

**Dynamic Pricing for Hedonic and Utilitarian Purchases: The
Impact of Magnitude of Price Difference and Price Level on
Perceived Price Fairness**

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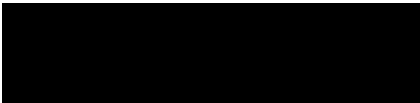
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Management Summary

Dynamic pricing is widely adopted in e-commerce for its effectiveness in enhancing revenue and profitability. Nowadays, firms increasingly focus on advancing their dynamic pricing models by examining consumer behavior patterns with the help of emerging technologies and increasing data availability. However, the economic benefits of dynamic pricing may be at the expense of damaging companies' reputations through violation of price fairness, resulting in jeopardizing sustainable development. Dynamic pricing should not be implemented disregarding the consumers' price fairness perceptions.

This study aims to explore price fairness perceptions in the condition of dynamic pricing incorporating individual motivational factors. The present research conceptualizes and tests a research model with the impact of different dynamic pricing mechanisms (i.e. magnitude of price difference and product price level) on consumers' perceived price fairness across buyers with different purchase motives. The magnitude of price difference covers the depth of price changes, and product price level depicts the starting point of price changes. Purchase motive (i.e. hedonic vs. utilitarian) is a consumer-centered, intrinsic factor representing the underlying motivation of a purchase. The effect of perceived price fairness on consumers' strategic price tracking behavior is also examined.

The data was collected through a between-subjects, factorial-design online experiment with two levels of magnitude of price difference (major vs. minor) \times two levels of product price level (high vs. low) \times two levels of purchase motive (hedonic vs. utilitarian). This study focuses on disadvantaged price inequality with the comparative reference price of "other buyers". Moreover, respondents evaluated the perceived price fairness in the post-purchase stage (i.e. after purchasing the product). Participants were recruited through an American online-access panel.

It is confirmed that the magnitude of price difference and product price level are salient predictors for perceived price fairness. By contrast, consumers' purchase motives (hedonic vs. utilitarian) do not elicit different judgments on price fairness. This study also finds that with the development of price investigation technologies and the trend of conscious consumers, perceived price unfairness can induce a higher intention of strategic price tracking behavior among buyers. Consumers no longer passively accept unfair deals or only take action after purchasing the products; they endeavor to become more strategic

to take advantage of the sellers. Future research could examine the interplay of price change magnitude, product price level, and price change frequency in an algorithmic model integrating consumers' price fairness considerations. In addition, the role of purchase motive on perceived price fairness in the pre-purchase stage of the customer journey could be further investigated in the context of discriminatory pricing.

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1 Introduction

1.1 Problem Statement

The broad application of dynamic pricing in the modern e-commerce market has been extensively discussed. Dynamic pricing is beneficial in boosting revenue and profitability (Abrate, Nicolau, & Viglia, 2019), optimizing production, and inventory management (Feng, 2019; Nagle, Hogan, & Zale, 2011, p.137). In 2018, a market survey conducted in Germany showed that 37% of the total 1,133 investigated products from 16 online retailers exhibited price differentiation in the period of 34 days (Dautzenberg, Gaßmann, Groß, Müller, Neukamp, & Bodenstein, 2018, p.4). Among these online retailers, 60 % of them adjusted the prices from 1 to 3 times, 36 % reached 4 to 15 times, and 4% even exceeded 15 times (Dautzenberg et al., 2018, p.13). Moreover, 16% of the participants (e-commerce professionals) regarded dynamic pricing as significant as a “game-changer” and 35% viewed it as an “interesting trend” in the consumer market (Statista, 2017).

However, how would consumers perceive this digital phenomenon? Dynamic pricing is not without limitations. Plenty of prior research demonstrated that dynamic pricing will negatively impact consumers’ price fairness perception (Abrate et al., 2019; Priester, Robbert, & Roth, 2020; Victor, Nathan, Grabara, & Fekete-Farkas, 2018b; Li, Hardesty, & Craig, 2018, etc.). Dynamic pricing models can be configured in a highly complex manner thanks to modern technology, which serves as a key driver for the rapid growth of this pricing practice (Gupta & Pathak, 2014; Chen, Mislove, & Wilson, 2016). Therefore, prices set by online retailers can appear perplexing for buyers. The lack of price transparency in dynamic pricing may result in consumers’ feelings of insecurity and loss of trust (Leinsle, Totzek, & Schumann, 2018, p.738; Dautzenberg et al., 2018, p.24). Further potential damages of varying prices include the loss of credibility, fears of price-gouging, and reduced purchase intentions (Richards, Liaukonyte, & Streletskayaet, 2016, p.138).

Online platforms vary prices at different levels of frequency as well as magnitude in various product categories. In the areas of electronics, pharmacies, automotive parts, and fashion, price changes were found to be the most frequent, while in the leisure & hobby, luxury & jewelry, price differentiation happened less frequently overall (Dautzenberg et al., 2018, p.23). However, rather distinct patterns were observed through an online price

tracking tool Keepa (<https://keepa.com/>). Examples are illustrated in Table 1.1 (data in February 2021). A small utensil, like a kitchen whisk, its price changed ten times per month in the last three months with a volatility of over 30%. Intuitively this is unexpected since consumers rarely track and compare the prices of a kitchen whisk or a Monopoly. In comparison, more expensive electrical household appliances (e.g. robot vacuum and computer) showed relatively lower frequency and magnitude of price variations. This contradiction further demonstrates that it is indispensable to explore the dynamic pricing mechanism of online shopping platforms.

Table 1.1: Amazon Price Changes in Three Months through Keepa

	Kitchen whisk	Robot vacuum	Monopoly	Computer
Lowest	\$ 5.22	\$ 179.99	\$ 9.99	\$ 949
Current	\$ 6.23	\$ 279.99	\$ 19.92	\$ 1,049
Highest	\$ 8.25	\$ 279.99	\$ 19.99	\$ 1,109
Average (last 90 days)	\$ 6.89	\$ 258.33	\$ 17.67	\$ 1,032.67
Average (last 180 days)	\$ 6.82	\$ 257.62	\$ 18.14	\$ 1,018.36
Drops (last 90 days)	10 per month	0.7 per month	6 per month	0.3 per month

Price fairness has gained extensive attention in the domain of price evaluation, especially in the context of differentiated prices (Koschate-Fischer & Wüllner, 2017, p.813). Price changes in today’s online platforms are rather unpredictable and volatile, consumers commonly do not realize the price differences at the time of buying, they only discover the advantaged or disadvantaged price inequality after their purchases (Dai, 2010, p.18). Therefore, dynamic pricing has been a controversial topic in terms of price fairness and caused public relations crisis and customer rage for Amazon, Netflix, and Apple (Li et al., 2018, p.204).

In conclusion, dynamic pricing is a widely adopted price practice in e-commerce for its effectiveness in enhancing revenue and profit. However, these economic benefits may be at the expense of damaging companies’ reputations through violation of price fairness,

leading to jeopardizing long-term profitability and sustainable development. Besides, modern technologies may have fueled the broader application of dynamic pricing, but at the same time, they can also amplify the negative effect of price unfairness perceptions. Consumers could use a series of tools, such as social media, online forums, and reviews, to transmit the information of firms' discriminatory price practice at a high speed and reach a tremendous number of other consumers (Li et al. p.206).

This paper argues that lessening the price unfairness perception is crucial for online retailers when applying dynamic pricing strategy. Companies should understand the extent to which they can increase or reduce prices, for what products they can change the prices, and when the changes can take place. At the same time, firms should also consider consumers' individual traits. It is vital for the adoption of dynamic pricing to understand how consumers may respond to these price changes cognitively, emotionally, and behaviorally.

1.2 Objectives and Research Questions

This section addresses the research objectives as well as the research significance. Research questions are proposed at the end of the section, together with the primary approaches applied to accomplish the objectives.

The purpose of this master thesis is to explore how price fairness perceptions are formed under the condition of dynamic pricing in the e-commerce market. More specifically, when consumers are facing disadvantaged price inequality, how the magnitude of price difference and the product price level predict perceived price fairness. Furthermore, the moderating effect of purchase motive (hedonic and utilitarian) on fairness perception is also investigated. Finally, consumers' strategic price tracking behavior is verified as an outcome variable of perceived price unfairness. Literature has covered many aspects of price fairness perceptions, nonetheless, in the domain of dynamic pricing of the rising e-commerce industry, the formation of price fairness judgment is yet to be fully explored.

The *first objective* of the present research is to analyze, the extent to which the two antecedents (i.e. magnitude of price difference and product price level) can affect consumers' fairness perceptions. Magnitude of price difference covers the depth of the price changes, and product price level depicts the starting point of the price changes.

Firstly, rooted in equity theory (Adams, 1965), the magnitude of price fluctuation will impact the fairness perceptions (Dai, 2010; Martin, Ponder, & Lueg, 2009). Higher price increases represent higher monetary sacrifice; thus, consumers will accordingly expect a higher outcome from the transaction (Lim, 2020, p.3). Secondly, products with different price levels vary in their price elasticities, which will inevitably affect consumers' perceptions towards discriminated prices. For example, durable products show higher price elasticity than groceries (Bijmolt, Van Heerde, & Pieters, 2005, p.163), and the size of expenditure will also influence consumers' price sensitivity (Nagle, Hogan, & Zale, 2011, p.132). Thereby, people can form different fairness perceptions for products with varying price levels. Research about the impact of product price level on price fairness is lacking in past literature. In the present paper, the magnitude of price difference and price level are incorporated in the research model and empirically examined specifically in the context of dynamic pricing of online retailers.

The *second objective* is to examine the role of consumers' purchase motives on perceived price fairness of dynamic pricing. Recent studies have recognized the necessity to incorporate attitudinal and motivational consumer factors when evaluating prices (Choi, Madhavaram, & Park, 2020, p.253). This paper includes the motivational factor of consumers' hedonic and utilitarian purchase motives. Consumers' attitude towards a product in terms of hedonic and utilitarian attributes, can be measured in the hedonic/utilitarian (HED/UT) scale developed and validated by Voss, Spangenberg, and Grohmann (2003, p.312). In this study, this scale is adopted to determine customers' purchase motives in individual purchase conditions. Hedonic and utilitarian characteristics have been extensively researched but not yet exhausted. In spite of the significant amount of literature on perceived price fairness, extant research has largely neglected to examine the role of motivations underlying fairness perceptions.

With the vast enrichment of product assortment, hedonic or utilitarian characteristics are no longer bipolar evaluations. Instead, they are contingent: a product can be viewed as more utilitarian, or more hedonic, due to different individual purchase motives, which might diverge from the traditional and overall perception of a product category (Scarpi, 2020; Choi et al., 2020, p.253). For instance, when purchasing a computer, if a customer intends to use it for gaming instead of working, it will be perceived as more hedonic, even though a computer is traditionally considered a utilitarian product (Choi et al., 2020,

p.253). Similarly, a kitchen utensil for some consumers is a necessity for cooking, but for cooking enthusiasts, it could be a “magic wand”. Thus, the price differentiation might accordingly induce different psychological and behavioral reactions. The hedonic or utilitarian features of consumption can reflect affective or instrumental motivations (Li et al., 2018, p.128), therefore they may exert various effects on price fairness perceptions as well. Only limited studies have explored the impact of purchase motive on perceived price fairness in the context of discriminatory pricing, this study attempts to provide further evidence in this field.

The *third objective* is to investigate how the magnitude of price difference, product price level, and perceived price fairness influence consumers’ strategic price tracking behavior. Online consumers are becoming more sophisticated in purchase decisions despite online retailers’ complex systems of managing price variability. They search for possibilities to handle the asymmetry of information, such as price tracking websites and web extensions (Victor et al., 2018b). Online shoppers also showed high awareness of the price changing mechanism of retail e-commerce, as an example, 58% of the respondents believed that online shops offer the highest prices between 6:00 to 11:00 p.m. (Statista, 2018a) and 61% were aware that products are sold most expensive at the weekend (Statista, 2018b).

In a way, e-commerce sellers and buyers are both becoming more “intelligent”: technologies enable companies to implement sophisticated dynamic pricing systems, while consumers grow more conscious in untangling the puzzle. Online consumers also show high sensitivity in detecting unfair prices, which may consequently negatively influence their overall shopping experience; further, the intensive price fluctuations may drive consumers to track and study prices (Victor et al., 2018b, p.384). Owing to increasing numbers of information channels, consumers are capable of obtaining relative symmetric information with the sellers as well as detecting competitive prices (Lee, Illia, & Lawson-Body, 2011, p.532). Due to the emerging technologies, consumers’ strategic pricing tracking behavior is a new topic in perceived price fairness and dynamic pricing, thus it is yet to be fully explored.

In summary, based on the discussion above, the following research questions are proposed in the current study:

RQ1: To what extent do both the magnitude of price difference and product price level influence perceived price fairness in the context of dynamic pricing?

RQ2: How do consumers' purchase motives moderate the effect of the antecedents of perceived price fairness in the context of dynamic pricing?

RQ3: What are the influences of perceived price fairness, magnitude of price difference, price level, as well as their interplay on consumers' strategic price tracking behavior?

To accomplish the objectives and address these research questions, the current paper applies the following methods: firstly, preliminary research is conducted with the help of price tracking tools (e.g. Keepa, Camelizer) to explore how products from different categories change their prices in e-commerce shops. Secondly, based on systematic literature review and synthesis, the development of research hypotheses is discussed. Next, an online quantitative scenarios-based experiment on consumer perceptions and behaviors is implemented, followed by data and results analysis. This research closes with a general discussion consisting of theoretical and managerial implications, limitations, and directions for future studies.

The research model is presented in Figure 1.1 (p.7):

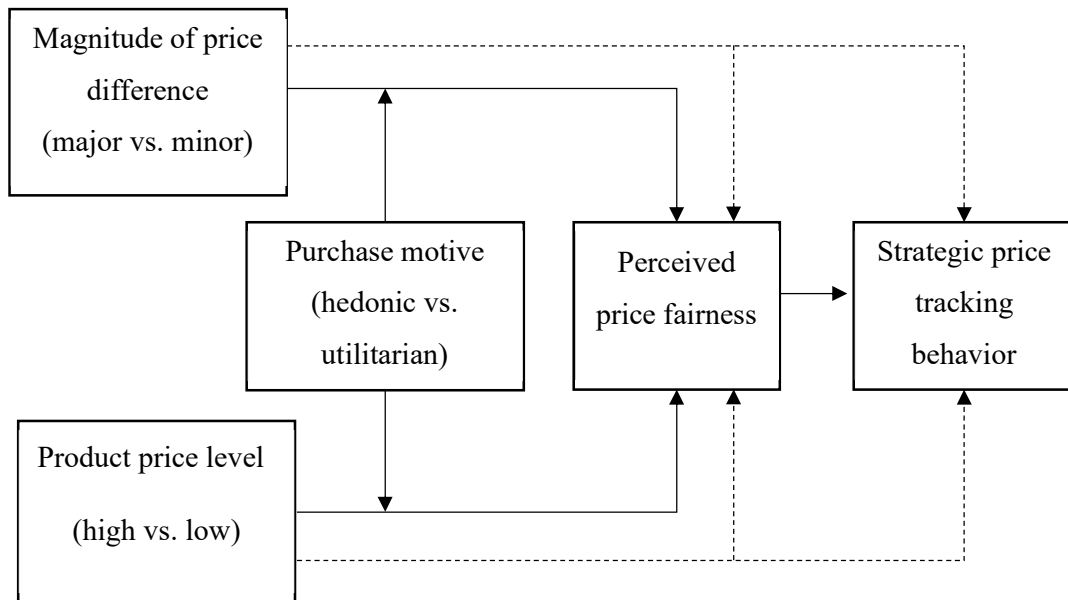


Figure 1.1: Research Model

2 Theoretical Background

In this chapter, the pertinent literature, which is foundational to this study, is systematically reviewed. The literature entails (1) the development of dynamic pricing, (2) the theoretical foundations, determinants, and consequences of perceived price fairness. On the basis of the literature review, the research model to examine fairness perceptions in the context of dynamic pricing is conceptualized.

2.1 Dynamic Pricing

2.1.1 Definition and Classification

Definition

Dynamic pricing is defined as “a pricing strategy in which prices change either over time, across consumers, or across product or service bundles” (Kannan & Kopalle, 2001, p.63). Dynamic pricing exists in almost every industry with various price determination techniques (Gupta & Pathak, 2014, p. 600). In travel and hospitality industries, this pricing practice has been successfully utilized for decades to sell perishable assets, and it has become more prevalent in e-commerce for non-perishable products as well, which are sold normally at fixed prices (Weisstein, Monroe, & Kukar-Kinney, 2013, p.501). A dynamic posted-pricing strategy may be more harmful to buyers’ trust towards the sellers in the non-perishable product category than in the perishable product, or service category (Kannan & Kopalle, 2001, p.72).

In online retailing, the posted prices change frequently along with substantial magnitude. As an example, Amazon applies dynamic pricing with the magnitudes of 5% (daily), 10% (weekly), or 15% (monthly) (Dai, 2010, p.18). One of the major features of dynamic pricing is that prices can vary at a very granular level (e.g. individual buyers) during the shopping process because companies are able to monitor consumers’ Internet purchase patterns (Lee et al., 2011, p.536; Nagle et al., 2011, p.137). Further, at the time of buying, commonly buyers can not realize the discriminated prices, they may only discover the advantaged or disadvantaged price inequity after the purchase (Dai, 2010, p.18). Schlereth, Skiera, and Schulz (2018, p.1166) distinguished different levels of price changes in the electricity industry, that is: (1) when the price changes are static and predictable, or (2) when the price changes are unpredictable and stochastic. Given today’s

e-commerce dynamic pricing condition, this study focuses mainly on the unpredictable, temporary, and rather stochastic type of price discrimination of online retailers. In addition, the dynamic price changes in the present study occur within only one seller (Schmidt, Bornschein, & Maier, 2020, p.1264).

Classification of dynamic pricing

Intertemporal dynamic pricing: Traditionally dynamic pricing, the intertemporal dynamic pricing, concerns price changes over time only because of fluctuations in supply, demand, and competition (Priester et al., 2020, p.99). It relies on aggregated user data as indicators for demand changing over a period of time and there is rarely price discrimination based on individual consumer data (Schmidt, et al., 2020, p.1265; Priester et al., 2020, p.99). This type of classical dynamic pricing model is led by the value of time as well as firms' inventory conditions (He & Chen, 2018, p.124), which is common in perishable goods like flight tickets and accommodation. Relatively new industries like ride-hailing platforms (such as Uber, Lyft, and DiDi) apply real-time pricing (in the form of "surge pricing") to motivate more drivers and thereby to increase available taxis during times of high demand (Schlereth et al., 2018, p.1166), besides, the factor "dynamic waiting time" is also integrated with dynamic pricing model in ride-hailing platforms (Yan, Zhu, Korolko, & Woodard, 2020).

Earlier research from Kahneman, Knetsch and Thaler (1986) showed that unfairness perceptions constrained the broader adoption of intertemporal dynamic pricing (depending on demand and supply). A classic example they used was the "snow shovel after a snowstorm": over 80% of the participants believed that price increase for snow shovels after a snowstorm was unfair when demand increased (Kahneman et al., 1986). However, recent research provides different perspectives. For instance, nowadays airline passengers do not seem to care so much about paying different prices for almost identical seats, social norm theory may offer theoretical support for this phenomenon (Richards et al., 2016, p.140; Xia, Monroe, & Cox, 2004, p.6). After years of learnings from hotels and airlines, it becomes almost general knowledge that the prices will fluctuate with the time of booking, and people are also, to a certain degree, aware when Uber will offer higher prices. This increasing familiarity of dynamic pricing in airlines and hotels among consumers may help them better accept the wider application of this pricing practice also

in other industries (Wirtz & Kimes, 2007, p.237). In relatively new industries like sharing economy, findings supported that consumers are increasingly accustomed to price changes based on demand and less likely to evaluate these differentiated prices as unfair (Chark, 2019, p.203). In sum, the current study argues that in the modern marketplace this type of dynamic pricing is more acceptable by customers because demand-supply change serving as a cue for price fluctuation seems more legitimate, comprehensible, and predictable.

