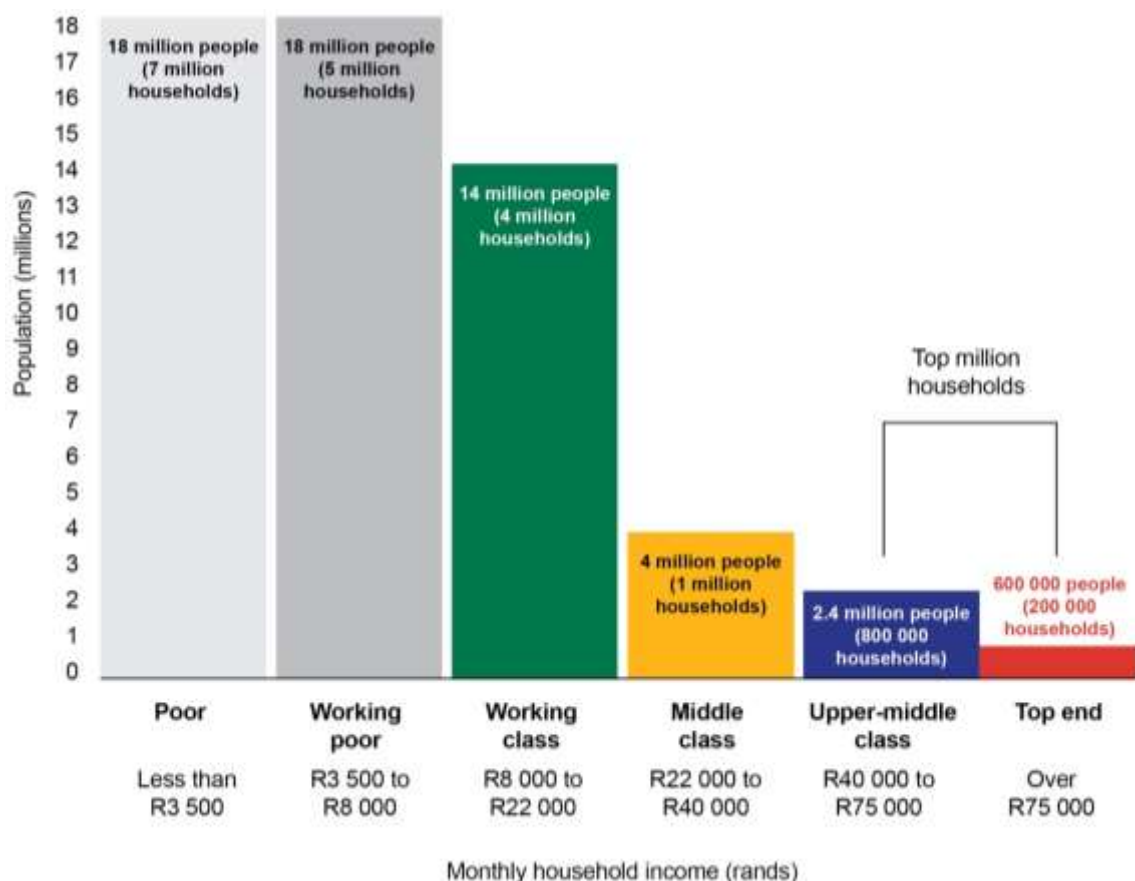


Figure 5-1: South African Consumer Landscape Based on Household Income

Source: (Egan, 2021, p. 10).

5.2.5 Education Level

The results of the study show that many of the respondents had acquired an honours degree as their highest education level at 26%, followed by 23.5% of the respondents who had a master's degree, 22.5% had a degree, and 16% of the respondents had a diploma as their highest education level. None of the respondents had matric as their highest education level. The results further show that the least number of respondents, 7.5%, had a doctorate as their highest level of education, and 4.5% preferred not to say. The responses indicate that the sample was biased towards people of higher socio-economic status as all respondents had a diploma or higher, while 57% had an honours degree or higher. This result is consistent with the top 2 million households in South Africa (i.e., the middle class, upper-middle class and top end); see Figure 5.2 (Egan, 2021).

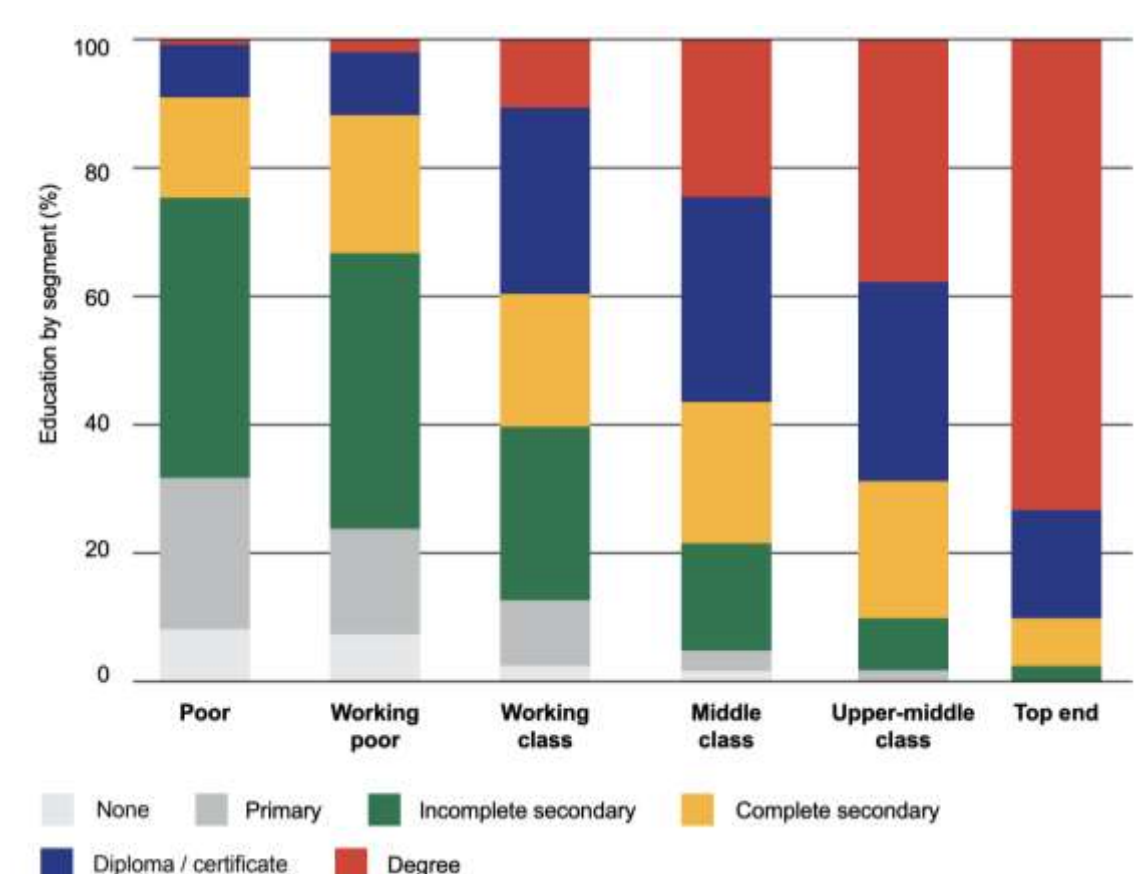


Figure 5-2: South African Consumer Landscape Based on Education

Source: (Egan, 2021, p. 13).

5.3 Discussion Pertaining to Hypothesis 1

Hypothesis 1 was stated as follows:

Null Hypothesis: Customers expect to pay less for digital goods and services.

Alternate Hypothesis: Customers do not expect to pay less for digital goods and services.

In the results, this study failed to reject the null hypothesis. This confirms that, based on the questionnaire, customers expect to pay less for digital goods and services. This section will begin the discussion by analysing the relevant variables in the descriptive statistics.

5.3.1 Descriptive Statistics for Hypothesis 1

The discussion begins with variable 1: Digital services and products, like access to digital music and books, should be free. The mean on this variable was 3.47 on the Likert scale, and the median was 4. This means that, on average, respondents agreed with the statement and expected to receive digital services and products for free. Maher and Bird (2020) say this might not always be possible. Whilst digital products and services may have a marginal cost of almost 0, Huang and Sundararajan (2011) confirm that there are definitely costs involved in the provision of digital goods and services.

Interestingly, respondents agreed with variable five, which is that digital products and services are cheaper to produce, with a mean of 5.52 and a median of 4, further supporting the view of Maher and Bird (2020). These costs may be discontinuous, but they still apply, and access to digital goods and services will have to be charged to cover these costs and enable any business to make a profit (Faith, 2018).

This sentiment is further supported by variable 2: I am subscribed to and pay for premium versions of apps like YouTube, Dropbox, Google Drive, etc. This

variable had a mean of 2.91 and a median of 3. This showed that respondents disagreed with paying for premium versions of digital services (MasterCard, 2020). Respondents also strongly disagreed with variable 3: I should pay more for an item if it is digital (for example, music on iTunes compared to a CD) with mean and median of 1.72 and 1, respectively.

5.3.2 Ariely Experiment

Ariely (2010), as cited by Krämer (2015), refers to an experiment where customers were presented with choices for a subscription to a magazine (physical vs. digital and physical bundle), with results showing a shift in choices when the option of a third choice including physical versions of a product were included.

The reasons for the inclusion of this experiment, although slightly altered, were two-fold: firstly, to establish if the results of the original experiment would hold in a South African market, and secondly, to determine if there were any demographical factors that would affect the outcome of this experiment (i.e. if a certain demographical group were more dispositioned to a certain preference). It would also indicate preferences for a digital vs. physical product, the shift that could arise when bundles were included, and the importance of this for digital adoption and revenue benefits.

In this research, when presented with the choice between a digital-only product at R60 versus a physical product only at R120, the split in choices was 82.3% and 17.7%, showing that the majority of respondents preferred the digital-only product. When the option of the digital and physical product bundle at R120 was introduced, the percentages changed to 45.5% (digital-only product), 5% (physical product) and 49.5% (digital and physical product).

These results were consistent with that of the original Ariely experiment, as cited by Krämer (2015). In the original Ariely experiment, a choice between a digital-only product and a bundle of digital and physical. The initial split was 68% (digital product) and 32% (bundle of digital and physical). When the

physical product-only option was introduced, the splits changed to 16% (digital), 0% (physical) and 84% (bundle). This is summarised in Table 5.1 below.

Table 5.1: Original Ariely Experiment vs Research Simulation of Ariely Experiment

Options	Original Ariely Experiment (\$59, \$125, \$125)		Research simulation of Ariely experiment (R60, R120, R120)	
Digital Product Only	68%	16%	82,30%	45,50%
Physical Product Only	N/A	0%	17,70%	5%
Digital and Physical product bundle	32%	84%	N/A	49,50%

The most notable difference in the results is on the question, which included three options. In the original Ariely experiment, respondents majorly preferred a bundle product at 84% of respondents. In the South African context, the majority of respondents still preferred the bundle, but there was an almost even split of the digital product and bundle at 45.5% and 49.5%, respectively.

This illustrates two important notes. Firstly, the South African market still, in many cases, prefers physical products, as the bundle had a high preference rate compared to the digital product, although the digital product was only half the price of the bundle (Goga et al., 2019). This is further illustrated by the 5% of respondents that interestingly still preferred the physical product, compared to the 0% in the original experiment. This implies that 5% of respondents showed no interest or saw no value or utility in the digital product, even at a cheaper price point or included in the bundle at the same price as the physical product only.