Personalized dynamic pricing: Another type of dynamic pricing strategy is personalized dynamic pricing, which “involves sellers dynamically setting prices for the same product or service across different consumers with the aid of consumer-specific data such as IP address, purchase or browsing history, or other consumer-identifying characteristics” (Priester et al., 2020, p.99). Personalized dynamic pricing is classified as first-degree price discrimination (Priester et al., 2020, p.101). Given the growing trend of dynamic pricing and especially in the context of online shopping, researchers believe it is necessary to differentiate the triggers for price changes since they are related to distinct types of data required by companies, which may induce varying degrees of consumer privacy concerns (Schmidt, 2020, p.1265). Due to the violation of social norms, individual price discrimination is commonly regarded as less fair than temporal price differentiation or competitors-based price differences (Koschate-Fischer & Wüllner, 2017, p.840). Supported by equity theory (Adams, 1965), social comparison theory (Festinger, 1954), social norm theory (Maxwell, 1999), and attribution theory (Weiner, 1985), authors converge in asserting that personalized dynamic pricing can induce a higher risk of damaging perceived price fairness (Koschate-Fischer & Wüllner, 2017, p.840; Richards et al., 2016; Xia et al., 2004, etc.).

2.1.2 Benefits of Dynamic Pricing

Dynamic pricing models can enable companies to continually segment prices according to predicted willingness-to-pay of individual consumers (Nagle et al., 2011, p.138), thereby maximizing profitability. Proper implementation of price discrimination can increase companies' revenues by 8%, and profits by 25% (Weisstein et al., 2013, p.502). The study from Abrate et al. (2019, p.224) suggests that hotel revenues are higher when dynamic pricing is applied with a higher degree of variability. The reason for this is that

dynamic pricing enables firms to capture customer value at a maximized level through tailoring prices on a very small scale according to consumers' different price sensitivity (Grewal, Ailawadi, Gauri, Hall, Kopalle, & Robertson, 2011, p.46; Li et al., 2018, p.204; Lee et al., 2011, p.532).

Moreover, by dynamically controlling the sales prices, firms can reduce the deterioration rates for perishable products, so that inventory and quality control management can be optimized (Feng, 2019, p.1573; Nagle et. al., 2011, p.137). Shi, Xu, and Sun (2021, p.738) investigated the different pricing strategies in the fashion apparel industry in terms of sales stages (presale and regular sale), dynamic pricing illustrates better performance in enhancing sales than static pricing when the market is in the offseason. Dynamic pricing can also facilitate the successful execution of skimming or penetration strategies when launching of new product (Spann, Fischer, & Tellis, 2014). Facing stagnation in the smartphone industry, dynamic pricing can serve as a powerful lever in propelling the growth by adjusting and balancing the selling prices of new products and the trade-in prices of old products (Xiao, Wang, & Chen, 2020, p.334). Combining dynamic pricing with service unbundling can increase companies' profit and customers' surplus (Song & Li, 2018, p.1334).

Owing to the advancement of IT technologies, dynamic pricing in e-commerce can be applied extensively at a relatively low cost, and price analytic tools can be customized to a specific market environment (Nagle et al., 2011, p.137). The physical shopping environment may inflict constraints on consumers, such as the pressure from the sales staff, limited time, and inconvenient locations, while online shopping can effectively alleviate these customer pains (Akram, Hui, Khan, Hashim, & Qiu, 2018, p.681). As a result, e-commerce has enjoyed and will expect even more expeditious growth in the background of Covid-19.

As early as 2001, Kannan and Kopalle (2001) have recognized that price fluctuation is much more frequent in many product categories on the Internet than in conventional channels. Nowadays, firms increasingly focus on advancing their dynamic pricing models by examining consumer behavior patterns with the help of emerging technologies and increasing data availability. Earlier research from Grewal et al. (2011, p.46) suggested retailers only utilize data from Internet purchase records or internal ERP systems to

realize dynamic pricing. Yet, new technologies in this field have taken a rapid rise. There are various models to determine dynamic prices, for instance, Agent-Based Model, Inventory Based Model, Game Theory Model, Machine Learning Model, and Auction Based Model, etc. (Gupta & Pathak, 2014, p.601). By detecting the algorithm of Amazon Marketplace, Chen, Mislove, and Wilson (2016, p.1348) illustrated, that online sellers with algorithmic pricing can win the Amazon Buy Box more frequently, enjoy higher sales revenue, and receive more feedback from buyers than non-algorithmic sellers. Algorithmic sellers can easily operate their price changes through cost-effective and user-friendly automation platforms like Sellery and Feedvisor, thereby enhancing their sales (Chen et al., 2016, p.1348). A highly complex algorithm with a graphical representation was developed to solve a multi-period, multi-item problem incorporating reference prices (Cohen, Gupta, Kalas, & Perakis, 2020). Moreover, the powerful technologies of data mining and machine learning were aggregated and put into use to predict the purchase behavior of online customers (Gupta & Pathak, 2014). The machine-learning framework could also enable firms to estimate optimal prices even under constrained data conditions (Bauer & Jannach, 2018, p.53).

2.1.3 Downsides of Dynamic Pricing

Along with the economic benefits of dynamic pricing, the potential shortcomings of this practice are also extensively researched. Schmidt et al. (2020, p.1265) believed that shoppers can hardly distinguish different types of price fluctuation (i.e. price change over time due to demand or based on individual consumers) in the context of e-commerce. Although intertemporal dynamic pricing is becoming more acceptable by consumers, companies cannot simply assign all their price discrimination to demand and supply changes. “Sleuthy shopper” is identified as one of the Top 10 Consumer Trends in 2018 (Angus, 2018, p. 24-26): sleuthy shoppers are investigative, skeptical towards companies, and prefer real and honest firms. They are keen on searching for evidence of companies’ operation in fair trade and environment protection and tend to turn into independent online sources of information (Angus, 2018, p. 25). Consumers are becoming more and more conscious and certainly also in evaluating firms’ pricing practices. Moreover, customers are facilitated with powerful tools to track prices as well as to actively, quickly, and broadly spread information (e.g. social media) (Duan & Dholakia, 2017; Ajorlou, Jadbabaie, & Kakhbod, 2016). As a result, the frequent and intensive price changes are

increasingly hard to be justified by the mechanism of supply and demand on online shopping platforms. Thus, although dynamic pricing contributes to the revenue and profit maximization from companies' perspectives, consumers' points of view shouldn't be neglected. As mentioned before, intertemporal price discrimination depending on demand is more acceptable in industries like tourism, airlines, and accommodations (see Chapter 2.1.1), nonetheless consumers normally consider it unfair when sellers charge different buyers different prices based on individual traits (Haws & Bearden, 2006).

Some researchers pointed out that benefits from dynamic pricing might prevail over its downsides. As it is stated in Abrate et al (2019, p.224) "benefits from charging different prices for the same service outweigh the potential negative effects of price unfairness and organizational culture". However, it is not neglectable that Amazon, Apple as well as Netflix have all suffered from severe crises like customer rage, viral negative word of mouth, harm of companies' reputation, and decrease in stock prices due to disputable price discrimination tactics (Li et al., 2018, p.204). These issues have been repeatedly validated to be significant drivers for the sustainability of the business. Therefore, research aiming at profitability optimization through dynamic pricing also has incorporated variables relating to customer behaviors and perceptions. These behavioral factors in the context of dynamic pricing contain: fairness perceptions (Weisstein et al., 2013; Lee et al., 2011, etc.), consumer inertia behavior (i.e. tendency of purchase procrastination) (Zhao, Tian & Li, 2012), purchase motive (Leinsle et al., 2018), customer loyalty (Martin et al., 2009), and heterogeneous customer groups (i.e. strategic, emotional, conscious, and rational consumers)(Genc & De Giovanni, 2021; Levina, Levin, McGill & Nediak, 2009), and boundedly rational consumers (Radner, Radunskaya, & Sundararajan, 2014).

Particularly, *perceived price fairness* has been extensively studied. It is identified as an important factor in the price evaluation process. The application of dynamic pricing raises price fairness concerns and encourages shoppers to make price comparisons with other customers. As a result, this interpersonal price differentiation is very likely to be one of the most salient drivers of online price unfairness perceptions (Richards et al., 2016, p.140). In light of the underlying mechanism of dynamic pricing, regardless of intertemporal or interpersonal price changes, this pricing practice is inherently damaging to price fairness perceptions. Thus, numerous studies have concluded that dynamic

pricing will negatively impact price fairness perceptions (Abrate et al., 2019; Priester et al., 2020; Victor et al., 2018b; Li et al., 2018, etc.). The perception of unfairness will consequently further induce negative consumer emotions (e.g. anger, disappointment) (Xia et al., 2004; Xia & Monroe, 2010), unfavorable customer behaviors towards companies, such as reduced purchase intention, lower willingness-to-pay, and lower level of expenditure (e.g. Schmidt, 2020; Leinsle et al., 2018; Daskalopoulou & Petrou, 2006, etc.). A crucial question is: *how can firms maximize the benefits of dynamic pricing, without inducing severe price unfairness perceptions?* In the next section, perceived price fairness will be further discussed.

2.2 Perceived Price Fairness

Since dynamic pricing is proven to have a negative influence on perceived price fairness, it is vital to understand the formation of fairness judgments and avoid the related consequences. In this section, first, the theoretical foundations of price fairness are discussed. Second, influencing factors of perceived price fairness (including seller-related measures, buyers-related factors, and buyer-seller relationship) are introduced and analyzed. In the end, this section sets forth the consequences of unfairness perceptions.

2.2.1 Theoretical Foundations of Perceived Price Fairness

In the domain of consumer behavioral pricing, perceived price fairness has received much attention from researchers and is an essential antecedent for price evaluation (Koschate-Fischer & Wüllner, 2017, p.813). Particularly, perceived price fairness in the condition of “differentiated prices” is a key topic in this field (Koschate-Fischer & Wüllner, 2017, p.840). Price fairness is defined as “a consumer’s assessment and associated emotions of whether the difference (or lack of difference) between a seller’s price and the price of a comparative other party in a transaction is reasonable, acceptable, or justifiable” (Xia et al., 2004, p.3).

The overarching theoretical foundations for price fairness, such as equity theory (Adam, 1965), distributive justice theory (Homans, 1961), dual entitlement theory (Kahneman, Knetsch & Thaler, 1986), social comparison (Festinger, 1954), procedural justice theory (Thibault & Walker, 1975), attribution theory (Weiner, 1985), social norm (Maxwell, 1999), and construal level theory (Liberman & Trope, 1998) have been widely

discussed by numerous researchers (e.g. Lim, 2020; Leinsle et al., 2018; Schlereth et al., 2018; Richards et al., 2016; Weisstein et al., 2013; Dai, 2010; Xia et al., 2004). Next, this section elaborates these theories in detail.

Equity theory and distributive justice

The theory of distributive justice focused on “one single exchange relationship”, in which people believe they have the right to receive a reward, that is in proportion to their investment in the exchange, while equity theory extended this notion by integrating manifold comparative others (Xia et al., 2004, p.2; Homans, 1961; Adam, 1965). Equity theory proposed “people experience motivational and cognitive processes by weighing sacrifices or investments (inputs) against rewards (outputs) and comparing the result with other similar experiences or situations” (Lim, 2020, p.2; Adam, 1965). In other words, fairness perceptions are formed in a transaction by comparing the investment that each party makes and gains that each party receives (Lastner, Fennell, Folse, Rice, & Porter, 2019, p.702). In a transaction, consumers care about not only what they themselves gained relative to what they sacrificed, but also, what the other parties gained relative to what they sacrificed; as a matter of fact, the input-output ratio for each party should be equivalent in order to be deemed as a fair (Lastner et al., 2019, p.702).

Social comparison theory and the choice of reference prices

The choice of the comparative parties, i.e. the reference points, may impact how consumers judge the price fairness. The formation of fair price perceptions is inherently a comparative process, and customers oftentimes are not provided with well-defined reference prices, which makes the price fairness judgments difficult (Leinsle et al., 2018, p.735). Consumers will form or choose their reference prices during their purchase process (Arslan & Kachani, 2011). Ergo, the price fairness perceptions are associated with the reference prices that consumers select during their customer journey.

Buyers may select three types of comparative parties as reference prices: self, other consumers, or different organizations (e.g., stores) (Xia et al., 2004, p.4). Social comparison theory (Festinger, 1954) contributes to explaining this concept. Social comparison theory postulates that it is a natural human drive to compare with others about their gains, losses, and preferences (Leinsle et al., 2018, p.737). Xia et al. (2004, p.4)

suggested that the comparison with other customers (e.g. friends and classmates) exerts a stronger influence on price fairness perceptions than the comparison with buyer's self-reference points (e.g. the self-purchase a month ago) (Malc, Mumel, & Pisnik, 2016, p.3694). Furthermore, when multiple reference points are available, consumers are more likely to depend on social comparison instead of their previous experience to judge whether the price they paid is fair or not (Priester et al., 2020, p.101). In the context of dynamic pricing, even if the price changes are due to different times of purchasing, it will naturally come into consideration, that others who made the purchase at different time points might also pay a different price. Thus, intertemporal price fluctuation also implicitly reflects part of the "comparison with other consumers". Social comparison is to some extent always at play; hence, this study focuses on examining dynamic prices in the setting of comparison with other same or similar consumers.

Procedural justice theory

While equity theory and distributive justice concentrate on evaluating the "outcomes", procedural justice theory "focuses on the influence of the underlying procedures used to determine the outcomes on fairness perceptions" (Xia et al, 2004, p.1; Thibaut & Walker, 1975). More specifically, procedural justice concerns whether the processes or procedures are following prevalent norms and behaviors (Kukar-Kinney, Xia & Monroe, 2007, p.326). For example, whether the process of dealing with disputes or distributing resources is fair or not, contributes to the aggregated perceived price fairness (Schlereth et al., 2018, p.1169). When the rules or procedures of setting a price are perceived as unfair, companies violate the procedural justice (Richard, 2016, p.140). By contrast, if consumers are informed about the rules of setting prices, they will judge the price as fairer and show stronger purchase intention for one seller compared to its competitors (Richard, 2016, p.140).

Social norm theory

Xia et al. (2004, p.6) posited that "buyers' perceptions of price fairness stem both from economic comparisons and from social norm comparisons". In the context of economic exchange, social norms are internalized rules for both firms and consumers, and these rules can trace to traditions, customs, or moral standards (Maxwell,1999, p.1001; Xia et al., 2004). An unfair pricing tactic can become more acceptable and be perceived as less

unfair when it gradually spreads and develops into a new norm, and thus unfairness perception of a price practice may decrease over time (Xia, 2004, p.6). Companies should have a clear understanding of what social norms are valued by their consumers and avoid violating these rules because disrespecting social norms can lead to public outrage (Maxwell & Garbarino, 2010, p.219). Social norms can also support why intertemporal price differentiation is more acceptable than personalized price differences (see Chapter 2.1.1).

Attribution theory

Attribution theory (Weiner, 1985) postulates that people have strong motivations to look for causal explanations for unexpected and negative events. Attributions are normally oversimplified and straightforward (Schmidt et al., 2020, p.1265). Consumers make inferences about sellers' motives when they experience price increases (Campbell, 1999, p.189). On the one hand, from sellers' view, the locus of causality of the price increase can be internal and external. A reason for a price increase is justifiable when triggers are external to the firm (e.g. cost increase caused by external reasons), whereas a reason is unjustifiable when triggers are internal to the firm (e.g. cost increase due to managerially changes) (Martin et al., 2009, p. 592; Xia et al., 2004, p. 5). On the other hand, from consumer's view, attributions or causes can be also internal or external. Switching the causes of price increase from external (i.e., the company is responsible) to internal (i.e., the customer is responsible) will affect their fairness perceptions (Schmidt et al., 2020, p.1265). Attribution theory can provide an explanation on how people rationalize an ambiguous situation (Xia et al., 2010, p.5), for example, the unpredictable prices in the context of dynamic pricing.

Construal level theory

Construal level theory (Liberman & Trope, 1998) was adopted to explain the relationship between temporal proximity and perceived price fairness (Dai, 2010). Construal level theory indicates that events that happened in close temporal proximity are presented in more concrete features, conversely, events that happened in distant temporal proximity are represented in more abstract features. The most recent price information is more influential than older price information when determining the reference prices (Viglia, Mauri, & Carricano, 2016, p.47). It is demonstrated that there is a negative relation

between temporal proximity and price fairness perceptions (Dai, 2010, p.78; Haws & Bearden, 2006). In other words, price fluctuations that occur within a short period are perceived as more unfair than price differentiation happens over a long period of time.

The paradox of a “good deal” and a “fair deal”

In the presence of price variability, consumers can be in an advantaged or a disadvantaged position. Advantaged inequality occurs when a buyer is charged less than a comparative party (reference point), while disadvantaged inequality occurs when a buyer is charged more than a comparative party, and the latter causes stronger price unfairness perceptions (Koschate-Fischer & Wüllner, 2017, p.840; Xia & Monroe, 2010). However, familiarity with the pricing strategy may diminish the effect of disadvantaged or advantaged price condition on price fairness: when the level of familiarity is high, perceived price fairness between these two conditions do not differ significantly (Wirtz & Kimes, 2007, p. 236). Furthermore, a paradox may arise between “what consumers would prefer” and “what they deem to be the right thing” (Xia & Monroe, 2010, p.893). A bad deal (disadvantaged price) is commonly evaluated to be unfair, while a good deal (advantaged price) is not necessarily regarded as the fairest (Xia & Monroe, 2010, p.884).

Certainly, everyone fancies receiving advantaged prices: financial benefit of an offer can in certain situation outweigh the consideration of price fairness. Schlereth et al. (2018, p.1165) demonstrated that in the electricity market, the practical value of a dynamic pricing plan (e.g. saving money, the flexibility of usage) exert a stronger effect on the acceptance of the service offer than price fairness considerations. However, when the discrepancy between the price offered by sellers and the reference price is sufficiently high, should the concerns of unfairness outweigh any potential benefits of receiving a “good deal” (i.e. receive a lower price), thereby consumers would leave the transaction relationship and business will eventually fail (Richards et al., 2016, p.139). Prospect Theory proposed, that “losses loom larger than gains”: the same amount of losses may hurt us more than the same amount of gains may please us (Kahneman & Tversky, 1979). Normally price increase is regarded as “losses” whereas price decrease as “gains” (Kahneman & Tversky, 1979). In accordance with prospect theory, when forming fairness perceptions, the pains of a disadvantageous inequality are larger than the pleasure of an advantageous inequality (Ordóñez, Connolly, & Coughlan, 2000, p.329). It is similar in

terms of the transaction value (also transaction utility, i.e. whether buyers are pleased with the transaction) (Xia & Monroe, 2010, p.885; Thaler, 1985). Disadvantaged price inequality will produce larger negative transaction value, than the positive transaction value generated by advantaged price inequality (Xia & Monroe, 2010, p.886). In other words, the pleasure of paying a lower price is less than the pain of paying a higher price.

Consequently, in the condition of dynamic pricing, although the possibilities of both advantaged inequality (a good deal) and disadvantaged inequality (a bad deal) simultaneously exist, consumers are more likely to feel negative about the price changes because of loss aversion, i.e. they are more afraid to be in the disadvantaged position, than desired to be in the advantaged position.

In summary, no matter what deal consumers may receive, either “a good deal” or “a bad deal”, if dynamic pricing is not properly adopted and consequently leads to strong unfairness perceptions, this strategy will eventually backfire on the financial performance of companies. Hence, investigating the influencing factors that could attenuate the negative impact of price discrimination on price fairness perceptions is crucial (Lastner et al., 2019, p.700; Genc & De Giovanni, 2021; Li et al., 2018, etc.).

2.2.2 Influencing Factors of Perceived Price Fairness

Dynamic pricing is by definition highly likely to cause negative price fairness perceptions. As a result, researchers have extensively explored the influencing factors to mitigate this unfavorable effect. Literature in this domain can be primarily classified into three categories: (1) seller-related measures, (2) buyer-related factors, and (3) the buyer-seller relationship (see Figure 2.1, p.20).