The second important takeaway is that the South African market seems to be more price-sensitive than the respondents of the original Ariely experiment. Whilst in the original Ariely experiment, most respondents shifted their preference to the bundle on the given three options, in the SA context, an almost equal number of respondents still preferred the digital-only product, likely due to its cheaper price point (Burger et al., 2017).

There was no significant association between the demographical factors and the willingness to pay for digital vs. physical products. This means that this study confirmed the simulated Ariely experiment's general results and implies that it may apply to all customer segments in the top 2 million households in South Africa (i.e., the middle class, upper-middle class and top-end).

5.4 Discussion Pertaining to Hypothesis 2

Hypothesis 2 was stated as below:

Null Hypothesis:	There are customer-based factors that influence the willingness to pay for a product or service
Alternate Hypothesis:	There are no customer-based factors that influence the willingness to pay for a product or service

The results of the study failed to reject the null hypothesis. This means that consumer-based factors will impact the willingness to pay for a product or service.

5.4.1 Descriptive Statistics for Hypothesis 2

This discussion begins by reviewing the descriptive statistics and the keynotes/takeaways. This is summarised in Table 5.2 by themes, key metrics, and comments relevant to Hypothesis 2.

Table 5.2: Descriptive Statistics for Hypothesis 2

Variable	Description	Mean	Median	Theme	Comments
Var 4	I don't mind paying for the convenience of a digital product (for example, paying a transaction fee when purchasing prepaid airtime or electricity).	2,85	3	Convenience	Respondents overall disagree, on average, at 2,85, with paying a transaction fee. Pricing of convenience into digital products/services will need to be done less explicitly.
Var 6	I am willing to pay more for an item if it is difficult to find/scarce.	3,61	4	Convenience	Scarcity is an important driver in pricing. Respondents are willing to pay more to decrease search effort and secure a product that is difficult to find. This could be used in dynamic pricing to drive up the prices of scarce and difficult-to-find products and services.
Var 7	I am willing to pay more for an item if I need the product urgently.	3,78	4	Convenience	Urgency is another important driver in pricing. Respondents are willing to pay more for urgently required items, with an average of 3,78. This will only apply to products that are indeed urgent and cannot wait for a longer period.

Variable	Description	Mean	Median	Theme	Comments
Var 8	There are certain categories of purchases that I will make irrespective of the price (for example, sports and gym equipment, cosmetics, or clothing).	3,23	4	Personal Offers	Respondents mostly agreed to pay more for certain categories of items. Firms would have to understand which categories consumers value to determine what they are willing to pay more for.
Var 9	I would be more likely to purchase without considering the price if it was a personalised offer for something I really required.	3,4	4	Personal Offers	"For you" type offers can yield higher prices as respondents would be willing to pay more for them. This is important as the more data and understanding a firm has about a client, the better they are able to personalise offers to drive higher pricing and revenue.
Var 10	I would be upset if I were charged more than someone else for the same product.	4,89	5	Fairness	Fairness in pricing and treating customers equally is highly valued in the respondents' feedback at 4,89. It is thus important to ensure that price changes are ethical, legal and understood by consumers.

Variable	Description	Mean	Median	Theme	Comments
Var 11	I expect companies to be fair in their pricing strategies.	4,94	5	Fairness	Fairness in pricing strategies was rated very highly, with the highest ranked variable being 4,94 on average. This could be a major driver in building customer loyalty based on pricing.
Var 12	I would be comfortable with companies using my historical purchase data to price me better.	3,57	4	Fairness	Respondents were open to the use of their data to get them better prices.
Var 13	I am aware of programs such as eBucks rewards, where my behaviour and preferences for transactions and products determine the level of rewards I get.	4,43	5	Irrationality	Awareness of behaviour to determine a "reward", which can be related to a dynamic pricing reward, was high in the group surveyed.
Var 14	If companies price me differently from other customers, I would like to understand the factors that led to me getting a specific price.	4,8	5	Fairness	Transparency as to how prices are determined is very important, with a mean of 4,8 and a median of 5.

Variable	Description	Mean	Median	Theme	Comments
Var 15	I think using an eBucks-like structure (tiered based on behaviour or characteristics) to determine pricing levels is a good idea.	3,72	4	Fairness	Behavioural rewards or prices based on behaviour are generally accepted among respondents
Var 16	I would be willing to change my behaviour to get better prices.	3,78	4	Irrationality	On average, respondents would be willing to change behaviour for better prices – which is important in the pricing of digital adoption.
Var 17	I think transparency as to how pricing is determined is important	4,73	5	Fairness	On average, at 4,73, respondents expect companies to be open regarding pricing.

Table 5.2 shows that respondents generally disagree with paying transaction fees, suggesting that digital products should be priced less explicitly. They are willing to pay more for scarce and difficult-to-find items, as well as for urgent items. Firms should understand consumer values to determine what they are willing to pay more for. "For you" offers can yield higher prices, as more data and understanding can personalise offers. Fairness in pricing and treating customers equally is highly valued, and transparency is important for building customer loyalty. Respondents are open to using their data for better prices and are generally aware of behaviour-based rewards. They expect companies to be open regarding pricing.

5.4.1.1 Convenience

On average, respondents are opposed to paying transaction fees. This result is corroborated by Cavallo (2017), who discovered that customers prefer identical online and offline prices. Li et al. (2020) discovered that when required transaction fees increase, the number of consumers declines gradually at first, followed by a sharp decline; when consumers perceive transaction fees to be excessively high, they tend to forsake the sale. Additionally, Difrancesco and Huchzermeier (2020) assert that greater effort must be made to enhance the consumer's perception of value when a transaction fee is levied. Convenience pricing for digital products/services must be implemented less explicitly or in such a way that consumers perceive online purchases as superior to offline ones.

Scarcity is a key pricing factor (Chatterjee & Kumar, 2017). Respondents are prepared to pay more to reduce search effort and acquire a difficult-to-find product. This was verified by Saha et al. (2020), who also confirmed that satisfaction with delivery efficiency increases willingness to pay. Retailers could use dynamic pricing to increase the prices of scarce and difficult-to-find products and services (Ngwe et al., 2019).