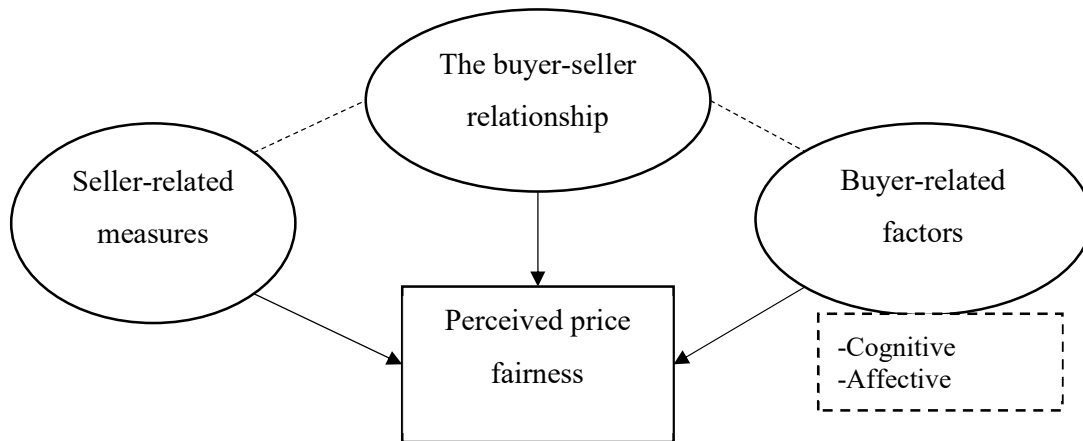


Figure 2.1: Influencing Factors of Perceived Price Fairness

The seller-related measures

The seller-related factors mainly aim at assisting or steering consumer price judgment through modifying firms' offers or designing certain environmental cues. For example, transaction similarity (similarity of service or product) is considered as the main driver of consumers' comparison motivation (Leinsle et al., 2018). That is, when the service or products are highly dissimilar, consumers' comparison intention is low, the formation of unfairness perception is thereby less likely (Leinsle et al., 2018; Li et al., 2018; Xia et al., 2004). Connecting price and product, buyers are more sensitized to price increases than product deduction (e.g. package downsizing) (Cakır & Balagtas, 2014). Also, since the tactic of product bundle could amplify transaction dissimilarity, adoption of dynamic bundling together with dynamic pricing can lessen the perceived price unfairness (Li et al., 2018).

The more consumers infer the offered price to be transparent, the higher their perceptions of price fairness will be, owing to the fair process effect (Iyer, Grewal, & Rothenberger, 2017, p.496; Leinsle et al., 2018, p.738; Homburg, Totzek, & Krämer, 2014), this phenomenon is associated with procedural justice. Price complexity (i.e. price structure contains more price components and requires more effort from consumers) may result in negatively perceived price fairness, which is related to the negative evaluation of price transparency (Homburg et al., 2014).

Creating a particularly favorable environment for price fairness judgments is another action firms can take, such as price framing tactics (e.g. Weisstein et al., 2013; Chark, 2019), sellers' promotion tactics (Garrett, 2019), and product presentation type (photo vs. word) (Isabella, Mazzon, & Dimoka, 2017). For instance, discount framing in "dollar off" (vs. "percent off") showed higher effectiveness in decreasing buyers' negative perceptions of discriminatory pricing (Weisstein et al., 2013, p. 511). The study of privacy setting on companies' website (e.g. cookie notice) suggested, when consumers are offered the chance to set privacy preferences by themselves with a cookie notice, they tend to assign the price fluctuations to themselves rather than the companies, which can be supported by attribution theory (Schmidt, 2020, p.1270). Companies' social activity engagements exert a mixed effect on price fairness perception: Corporate Social Responsibility (CSR) engagement enhances price fairness perception through perceived CSR benefit, but diminishes fairness perception through perceived CSR price markup (Habel, Schons, Alavi, & Wieseke, 2016, p.98).

The buyer-related factors

The buyer-related factors may exercise influence on the relationships between seller-related measures and perceived price fairness (Leinsle et al., 2018, p.736). Studies in buyer-related factors illustrate that both cognition and affect can influence perceived price fairness (Koschate-Fischer & Schandelmeier, 2014, p.840; Heussler et al., 2009, p.333). Furthermore, according to the affective-cognitive model, affect exhibits an even more salient impact under the condition of limited cognitive resources, while cognition plays a more important role when processing resources are available (Campbell, 2007, p.262). During the process of price evaluation, consumers may feel unease or guilt when they received an advantaged price discrepancy but feel anger or outrage when the price discrepancy is disadvantaged (Xia et al., 2004, p.2). Interestingly, Koschate-Fischer & Schandelmeier (2014, p.859) concluded from their literature review that price fairness can serve as both antecedent and consequence of price affect. In other words, affect may arise simultaneously with fairness perceptions, or it may occur before forming such perceptions (Xia et al., 2004, p.2). Indeed, it is human nature that affect will arise when people are making judgments and decisions: cognition and affect are inevitably intertwined with each other.

Cognitive buyer-related factors contain, for example, consumers' effort input (Lastner et al., 2019, p.702; Xia et al., 2010), the illusion of control (Lee et al., 2011), inferred motive (Campbell, 1999; Kukar-Kinney et al., 2007), cultural background (individualism vs. collectivism) (Bolton, Keh, & Alba, 2010). *Affective factors include*, for instance, consumer emotions or mood while buying (positive vs. negative) (Heussler et al., 2009), anger (Xia et al., 2004), consumer power state (Jin, He, & Zhang, 2014), and purchase motive (Isabella et al., 2017; Leinsle et al., 2018). Inferred motive is identified as a causal predictor for perceived price fairness, i.e. price increase is deemed to be fair or unfair partially depending on buyers' inference whether firms have the intention to take advantage of them (Campbell, 2007, p.262; Campbell, 1999). Hedonic and utilitarian purchase motives exert influence on price fairness perception through both affect and cognition: hedonic purchase is normally accompanied by emotional arousal and a feeling of guilt, while utilitarian purchase motive induces more functional and cognitive thinking (Isabella et al., 2017, 204).

The buyer-seller relationship

Bridging the two perspectives aforementioned, the relationship between buyers and sellers is found to influence perceived price fairness as well. For instance, buyers' trust towards sellers can weaken the negative attributions when price inequality appears (Xia et al., 2004, p.9). Regarding customer loyalty, loyal customers may be more tolerant of price increases than non-loyal customers, however, this view is negated when the level of price change is high (Martin et al., 2009, p.592). Furthermore, loyal buyers may even judge a high price divergence to be more unfair than may non-loyal buyers (Dai, 2010, p.76). Chark (2019, p.201) proposed that in the marketplace there are two types of relationship norms: exchange-relationship norm (based on economic factors) and communal-relationship norm (based on social factors). The communal-relationship between buyers and sellers is more intimate, yet consumers are more fairness-sensitive in this type of relationship; therefore they will perceive the price surcharge in a communal-relationship as less fair than in an exchange-relationship (Chark, 2019, p.203, p. 206).

The influencing factors mentioned above, and the underlying theoretical foundations are synthesized in Table 2.1 (p.23):

Table 2.1: Influencing Factors and Underlying Theory

Influencing factors	Authors	Underlying theory
<i>Seller-related factors</i>		
Transaction similarity	Leinsle et al., 2018	Equity theory
	Li et al., 2018	Distributive justice
	Xia et al., 2004	Social comparison theory
Price complexity	Homburg et al., 2014	Procedural justice Attribution theory
Price transparency	Iyer et al., 2017	Procedural justice Attribution theory
Privacy settings	Schmidt et al., 2020	Attribution theory Procedural justice
Framing and promotion tactics	Weisstein et al., 2013	Attribution theory
	Garrett, 2019	Procedural justice
	Chark, 2019	
Dynamic bundling	Li et al., 2018	Equity theory Social comparison theory
Product presentation type	Isabella et al., 2017	Attribution theory Construal level theory
CSR	Habel et al., 2016	Equity theory Attribution theory
<i>Buyer-related factors</i>		
Cultural background	Bolton et al., 2010	Social comparison
Illusion of control	Lee et al., 2011	Attribution theory
Consumer effort input	Xia et al., 2010	Equity theory
		Distributive justice
		Social comparison theory
Inferred motive	Campbell, 1999	Equity theory
	Kukar-Kinney et al., 2007	Distributive justice Attribution theory
Emotions	Heussler et al., 2009	Social norm
		Attribution theory
Purchase motive	Isabella et al., 2017	Attribution theory
	Leinsle et al., 2018	Construal level theory
<i>Buyer-seller relationship</i>		
Trust	Xia et al., 2004	Attribution theory
		Social norm
Customer loyalty	Martin et al., 2009	Attribution theory
	Dai, 2010	Social norm
Relationship norm	Chark, 2019, p.201	Social norm

2.2.3 Consequences of Perceived Price Unfairness

Literature converges in the conclusion that price unfairness perceptions negatively influence customer satisfaction, purchase intention, customer retention, and word of mouth (Koschate-Fischer & Schandelmeier, 2014; Xia et al., 2004, 2010; Campbell, 2007; Iyer et al., 2017; Malc et al., 2016). Takagishi, Takahashi, Toyomura, Takashino, Koizumi, & Yamagishi (2009, p.499) investigated the biological basis of customers' reactions towards unfair exchange through neuroimaging: there is a positive correlation between the activation of the right anterior insula and the rejection rate of unfair offers. Furthermore, when the anterior insula is activated, people will experience negative emotions, such as physical pain, the experience of observing others' pain, anger, and disgust (Takagishi et al., 2009, p.499). Facing a financially advantaged offer, which is somehow not fair, buyers may still choose to give up the financial benefits and reject the offer. The reason is that the negative emotions associated with unfairness perceptions will predominate over the economical cognitive considerations (Koschate-Fischer & Schandelmeier, 2014, p.842).

Xia et al. (2004, p.6) proposed the negative impact of unfairness perception in a more holistic way by incorporating cognitive and affective consequences: (1) reduced perceived value of the transaction, (2) negative consumer emotions, and 3) eventually unfavorable consumer behaviors, consisting of no-reaction, self-protection and revenge behaviors. The reasons for these consequences are threefold. *First*, a disadvantaged price discrepancy enhances perceptions of monetary sacrifice, therefore the perceived value of the transaction diminishes (Xia et al., 2004, p.4), and in this situation, the transaction value (transaction utility) will be perceived as negative (Xia & Monroe, 2010, p.885). *Second*, with regard to the accompanying emotions, consumers are likely to face guilt, uneasiness, or pride when receiving an advantaged price; while in the condition of disadvantaged price, anger, disappointment, resentment, even outrage may arise along with the severe perceived price unfairness (Lastner et al., 2019, p.701; Xia et al., 2004, p.5). *Third*, the degree of price unfairness perceptions corresponds to the level of undesirable consequences from consumers (Malc et al., 2016, p. 3693). This is in accordance with equity theory, "the presence of inequity will motivate the perceiver to achieve equity or to reduce inequity, and the strength of motivation to do so will vary

directly with the magnitude of inequity experienced” (Dai, 2010, p.17; Adams, 1965, p.283).

The behavioral reactions according to severity may be: firstly, no-reaction, when consumers receive advantaged prices, however, they may be accompanied with the feeling of uneasiness and guilt (Xia et al., 2004, p.7); next, self-protection actions (such as complaint, negative word of mouth, requiring a refund, leaving the seller), which are mainly focusing on financial and monetary compensation from the sellers (Xia et al., 2004, p.8); finally, revenge (such as damaging word of mouth, report to media, legal actions), when consumers suffer from strong negative emotions and tend to handle those feelings by harming the sellers (Malc et al., 2016; Xia et al., 2004, p.8). Additionally, in the e-commerce market, these negative consequences can be quickly magnified. Consumers have established strong connections through sharing via social media and the digital market, once the unfair judgments are formed, consumers are able to spread information in a viral way and reach a huge audience (Li et al., 2018, p.206). Moreover, recent research showed that online buyers are increasingly tracking product prices with the purpose of catching markdowns before their real purchases (Victor et al., 2018b, p.375).

3 Hypotheses Development

3.1 Overview

This Chapter proposes hypotheses to address the relations and mechanisms amongst variables. First, an overview of the relationship of variables within the research model and the constructs definition are presented. Subsequently, each hypothesis development is further elaborated based on the literature review and synthesis. Figure 3.1 illustrates the relationship of variables within the research model and Table 3.1 presents a summary of hypotheses. The definitions of constructs are presented in Table 3.2 (p.27).

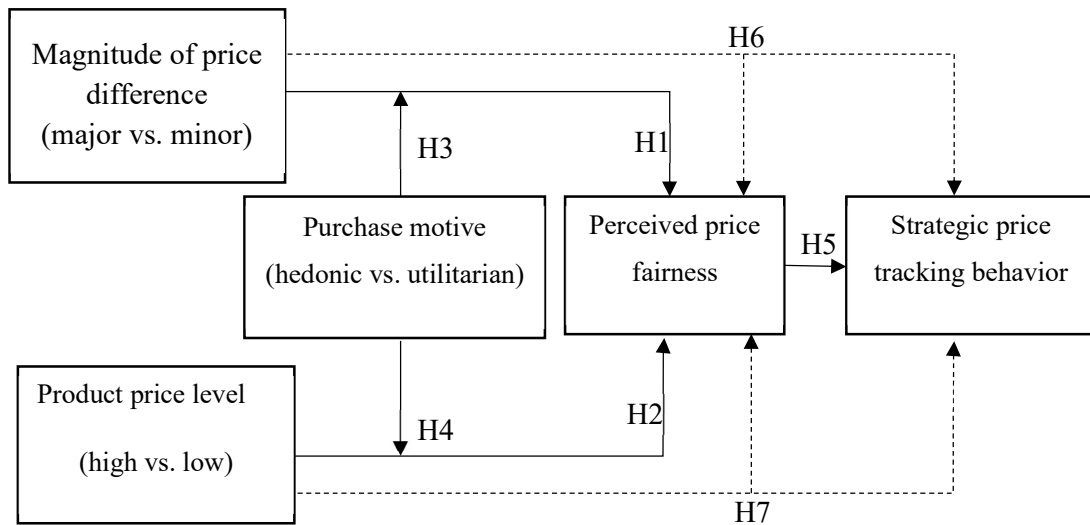


Figure 3.1: Variables Relationship

Table 3.1: Hypotheses Overview

Hypotheses	
H1	The price difference with a higher magnitude will be perceived as more unfair than the price difference with a lower magnitude.
H2	The price difference for high-priced products will be perceived as more unfair than for low-priced products.
H3	Purchase motive moderates the negative effect between magnitude of price difference and perceived price fairness. Hedonic purchase motive will

Hypotheses Development

	weaken the negative effect while utilitarian purchase motive will strengthen the negative effect.
H4	Purchase motive moderates the negative effect between product price level and perceived price fairness. Hedonic purchase motive will weaken the negative effect while utilitarian purchase motive will strengthen the negative effect.
H5	Perceived price fairness negatively influences consumers' strategic price tracking behavior.
H6	Perceived price fairness mediates the effect between magnitude of price difference and consumers' strategic price tracking behavior.
H7	Perceived price fairness mediates the effect between product price level and consumers' strategic price tracking behavior.

Table 3.2: Constructs Definitions

Constructs	Definitions
Magnitude of price difference	“The extent of price change, either a major or a minor price increase/decrease” (Dai, 2010, p.9; Martin et al., 2009).
Product price level	Size of expenditure, “The significance of the expenditure of a product as a proportion of one’s income” (Nagle et al., 2011, p.132).
Purchase motive	“A motivational factor during purchasing: (1) utilitarian motive oriented by functional or practical needs and (2) hedonic motive oriented by sensual pleasure, fun, or fantasies” (Choi et al., 2020, p. 253).
Perceived price fairness	“A consumer’s assessment and associated emotions of whether the difference (or lack of difference) between a seller’s price and the price of a comparative other party in a transaction is reasonable, acceptable, or justifiable” (Xia et al., 2004, p.3).
Strategic price tracking behavior	“Strategic price tracking behavior relates to the probable strategies that might be taken by the consumers after being exposed to a dynamic pricing, including tracking the prices before purchase, using software to track prices and advising friends and family to track prices” (Victor et al., 2018a, p.9).

3.2 Effect of Magnitude of Price Difference on Perceived Price Fairness

The magnitude of price change will affect fairness perception in the dynamic pricing condition. Prior literature has demonstrated that the magnitude of price changes is negatively related to price fairness perceptions (Dai, 2010, p.4; Heussler et al., 2009; Martin et al., 2009). According to equity theory (Adams, 1965), inequity leads to tension in customers' brains, the more salient the inequity is, the stronger this tension will be. Hence, significant price increases (regarded as disadvantaged inequity) are viewed as less fair than when the price discrepancy is relatively insignificant (Dai, 2010, p.17; Adam, 1965). Fairness or unfairness perceptions arise through comparing the input and outcome of an exchange (Adams, 1965). Heussler et al. (2009) adapted this comparison as the “input-outcome function” to explain how the level of price difference influence fairness perceptions. They argued that the bigger the price increase (price as input variable), the stronger the imbalances of the equity equation will be, consequently, the stronger the imbalance of the equations is, the stronger the decrease in perceived price fairness (Heussler et al. 2009, p.333). In the context of online group buying, when buyers perceive lower sacrifice (including money, time, and effort) they must make for the purchase, they will perceive higher exchange equity (Lim, 2020, p.3). The higher magnitude of price difference represents higher monetary sacrifice and stronger imbalance of the equation, ergo, the transaction will be considered as less fair. Based on this discussion, the following hypothesis is proposed:

H1: The price difference with a higher magnitude will be perceived as more unfair than the price difference with a lower magnitude.

3.3 Effect of Product Price Level on Perceived Price Fairness

Since relatively more expensive products naturally constitute higher proportion of one's income, people are likely to be more sensitive to their price changes. A very important driver for price sensitivity is the size of expenditure, that is, the significance of the expenditure of consumption as a proportion of one's income (Nagle et al., 2011, p.132). Personal income is proven to impact price fairness perceptions; and more specifically, compared with lower-income people, consumers in the higher income group are less sensitive to price differences and demonstrate higher price fairness perceptions (Malc et al., 2016, p. 3696). Yet, the authors noted that this conclusion may hold true for

convenience products (in their research setting was a T-shirt), another product with a higher price may generate different results. In other words, when shopping for a higher-priced product, even people with high income may behave differently and be more attentive to the price (Malc et al., 2016, p. 3696). Thus, product price level perception drives the price fairness judgment (Leinsle et al., 2018, p.755).

Further, Smith (2000, p.165) suggested that products in the higher price category induce higher search effort from the consumers, i.e. consumers tend to invest more in information search for high-priced products. Although the search costs will hinder search behavior, however as the product price level increases, consumers are commonly still willing to contribute more time to investigate price information (Smith, 2000, p.165). Buyers' nonfinancial investments, such as effort, will also be incorporated into the judgments of price fairness (Lastner et al., 2019, p.703). In a transaction, consumers' perceived sacrifice includes money, time, and effort, serving as the "input" in the input-outcome equation (Lim, 2020). The feeling of entitlement means "a deservingness aspect which is related to outcomes that are earned or achieved as a result of one's actions" (Xia, Kukar-Kinney, & Monroe, 2010, p.3). In the context of price promotion, with increasing level of effort to obtain the promotional prices, consumers will feel more entitled to the lower prices; therefore if they are denied this privilege, their feeling of entitlement will be violated, which is considered as the most fundamental feature of injustice (Xia et al., 2010, p.3). Likewise, when consumers facing a high-priced category with a price increase, they may perceive higher search effort sacrifice plus more monetary sacrifice. Yet the "outcome" (product purchased) stays identical, their feelings of entitlement for "a better outcome" are therefore unfulfilled. Hence, the imbalance of the input-outcome equation in a high-priced category is more prominent than in a low-priced category. Indeed, when consumers have already invested much time and effort in searching information (price, functionality, quality, etc.) for one product, but still discover others paid less than them, the associated price evaluation would be highly likely negative. Thus:

H2: The price difference for high-priced products will be perceived as more unfair than for low-priced products.

3.4 Moderating Role of Purchase Motive on Perceived Price Fairness

3.4.1 Hedonic and Utilitarian Motives

Consumption can be categorized into two types according to its purposes: utilitarian consumption and hedonic consumption (Choi et al., 2014, p.546). Utilitarian consumption is practical or necessary, fulfilling basic and functional needs, while with hedonic purchase people yearn for pleasure, fun, excitement, and fantasy, therefore it is normally frivolous or decadent (Weisstein, Choi, & Andersen, 2019, p.171; Choi et al., 2014, p.546). Hedonic purchases normally induce affective and emotional experience, and are relatively goal-ambiguous, whereas buying decisions regarding utilitarian products are cognitive processes, and more goal-directed (Li et al., 2020, p.130; Heiens, Narayanaswamy, & Engel, 2016).