Additionally, urgency is a significant pricing factor (Shen et al., 2020). Respondents are willing to pay more for items that are urgently needed. This was corroborated by Brand et al. (2020), who also discovered that time pressures can either attract or repel online consumers. This would only apply to truly urgent products that cannot wait for an extended delivery period.

5.4.1.2 Personalised Offers

The majority of respondents concurred with paying more for specific categories of goods and services. For instance, Boyer et al. (2020) discovered that consumers are consistently willing to pay more for brand-new products than for used or refurbished ones. Saha et al. (2020) confirmed that online purchasing satisfaction is essential to unlocking willingness to pay. Tandon (2020)

discovered that reverse logistics and pay-on-delivery were essential for online consumers. To determine what consumers are prepared to pay more for, businesses must comprehend which categories and services consumers value.

Respondents are willing to pay a premium for "For you"-type offers, which can result in higher prices. Yang et al. (2019) confirmed this but stated that consumers with greater experience are less likely to pay the price premium and instead rely on a reputation system in which the online vendor must earn their trust. This is important because the more data and comprehension a company has about a client, the better they can personalise offers to drive higher pricing and revenue, but only if the online vendor has a good reputation for customer service.

5.4.1.3 Fairness

Fairness in pricing, pricing strategies, and customer treatment is highly valued, according to the responses. Moriarty (2021) emphasised that online merchants must always disclose if they are personalising prices; if not, it is unfair. Consequently, it is essential to ensure that consumers understand price adjustments ethically, legally, and easily (Tandon, 2020). This could be a significant factor in establishing price-based customer loyalty. This was confirmed by Son and Jin (2019), who discovered that perceived price fairness moderates the relationship between price and purchase propensity.

Respondents were receptive to the use of their information to obtain improved pricing. This result was partially confirmed by Aiello et al. (2020), whose results indicated that, compared to the pre-purchase phase, requesting personal information at the conclusion of the online customer purchase journey (i.e., the purchase and post-purchase phases) increases customers' disclosure of personal data. Grosso et al. (2020) extend these privacy decisions as influenced by individuals' trust to include, at the micro-level, confidence in the online retailer and, at the macro-level, trust in country governance. When this confidence is high, customer satisfaction increases.

5.4.1.4 Irrationality

Awareness of behaviour to determine a "reward", which can be related to a dynamic pricing reward, was high in the group surveyed. Behavioural rewards or prices based on behaviour are generally accepted amongst respondents. This was echoed by Brand et al. (2020), who found that shoppers may be attracted by perceived benefits as long as they could fit the required changes into their daily schedules. Duan et al. (2019) confirmed that these rewards needed to be meaningful enough to encourage consumers to make the behaviour change. Failure to do so (i.e., rewards below a certain threshold) that are not viewed as benefiting buyers will not result in the desired change in behaviour. On average, this study found that respondents would be willing to change behaviour for better prices – which is important in the pricing of digital adoption.

5.4.2 Chi-square Analysis

The chi-square of each of the variables of the constructs was measured against the independent variables, which were variable 18 and variable 19. The independent variables measured the customers' willingness to pay for a product or service, whether digital or physical. The same formula and significance level were applied, as stated in section 4.5, to assess the association of the variables in the constructs with the two independent variables.

The results show no association between constructs 1 and 2 variables, which were convenience and personalised offers, and the independent variables (Var 18 and 19) as $p > 0.05$. This meant that convenience and personal offers were not customer-based factors that influenced the willingness of customers to pay for a product or service.

When analysing the association between the variables of the fairness construct, there was no significant association between the dependent variables of the construct and the independent variables of the study except for one variable,

variable 17, $X^2 = 10.03$, $p = 0.02$, $\phi = 0.23$; this association was, however, weak as measured by the Cramer's V statistic $\phi \leq 0.3$.

Furthermore, the results show a weak association between irrationality variable 16 and the independent variables, $X^2 = 11.73$, $p = 0.02$, $\phi = 0.24$. Variable 16 was the customers' willingness to change behaviour for better prices (I would be willing to change my behaviour to get better prices), and variable 17 was the transparency of price determination (I think transparency as to how pricing is determined is important). This meant that fairness in pricing and irrationality when it came to behaviour were two small-scale customer-based factors influencing willingness to pay for a product or service. Thus, the null hypothesis could not be rejected.

Each of the results for the constructs (Convenience, Personalised offers, Fairness and Irrationality) will now be discussed in relation to the literature.

5.4.2.1 Convenience

The results of this study found no significant correlation between convenience and willingness to pay for a digital product and service. The first mention of convenience was from Krämer and Kalka (2016). In the application of dynamic pricing, Krämer and Kalka (2016) mention distance-based pricing as one of the instances in which dynamic pricing can be applied in a convenience context. In this example, a customer is potentially charged more if they are further away from a store to attain a physical product. In this way, they are paying for the convenience of still having the product in the digital form or of paying a delivery charge or a transaction fee to have the product delivered.

Spacey (2016) also cites convenience as one of the key drivers for dynamic pricing. The premise is that customers will usually choose the easiest options when making purchase decisions, and these easier options could be priced higher.

Convenience was chosen as one of the key factors influencing pricing decisions as it was viewed as being a relevant factor in the digital landscape. One of the

reasons that there was no correlation between willingness to pay and convenience could be explained by the market being price-sensitive and not yet ready to accept higher prices for convenience (Burger et al., 2017). This is further supported by respondents overall disagreeing with Variable 4 on average, at 2,85, with paying a transaction fee. Pricing of convenience into digital products/services will need to be done less explicitly and perhaps driven into the price of the product itself, as is the case with business aggregator models like the one used in groceries by company OneCart, where customers pay for the convenience of having multiple products from different stores in one basket, that are delivered to you. The pricing of some products on this service is generally higher than those charged by the store itself, but this is not always made obvious to a customer (Onecart).