The concept of hedonic and utilitarian is widely adopted to generally classify certain products, for instance, microwaves and personal computers are considered as typical utilitarian products, whereas luxury watches, designer clothes are typical hedonic products (e.g. Voss et al., 2003; Lu, Liu, & Fang, 2016, p.333; Heiens et al., 2016). Yet this evaluation is rather limited, many researchers examined hedonism and utilitarianism with a more dynamic, situational, and holistic perspective (e.g. Scarpi, 2020; Lu et al., 2016; Li et al., 2020; Khan & Dhar, 2010). For instance, Scarpi (2020, p.18) suggested the premise of aggregated evaluation of a product category is that the hedonic and utilitarian characteristic only derived from the type of products being bought, oftentimes it omits factors concerning situational and individual differences. This is a “static approach”: the hedonic or utilitarian characteristic of purchase is rather unchangeable, solely based on the consideration of only one factor (Scarpi, 2020, p.22). By contrast, “an experiential approach” is rather dynamic, which envisions hedonism and utilitarianism as the outcome of an interplay of various factors, therefore hedonism and utilitarianism perceptions are distinctive to each shopping experience of each customer (Scarpi, 2020, p.7). These factors contain environment (e.g. shop atmosphere), product characteristics (e.g. price and quality), and consumer traits (e.g. motivations). For example, the distribution channels (online or offline retailer) as an environmental factor, may influence whether a product is perceived as hedonic or utilitarian by consumers (Li et al., 2020, p.129).

Correspondingly, a product can be evaluated as either utilitarian or hedonic, due to the varying individual purchase motives, which might diverge from the traditional and overall perception of a product category (Choi et al., 2020, p.253). For instance, a computer is typically utilitarian, but when it is for gaming, it may be more hedonic; a luxury handbag is typically hedonic, but when one buys it as a “relationship connector” for a business partner, it can turn out to be more utilitarian. Basically, these two consumption motives can exist at the same time (Leinsle et al., 2018). This perspective is highly applicable in today’s online shopping context: first, various stimuli constantly influence consumer’s shopping experience and goals, their purchase motivations can dynamically change; second, product assortments are becoming increasingly complex aspiring to attract more customer segments, hence the ambiguous line of utilitarian and hedonic products.

Prior literature suggests hedonic and utilitarian purchase motives can lead to distinguished perceptions and behaviors. For instance, Akram, Hui, Khan, Hashim, Qiu, & Zhang (2018) examined the hedonic or utilitarian motivation on online impulse purchasing, the results showed hedonic motivation (hedonic web browsing) had a stronger impact on online impulse buying than utilitarian motivation (utilitarian web browsing). Customers may vary their research time before real purchase depending on their hedonic or utilitarian purpose (Li et al., 2020, p.127). In addition, they prefer social media and onsite product pages as information sources for hedonic purchase whereas third-party reviews and search engines for utilitarian purchase (Li et al., 2020, p.127). Regarding emotional factors, when engaging in the hedonic purchase, consumers may feel more anticipatory guilt than in utilitarian buying (Lu et al., 2016, p.333).

3.4.2 Hedonic and Utilitarian Purchase Motives and Price Evaluation

Hedonic or utilitarian purchase motive affects consumers’ price sensitivity. Earlier research from Wakefield & Inman (2003) examined the relationship between hedonic or utilitarian purchase and price sensitivity. Their findings demonstrated that consumers are less sensitive to price when the consumption situations are perceived as more hedonic (Wakefield & Inman, 2003, p.199). On the contrary, utilitarian consumption is a more rational process, in which consumers are more price-sensitive and tend to pay attention to price (Leinsle et al., 2018, p.741). Maehle, Iversen, Hem, & Otnes (2015, p.3051) further confirmed consumers rate the price variable as less important for a hedonic

product (e.g. ice cream) than for a utilitarian product (e.g. milk). Moreover, income moderates the effect of consumption purpose and price sensitivity: in the lower-income group, price sensitivity for hedonic and functional products differs not significantly, whereas higher-income respondents were much less price-sensitive for the hedonic consumption than for the functional consumption (Wakefield & Inman, 2003, p.205).

The effectiveness of the same pricing practice may vary under the condition of hedonic or utilitarian purchases. As in Choi et al., (2014), odd-ending pricing (i.e. price shown as \$99.99 instead of \$100) exerts strong effectiveness for hedonic consumption than utilitarian, because odd-ending creates an illusion of lower price (although only \$0.01 cheaper), thereby consumers use this illusion to justify a not necessary purchase. Moreover, when setting the price of a product bundle that consists of both hedonic and utilitarian components, it is more effective to frame the discount on the hedonic component (Khan & Dhar, 2010, p.1094). Online sales promotions for hedonic products can be more effective because they are more likely to arouse consumer sensation towards the brand and electronic word of mouth (Narayanaswamy & Heiens, 2018). In the context of “partitioned pricing” compared to “combined pricing”, partitioned pricing increases hedonic consumption, but not utilitarian purchases (Choi et al., 2020, p.251).

The theoretical root for these studies is in the consumer choice research, which asserts that hedonic consumption is normally connected with greater guilt for its discretionary and frivolous nature, therefore consumers will search for cues as their guilt-justifications (Lu et al., 2016; Choi et al., 2014, 2020; Khan & Dhar, 2010). In fact, price discount (Khan & Dhar, 2010), partitioned price (Choi et al., 2020), and odd-ending price (Choi et al., 2014) can all serve as guilt-mitigators for a hedonic purchase. Specifically, the study from Choi et al. (2020, p.253) proposed that consumers incline to underprocess the surcharge price and thereby forming a lower price perception than the actual. To do so they may neglect the surcharge by not paying attention to it, or intentionally overlook it in spite of already noticing it (Choi et al., 2020, p.252). This motivation, to “deliberately” create a lower price perception arises, because the “lower price perception” can help to justify their irrational and unnecessary consumption and thus to attenuate the unpleasant feeling of guilt (Choi et al., 2020, p.253).

3.4.3 Hedonic and Utilitarian Purchase Motives and Perceived Price Fairness

Regarding price fairness perceptions, in accordance with the affective-cognitive model, consumers' perceived price fairness is the outcome of the interaction of affect and cognition (see Chapter 2.2.2). Hedonic consumption decisions are more affect-rich and thus depend more on emotional evaluation modes, while utilitarian consumption decisions are more rational and focusing on price information (Leinsle et al., 2018, p.741). Positive emotion due to a hedonic consumption distract buyers from noticing the price discrimination; while more cognition can be involved in purchasing a utilitarian product, and thus consumers may carefully weighing the prices and make a discreet judgment of price fairness (Isabella et al., 2017, p.205). When products are concretely presented with pictures, consumers who pay more to purchase a utilitarian product (e.g. fruit salad), perceive more unfairness than buying a hedonic product (e.g. a piece of cake) (Isabella et al., 2017, p.203). The negative influence of perceived price level on price fairness can be mitigated by hedonic purchase motive, on the contrary, utilitarian purchase motive enhances this negative effect (Leinsle et al., 2018, p.749). In summary, based on this discussion, this paper argues that purchase motive regarding hedonism and utilitarianism will interact with price difference magnitude and product price level, exercise influence on perceived price fairness both cognitively and affectively. Thus:

H3: Purchase motive moderates the negative effect between magnitude of price difference and perceived price fairness. Hedonic purchase motive will weaken the negative effect while utilitarian purchase motive will strengthen the negative effect.

H4: Purchase motive moderates the negative effect between product price level and perceived price fairness. Hedonic purchase motive will weaken the negative effect while utilitarian purchase motive will strengthen the negative effect.

3.5 Strategic Price Tracking Behavior

Depending on the severity of situations, perceived price unfairness may cause customers' self-protection or revengeful behaviors (Xia et al., 2004). Even though online retailers have adopted complex models of managing the price variations, online consumers are becoming more sophisticated in making purchase decisions as well. They would be more

likely to search for possibilities to handle the asymmetry of information, such as price tracking tools (Victor et al., 2018b). A price detecting system (e.g. watchdog system) is developed to help consumers reveal the price and search discriminatory practices (Mikians, Gyarmati, Erramilli, & Laoutaris, 2012, p.79). Also, consumers have easy access to free tools like “Keepa”, “camelcamelcamel”, and “Honey”, these websites or web extensions enable consumers to track prices in a low-cost and time-sparing way.

More and more online shoppers are aware of dynamic prices in e-commerce (Victor et al., 2018b, p.329), thus price fluctuation within a certain range gradually becomes common knowledge. This paper argues that nowadays consumers have developed a relatively higher tolerance of this pricing strategy, therefore intensive negative emotions may arise only when the price discrepancy is extremely unreasonable. As a result, people tend to respond to unfair prices with self-protection actions instead of taking acts of revenge. Self-protection actions are essentially aiming at financial compensation (Malc et al., 2016), and avoiding being taken advantage of in the future (Xia et al., 2004, p.6). Consumer strategic shopping behavior may occur after encountering a purchase with dynamic pricing and these strategies may include strategic purchase planning, using software or web extensions to track prices (Victor, Joy Thoppan, Jeyakumar Nathan, & Farkas Maria, 2018a, p.9).

This paper proposes that strategically tracking prices is an approach to cope with the potential unfavorable position in the buyer-seller relationship. Unlike most of the self-protection, or revengeful actions proposed before (Xia et al., 2004, p.8, also see Chapter 2.2.3), these rather strategic actions do not necessarily involve contact with sellers. Companies may not be aware of consumers’ dissatisfaction and unfair price judgments against them. Consumers no longer passively accept unfair deals or only take action after purchasing the products; they endeavor to sit at the chessboard against the sellers and take advantage of them. Thus:

Hypotheses Development

H5: Perceived price fairness negatively influences consumers' strategic price tracking behavior.

H6: Perceived price fairness mediates the effect between magnitude of price difference and consumers' strategic price tracking behavior.

H7: Perceived price fairness mediates the effect between product price level and consumers' strategic price tracking behavior.

4 Research Method





This chapter depicts the methods applied in the present paper to accomplish the research objectives. First, the overall research design is described, followed by the execution procedure of the experiment. Further, the operationalization of independent, dependent, and moderating variables (i.e. the manipulations and measurements) is elaborated. Last, it is explained how to test the hypotheses in the conceptual model (hypotheses overview see Figure 3.1 and Table 3.1, p.26).

4.1 Participants and Design

4.1.1 Overall Design

The hypotheses were tested in a research setting of a between-subjects, factorial-design online experiment with two levels of magnitude of price difference (major vs. minor) \times two levels of price level (high vs. low) \times two levels of purchase motive (hedonic vs. utilitarian). According to Aronson, Ellsworth, Carlsmith and Gonzales (1990), in order to manipulate independent variables, experiment design can adopt the “scenario technique” as well as the “event technique”, which will be combined in the current study. On the one hand, the participants directly confronted two concrete product visual representations; on the other hand, the manipulations of the price difference and consumers’ purchase motives were described in scenarios. Combining the data from our primary research through online price tracking tools and the study design in prior literature, the experiment stimuli were developed, i.e. altogether eight simulated scenarios (see Table 4.1, p.37). A pretest was conducted to validate the scenarios and avoid ambiguous comprehensions. In the main experiment, participants were recruited with the help of an American online-access panel.

Table 4.1: Experiment Design

Product price level	Visual representation	Purchase motive	Magnitude of price difference
Computer (ca. \$1000)		Hedonic (gaming/movie watching)	Major (30%)
		Hedonic (gaming/movie watching)	Minor (5%)
		Utilitarian (work)	Major (30%)
		Utilitarian (work)	Minor (5%)
Kitchen whisk (ca. \$10)		Hedonic (stylish design)	Major (30%)
		Hedonic (stylish design)	Minor (5%)
		Utilitarian (sturdiness)	Major (30%)
		Utilitarian (sturdiness)	Minor (5%)

4.1.2 Operationalization of Variables

This section describes the operationalization of the variables in the research model. The “magnitude of price difference” and “product price level” were manipulated in the experiment and served as independent variables. The “hedonic and utilitarian purchase motives” were manipulated through purchasing products with different purposes. “Perceived price fairness” and “strategic price tracking behavior” were measured as dependent variables in the model.

Magnitude of price difference: To determine the magnitude of price variability, we undertook primary research on a well-known online platform and discovered the price variation for different product categories can reach up to 30% (see Chapter 1.1). Moreover,

following the research from Dai (2010) and Haws and Bearden (2006), the magnitude of price difference was set with 30% as the major price discrepancy, and 5% as the minor price discrepancy. The scenario descriptions of the price comparison were adapted from Dai (2010, p.119). One example of the scenarios is (for complete scenarios please see Appendix A):

“The price you paid for this computer was \$999. On the same day, your friend told you he had just bought the same computer for \$699 (30% lower) from the same online retailer. Later, you learn that this price difference is due to the online shop’s practice of charging different buyers different prices for the same product.”

Product price level: To manipulate product price level, this study chose a computer (priced around \$1000) and a kitchen whisk (priced around \$10). Moreover, prices of the hedonic computer and the utilitarian computer were chosen at a similar price level, and likewise for the kitchen whisk. In the research from Weisstein et al. (2013, p. 506), the prices “\$12” and “\$880” were applied to represent low vs. high product price levels. The prices used in the present research were based on our primary research of online retailers (see Chapter 1.1). Moreover, to avoid different effects from price formats (i.e. odd-ending or round-ending, and digit number), the prices were aligned with odd-ending and the same digit number (Isabella et al., 2017, p.206; Choi et al., 2014). For instance, kitchen whisk in the “5%” difference condition has a price of \$12.34, to unify the format this study altered it to \$12.39 (see Table 4.2).

Table 4.2: Experiment Price Conditions

	Original price (\$)	30% Difference (\$)	Price in Experiment 30% (\$)	5% Difference (\$)	Price in Experiment 5% (\$)
Computer (hedonic)	999	699.30	699	949.05	949
Computer (utilitarian)	1,199	839.30	839	1,139.05	1,139
Whisk (hedonic)	12.99	9.09	9.09	12.34	12.39
Whisk (utilitarian)	9.99	6.99	6.99	9.49	9.49

Purchase motive: Scenarios of hedonic and utilitarian conditions were adapted from the studies from Choi et al. (2020, p.255). Attributes like computer weight and visual attractiveness exhibit rather hedonic shopping characteristics (Choi et al., 2014, p.548). In the hedonic condition, participants were instructed to imagine purchasing a stylish computer with great features for gaming and movie watching, although their old computer quality-wise was still good; in the utilitarian condition, participants were asked to imagine searching for a new computer for stable performance because of the poor functionality of their old ones. Likewise, this study developed the hedonic and utilitarian scenarios for the low-priced product kitchen whisk: in the hedonic condition, participants imagined buying a stylish, colorful product, while in the utilitarian condition, purchasing a sturdy and durable product. One example of the scenarios is (for complete scenarios see Appendix A):

“Although quality-wise your current computer is still good you think it looks rather old-fashioned in terms of style. Therefore you are browsing the internet for a new computer. An online retailer has a computer that you like in particular for its novel features that provide the best gaming and movie watching experience and it also has a stylish design. You therefore decide to buy this one.”

4.1.3 Control Variables

The experiment scenarios were designed to depict a particular context of dynamic pricing. *First*, dynamic pricing is featured with unpredictable and frequent price changes (see Chapter 2.1.1), as a result, the temporal proximity will affect price fairness perceptions. Temporally close price differences are judged as less fair than temporally distant ones, thus the time factor should be controlled (Li et al., 2018, p.207). This study configured identical temporal comparison conditions for all scenarios, that is, in a very close temporal proximity (on the same day) (Dai, 2010, p.119).

Second, the choice of reference price in this study was “the price other consumers paid”. Participants were confronted with a disadvantaged price inequality (i.e. the others paid less than them). The reasons for this setting are based on price fairness and dynamic pricing theory (see Chapter 2.2.1). When people paid more than the same or similar comparative reference party, this price discrepancy exerts the strongest effect on price

fairness perceptions, hence the reference price was set “a friend paid” in the current experiment (Malc et al., 2016, p.3694; Priester et al., 2020, p.101).

Third, inferred motive is identified as a causal predictor for perceived price fairness (Kukar-Kinney et al., 2007; Campbell, 1999; Campbell, 2007). The motive of the price changes was controlled with a description “Later, you learn that this price difference is due to the online shop’s practice of charging different buyers different prices for the same product” (Dai, 2010, p.106), which is typical for e-commerce dynamic pricing scheme.

4.2 Procedure

The survey was conducted through an American online-access panel. The overall online experiment procedure is illustrated in Figure 4.1.

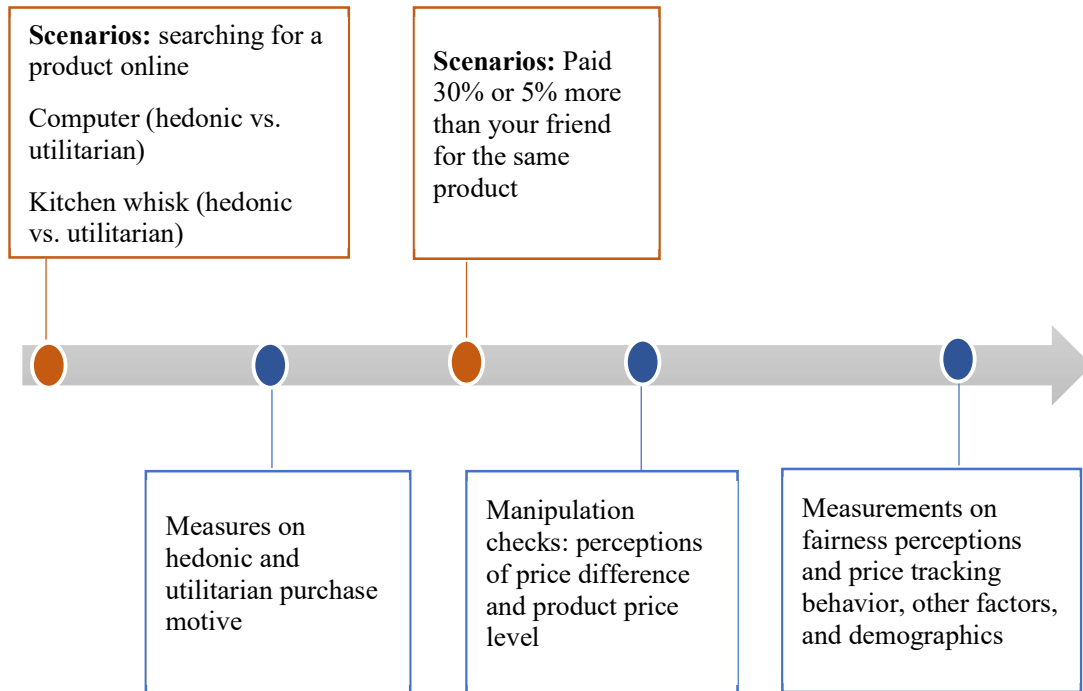


Figure 4.1: Experiment Procedure

Before the participants started, the consent form was presented. Firstly, subjects were asked about their online shopping frequency and recency. Then, they were instructed to imagine a scenario that they were searching for a new computer or a kitchen whisk. For each of these two products, a specific purchase condition was described to manipulate hedonic or utilitarian purchase motive with both visual and verbal representations. In this

phase, there were four scenarios with two products (computer vs. kitchen whisk) × two purchase motives (hedonic vs. utilitarian). Each subject received one computer scenario and one kitchen whisk scenario, then they were randomly assigned to the hedonic or utilitarian condition. After reading the scenarios, respondents were asked to evaluate the hedonic or utilitarian attributes with the semantic scale from Voss et al. (2003).

Next, the participants were presented with simulated conditions in which they found out they paid more than their friends by 30% (major price difference) or 5% (minor price difference) for the same product.

Afterward, subjects answered the attention and manipulation check questions (i.e. the magnitude of price difference and product price level). Subsequently, subjects responded to measurements of price fairness perceptions along a seven-point semantic scale (Habel et al., 2016) and strategic price tracking behaviors (Victor et al., 2018b) along a seven-point Likert scale. A variable “violation of fair price expectations” was added to test another dimension of perceived price fairness based on the confirmation/disconfirmation paradigm (Oliver, 1980), which is not incorporated in the current research model. Then, several potential influencing factor measurements were also added, that is, “inferred motive”, “price consciousness”, “sale proneness”. They were not involved in the present research model. However, they may help to explore potential relations between variables and disclose future research directions. Demographic questions follow, including age, gender, income, and education information. The survey closes with consent of inclusion and an open-ended question for further suggestions. The structure of the online survey is presented in Table 4.3 (for the complete online survey see Appendix B).

Table 4.3: Structure of the Online Survey

Online Survey
Part 1: Introduction
Part 2: Online shopping behavior
<ul style="list-style-type: none"> - Shopping frequency - Shopping recency
Part 3: Hedonic and Utilitarian Scenarios
<ul style="list-style-type: none"> - Scenario 1: Computer-Hedonic - Scenario 2: Computer-Utilitarian - Scenario 3: Kitchen Whisk -Hedonic

- Scenario 4: Kitchen Whisk -Utilitarian
 - Measurement of hedonic and utilitarian perceptions
-

Part 4: Price Difference Scenarios

- Scenario 1: Computer-Hedonic-30%
 - Scenario 2: Computer-Hedonic-5%
 - Scenario 3: Computer-Utilitarian-30%
 - Scenario 4: Computer-Utilitarian-30%
 - Scenario 5: Kitchen Whisk -Hedonic-30%
 - Scenario 6: Kitchen Whisk -Hedonic-5%
 - Scenario 7: Kitchen Whisk -Utilitarian-30%
 - Scenario 8: Kitchen Whisk -Utilitarian-30%
-

Part 5: Manipulation Checks

- Attention checks (repeat once when subjects fail to recognize the stimuli)
 - Price difference perception
 - Price level perception
-

Part 6: Measurement of Perceived Price Fairness

- Perceived price fairness
 - Violation of price fairness expectations (not included in the research model)
-

Part 7: Measurement of Strategic Price Tracking Behavior

Part 8: Other Potential Influencing Factors

- Inferred motive (not included in the research model)
 - Price consciousness (not included in the research model)
 - Sale proneness (not included in the research model)
-

Part 9: Demographics

- Gender
 - Age
 - Education
 - Income
-

Part 10: End of the Survey

- Consent of inclusion
 - Others
-

4.3 Pretest

The empirical study is supported with a pretest to improve the quality of the experiment. The respondents were instructed to check the questionnaire on the length of the questions, mistakes, and unclear phrasing to prevent ambiguous comprehension (Peterson, 2000, p.116). The received comments were taken into consideration and applied to improve the quality of the online survey. Moreover, since the survey is conducted among American consumers, the survey was linguistically revised by a professional English translator. Based on the results of the pretest, some adaptations were made. For instance, the scale for shopping frequency was adapted to more specific descriptions (i.e. a few times a week, once a week, a few times a month, etc.) (see Appendix B), whereas the old scale was vague (i.e. never, rarely, often). Also, unclear expressions were adjusted, for instance, “Based on the scenarios you just read, please evaluate the purchase of this computer according to the following attributes” was revised to “.....please evaluate this computer according to the following attributes”, thereby the expression is concise and more understandable.

4.4 Measurements

To ensure the reliability and accuracy of the measurements, the present research adopted and adapted the existing, validated instruments. Several modifications were made in certain scales in order to suit the present research. Next, this section introduces the scales applied in the online experiment to measure the constructs (see Table 4.4, p.45).

4.4.1 Manipulation Checks

Magnitude of price difference: To examine the successful manipulation of the price difference, participants were asked to answer two questions (see Table 4.4, p.45). Firstly, they were asked to identify the price difference stated in the scenarios, this question was to check the attention of respondents during the survey. The statements were “Based on the scenario you have just read, which of the following statements is true?” (Dai, 2010, p.36), options were described as “My friend paid 5% (or 10%, 20%, 30%) less than I did for the same computer (or kitchen whisk)”. If respondents failed to correctly recognize the price difference, this question will be repeated. Secondly, they were asked to indicate their perception of the price difference by answering “ In your opinion, how significant

is the difference between the price you paid and the price your friend paid? ” in a seven-point Likert scale (1= “extremely small”; 7= “extremely big”) (Dai, 2010, p.36).

Product price level: The manipulation check of product price level was operationalized with a seven-point Likert scale “How significant is the expenditure for this computer (kitchen whisk) as a portion of your income?” (1= “extremely small”; 7= “extremely big”). This statement was adapted from Nagle et al. (2011, p.132).

Purchase motive: To test the successful manipulation of the hedonic and utilitarian purchase motive, we adopted the instrument from Voss et al. (2003, p.312). This scale was widely applied by research regarding the hedonic and utilitarian products (e.g. Li et al., 2020; Choi et al., 2020; Isabella et al., 2017). The measurement (Voss et al., 2003, p.312) is designed in a seven-point semantic scale, with the utilitarian dimension (effective-ineffective, helpful-unhelpful, functional-not functional, necessary-unnecessary, and practical-impractical) and hedonic dimension (not fun-un, dull-exciting, not delightful-delightful, not thrilling-thrilling, and enjoyable-unenjoyable). A lower score indicates more utilitarian characteristics and less hedonic characteristics (see Table 4.4, p.45).

4.4.2 Perceived Price Fairness

Perceive price fairness was measured along with a four items seven-point semantic scale adapted from Habel et al. (2016, p.101): unfair-fair, not at all just-just, unreasonable-reasonable, and inadequate-adequate. A lower score of the scale indicates a lower level of perceived price fairness (e.g. 1= “unfair”; 7= “fair”) (see Table 4.4, p.45).

4.4.3 Strategic Price Tracking Behavior

Strategic price tracking behavior was measured with a four items seven-point scale (1= “strongly disagree”; 7= “strongly agree”) by Victor et al. (2018b, p.381). The items represented the potential consumer strategic shopping behaviors that may occur after buyer experiencing a purchase with dynamic pricing (Victor et al., 2018a, p.9), and the Cronbach’s Alpha of this scale was 0.73 (Victor et al., 2018b, p. 382). A higher score means a higher level of price tracking behavior. In the present experiment, the wording was slightly adjusted to keep the language concise and accurate (see Table 4.4, p.45).

Table 4.4: Constructs and Items

Constructs	Items
Price difference perception (Dai, 2010)	In your opinion, how significant is the difference between the price you paid and the price your friend paid?
Price level perception (Nagle et al., 2011)	How significant is the expenditure for this computer (kitchen whisk) as a portion of your income?
Hedonic /Utilitarian (Voss et al., 2003)	Based on the scenario you just read, please evaluate this computer (or whisk) according to the following attributes. <hr/> Effective... Ineffective Helpful...Unhelpful Functional... Not functional Necessary... Unnecessary Practical... Impractical Not fun... Fun Dull... Exciting Not delightful... Delightful Not thrilling... Thrilling Enjoyable... Unenjoyable (reverse)
Perceived price fairness (Habel et al., 2016)	How do you evaluate the price you paid for the computer (kitchen whisk)? <hr/> Unfair...fair Not at all just...just Unreasonable...reasonable Inadequate...adequate
Strategic price tracking behavior (Victor et al., 2018b)	After this shopping experience, to what extent do you agree with the following statements? <hr/> In future, I will track the price of products I intend to buy a few days ahead of the purchase. I will use some software applications or browser extensions to track the changes in the price of products I intend to buy. I will consider price changes as an opportunity to buy products at lower prices. I will motivate my friends and family to track the prices in order to avoid them paying higher prices.

4.4.4 Other Potential Influencing Factors

In the survey, the data of several potential influencing factors were also collected. These constructs were not included in the present research model; however, they may provide access to explore potential future studies. The constructs are violations of price fairness expectations (Oliver, 1980), inferred motive (Kukar-Kinney et al., 2007; Campbell, 1999), price consciousness (Bearden, Netemeyer, & Haws, 2011; Lichtenstein, Ridgway, & Netemeyer, 1993), and sale proneness (Lichtenstein et al., 1993) (see Appendix B).

Violation of price fairness expectations: this measurement is based on the confirmation/disconfirmation paradigm (Oliver, 1980). The premise of this concept is that the satisfaction or dissatisfaction toward a product or service stems from the comparison between the initial expectations and the actual perceptions (Oliver, 1980, p.460). This scale concerns the extent to which sellers violate buyers' expectations of price fairness.

Inferred motive: "The consumers' inferred motive pertains to the consumers' inferences of the objective the retailer seeks to achieve" (Kukar-Kinney et al., 2007, p.331).

Sale proneness: "It is an increased propensity to respond to a purchase offer because the sale form in which the price is presented positively affects purchase evaluations" (Lichtenstein, Ridgway, & Netemeyer, 1993, p. 235).

Price consciousness: "It is the degree to which the consumer focuses exclusively on paying low prices" (Lichtenstein et al., 1993, p. 235; Bearden et al., 2011).

5 Analyses and Results

This chapter presents the methods applied to analyze data and reports corresponding results. Firstly, an overview of the participants' information is displayed. Following that, validity and reliability of the constructs are evaluated, and the data normality and homogeneity of variances for the further analyses are discussed. Next, the effectiveness of experimental manipulations was tested. Finally, this chapter provides an elaboration of the methods and results of the hypotheses assessment.

5.1 Participants

Demographic data

The sample consisted of a total of 300 respondents. Firstly the raw data was prepared for further analyses including (1) reviewing missing data and possible statistical outliers, (2) reverse coding (item “enjoyable...unenjoyable” in the hedonic/utilitarian scale), (3) computing variables' mean values, and (4) adding value labels. One participant indicated in the “consent of inclusion” not to be included in the research (ID: 60379dc17dc2aa000830366e). One participant (ID: 60aed3ad958648ef5dc5f0f9) failed to recognize the price discrepancy of “5%” or “30%” even after the repetitive attention check, therefore the respondent was excluded from the analyses. Ergo, the sample size used in the data analyses was 298.

Among the 298 Americans , 41.9% of them are male, 56 % female, and 2% third gender (see Table 5.1, p.48). The participants have an average age of 36.24 and are relatively evenly distributed in the age groups (see Table 5.2, p.48). Regarding education (see Table 5.3, p.48), 42.6% of them had a four-year bachelor's degree in college, 26.8% had spent some time in college (some college but no degree or associate degree). In terms of the financial situation (see Table 5.4, p.50), 36.9% felt living comfortably on present income, 44% felt they were coping on present income, while 19.1% found it difficult on present income (13.4% difficult and 5.7% very difficult).

Analyses and Results

Table 5.1: Gender Distribution

Gender	Frequency	Percent %	Cumulative Percent %
Male	125	41.9	41.9
Female	167	56	97.9
Non-binary / third gender	6	2	100
Total	298	100	

Table 5.2: Age

Age	Percent %
18-25	25.2
26-35	29.5
36-45	22.5
46-55	14.4
57-79	8.4
Total	100

Table 5.3: Education Distribution

Education	Frequency	Percent %	Cumulative Percent %
Less than high school degree	4	1.3	1.3
High school graduate (high school diploma or equivalent including GED)	24	8.1	9.4
Some college but no degree	59	19.8	29.2
Associate degree in college (2-year)	21	7	36.2
Bachelor's degree in college (4-year)	127	42.6	78.9
Master's degree	47	15.8	94.6
Doctoral degree	9	3	97.7
Professional degree (JD, MD)	7	2.3	100
Total	298	100	

Table 5.4: Financial Situation

Income	Frequency	Percent %	Cumulative Percent %
Living comfortably on present income	110	36.9	36.9
Coping on present income	131	44.0	80.9
Finding it difficult on present income	40	13.4	94.3
Finding it very difficult on present income	17	5.7	100.0
Total	298	100	

Distribution in each scenario

There was a total of eight scenarios in the online experiment. Each subject must receive one computer and one kitchen whisk scenario. Participants were then randomly distributed to the price difference conditions (30% vs. 5%) and the purchase motive conditions (hedonic vs. utilitarian)(see Table 5.5).

Table 5.5: Sample Distribution in Scenarios

Product price level	Purchase motive	Price difference	n
Computer	Hedonic	30%	72
		5%	76
		Total	148
	Utilitarian	30%	75
		5%	75
		Total	150
Whisk	Hedonic	30%	75
		5%	75
		Total	150
	Utilitarian	30%	74
		5%	74
		Total	148
Total	Hedonic	30%	147
		5%	151
		Total	298
	Utilitarian	30%	149
		5%	149
		Total	298

5.2 Validity and Reliability

This section analyzes the validity and reliability of the measurements (complete results in Appendix E). To test the reliability of the multi-item-scale, the current study applies the Cronbach's Alpha, which is a measure to determine the correlation of the items in a scale (Bernard, 2013, p. 293). Cronbach's Alpha is one of the most widely applied methods to test the reliability and internal consistency of the items (Victor et al., 2018a, p.9). The Cronbach's Alpha of a reliable scale should be at least 0.7 (Peterson, 1994, p. 388). The composite reliability was validated through the overall scale Cronbach's Alpha, and item reliability was tested by examining standardized item loadings. Respectively, all items' standard loading exceeded 0.5, and each scale Cronbach's Alpha was 0.77 or above. Thereby, the constructs indicated sufficient reliability (see Table 5.6).

Also, instruments exhibited sufficient discriminant validity, as all inter-construct correlations were significantly less than one (Kukar-Kinney et al., 2007b, p.329). Construct inter-correlations are displayed in Table 5.7 (p.51).

Table 5.6: Construct and Item Reliability

Constructs	Items	Factor Loading	Cronbach's Alpha
Hedonic/ utilitarian	Effective... Ineffective	0.847	0.77
	Helpful...Unhelpful	0.878	
	Functional... Not functional	0.841	
	Necessary... Unnecessary	0.684	
	Practical...Impractical	0.832	
	Not fun...Fun	0.904	
	Dull... Exciting	0.911	
	Not delightful...Delightful	0.914	
	Not thrilling...Thrilling	0.872	
	Enjoyable... Unenjoyable (reverse)	0.755	
Perceived price fairness	Unfair...fair	0.943	0.95
	not at all just...just	0.941	
	Unreasonable...reasonable	0.949	
	Inadequate...adequate	0.891	
	In future, I will track the price of products I intend to buy a few days ahead of the purchase.	0.867	0.81

Strategic price tracking behavior	I will use some software applications or browser extensions to track the changes in the price of products I intend to buy.	0.751
	I will consider price changes as an opportunity to buy products at lower prices.	0.780
	I will motivate my friends and family to track the prices in order to avoid them paying higher prices.	0.832

Table 5.7: Inter-construct Correlations

Constructs	Price difference Perception	Price level perception	Purchase motive	Perceived price fairness	Strategic price tracking
Price difference perception	1				
Price level perception	.518**	1			
Purchase motive	.173**	.324**	1		
Perceived price fairness	-.572**	-.359**	-.082*	1	
Strategic price tracking	.245**	.255**	.065	-.236**	1

Note: **. Correlation is significant at the 0.01 level.*. Correlation is significant at the 0.05 level.

5.3 Normality and Homogeneity of Variances

This section presents the normality tests of perceived price fairness and strategic price tracking behavior in the groups. The results of Kolmogorov-Smirnov and Shapiro-Wilk tests showed, the data in the manipulation groups are not normally distributed (see Table 5.8, p.52, and Appendix C). Yet, researchers have proved that “F-test showed robustness under a broad variety of conditions (1308) involving non-normal distributions likely to represent real data” (Blanca, Alarcón, Arnau, Bono, & Bendayan, 2017, p.555). Therefore, the ANOVA analysis is relatively robust to the violations of the normal distribution assumption, especially when the group sizes are similar (StatistikGuru, 2021; Blanca et al., 2017; Glass, Peckham, & Sanders, 1972; Harwell, Rubinstein, Hayes, & Olds, 1992;

Lix, Keselman, & Keselman, 1996; Salkind, 2010; Schmider, Ziegler, Danay, Beyer, & Bühner, 2010). Moreover, when the sample size in each group is over 25, the violation of this requirement is considered unproblematic (Universität Zürich, 2021). The present study can fulfill this criterion in the groups (see sample distribution in Table 5.5, p.49). It has been observed as well that researchers apply ANOVA tests even though the data were not normally distributed (Isabella et al., 2017, p.209).

Table 5.8: Tests auf Normality in the Groups

Dependent variables	Groups	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Perceived price fairness	30%	.153	296	.000	.895	296	.000
	5%	.062	300	.007	.974	300	.000
	Computer	.108	298	.000	.935	298	.000
	Whisk	.088	298	.000	.954	298	.000
	Hedonic	.094	298	.000	.948	298	.000
	Utilitarian	.094	298	.000	.943	298	.000
Strategic price tracking behavior	30%	.103	296	.000	.952	296	.000
	5%	.092	300	.000	.944	300	.000
	Computer	.082	298	.000	.956	298	.000
	Whisk	.094	298	.000	.958	298	.000
	Hedonic	.097	298	.000	.947	298	.000
	Utilitarian	.090	298	.000	.947	298	.000

Dependent Variables: Perceive Price Fairness and Price Tracking Behavior

Moreover, the homogeneity of variances between the groups should also be given to apply an ANOVA test (Huber, Meyer, & Lenzen, 2014, p. 63). In the current study, it means the variances in the groups of “magnitude of price difference”, the groups of “purchase motive”, and the groups of “product price level” should be homogeneous. The homogeneity of variances can be verified applying Levene-Test in SPSS (Backhaus, Erichson, Plinke, & Weiber, 2018, p. 195). The results of Levene-Tests (see Table 5.9, p.53 and Appendix D) showed that the variances of perceived price fairness are homogeneous in the groups of price difference (30% vs. 5%) and in the groups of purchase motive (hedonic vs. utilitarian). But the variances were heterogeneous in the

groups of price level (high vs. low) ($F(1,594) = 7.55, p < .01$) (see Table 5.9). Similarly, the error variances of price tracking behavior are heterogeneous in the groups of product price level ($F(1,594) = 7.55, p < .001$) (see Table 5.9). However, when sample sizes in groups are adequate and rather equal, ANOVA remains robust against the violation of the homogeneity of variances (Universität Zürich, 2021). In the current study, the requirement of homogeneity of variances was only not fulfilled in the groups of price level. The sample in reach group is relatively even and with adequate subjects (sample distribution see Table 5.5, p.49).

In conclusion, although the data demonstrated a certain level of violation of the normality and the homogeneity of variances, the current study will still utilize ANOVA to further test the hypotheses. The reasons are two-fold: first, the current study possesses a comparatively adequate sample size and even distribution in the groups; second, parametric tests commonly demonstrate stronger statistical power than nonparametric tests (Minitab, 2015; Döring & Bortz, 2016, p. 842).

Table 5.9: Tests of Homogeneity of Variances

Dependent variables	Groups	F	Sig.
Perceived price fairness	Magnitude of price difference	3.63	.057
	Price level	7.55	.006
	Purchase motive	.31	.576
Price tracking behavior	Magnitude of price difference	3.6	.057
	Price level	20.9	.001
	Purchase motive	.20	.652

Dependent Variables: Perceive Price Fairness and Price Tracking Behavior

5.4 Manipulation Checks

In this section, four manipulation checks were conducted (1) to test if the computer (gaming, movie watching) and kitchen whisk (stylish design) were regarded more hedonic, and the computer (work) and the kitchen whisk (sturdiness) were considered more utilitarian; (2) to confirm participants attention to the price differences; (3) to verify whether participants considered the price discrepancy 30% or 5% as big or small; (4) to

access how respondents perceived the price of the computer and the kitchen whisk relative to their income.

5.4.1 Hedonic and Utilitarian Purchase Motives

The first manipulation check accessed if the purchase motive in the scenarios were evaluated more hedonic or utilitarian based on the scale by Voss et al. (2003), in which a lower score indicates a higher level of utilitarian characteristic. First, through factor analysis (varimax rotation and eigenvalue=1), it was evaluated whether the ten properties can be condensed. Results showed, two dimensions as in the original research were extracted (KMO = 0.863; Barlett's test of sphericity= 4380.38, $p < .001$). Totally 74% of the variances can be explained by the two factors (see Appendix F). The Cronbach's Alpha ($\alpha_{\text{composite}} = 0.77$; $\alpha_{\text{hedonic}} = 0.85$; $\alpha_{\text{utilitarian}} = 0.92$) indicated adequate reliability of the scales.

Then, the manipulation of purchase motive was validated with an ANOVA test. The two purchase scenarios were evenly distributed amongst participants with ($n_{\text{hedonic}}=298$ and $n_{\text{utilitarian}}=298$). The results of the ANOVA demonstrated a significant main effect in the two manipulation groups ($F(1, 594) = 204.2, p < .001$), the score in the group hedonic ($M = 4.08, SD = 0.79, n=298$) was significantly higher than in the group utilitarian ($M = 3.19, SD = 0.74, n=298$) (see Table 5.10, p.55). For the computer, the gaming computer ($M=4.4, n=148$) and work computer ($M=3.5, n=150$) showed statistically significant differences of hedonic and utilitarian features ($(F(1, 296) = 161.7, p < .001)$ (see Table 5.10 and Table 5.11, p.55). For kitchen whisk, the colorful kitchen whisk ($M=3.8, n=150$) and sturdy kitchen whisk ($M=2.9, n=148$) demonstrated also statistically significant difference of hedonic and utilitarian features ($(F(1, 296) = 96.7, p < .001)$ (see Table 5.10 and Table 5.11, p.55). Thereby the manipulation of hedonic and utilitarian purchase motives was successful.