5.4.2.2 Personalised Offers

No significant correlation was found between personalised offers and willingness to pay. One of the earliest definitions of dynamic pricing is "selling a suitable product, to a suitable client, for a suitable price at a suitable time", by Weatherford and Bodily (1992) as cited by DeksnYTE & Lydeka (2012). This basically sums up the concept of personalised offers – tailoring a price and product combination to the correct customer at a point in time. If this is done correctly, customers are more likely to binge purchase or purchase at a higher price because the product is something they require at a certain point (Yang et al., 2019).

This is further discussed by Krämer and Kalka (2016) in Table 2.1 and explored under the themes of time-based, browsing-based, past behaviour-based, and demographics-based pricing. These all describe instances where an offer/product can be personalised. DeksnYTE and Lydeka (2012) also refer to customer behaviour and characteristics as one of the ways prices can be personalised and adjusted.

One of the main reasons there is no correlation between personalised offers and willingness to pay amongst the respondents could relate to price sensitivity

and not having enough experience in the market (Yang et al., 2021). Many companies are still in the process of exploiting data and creating segmentations and "market of one" dynamics (Dabija & Lung, 2019). The sooner this is achieved, the sooner firms will be able to create specific experiences based on customer needs and preferences, and the sooner customers will become accustomed to these and see the value in them (Duan et al., 2019).

5.4.2.3 Fairness

This study found a weak association between fairness in terms of pricing and the customer-based factors that influenced willingness to pay for a product or service. This result is in contrast to Ahmed et al. (2022), who found a considerable association between pricing fairness and willingness to pay. Ahmed et al. (2020) also found that pricing fairness improved customer satisfaction and loyalty. This was corroborated by Opata et al. (2019), who found that the relationship was significant and positively moderated satisfaction and loyalty as well. Kukla-Gryz et al. (2020) went further and suggested that fair pricing policies may reduce the scope of digital piracy. These studies suggest that perceived price fairness moderates the relationship between price and willingness to purchase and is associated with consumer pleasure, loyalty, and ethicality perceptions.

One of the primary reasons why a weak association may have been found is suggested by Moriarty (2021), who emphasised that online merchants must always disclose if they are personalising prices, failing which is automatically unfair. In South Africa, the biggest online retailer, Takealot, has recently been named by the Competition Commission as participating in unfair pricing and anti-competitive behaviour (Business Tech, 2023). These allegations have been around for many years, resulting in a formal Online Platforms Market Inquiry by the Competition Commission that commenced in 2021 (Mashego, 2021). As more information about Takealot's business practices was made public, the online retailer saw its Growth Merchandise Value (GMV) growth decline from 72% in 2021 to 15% in 2022 (Modise, 2023), emphasising the key role of trust

in the consumer's mind. South African online shoppers seem to understand that the online retail industry in its current form requires that they pay for the convenience of online shopping due to a lack of reliable, better-priced alternatives.

5.4.2.4 Irrationality

This study also found a weak association between irrationality when it came to behaviour and customer-based factors that influenced willingness to pay for a product or service. As previously stated, Brand et al. (2020) and Duan et al. (2019) confirmed that perceived benefits may attract shoppers as long as they can accommodate the necessary adjustments to their daily routines as long as the reward is considered meaningful. This study result suggests that online retailers mostly offer rewards below the threshold of what online shoppers consider meaningful. This result makes more sense when paired with the supposition that the study respondents, though of a higher socio-economic background, are perhaps more price-sensitive than would have been expected.

5.5 Chapter Summary

This study explores the factors influencing dynamic pricing strategies in South Africa, focusing on willingness to pay, demographics, and price perceptions. The demographic profile of respondents is mainly female, with a majority aged 35–45. The age distribution is more diverse, with 79.5% being older than 35 years. Employment status is high, with 87% employed. The income bracket is primarily from the top 2 million households, with 31% earning between R250 001 to R500 000 per annum. Education level is high, with 26% having an honours degree, 23.5% having a master's degree, 22.5% having a degree, and 16% having a diploma. Thus, the study could not deliver on the stated aim of understanding how digital services pricing is perceived by typically excluded markets and contributing to pricing optimisation for lower-income consumers.

The study aimed to determine if customers expect to pay less for digital goods and services. The results confirmed that customers expect to pay less for digital services and products, with an average of 3.47 on the Likert scale. The Ariely Experiment was used to determine if demographical factors would affect the outcome of the experiment. The study found that the majority of respondents preferred the digital-only product, with a significant preference for the bundle product. However, the South African market seems to be more price-sensitive than the original Ariely experiment, with an almost even split of the digital product and bundle at 45.5% and 49.5%, respectively. There was no significant association between demographical factors and the willingness to pay for digital vs. physical products. The study also confirmed the general results of the simulated Ariely experiment, suggesting that it may apply to all customer segments in the top 2 million households in South Africa.

The study reveals that respondents generally disagree with paying transaction fees for digital products, suggesting that they should be priced less explicitly. They are willing to pay more for scarce and difficult-to-find items, as well as for urgent items. Firms should understand consumer values to determine what they are willing to pay more for. Personal offers, such as "for you" types, can yield higher prices as more data and understanding can personalise offers. Fairness in pricing and treating customers equally is highly valued, and transparency is important for building customer loyalty. Respondents are open to using their data for better prices and are generally aware of behaviour-based rewards. They expect companies to be open regarding pricing. Convenience pricing for digital products/services should be implemented less explicitly, and consumers are willing to change their behaviour for better prices.

The study reveals that consumers are willing to pay more for specific categories of goods and services, with a preference for brand-new products. Consumers are also willing to pay a premium for "For you" offers, which can result in higher prices. Fairness in pricing, pricing strategies, and customer treatment is highly valued, with consumers being receptive to the use of their information for improved pricing. Irrationality is also a significant factor, with consumers being willing to change behaviour for better prices. The study found no significant association between convenience and personalised offers, fairness, or

irrationality, suggesting that fairness in pricing and irrationality are small-scale customer-based factors influencing willingness to pay for a product or service.

The study found no significant correlation between convenience and willingness to pay for digital products and services. Convenience is a key factor influencing pricing decisions in the digital landscape, but the market is price-sensitive and not yet ready to accept higher prices for convenience. Personalised offers, such as time-based, browsing-based, past behaviour-based, and demographics-based pricing, are not significantly correlated with willingness to pay. Fairness in pricing is weak, with studies suggesting that perceived price fairness moderates the relationship between price and willingness to purchase and is associated with consumer pleasure, loyalty, and ethicality perceptions. Irrationality is also weak, with rewards offered by online retailers often below what online shoppers would consider meaningful. This suggests that consumers are more price-sensitive than expected, and companies need to develop more effective strategies to create specific experiences based on customer needs and preferences.

The next chapter outlines the study recommendations, areas for future research, study limitations and overall conclusion.

CHAPTER 6 Conclusion

6.1 Introduction

Dynamic pricing refers to the academic field that analyses and determines the most advantageous selling prices for items or services (Shen et al., 2020). Dynamic pricing approaches are extensively employed in diverse industries and are often regarded as an essential component of pricing strategies (Brand et al., 2020). Digital sales environments typically offer companies a wealth of sales data. The dataset potentially encompasses significant consumer behaviour results, specifically consumer reactions towards varying selling prices (Aiello et al., 2020). Leveraging the information embedded within the data and implementing it in the context of dynamic pricing strategies has the potential to yield significant competitive benefits (Lu et al., 2020).

Understanding the methods and principles involved in this process holds great practical significance and theoretical value (Den Boer, 2015). The examination of optimal dynamic pricing, where customer behaviour traits can be acquired through the accumulation of sales data, was a significant motivator for this study in the field of dynamic pricing.

The chapter begins with summarising the study's method, main results and then unpacking study recommendations. Next, the chapter explores recommendations to fellow researchers and reflects on the study's limitations. Finally, the chapter ends with the study conclusion.

6.2 Overview of the Methodology

The research was quantitative, cross-sectional, and conducted using online questionnaires with structured questions. The population consisted of customers who had previously purchased goods and services online. The study employed a purposive sampling technique, recruiting 200 respondents based

on their previous experience as eCommerce users. A questionnaire was designed based on the literature review's insights, and the data was analysed and interpreted for further interpretation. The study hypothesised that behavioural, psychological, and demographical factors influence customer perception and willingness to pay and that the study's results can contribute to understanding dynamic pricing strategies in the South African market.

The study had methodological limitations, including the lack of a master list, potential sampling frame error, random sampling error, non-response errors, response bias, and non-random sampling technique. However, the study's non-random sampling technique allowed for country-specific research.

6.3 Main Results of the Study

6.3.1 Demography

The study analysed demographic factors affecting willingness to pay in South Africa. The majority of respondents were female, with a gender split of 55.5%. The age category split was more diverse, with 34.5% aged 35-45 years. The data was biased towards older respondents, with 79.5% older than 35 years. Employment status was high, with 87% employed. The sample was biased towards respondents from the top 2 million households in South Africa. Most respondents had an honours degree or higher, consistent with the middle class, upper-middle class, and top end of the South African consumer landscape.

6.3.2 Hypothesis 1: Customers' expectation to pay less for digital goods and services

The sample confirms that customers expect to pay less for digital goods and services. The respondents agreed that digital services should be free but acknowledged the costs involved in providing them. They also disagreed with paying for premium versions of apps and expected to pay more for digital items. The study also found that the majority of respondents preferred a digital

product, while a bundle of digital and physical products was preferred. The South African market is more price-sensitive than the original Ariely experiment, with an almost equal number of respondents still preferring the digital product due to its cheaper price point. No significant association was found between demographic factors and willingness to pay for digital vs. physical products, indicating that the study confirms the results of the simulated Ariely experiment.

In summary, H_{1N} was accepted, i.e., customers expect to pay less for digital goods and services.

6.3.3 Hypothesis 2: Customer-based factors that influence the willingness to pay for a product or service

The study found that customer-based factors influence the willingness to pay for a product or service. Consumers are generally opposed to paying transaction fees, which can lead to declining sales. Scarcity, urgency, and specific categories of goods and services also influence willingness to pay. Consumers are willing to pay more for personalised offers, which can result in higher prices. Fairness in pricing, pricing strategies, and customer treatment is highly valued, and consumers are receptive to using their information for improved pricing. Awareness of behaviour to determine a 'reward' is high, and respondents are willing to change their behaviour for better prices.

The study found no significant association between convenience and the independent variables and no significant association between fairness and irrationality. Convenience is usually a key factor influencing pricing decisions in a digital landscape, as customers often choose the easiest options when making purchase decisions. Personalised offers and willingness to pay have no significant correlation, possibly due to price sensitivity and lack of market experience. The study also found a weak association between fairness in pricing and customer-based factors influencing willingness to pay. This could be due to the lack of transparency in online merchants and the perceived benefits.

In summary, H_{2N} was accepted, i.e., customer-based factors influence the willingness to pay for a product or service.

6.4 Recommendations

Sellers can use dynamic pricing to increase revenues and company valuations (Neubert, 2022). It can be effective if implemented in a way that consumers view the price increases as fair and justifiable (Goga et al., 2019). The recommendation to online retailers is explicit: they should develop policies that are consistent, transparent, simple to comprehend, and in line with consumer expectations (Tandon, 2020). Where online retailers choose to implement transaction fees or convenience pricing, they must be implemented clearly or in such a way that consumers perceive online purchases as superior to offline ones (Difrancesco & Huchzermeier, 2020).