Table 5.10: Descriptive Statistics for Hedonic and Utilitarian Evaluations

Independent variables	M	SD	n
Hedonic (overall)	4.08	0.79	298
Utilitarian (overall)	3.19	0.74	298
Hedonic (computer)	4.4	0.61	148
Utilitarian (computer)	3.5	0.61	150
Hedonic (kitchen whisk)	3.8	0.82	150
Utilitarian (kitchen whisk)	2.9	0.73	148

Dependent variable: Scale Utilitarian and Hedonic

Table 5.11: ANOVA Results of Utilitarian and Hedonic

Independent variables	df	Mean Square	F (1, 594)	p
Overall- Hedonic and Utilitarian	1	118.4	204.2	<.001
Error		.58		
Computer- Hedonic and Utilitarian	1	60.5	161.7	<.001
Error		.374		
Whisk- Hedonic and Utilitarian	1	58.9	96.733	<.001
Error		.609		

Dependent Variable: Scale Utilitarian and Hedonic

5.4.2 Magnitude of Price Difference

An ANOVA analysis was used to test the manipulation of magnitude of price difference. Participants were asked how significant the difference between the price they paid and the price a friend paid is (1= “extremely small”, 7= “extremely big”) (see items in Table 4.4, p.45). The results of the ANOVA showed a significant main effect of the manipulation of price difference ($F(1, 594) = 507.3, p < .001$): the value in the group of 30% discrepancy ($M = 5.7, SD = 1.47, n = 296$) was significantly higher than in the group of 5% discrepancy ($M = 3, SD = 1.5, n = 300$). These results supported the manipulation that the 30% price difference was perceived as significantly bigger than 5% (see Appendix G).

5.4.3 Product Price Level

Finally, an ANOVA analysis was run to verify the participants' perception of price level for the computer and the kitchen whisk. Participants responded to how significant the expenditure for the product as a portion of their income is (1= "extremely small"; 7= "extremely big") (see items in Table 4.4, p.45). The results of the ANOVA analysis again indicated a significant effect of the manipulation of the price level ($F(1, 594) = 754.8, p < .001$). Participants generally considered the computer ($M = 5.5, SD = 1.3, n=298$) as a significantly bigger expenditure than the kitchen whisk ($M = 2.3, SD = 1.5, n=298$). Thus, the manipulation of price level was confirmed to be successful (see Appendix G).

5.5 Tests of the Hypotheses

5.5.1 Effect of Magnitude of Price Difference and Product Price Level on Perceived Price Fairness

This section addresses the research question: To what extent do both the magnitude of price difference and product price level influence perceived price fairness in the context of dynamic pricing? H1 and H2 are tested in this section (research hypotheses see Table 3.1. p.26).

As the constructs correlations displayed in Table 5.7 (p.51), both the magnitude of price difference ($\beta = -.572, p < .001$) and product price level ($\beta = -.359, p < .001$) showed negative relations with perceived price fairness. ANOVA analyses were applied to further assess whether there were significant differences of price fairness perceptions between the major and minor price discrepancy (30% vs. 5%), as well as between the high and low price level (i.e. computer vs. kitchen whisk). A computed mean score of the four items of perceived price fairness was applied as the dependent variable in the ANOVA analysis. The results of ANOVA (see Table 5.12 and Table 5.13) showed statistically significant difference between groups: participants regarded the 30% price difference ($M = 2.5$) to be more unfair ($F(1, 594) = 157.28, p < .001$) than a 5% price difference ($M = 4.1$). Likewise, the perceived price fairness ($F(1, 594) = 33.37, p < .001$) for a high-priced product computer ($M = 2.9$) was significantly lower than a relatively low-priced product kitchen whisk ($M=3.7$) (see Table 5.12 and Table 5.13). Thereby, H1 and H2 were confirmed.

Table 5.12: Descriptive Statistics- Effect of Antecedents

Independent variables	M	SD	n
Price difference (30%)	2.5	1.4	296
Price difference (5%)	4.1	1.6	300
High-priced product (computer)	2.9	1.6	298
Low-priced product (kitchen whisk)	3.7	1.8	298

Dependent Variable: Perceived Price Fairness

Table 5.13: ANOVA Results-Effect of Antecedents

Hypothesis	Independent variables	df	Mean Square	F (1, 594)	p
H1	Magnitude of price difference	1	367.84	157.28	<.001
	Error		2.3		
H2	Product price level	1	93.45	33.37	<.001
	Error		2.8		

Dependent Variable: Perceived Price Fairness

5.5.2 Moderating Effect of Purchase Motive on Perceived Price Fairness

This section addresses the research question: How do consumers' purchase motives moderate the effect of the antecedents of perceived price fairness in the context of dynamic pricing?

To test hypotheses H3 and H4 (research hypotheses see Table 3.1, p.26), two separate ANOVA analyses were executed. The descriptive statistic of the mean values is presented in Table 5.14, from which it is already shown that the variations between groups were rather small. As the ANOVA results showed (see Table 5.15), the interaction effect between magnitude of price difference and purchase motive ($F(1, 592) = .25, p = .620$), and the interaction effect between product price level and purchase motive ($F(1, 592) = .00, p = .996$) were both not significant. Thus, H3 and H4 were rejected.

Table 5.14: Descriptive Statistics- Moderating Role of Purchase Motive

Independent variables		Hedonic			Utilitarian		
		M	SD	n	M	SD	n
Price difference	30%	2.6	1.55	147	2.43	1.34	149
	5%	4.14	1.57	151	4.06	1.65	149
Product price level	Computer	3.0	1.61	148	2.9	1.50	150
	Kitchen whisk	3.8	1.76	150	3.6	1.81	148

Dependent Variable: Perceived Price Fairness

Table 5.15: ANOVA Results-Moderating Role of Purchase Motive

Hypothesis	Independent variables	df	Mean Square	F (1, 594)	p
H3	Magnitude of price difference (A)	1	367.38	157.28	<.001
	Purchase motive (B)	1	2.89	1.23	.267
	A × B	1	.58	.25	.620
	Error	592	2.34		
H4	Product price level (A)	1	93.22	33.23	<.001
	Purchase motive (B)	1	3.09	1.10	.294
	A × B	1	7.5E-5	.000	.996
	Error	592	2.8		

Dependent Variable: Perceived Price Fairness

5.5.3 Strategic Price Tracking Behavior

This section addresses the research question: What are the influences of perceived price fairness, magnitude of price difference, price level, as well as their interplay on consumers' strategic price tracking behavior? This section examines H5, H6, and H7 (research hypotheses see Table 3.1, p.26).

First, how the price difference perception, price level perception, and perceived price fairness influence the price tracking behavior is tested by a regression analysis. Next, two

separate ANOVA analyses were run to test the differences of price tracking behavior between groups, with the magnitude of price difference and price level as independent variables. Last, whether perceived price fairness (mediator) mediates the relationship between the magnitude of price change (independent variable1) and the product price level (independent variable2) and price tracking behavior (dependent variable) is assessed with PROCESS v3.5 by Andrew F. Hayes in SPSS.

Regression analysis

As the constructs correlations displayed in Table 5.7 (p.51), perceived price fairness ($\beta = -.236$, $p < .001$), price difference perception ($\beta = .245$, $p < .001$) and product price level perception ($\beta = .255$, $p < .001$) showed weak correlation with strategic price tracking behavior (Cohen, 1988, p.79). A linear regression analysis was undertaken with the strategic price tracking behavior as the dependent variable, and price difference perception, price level perception, and the perceived price fairness as the independent variable. Same as in previous analyses, tests also applied the computed average value of the items: perceived price fairness scale (four items), and strategic price tracking behavior scale (four items). To verify the multicollinearity, the indicator VIF (Variance Inflation Factor) was used. The values were between 1.37 and 1.78 (see Appendix J), thus the variables are slightly correlated, but do not affect the application of regression analysis.

The results showed that the regression model is significant ($F(1, 592) = 20.3$, $p < .001$). Regarding each predictor, there was a negative relationship between perceived price fairness and price tracking behavior ($b = -.09$, $p < .01$), and a positive relation between price level perception and price tracking behavior ($b = .094$, $p < .001$), yet, the influence of price difference was not significant ($b = .031$, $p = 0.098$) (see Table 5.16, p.60). Nonetheless, these three variables can only explain 9.3% of the variances of future strategic buying behavior ($R^2 = .093$) (see Appendix J). According to Cohen (1988, p.412), the explanation power of the model is evaluated as close to medium (low: $|R^2| = .02$; medium: $|R^2| = .13$; high: $|R^2| = .26$). H5 is accepted, however several other factors may potentially influence consumer price tracking behavior.

Analyses and Results

Table 5.16: Regression Coefficients

Independent variables	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.023	.221		22.716	.000
Price difference perception	.052	.031	.087	1.659	.098
Price level perception	.094	.026	.164	3.571	.000
Perceived Price Fairness	-.090	.034	-.128	-2.665	.008

Dependent Variable: Strategic Price Tracking Behavior

ANOVA analyses

To investigate how the magnitude of price difference and price product level influence price tracking behavior, two separate ANOVA were applied to test the differences between groups. Computer (M = 5.6, SD =0.99, n=298) induces higher strategic buying behaviors ($F(1, 594) = 33.65, p < .001$) than kitchen whisk (M = 5.0, SD =1.33, n=298) (see Table 5.17 and Table 5.18). On the contrary, the difference of strategic price tracking behavior between major (M= 5.4) and minor (M=5.2) price discrepancy groups was not significant ($F(1, 594) = 2.82, p =.094$) (see Table 5.17 and Table 5.18)

Table 5.17: Descriptive Statistics-Strategic Price Tracking Behavior

Independent variables		M	SD	n
Magnitude of price difference	30%	5.4	1.12	296
	5%	5.2	1.29	300
Product price level	Computer	5.6	.99	298
	Kitchen whisk	5.0	1.34	298

Dependent Variable: Strategic Price Tracking

Table 5.18: ANOVA Results-Strategic Price Tracking Behavior

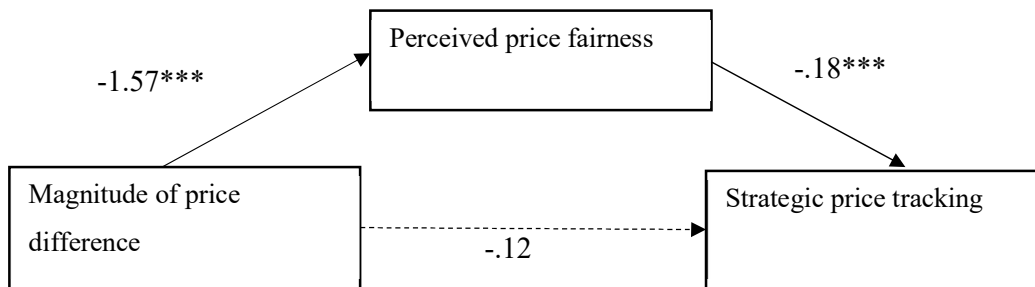
Hypothesis	Independent variables	df	Mean Square	F (1, 594)	p
H6	Magnitude of price difference	1	4.1	2.82	.094
	Error		1.5		
H7	Product price level	1	46,654	33.65	<.001
	Error		1.4		

Dependent Variable: Strategic Price Tracking

Mediation analyses

In addition, this study adopted the PROCESS v3.5 by Andrew F. Hayes in SPSS to test the mediating effect of perceived price fairness. To prepare the data, the categorical variables “magnitude of price difference” and “product price level” were dummy coded. The magnitude of price difference was coded as 1= “30%” and 0= “5%”, and the price level 1= “computer” and 0= “kitchen whisk”.

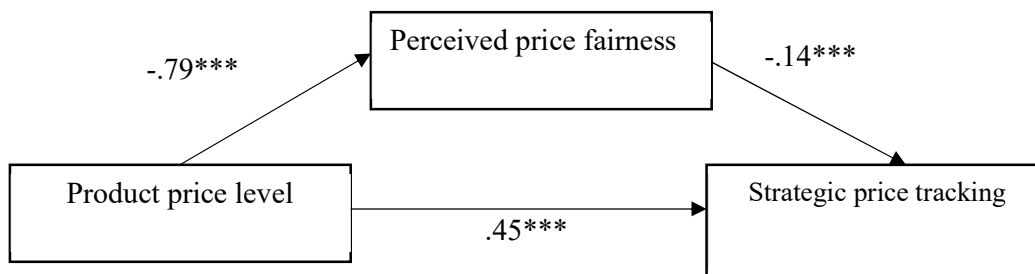
First, to further test H6, a mediation analysis was run with dependent variable (strategic price tracking behavior), independent variable (magnitude of price difference), and mediator (perceived price fairness). Analysis was executed with PROCESS Model 4 with 10,000 bootstrap samples. The coefficients among variables are presented in Figure 5.1 (p.62). The output between BootLLCI and BootULCI did not include the value 0, so there was a significant indirect effect of “magnitude of price difference” on “strategic price tracking behavior” through “perceived price fairness”, $b = 0.29$, 95% [0.18; 0.41]. The total effect was 0.17, the direct effect was -0.12 (see Appendix J). Thus, although the direct effect of magnitude of price difference on price tracking behavior was not significant (see Figure 5.1), perceived price fairness can partially mediate the relationship between price differences and future buying behavior. Thereby, H6 was validated.



Correlations: *** $p < .001$; ** $p < .01$; * $p < .05$

Figure 5.1: Moderating Role of Price Fairness between Magnitude of Price Difference and Strategic Price Tracking Behavior

Second, to further test H7, a mediation analysis was applied with strategic price tracking behavior as the dependent variable, the product price level as the independent variable, and the perceived price fairness as the mediator. The coefficients among variables are presented in Figure 5.2. Similarly, as in the previous analysis, the test was run applying PROCESS Model 4 with 10,000 bootstrap samples. The output between BootLLCI and BootULCI did not include the value 0, so the indirect effect of price level on strategic price tracking behavior through perceived price fairness was significant, $b = 0.11$, 95% [0.05; 0.17]. The direct effect was 0.45, and the total effect was 0.56 (see Appendix J). The indirect effect constitutes 19.6% of the total effect. Thus, perceived price fairness partially mediated the relationship between price level and future buying behavior. Therefore, H7 was supported.



Correlations: *** $p < .001$; ** $p < .01$; * $p < .05$,

Figure 5.2: Moderating Role of Price Fairness between Product Price Level and Strategic Price Tracking Behavior

5.6 Other Potential Influencing Factors

Preliminary analyses of the potential influencing factors were also executed to explore the relations between variables. An ANOVA was run with another independent variable “violation of price fairness expectations”, which can also reflect price fairness perceptions (see Appendix B). Results suggested that both magnitude of price difference ($(F(1, 592) = 62.7, p < .001)$) and product price level ($(F(1, 592) = 67.2, p < .001)$) have significant influence on “violation of price fairness expectations”. Moreover, there was a significant interaction effect ($(F(1, 591) = 4.1, p < .05)$) between magnitude of price difference and price level when the variable “price consciousness” was incorporated as a covariate in the ANOVA model (see Appendix K).

Results also showed that purchase motive has significant effect on the dependent variable “violation of price fairness expectations” ($(F(1, 594) = 4.02, p < .05)$). People with utilitarian purchase motive ($M = 5.3, SD = 1.40, n = 298$) had a stronger feeling that their expectations of price fairness were violated than did people with hedonic purchase motive ($M = 5.0, SD = 1.61, n = 298$). These factors were measured for the interest of exploring future studies, and not included in the current research model (see Appendix K).

6 Discussion of Findings

This master thesis investigates the influence of magnitude of price difference and the product price level on perceived price fairness in the context of differentiated prices. Moreover, consumers' purchase motive while purchasing, i.e. hedonic or utilitarian is also tested as a moderator on perceived price fairness. In addition, this paper also studies the impact of magnitude of price difference, product price level, and price fairness perception on consumers' strategic price tracking behavior. These issues are investigated through experimental study capturing different dynamic pricing conditions cross consumers with hedonic or utilitarian purchase motive. Based on data analysis as well as the theoretical foundations of dynamic pricing and perceived price fairness, this chapter discusses the findings.

6.1 Magnitude of Price Difference

The results of this study confirmed that the magnitude of price difference between comparative parties (i.e. other buyers) negatively influences price fairness perceptions ($F(1, 594) = 157.28, p < .001$) (see Table 5.13, p.57). The results were consistent with the theoretical foundation built by equity theory and distributive justice (Adams, 1965), and the conclusions from Dai (2010) and Martin et al. (2009). Dai (2010, p.106) examined how the magnitude of price difference affects price fairness perceptions for three different products (i.e. a backpack, a DVDs Series, and a GPS Navigator), which all have rather similar price levels (from \$94.95 to \$158.99). This study examined products across different price levels, more specifically a computer (around \$1000) and a kitchen utensil (around \$10). For products of both price levels, the magnitude of price difference of discriminatory pricing was a main predictor for perceived price fairness. Our findings provide further empirical evidence for the influence of this antecedent on price fairness perception.

6.2 Product Price Level

Furthermore, the product price level was proven to negatively influence price fairness perception ($F(1, 594) = 33.37, p < .001$) (see Table 5.13, p.57). Price changes for a more expensive product category are more likely to induce unfair perceptions. The concept of the product price level is closely related to the concept of price sensitivity, more

specifically, the size of expenditure (i.e. the price people must pay for the service or product) will largely affect consumers' price sensitivity (Nagle et al., 2011, p.132). High-priced products entail commonly more monetary sacrifice as well as high search effort (Smith, 2000, p.165). In return, consumers will expect better outcomes (Adams, 1965) and have a feeling of entitlement from the transaction (Xia et al., 2010, p.3). When this expectation is not fulfilled, the perception of violating price fairness may arise. In conclusion, the results of the current study showed that the price changes in high-priced product categories are more likely to cause a higher level of unfairness perceptions. The research from Dai (2010) addressed the effect of price change depth (magnitude of price difference) and price change timeline (temporal proximity). Results of the current research complement the findings from Dai (2010) by examining the initial point of price change (i.e. product price level).

6.3 Hedonic and Utilitarian Purchase Motive

The results of the current study did not support the moderating effect of purchase motive between magnitude of price difference/price level and perceived price fairness (see Table 5.15, p.58). The results were divergent from the findings from Isabella et al. (2017) and Choi et al. (2020), in which they asserted that people will underprocess price increase information to justify the guilty feelings from hedonic purchases. Isabella et al. (2017, p.206) demonstrated that with photo presentations consumers perceived less unfairness when paying more than others to purchase a hedonic product (a piece of cake) in comparison with a utilitarian product (a fruit salad). Choi et al. (2020, p.256) suggested that buyers with hedonic purchase motive neglect, to a certain degree, the price surcharge and hence are not able to fully process the price information. Nevertheless, in this study, it seemed that consumers stayed discreet and rational regardless if they are buying “for fun” or “for necessity”. The processing of price information differed not significantly within these two motivations. The impacts of magnitude of price difference (30% vs. 5%), and the product price level (low vs. high) on fairness perceptions were not influenced by the purchase motives of buyers.

There are several potential explanations for this divergence. *Firstly*, the awareness of dynamic pricing will influence price fairness perceptions as well price tracking behavior (Victor et al., 2018b). Consumers may be more conscious and cautious with prices when

they are aware of the existence of price discrimination, regardless of their purchase motive. People would be more concentrated on whether they could receive lower prices, therefore they may pay more attention to prices. Also, connected to this point, in the present research, price comparison setting was specifically configured in a dynamic pricing context (see Chapter 4.1.3 and Appendix A) with a description of “Later, you learn that this price difference is due to the online shop’s practice of charging different buyers different prices for the same product” (Dai, 2010, p. 109). In this case, buyers’ attention was largely directed to assess this disputable price practice, people might ignore their initial motivations of purchases. By contrast, the price evaluation environment in the study of Isabella et al. (2017) was also discriminatory prices, but not specifically defined in the experiment procedure.

The next explanation may be the choice of dependent variable reflecting perceived price fairness in the present research. In the study of Isabella et al. (2017), they included two aspects of the perception of justice as dependent variables: social and economic. They argued that “the perception of justice is related to the specific situation, which is a social aspect. Price fairness, on the other hand, is specific to the price” (Isabella et al., 2017, p.204). In light of the price fairness theory (see Chapter 2.2.1), both distributive justice (Homans, 1961) and procedural justice (Thibault & Walker, 1975) will impact fairness perceptions. Distributive justice focuses on evaluating the outcome, while procedural justice concerns judging the process. This study believes that when consumers judge the price (outcome) itself, they may also consider other factors such as product quality, the normal price of this product category. When they encounter a price discrepancy, to evaluate the price (outcome), they may consider “it is somehow okay to pay \$1000 for a computer with this quality.” However, when judging the fairness of the situation, or procedure (i.e. how and why sellers change the price, so that they must pay more than others), they may draw different conclusions of how fair the situation is. The effect of purchase motive on information processing may play a more significant role in judging the fairness of the overall situation. Some evidence was found in the results of other potential influencing factors (see Chapter 5.6), this study observed a stronger impact of hedonic and utilitarian purchase motive on the dependent variable “violation of price fairness expectations”.

The last explanation may be traced to the price presentation format in the online experiment. In the current study, the price difference was explicitly indicated with a “percentage format” apart from the purchase price (i.e. 30% or 5% lower). This was to ensure the perception of the magnitude of price difference. For example, it was described as “On the same day, your friend told you he had just bought the same computer for \$699 (30% lower) from the same online retailer” (see Appendix A), whereas, in other studies, the price difference was with “dollar format”, for example, “the price I paid was \$3.00” vs. “the price my friends paid was \$2.3” (Isabella et al., 2017, p.206). Similar to the situation of discount framing, both “dollar off” or “percent off” formats require arithmetic calculations, and consumers oftentimes fail to accurately perform the mental arithmetic calculations when evaluating prices (Weisstein et al., 2013, p.504). Hedonic and utilitarian motives can influence price information processing, thereby interfering in the mental arithmetic calculations. Moreover, according to the affective-cognitive model of price fairness perceptions, affect exhibits an even more salient impact under the condition of limited cognitive resources, while cognition plays a more important role when processing resources are available (Campbell, 2007, p.262). Hedonic consumption decisions are more affect-rich and thus depend more on emotional evaluation modes, while utilitarian consumption decisions are more rational and focusing on price information (Leinsle et al., 2018, p.741).

In this study, with the exact presentation of “percentage” format, the price differences were very salient, thereby consumers must not apply any heuristic, they were offered sufficient resources to accurately process the price information, hence the hedonic or utilitarian purchase motive was not very influential. Consumers with hedonic motive were not more emotional than those with utilitarian motive, instead, they could utilize relative sufficient cognitive resources. Therefore, the hedonic and utilitarian motives did not exhibit a strong moderating effect on perceived price fairness.

6.4 Strategic Price Tracking Behavior

In the regression model ($F(1, 592) = 20.3, p < .001$), the three predictors can explain 9.3% of the variances of strategic price tracking behavior. The results indicated that lower perceived price fairness and higher price level could elicit consumers’ intention to shop more strategically in the future. Yet, the effect of magnitude of price difference on price

tracking behavior was not significant. This result is consistent with the study from Victor et al. (2018b). However, the explaining power of the regression model is between low to medium (Cohen, 1988, p.412). Other variables affecting price tracking behavior should be explored and integrated into the model. For example, the consumer individual traits like price consciousness, awareness of dynamic pricing etc. (Victor et al., 2018b) could be more salient predictors for strategic price tracking behavior.

The ANOVA analyses suggested a significant impact of price product level on strategic price tracking behavior ($F(1, 594) = 33.65, p < .001$), where high-priced computer ($M = 5.6, SD = 0.99, n = 298$) induced significantly higher buying strategy than low-priced kitchen whisk ($M = 5.0, SD = 1.33, n = 298$). Consumers exhibit higher strategic shopping behavior for products with a higher price because expensive products naturally induce higher search effort (Smith, 2000, p.165), thereby product price level exerts a stronger direct impact on consumers' strategic shopping behavior. *Conversely*, the difference of strategic price tracking behavior between major ($M = 5.4$) and minor ($M = 5.2$) price difference groups was not significant ($F(1, 594) = 2.82, p = .094$). This was consistent with the results of regression analysis. Thus, no matter the price inequality is high or low, after encountering dynamic pricing, consumers showed similar level of price tracking intentions. Notably, the mediating effect of perceived price fairness between magnitude of price difference and strategic price tracking behavior was significant (see Chapter 5.5.3). This means, when the price changes can result in unfairness perceptions (regardless of the magnitude), it is more likely to motivate consumers to engage in strategic shopping behaviors. In daily life, consumers may not necessarily track and monitor the prices even when the price variability is high because a strategic shopping strategy entails more time and energy investment as well. When consumers regard a price difference as normal or reasonable, they are less likely to make an extra effort to plan a strategic buying. Although a price discrepancy may be significant, if it is deemed to be fair, consumers may still forgo the chances of monitoring and investigating prices. However, if a price change is considered unfair (even if it is a minor change), it may induce a high level of engagement in extensive price research.

7 Conclusions and Recommendations

In this chapter, general conclusions, theoretical and managerial implications, limitations, and recommendations for future study are discussed. Numerous studies have demonstrated the positive influence of dynamic pricing on optimizing firms' revenue and profit (Grewal et al., 2011, p.46; Li et al., 2018, p.204; Lee et al., 2011, p.532). However, dynamic pricing featured with unpredictable, irregular price fluctuations might be regarded as a tactic of rip-offs and a violation of fair prices. Therefore, it may consequently lead to press criticism, public boycotts, and regulatory hassles (Nagle et al., 2011, p.90). Dynamic pricing should not be implemented disregarding perceived price fairness. The current research investigates the antecedents, moderators, and consequences of perceived price fairness by empirical studies in the context of dynamic pricing. It was confirmed that magnitude of price difference and product price level are salient predictors for price fairness perception. Consumers' purchase motive (hedonic vs. utilitarian) did not elicit different judgments on price fairness perceptions. With the development of price investigating technologies and the megatrend of conscious consumers, it was validated that perceived price unfairness perception could induce a higher intention of strategic shopping behavior among buyer. Moreover, perceived price fairness also mediates the relationship between magnitude of price difference/product level and the strategic price tracking behavior.

7.1 Theoretical Implications

This research deepens the knowledge of buyers' fairness perception on dynamic pricing in the e-commerce market. Also, it offers valuable insights to implement effective dynamic pricing strategies without damaging perceived price fairness. In accordance with the research objectives, the present paper provides insights to perceived price fairness and dynamic pricing literature. First, apart from magnitude of price difference, this study integrates the previously overlooked factor "product price level" into the basic mechanism of dynamic pricing. Based on equity theory (Adams,1965) and distributive justice, both factors can strongly influence price fairness perceptions. Second, this study incorporated a more intrinsic and motivational factor (i.e. hedonic and utilitarian purchase motive) into our research model. Third, this study identified a relatively new outcome

variable of perceived price fairness, consumers' strategic price tracking behavior, which is especially meaningful for today's e-commerce market with discriminatory pricing.

Firstly, consistent with past research, price level perception can influence the perceived price fairness (Leinsle et al., 2018; Weisstein et al., 2013). The present research contributes to the literature by incorporating a basic dimension of dynamic pricing mechanism: product price level. The depth dimension and the time dimension of dynamic price changes were examined by Dai (2010) across products with similar price levels. The current study aims at investigating the “starting point” of those price changes with the variable price level. The price level of a product is closely related to consumer price sensitivity (Nagle et al., 2011; Leinsle et al., 2018), and to the perceived sacrifice one must make in an exchange relationship (Adams, 1965), therefore it can exercise strong influence on perceived price fairness.

Secondly, this paper is relevant to the theory in price fairness through empirically studying a customer-centered, intrinsic, and motivational factor: hedonic and utilitarian purchase motives. Authors have repeatedly demonstrated that motivations can impact consumers' information processing (Choi et al., 2020), which renders implications for how consumers may react to price discrimination. Price fairness perceptions contain both cognitive aspects and affective aspects (Campbell, 2007). Correspondingly, hedonic consumption is affect-inducing and emotional, whereas buying decisions regarding utilitarian consumption are more functional and cognitive (Li et al., 2020, p.130; Heiens et al., 2016). The results of the current study contribute to understanding how hedonic and utilitarian motivations influence consumers' post-purchase price evaluations, particularly in the dynamic pricing context. Results showed that in the post-purchase phase, consumers tend to ignore their initial purchasing goals, when they discover disadvantaged price inequality, they tend to form negative price fairness judgment disregarding their hedonic or utilitarian motivations.

The results of this paper also supplement the hedonic and utilitarian fields by providing a holistic perspective of these two types of purchases. The hedonic and utilitarian features have been highly researched, but not yet exhausted (Isabella et al., 2017, p.204). The evaluation of consumption as hedonic or utilitarian has developed beyond a bipolar scale and demonstrated highly interchangeable features, depending on product or service,

individual traits, and situational cues (Scarpi, 2020; Li et al., 2020). Consumers may purchase a traditionally utilitarian product for hedonic reasons, and vice versa. The method of product categorization should be more sophisticated in terms of hedonic and utilitarian features.

Finally, this study contributes to the literature by examining a less explored outcome variable of perceived price fairness: strategic price tracking behavior. This research posits that strategic pricing tracking behavior is different from the behavioral reactions set forth by prior research: no action, self-protection, and revengeful actions (e.g. Xia et al., 2004; Dai, 2010). By deciding to purchase more strategically in the future, consumers may not initiate any communications (complaint, ask for a refund, spread negative word of mouth, etc.) with sellers, as a result, companies are deprived of the opportunities of knowing the real reactions and attitude of their customers. Yet, with more and more strategic consumers who attempt to take advantage of the sellers, it can inflict harm on the long-term profitability of online retailers.

7.2 Managerial Implications

The present research also offers important insights for management practitioners as well as consumers. The emerging new technology and increasing data availability enable online retailers to apply sophisticated dynamic pricing models. Despite the benefits of dynamic pricing in increasing profitability and maximizing inventory, it is strongly related to consumers' price fairness perceptions. At the same time, consumers are becoming more and more conscious and strategic, as the technologies are not only in favor of the sellers, but also benefiting buyers. When adopting dynamic pricing, companies should understand how their customers form fairness perceptions and how they may react accordingly.

Firstly, consumers' perceived price fairness differs across the varying magnitude of price difference. A big price discrepancy can induce stronger unfairness perceptions. Online retailers may develop an algorithm to detect individual consumer's willingness-to-pay and intend to capture higher consumer surplus by adjusting prices. However, those consumers with a higher willingness-to-pay may realize they are charged a much higher price than others for the same product or service. *Consequently*, the arising price unfairness perception may cost the company losing their most valuable customers.

Companies should conduct extensive and structured price surveys to find the price thresholds, at which companies could balance between profit maximization for themselves and price fairness perceptions of consumers.

Secondly, product price level negatively influences consumers' perceived price fairness. Although adjusting prices in the high-priced category to boost demand can drive revenue growth more rapidly, consumers are also more sensitive to expensive products in terms of price fairness. It was also observed that some online retailers discriminate the prices for less expensive products with higher volatility (see Chapter 1.1). This approach is successful because most consumers are not yet highly sensitized to the price changes in products with lower prices. People normally do not expect strong price fluctuations for low-priced products. However, this might not always hold true with the rapid development of dynamic pricing. As consumers have developed a strong awareness of this pricing strategy, they may start to pay more attention to low price products as well. If they discover the price variation in a very unexpected product (for instance, a monopoly, a kitchen utensil), this may create a discrepancy between their expectations and reality (Oliver, 1980), hence severe perceived price unfairness could also occur in a lower-priced product category. *In sum*, although a higher price level is more likely to create the perception of price inequity, the variation of prices for the lower-priced categories also should not be implemented discretionarily.

Thirdly, consumers with different purchase motives show distinguished preferences and actions. The moderating effect of purchase motive on perceived price fairness was not validated in the present study. This means that consumers prone to be more rational even with hedonic purchases. Regardless of the reasons why they purchase the product and the emotion they may have; consumers will very possibly judge price fairness rather consciously and attentive. Companies attempting to exploit consumers' irrationality may suffer the consequence of unfairness perceptions. Further, literature review shows that hedonic and utilitarian motivations still influence many aspects of consumers' behavior, such as the choice of information channels, search effort, and price sensitivity (e.g. Maehle et al., 2015). In general, the online customer journey varies across hedonic and utilitarian consumption (Li et al., 2020). Moreover, the classification of hedonic and utilitarian purchase is highly interchangeable given the nuances of the vast collection of today's online merchandise. Managers should not only assess a product category based

on its traditional “product stereotypes”, but also make comprehensive evaluations depending on products, environment, and customers (Scarpi, 2020). Thereby, firms can select their strategies in various managerial domains accordingly. The implications for consumers might be that consumers should be more discreet with frivolous and impulsive shopping for their financial stability and long-term welfare because they are more likely to be affected subconsciously by marketing professionals during their hedonic shopping.

Lastly, the strategic pricing tracking behavior can render implications for both sellers and buyers. Companies should widen their knowledge in price tracking websites and tools, for instance, the effectiveness, accuracy, and scope of applications. More importantly, it is essential to understand how consumers prefer to utilize these tools. There may be price adjustments that do not significantly increase consumers’ strategic shopping behavior. The first reason is that a strategic shopping plan normally entails more time and energy investment, consumers may consider it as not worthwhile. The second reason is that some price changes for certain products are commonly acceptable or perceived as fair. Third, the personality traits of buyers could also contribute to their strategic price tracking behavior.

For consumers, this study suggests they apply strategic price tracking after weighing one’s investment and outcome during a purchase. When the individual conditions allow, tracking the price before purchase is wise. Due to convenient tools, buyers can undertake price investigations without a high cost of time and energy, thereby avoiding them being taken advantage of by the sellers.

7.3 Limitations and Future Research

This section discusses several limitations and pertinent boundary conditions of the current study and proposes several future research directions.

First, the magnitude of price difference and price level are both limited to only two conditions. In exploring the impact of the magnitude of price difference on price fairness perceptions, the online experiment was conducted with the manipulation of minor (5%) and major (30%) price difference. The gap was set relatively high to ensure the successful manipulation of this variable. To balance companies' benefits and consumers’ fairness perceptions, the mechanism may be more sophisticated involving multiple price

thresholds and require to be further examined. Similar also for the price level, a computer (ca.\$1000) and a kitchen whisk (ca. \$10) were selected to represent a high or low price level, which was manipulated in two groups with a relatively big gap as well. The effect of the price range in the middle was not captured in the current study.

It is essential to further study the dynamic pricing mechanism on price fairness in the future. Dynamic pricing is effective due to the price discrimination practice on a granular level targeting each segment, even individual customers. Future endeavors could investigate the interplay of price change magnitude, product level, and price change frequency in an algorithmic model incorporating the consumers' price fairness perceptions. The exploration of price thresholds can be meaningful for practitioners.

Second, this study was limited to the evaluation of price fairness judgment that happened in the post-purchase phase. Past literature illustrates that hedonic and utilitarian motives exercise influence on consumer choice during the decision-making process (Isabella et al., 2017; Aydinli, Bertini & Lambrecht, 2014). It is noticeable, the price inequality perception (friend paid less than me) may be overly salient when consumers were confronted with this comparison after purchasing a product, thus this perception may overwrite their original hedonic or utilitarian purchase motivations. The impact of purchase motive on fairness perception may differ during the pre-purchase stage when consumers are gathering information and comparing prices across sellers and channels. The manipulation of variables in the current research might be to a certain degree contradicting each other. For instance, to ensure the manipulation of price change magnitude, the price difference was presented with an explicit percentage indication (i.e. 30% lower). This may diminish the effect of hedonic and utilitarian motives on information processing (see Chapter 6.3).

Third, the choice of comparison party was limited to the comparison with other customers, which can cause the strongest unfairness perceptions (see Chapter 2.2.1). When the comparison occurs with self (i.e. buyers' past reference information), the factors in the current model may impact the perceived price fairness differently.

Therefore, future studies could also explore the impact of dynamic pricing on buyers' fairness perception in their pre-purchase stage. Additionally, the reference prices can be chosen based on their own historical price knowledge instead of comparison with other

buyers. In this context, it investigates primarily the choice and decision-making process before purchasing. Purchase motive may be more relevant in this research condition.

Fourth, the current research is subject to the one-dimensional measurement of perceived price fairness. The instrument focused on the evaluation of the “pricing outcome”, lacking in the measures was the evaluation of “pricing process”. Future endeavors can also incorporate dependent variables focusing on procedural justice (see Chapter 2.2.1). The exploration of fairness of pricing process and procedure is of particular relevance in the field of dynamic pricing. Evaluating the fairness of a “price” and a “situation” can be different (see Chapter 6.3). Besides, incorporating other buyer-related factors may be also meaningful, such as price consciousness (see Chapter 5.6).

Fifth, the data from the current study showed a certain degree of violation of the assumptions of normality and homogeneity of variances. This research utilized parametric methods based on mean values. When group sample sizes are adequate and rather equal, ANOVA tests remains robust against the violation of the homogeneity of variances as well as normality (see Chapter 5.3). Yet, regarding the violations of the prerequisites of parametric analyses, no generally valid rules to determine the extent to which parametric tests are still permissible (Döring & Bortz, 2016, p. 966). It is also recommended for future studies to apply nonparametric approaches based on median and compare the results with parametric tests.

Finally, an online experiment is widely applied and effective in ensuring internal validity, however, external validity is hard to be guaranteed (Hussy, Schreier, & Echterhoff, 2013, p.111; Dai, 2011, p.90). Despite attempts of creating possible realistic purchase conditions through photo presentations and scenario descriptions, the complexity and dynamism of a real shopping experience can hardly be completely covered. For higher external validity and generalizability, the future online experiment can utilize other media to present scenarios apart from graphic and verbal presentation, for instance, videos, 3D simulations, and virtual reality. These advanced methods of presentation may be useful and convenient for future online experiments to create more realistic purchasing conditions.

8 References

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9 Appendix

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Appendix A: Experiment Scenario Descriptions

Visual representations	Hedonic and utilitarian scenarios descriptions	Price difference scenarios
	<p>Although quality-wise your current computer is still good you think it looks rather old-fashioned in terms of style. Therefore you are browsing the internet for a new computer. An online retailer has a computer that you like in particular for its novel features that provide the best gaming and movie watching experience and it also has a stylish design. You therefore decide to buy this one.</p>	<p>The price you paid for this computer was \$999.</p> <p>On the same day, your friend told you he had just bought the same computer for \$699 (30% lower) (or \$949, 5% lower) from the same online retailer.</p> <p>Later, you learn that this price difference is due to the online shop’s practice of charging different buyers different prices for the same product.</p>
	<p>Your old computer has a poor functionality. Therefore you are browsing the internet for a new computer. An online retailer has a computer which ensures professional performance that you need for your daily business. Since you are searching for a stable product you decide to buy this computer.</p>	<p>The price you paid for this computer was \$1199.</p> <p>On the same day, your friend told you he just bought the same computer for \$839 (30% lower) (or \$1139, 5% lower) from the same online retailer.</p> <p>Later, you learn this price difference is due to the online shop’s practice of charging different buyers different prices for the same product.</p>



Although quality-wise your current kitchen whisk is still good, you think it looks rather old-fashioned in terms of style. Therefore you are browsing the internet for a new kitchen whisk. An online retailer has a kitchen whisk that you like in particular for its stylish design and color and it fits beautifully in your kitchen. You therefore decide to buy this one.

The price you paid for this kitchen whisk was \$12.99. On the same day, your friend told you he just bought the same one for \$9.09 (30% lower) (or \$12.39, 5% lower) from the same online retailer.

Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.



Quality-wise your old kitchen whisk is poor. Therefore you are browsing the internet for a new kitchen whisk. An online retailer has a kitchen whisk which is sturdy and durable for daily cooking. Since you are searching for a stable product you decide to buy this kitchen whisk.

The price you paid for this kitchen whisk was \$9.99. On the same day, your friend told you he just bought the same one for \$6.99 (30% lower) (or \$9.49, 5% lower) from the same online retailer.

Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Appendix B: Online Experiment

For the complete online survey please also see:

https://immzhaw.eu.qualtrics.com/jfe/form/SV_e8m3FMc3Y1oDJno

Part 1: Introduction

Dear participant,

This study is designed to investigate how product perception influences our consumption decision. You will be asked to evaluate two products as well as a few questions about yourself.

Please note, that there are no right or wrong answers, choose the options that are applicable for you. Your answers will be treated confidentially and anonymously.

Thank you for your valuable support.

1. Informed Consent

Many thanks for your willingness to participate in our research.

All data will be treated confidentially and may not be disclosed, unless required by law and regulation. Participation in this study is anonymous. Results will be published only in aggregated form and will not identify individual participants by name or initials.

Please note that participation in this study is entirely voluntary and that you may discontinue participation at any time. In this case, you will not be compensated.