The second important thing to take away from this study is that dynamic pricing that is based on price discrimination is not well received in general, but it is especially disliked when it is implemented on an individual level (Moriarty, 2021) and may even encourage digital piracy (Kukla-Gryz et al., 2020). The recommendation to companies is that they should give this strategy a great deal of thought and seek ways to offset the adverse effects, such as increasing their level of transparency (Yang et al., 2019).

The results revealed that consumers are tolerant of price variations in firms or industries where price changes due to fluctuating demand are expected, so long as the price differential is not deemed excessive. The implication is that firms in industries where it is anticipated that there will be limited resources and fluctuating demand are more able to implement dynamic pricing than firms in industries where there is no perception of fluctuating demand and resources (Saha et al., 2020). When the price changes are more significant than anticipated, or there is no evident reason for a price increase, firms are recommended to increase transparency and support sales by explaining how or why the processes are changing (Ngwe et al., 2019).

The advent of disruptive technologies, like the Internet of Things (IoT), big data analytics, blockchain, and artificial intelligence (AI), has significantly transformed the operational landscape of enterprises, particularly from a digital marketing perspective (Chen & Chen, 2015). Online retailers must allocate the necessary resources and endeavour to determine the most suitable AI solutions that their organisations can employ (Neubert, 2022). This is particularly important as the very platforms that online retailers are using to reach their target audiences can be used against them when customers engage in negative reactions, such as negative reviews or negative brand sentiment when they are dissatisfied with the service provided (Lobel, 2020).

There is a consensus that organisations that excel in delivering exceptional customer experiences will emerge as successful entities in the Fourth Industrial Revolution (Ndung'u & Signé, 2020; Stasinski, 2020). The Fourth Industrial Revolution entails integrating customer and product data across various channels and products inside a firm (Den Boer, 2015). This integrated data must be utilised to enhance understanding of the company's end customer experience and improve visibility across all functional areas (Chatterjee & Kumar, 2017). In the present scenario, AI and machine learning (ML) have emerged as pivotal components in the field of big data analytics (Verma et al., 2021). Their primary function is forecasting and facilitating tailored experiences that align with client demands. The adoption of AI and ML is thus key for online retailers considering the use of dynamic pricing. This is particularly important in relation to the level of clients' price sensitivity (Burger et al., 2017) and irrationality when it comes to behaviour (Duan et al., 2019).

6.5 Areas for Future Research

This study had inadequate data points for the younger population (particularly those younger than 35), and this gives rise to the first recommendation to future researchers: determining the Consumer factors that need to be considered in the application of dynamic pricing strategies for millennials and/or Generation Z in the South African context (Raza et al., 2022).

This study had hoped to contribute to understanding how digital services pricing is perceived by typically excluded markets, i.e., for lower-income consumers; however, the final sample was unable to support such consideration. Future researchers could explore pricing optimisation for this typically price-sensitive but digitally savvy (especially when using smartphones), essential for financial inclusion and adoption in South Africa (Ndung'u & Signé, 2020).

Longitudinal studies may present an opportunity for researchers, given the infancy of the online retail market in South Africa. Given that respondents are receptive to sharing their data for a perceived benefit, this is especially interesting in the context of technological advancements to facilitate big data collection and analysis along the customer's online journey (Grosso et al., 2020).

There is a paucity of studies on online shoppers' negative reactions (Neubert, 2022). When consumers experience dissatisfaction and perceive unfair treatment, they may exhibit proactive behaviour by employing more aggressive negative techniques, such as posting negative reviews or engaging in behaviours aimed at deterring sales and damaging the firm's reputation. Further research may be valuable in unpacking the negative reactions in the South African context and determining what sensory capabilities firms need to detect and mitigate such reactions (Lobel, 2020).

6.6 Study Limitations

Insufficient data points were available for the younger population in South Africa, specifically Generation Z and younger millennials. This limitation may introduce potential biases in the study's results, as generational opinions and preferences are known to vary significantly (Raza et al., 2022). Each generation exhibits distinct perspectives, preferences, and collective encounters, which subsequently shape their conduct. Also, Egan (2021) suggests that the international generational cohort descriptions may not make sense in South Africa due to the differences in historical realities associated with Apartheid. Future researchers may thus consider the younger population in terms of

Egan's (2021) cohorts, namely the Transition generation (born between 1980 and 2000) and the Generation second wave (born after 2000).

The results show that the sample exhibited a bias in favour of individuals with a higher socio-economic level, i.e., Employment Status, Income Bracket and Education level. Though this favours the subset of the South African population with higher purchasing power (approximately 2 million households), it excludes the majority of South Africans (approximately 16 million households) (Egan, 2021).

Given time and cost limitations, the cross-sectional research approach was the most appropriate choice for the researcher. As such, these insights are snapshots taken at a specific moment in time and thus vulnerable to the broader context of what was happening in the South African online retail space while the data was collected, e.g., Takealot being named by the Competition Commission as engaging in unfair pricing and anti-competitive action in July 2023 (Business Tech, 2023; Modise, 2023).

6.7 Study Conclusion

Dynamic pricing is an academic field that analyses and determines the most advantageous selling prices for items or services. This study focuses on understanding optimal dynamic pricing, where customer behaviour traits can be acquired through accumulating sales data. The research was quantitative, cross-sectional, and conducted using online questionnaires with structured questions. The final sample size was 200. The study hypothesised that behavioural, psychological, and demographical factors influence customer perception and willingness to pay. The results can contribute to understanding dynamic pricing strategies in the South African market.

The study found no significant association between demographic factors and willingness to pay for digital vs. physical products, indicating that the study confirms the results of the simulated Ariely experiment. Consumers are generally opposed to paying transaction fees, scarcity, urgency, and specific

categories of goods and services. They are willing to pay more for personalised offers, fairness in pricing, pricing strategies, and customer treatment. In conclusion, the study confirms the results of the Ariely experiment and suggests that customer-based factors influence willingness to pay for a product or service.