2. Before you start, please:

- maximize your browser window,
 - turn off phone/e-mail/music & anything else distracting,
 - enter your **Prolific ID** (it can be found at the top of this webpage or on your personal account).
-

Part 2: Online shopping behavior

1. Shopping frequency: How often do you shop online?

- A few times a week
- Once a week
- A few times a month
- Once a month or less
- A few times a year or less
- Never

2. Shopping recency: When was the last time you bought something online?

- In the last 3 months
- During the last 3 to 12 months
- More than a year ago

Part 3: Hedonic and Utilitarian Scenarios

1. Scenarios

Scenario 1:

Please imagine:

Although **quality-wise** your current computer is still **good** you think it looks rather old-fashioned in terms of style. Therefore you are browsing the internet for a new computer. An online retailer has a computer that you like in particular for its novel features that provide the best **gaming and movie watching** experience and it also has a **stylish design**. You therefore decide to buy this one.



Scenario 2:

Please imagine:

Your old computer has a **poor functionality**. Therefore you are browsing the internet for a new computer. An online retailer has a computer which ensures **professional performance** that you need for your daily business. Since you are searching for a **stable product** you decide to buy this computer.



Scenario 3:

Please imagine:

Although **quality-wise** your current kitchen whisk is still **good**, you think it looks rather old-fashioned in terms of style. Therefore you are browsing the internet for a new kitchen whisk. An online retailer has a kitchen whisk that you like in particular for its **stylish design and color** and it fits **beautifully** in your kitchen. You therefore decide to buy this one.



Scenario 4:

Quality-wise your old kitchen whisk is **poor**. Therefore you are browsing the internet for a new kitchen whisk. An online retailer has a kitchen whisk which is **sturdy and durable** for daily cooking. Since you are searching for a stable product you decide to buy this kitchen whisk.



2. Based on the scenario you just read, please evaluate this computer according to the following attributes.

	1	2	3	4	5	6	7	
Effective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ineffective
Helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unhelpful
Functional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not functional
Necessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unnecessary
Practical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Impractical
Not fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fun
Dull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Not delightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Delightful
Not thrilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Thrilling
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unenjoyable

Part 4: Price Difference Scenarios

1. Scenarios

Scenario 1: Computer-Hedonic-30%

The price you paid for this computer was \$999. On the same day, your friend told you he had just bought the same computer for \$699 (30% lower) from the same online retailer. Later, you learn that this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 2: Computer-Hedonic-5%

The price you paid for this computer was \$999. On the same day, your friend told you he just bought the same computer for \$949 (5% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 3: Computer-Utilitarian-30%

The price you paid for this computer was \$1199. On the same day, your friend told you he just bought the same computer for \$839 (30% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 4: Computer-Utilitarian-5%

The price you paid for this computer was \$1199. On the same day, your friend told you he just bought the same computer for \$1139 (5% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 5: Kitchen Whisk -Hedonic-30%

The price you paid for this kitchen whisk was \$12.99. On the same day, your friend told you he just bought the same one for \$9.09 (30% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 6: Kitchen Whisk -Hedonic-5%

The price you paid for this kitchen whisk was \$12.99. On the same day, your friend told you he just bought the same one for \$12.39 (5% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 7: Kitchen Whisk -Utilitarian-30%

The price you paid for this kitchen whisk was \$9.99. On the same day, your friend told you he just bought the same one for \$6.99 (30% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Scenario 8: Kitchen Whisk - Utilitarian -5%

The price you paid for this kitchen whisk was \$9.99. On the same day, your friend told you he just bought the same one for \$9.49 (5% lower) from the same online retailer. Later, you learn this price difference is due to the online shop's practice of charging different buyers different prices for the same product.

Part 5: Manipulation Checks

1. Based on the scenario you have just read, which of the following statements is true?
 - My friend paid 5% less than I did for the same kitchen whisk.
 - My friend paid 10% less than I did for the same kitchen whisk.
 - My friend paid 20% less than I did for the same kitchen whisk.
 - My friend paid 30% less than I did for the same kitchen whisk.

2. In your opinion, how significant is the difference between the price you paid and the price your friend paid?
 - Extremely small
 - Small
 - Somewhat small
 - Neither big nor small
 - Somewhat big
 - Big
 - Extremely big

3. How significant is the expenditure for this computer (or kitchen whisk) as a portion of your income?
 - Extremely small
 - Small
 - Somewhat small
 - Neither big nor small
 - Somewhat big
 - Big
 - Extremely big

Part 6: Measurement of Perceived Price Fairness

1. How do you evaluate the price you paid for the computer (kitchen whisk)?

	1	2	3	4	5	6	7	
unfair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	fair
not at all just	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	just
unreasonable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	reasonable
inadequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	adequate

2. Violation of fair price expectations:

The online retailer...

a) ...violates my expectations of fair prices for the computer (kitchen whisk)

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

a) ...disappoints my expectations regarding price fairness for the computer (kitchen whisk)

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) ...fully confirms my expectations of fair prices for the computer (kitchen whisk)

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 7: Measurement of Strategic Price Tracking Behavior

After this shopping experience, to what extent do you agree with the following statements?

a) In future, I will track the price of products I intend to buy a few days ahead of the purchase.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) I will use some software applications or browser extensions to track the changes in the price of products I intend to buy.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c) I will consider price changes as an opportunity to buy products at lower prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d) I will motivate my friends and family to track the prices in order to avoid them paying higher prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 8: Other Potential Influencing Factors

Inferred Motive

Please indicate to what extent you agree to the following statements.

a) The retailer varies the prices to serve its own interests.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) The retailer varies the prices to increase its profits at the expense of the user.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c) The retailer intends to exploit the customer by varying its prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Price Consciousness

Please indicate to what extent you agree to the following statements.

a) I am not willing to go to extra effort to find lower prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) I would shop at more than one store to take advantage of low prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c) The money saved by finding lower prices is usually not worth the time and effort.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d) I would never shop at more than one store to find low prices.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e) The time it takes to find low prices is usually not worth the effort.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sale Proneness

Please indicate to what extent you agree to the following statements.

a) If a product is on sale, that can be a reason for me to buy it.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b) When I buy a brand that's on sale, I feel that I am getting a good deal.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c) I have favorite brands, but most of the time I buy the brand that's on sale.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d) I am more likely to buy brands that are on sale.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e) Compared to most people, I am more likely to buy brands that are on special.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 9: Demographics

Finally we are interested in some demographic information

1. Please indicate your gender.

- Male
- Female
- Non-binary / third gender

2. Please indicate your age (e.g. 33)

3. What is the highest school level you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Master's degree
- Master's degree
- Professional degree (JD, MD)

4. Which of the following statements comes closest to how you feel about your household's income?

- Living comfortably on present income
- Coping on present income
- Finding it difficult on present income
- Finding it very difficult on present income

Part 10: End of the Survey

1. Consent of inclusion Do you feel like you answered all the questions consciously enough to include them in our research?

Please answer this question honestly, it will not affect your pay for this study nor your inclusion in following studies.

- Yes, you can include my answers
- No, do not include my answers

2. Others

Was something unclear? Is there anything you would like to add?

Appendix C: SPSS Output-Normality Tests

Normality test: groups of price difference

Descriptives

		Price Difference		Statistic	Std. Error
Mean Perceived Price Fairness	30%	Mean		2,5313	,08416
		95% Confidence Interval for Mean		Lower Bound	2,3656
				Upper Bound	2,6969
		5% Trimmed Mean			2,4223
		Skewness			,862
	Kurtosis			-,024	,282
	5%	Mean		4,1025	,09269
		95% Confidence Interval for Mean		Lower Bound	3,9201
				Upper Bound	4,2849
		5% Trimmed Mean			4,1139
Skewness			-,069	,141	
Kurtosis			-,753	,281	
Price tracking behavior	30%	Mean		5,3986	,06497
		95% Confidence Interval for Mean		Lower Bound	5,2708
				Upper Bound	5,5265
		5% Trimmed Mean			5,4627
		Skewness			-,678
	Kurtosis			,178	,282
	5%	Mean		5,2325	,07448
		95% Confidence Interval for Mean		Lower Bound	5,0859
				Upper Bound	5,3791
		5% Trimmed Mean			5,3157
Skewness			-,795	,141	
Kurtosis			,584	,281	

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Price Difference		Statistic	df	Sig.	Statistic	df	Sig.
Mean	30%	,153	296	,000	,895	296	,000
Perceived Price Fairness	5%	,062	300	,007	,974	300	,000
Price tracking behavior	30%	,103	296	,000	,952	296	,000
	5%	,092	300	,000	,944	300	,000

a. Lilliefors Significance Correction

Normality test: groups of purchase motives

<i>Descriptives</i>					
	Purchase motive		Statistic	Std. Error	
Mean Perceived Price Fairness	Hedonic	Mean	3,3968	,10014	
		95% Confidence Interval for Mean	Lower Bound	3,1997	
			Upper Bound	3,5939	
		5% Trimmed Mean	3,3416		
		Interquartile Range	2,75		
	Skewness		,287	,141	
	Kurtosis		-,953	,281	
	Utilitarian	Mean	3,2475	,09893	
		95% Confidence Interval for Mean	Lower Bound	3,0528	
			Upper Bound	3,4422	
5% Trimmed Mean		3,1757			
Skewness			,390	,141	
Kurtosis		-,805	,281		
Price tracking behavior	Hedonic	Mean	5,3121	,07055	
		95% Confidence Interval for Mean	Lower Bound	5,1732	
			Upper Bound	5,4509	
		5% Trimmed Mean	5,3860		
		Skewness		-,760	,141
	Kurtosis		,491	,281	
	Utilitarian	Mean	5,3180	,06969	
		95% Confidence Interval for Mean	Lower Bound	5,1808	
			Upper Bound	5,4551	
		5% Trimmed Mean	5,3906		
Skewness			-,799	,141	
Kurtosis		,640	,281		

<i>Tests of Normality</i>							
	Purchase motive	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Perceived Price Fairness	Hedonic	,094	298	,000	,948	298	,000
	Utilitarian	,094	298	,000	,943	298	,000
Price Tracking Behavior	Hedonic	,097	298	,000	,947	298	,000
	Utilitarian	,090	298	,000	,947	298	,000

a. Lilliefors Significance Correction

Normality test: groups of product price level

Descriptives

		Product Price Level	Statistic	Std. Error
Perceived Price Fairness	Computer	Mean	2,9262	,09019
		95% Confidence Interval for Mean	Lower Bound	2,7487
			Upper Bound	3,1037
		5% Trimmed Mean	2,8474	
		Skewness	,488	,141
		Kurtosis	-,667	,281
	Whisk	Mean	3,7181	,10326
		95% Confidence Interval for Mean	Lower Bound	3,5149
			Upper Bound	3,9213
		5% Trimmed Mean	3,6868	
Skewness		,123	,141	
	Kurtosis	-1,042	,281	
Price tracking behavior	Computer	Mean	5,5948	,05734
		95% Confidence Interval for Mean	Lower Bound	5,4820
			Upper Bound	5,7076
		5% Trimmed Mean	5,6481	
		Skewness	-,603	,141
		Kurtosis	,179	,281
	Whisk	Mean	5,0352	,07758
		95% Confidence Interval for Mean	Lower Bound	4,8826
			Upper Bound	5,1879
		5% Trimmed Mean	5,1061	
Skewness		-,621	,141	
	Kurtosis	,073	,281	

Tests of Normality

	Product Price Level	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Perceived Price Fairness	Computer	,108	298	,000	,935	298	,000
	Whisk	,088	298	,000	,954	298	,000
Price Tracking Behavior	Computer	,082	298	,000	,956	298	,000
	Whisk	,094	298	,000	,958	298	,000

a. Lilliefors Significance Correction

Appendix D: SPSS Output-Homogeneity of Variances

Homogeneity of Variances of PPF-groups of magnitude of price difference

<i>Group Statistics</i>					
	Price Difference	N	Mean	Std. Deviation	Std. Error Mean
Perceived Price Fairness	30%	296	2,5313	1,44800	,08416
	5%	300	4,1025	1,60545	,09269

<i>Independent Samples Test</i>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perceived Price Fairness	Equal variances assumed	3,643	,057	-12,541	594	,000	-1,57125	,12529	1,81731	1,32519
	Equal variances not assumed			-12,550	589,282	,000	-1,57125	,12520	1,81714	1,32536

Homogeneity of Variances of PPF- groups of purchase motives

<i>Group Statistics</i>					
	Purchase motive	N	Mean	Std. Deviation	Std. Error Mean
Perceived Price Fairness	Hedonic	298	3,3968	1,72866	,10014
	Utilitarian	298	3,2475	1,70776	,09893

<i>Independent Samples Test</i>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perceived Price Fairness	Equal variances assumed	,312	,576	1,061	594	,289	,14933	,14076	-,12713	,42578
	Equal variances not assumed			1,061	593,912	,289	,14933	,14076	-,12713	,42578

Homogeneity of Variances PPF- groups of price level

<i>Group Statistics</i>					
	Product Price Level	N	Mean	Std. Deviation	Std. Error Mean
Perceived Price Fairness	Computer	298	2,9262	1,55686	,09019
	Whisk	298	3,7181	1,78254	,10326

<i>Independent Samples Test</i>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Perceived Price Fairness	Equal variances assumed	7,555	,006	-5,776	594	,000	-,79195	,13710	-1,06120	-,52269
	Equal variances not assumed			-5,776	583,439	,000	-,79195	,13710	-1,06121	-,52268

Homogeneity of Variances of SPTB-groups of magnitude of price difference

<i>Group Statistics</i>					
	Price Difference	N	Mean	Std. Deviation	Std. Error Mean
Strategic PriceTracking Behavior	30%	296	5,3986	1,11778	,06497
	5%	300	5,2325	1,29004	,07448

<i>Independent Samples Test</i>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Strategic PriceTracking Behavior	Equal variances assumed	3,641	,057	1,679	594	,094	,16615	,09893	-,02815	,36044
	Equal variances not assumed			1,681	584,271	,093	,16615	,09884	-,02797	,36026

Homogeneity of Variances of SPTB - Groups of Purchase Motives

<i>Group Statistics</i>					
	Purchase motive	N	Mean	Std. Deviation	Std. Error Mean
Strategic PriceTracking Behavior	Hedonic	298	5,3121	1,21782	,07055
	Utilitarian	298	5,3180	1,20299	,06969

Appendix

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Strategic PriceTracking Behavior	Equal variances assumed	,204	,652	-,059	594	,953	-,00587	,09916	-,20062	,18888
	Equal variances not assumed			-,059	593,911	,953	-,00587	,09916	-,20062	,18888

Homogeneity of variances of SPTB - groups of price level

Group Statistics

		Product Price Level	N	Mean	Std. Deviation	Std. Error Mean
Strategic PriceTracking Behavior	Computer		298	5,5948	,98986	,05734
	Whisk		298	5,0352	1,33917	,07758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Strategic PriceTracking Behavior	Equal variances assumed	20,882	,000	5,801	594	,000	,55956	,09647	,37010	,74902
	Equal variances not assumed			5,801	546,932	,000	,55956	,09647	,37007	,74906

Appendix E: SPSS Output-Validity and Reliability

Correlations

		In your opinion, how significant is the difference ...y our friend paid?	How significant is the expenditure for this ... as a portion of your income?	Utilitarian vs. Hedonic	Perceived Price Fairness	Strategic PriceTracking Behavior
In your opinion, how significant is the difference ...your friend paid?	Pearson Correlation	1	,518**	,173**	-,572**	,245**
	Sig. (2-tailed)		,000	,000	,000	,000
	N	596	596	596	596	596
How significant is the expenditure for this ... as a portion of your income?	Pearson Correlation	,518**	1	,324**	-,359**	,255**
	Sig. (2-tailed)	,000		,000	,000	,000
	N	596	596	596	596	596
Utilitarian vs. Hedonic	Pearson Correlation	,173**	,324**	1	-,082*	,065
	Sig. (2-tailed)	,000	,000		,044	,114
	N	596	596	596	596	596
Perceived Price Fairness	Pearson Correlation	-,572**	-,359**	-,082*	1	-,236**
	Sig. (2-tailed)	,000	,000	,044		,000
	N	596	596	596	596	596
Strategic PriceTracking Behavior	Pearson Correlation	,245**	,255**	,065	-,236**	1
	Sig. (2-tailed)	,000	,000	,114	,000	
	N	596	596	596	596	596

** . Correlation is significant at the 0.01 level (2-tailed).

Scale Reliability

Reliability Statistics-Voss scale

Cronbach's Alpha	N of Items
,768	10

```
RELIABILITY
/VARIABLES=Voss_1 Voss_2 Voss_3 Voss_4 Voss_5 Voss_6 Voss_7 Voss_8 Voss_9 Voss_10R
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

Reliability Statistics-Perceived price fairness

Cronbach's Alpha	N of Items
,949	4

```
RELIABILITY
/VARIABLES=PPF_1 PPF_2 PPF_3 PPF_4
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```


Appendix

Reliability Statistics-Strategic price tracking behavior

Cronbach's Alpha	N of Items
,813	4

```
RELIABILITY
/VARIABLES=SPTB_1 SPTB_2 SPTB_3 SPTB_4
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

Factor loading-hedonic and utilitarian

Rotated Component Matrix^a

	Component	
	1	2
- Effective:Ineffective	-,246	,847
- Helpful:Unhelpful	-,188	,878
- Functional:Not functional	-,175	,841
- Necessary:Unnecessary	,193	,684
- Practical:Impractical	,153	,832
- Not fun:Fun	,904	,030
- Dull:Exciting	,911	,003
- Not delightful:Delightful	,914	-,072
- Not thrilling:Thrilling	,872	,013
- Enjoyable:Unenjoyable reverse	,755	-,180

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Factor loading-perceived price fairness

Component Matrix^a

	Component
	1
How do you evaluate the price you paid for the computer? - unfair:fair	,943
How do you evaluate the price you paid for the computer? - not at all just:just	,941
How do you evaluate the price you paid for the computer? - unreasonable:reasonable	,949
How do you evaluate the price you paid for the computer? - inadequate:adequate	,891

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Factor loading-strategic price tracking behavior

Component Matrix^a

	Component
	1
In future, I will track the price of products I intend to buy a few days ahead of the purchase.	,867
I will use some software applications or browser extensions to track the changes in the price of products I intend to buy.	,751
I will consider price changes as an opportunity to buy products at lower prices.	,780
I will motivate my friends and family to track the prices in order to avoid them paying higher prices.	,832

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Appendix F: SPSS Output-Participants

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	250	41,9	41,9	41,9
	Female	334	56,0	56,0	98,0
	Non-binary / third gender	12	2,0	2,0	100,0
	Total	596	100,0	100,0	

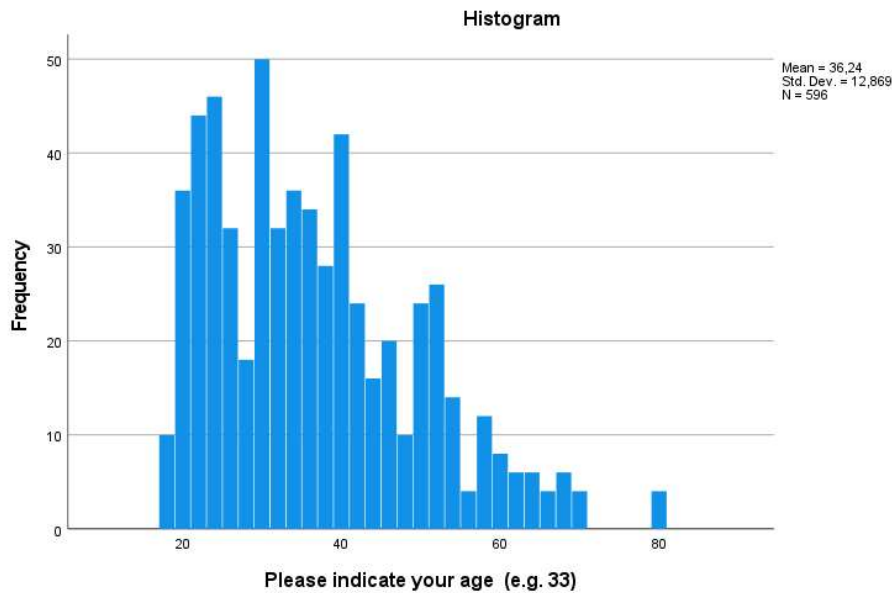
Age

Please indicate your age (e.g. 33)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	10	1,7	1,7	1,7
	19	14	2,3	2,3	4,0
	20	22	3,7	3,7	7,7
	21	16	2,7	2,7	10,4
	22	28	4,7	4,7	15,1
	23	26	4,4	4,4	19,5
	24	20	3,4	3,4	22,8
	25	14	2,3	2,3	25,2
	26	18	3,0	3,0	28,2
	27	8	1,3	1,3	29,5
	28	10	1,7	1,7	31,2
	29	16	2,7	2,7	33,9
	30	34	5,7	5,7	39,6
	31	8	1,