The study suggests that dynamic pricing can effectively increase revenues and company valuations for online retailers, but it should be implemented fairly and justifiably. Consumers tolerate price variations in industries where fluctuating demand is expected as long as the price differential is not excessive. Firms in industries with limited resources and fluctuating demand are more able to implement dynamic pricing.

The advent of disruptive technologies like IoT, big data analytics, blockchain, and AI has significantly transformed the operational landscape of enterprises. Online retailers must allocate necessary resources and determine suitable AI solutions to enhance understanding of the company's end customer experience and improve visibility across all functional areas. AI and ML have emerged as pivotal components in big data analytics, crucial in forecasting and facilitating tailored experiences that align with client demands.

Future research should focus on determining Consumer factors for millennials and Generation Z in the South African context and exploring pricing optimisation for lower-income consumers. Longitudinal studies may allow researchers to explore pricing optimisation for these price-sensitive but digitally savvy markets. Future researchers may also consider the younger population in terms of Egan's (2021) cohorts, considering the Transition generation and Generation second wave.

The study also has limitations, such as insufficient data points for the younger population in South Africa, particularly Generation Z and younger millennials, which may introduce potential biases in the results. The cross-sectional research approach was the most appropriate choice for the study, as these insights are snapshots taken at a specific moment and vulnerable to the broader context of the South African online retail space.

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APPENDIX A – Participant Information & Consent Statement

My name is Kaajal Demrugaram, and I am currently enrolled as a student at the University of Witwatersrand. I am conducting research on consumer-based factors in applying dynamic pricing in a digital context in South Africa, in partial fulfilment of the requirements for the Master of Management degree in the field of Digital Business.

The survey should take no more than 10 minutes of your time and would involve your previous experience of eCommerce transactions and perceptions of digital products and services. Please note that your participation in this survey is voluntary, and you can withdraw at any time without penalty. All data would be kept confidential and anonymous and responses cannot be tracked. Neither your identity nor your company's will be recorded.

Thank you for your participation.

APPENDIX B – Research Instrument: Questionnaire

SECTION A: Demographic Information

1. Gender:
Male
Female
Prefer not to say

2. Age Category
18–25
25–35
35–45
45–55
55+

3. Employment Status:
Employed
Unemployed
Student

4. Income Category per annum
0-R 250 000
R 250 001 – R 500 000
R 500 001 – R 750 000
R 750 001 – R 1 000 000
R 1 000 000 +

5. Highest Education Level obtained:
Grade 12
Diploma
Degree

Honours
Masters
Doctorate

SECTION B: Likert Scale Questions

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. Digital services and products like access to music and books should be free.
2. I am subscribed to and pay for premium versions of apps like YouTube, DropBox, Google Drive, etc.
3. I should pay more for an item if it is digital (for example, music on iTunes compared to a CD).
4. I don't mind paying for the convenience of a digital product (for example, paying a transaction fee when purchasing prepaid airtime or electricity).
5. Digital products and services are cheaper to produce.
6. I am willing to pay more for an item if it is difficult to find/scarce.
7. I am willing to pay more for an item if I need the product urgently.
8. There are certain categories of purchases that I will make irrespective of the price (for example, sports and gym equipment, cosmetics or clothing).
9. I would be more likely to make a purchase without considering the price if it was a personalised offer for something I really required.
10. I would be upset if I were charged more than someone else for the same product.
11. I expect companies to be fair in their pricing strategies.
12. I would be comfortable with companies using my historical purchase data to price me better.

13. I am aware of programs such as eBucks rewards, where my behaviour and preferences for transactions and products determine the level of rewards I get.
14. If companies price me differently from other customers, I would like to understand the factors that led to me getting a specific price.
15. I think using an eBucks-like structure (tiered based on behaviour or characteristics) to determine pricing levels is a good idea.
16. I would be willing to change my behaviour to get better prices.
17. I think transparency as to how pricing is determined is important.

SECTION C: Select-an-Answer Questions

18. If you had to purchase a digital vs traditional/physical product and were presented with the following options, which would you choose?
 - a. Digital only R 60
 - b. Physical product only R 120
19. If you had to purchase a digital vs traditional/physical product and were presented with the following options, which would you choose?
 - c. Digital only R 60
 - d. Physical only R 120
 - e. Digital and Physical R 120

Thank you for participating in my study.

APPENDIX C – Research Question Organisation

Question #	Factor	Variable	Research Question #	Hypothesis #
1	Demographical	Gender	2	2
2	Demographical	Age	2	2
3	Demographical	Employment	2	2
4	Demographical	Income	2	2
5	Demographical	Education	2	2
6	Perception of digital goods/services	N/A	1	1
7	Perception of digital goods/services	N/A	1	1
8	Perception of digital goods/services	N/A	1	2
9	Psychological	Convenience	2	2
10	Perception of digital goods/services	N/A	1	1
11	Psychological	Convenience	2	2
12	Psychological	Convenience	2	2
13	Psychological	Personalised offers	2	2
14	Psychological	Personalised offers	2	2

Question #	Factor	Variable	Research Question #	Hypothesis #
15	Psychological	Fairness	2	2
16	Psychological	Fairness	2	2
17	Psychological	Fairness	2	2
18	Psychological	Fairness	2	2
19	Psychological	Fairness	2	2
20	Psychological	Fairness	2	2
21	Behavioural	Irrationality	2	2
22	Psychological	Fairness	2	2
23	Behavioural	Irrationality	2	2
24	Behavioural	Irrationality	2	2

APPENDIX D – Ethics Approval

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg



Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB1790407/219

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	Consumer-based factors in applying dynamic pricing in a digital context in South Africa
Investigator / Researcher	Miss Kaajal Demrugaram
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2021-11-11
Expiry date	Date of submission of the project report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 ☎ +27 82 880 4531 ✉ anthony.stacey@wits.ac.za



Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.



Signature

15 November 2021

Date: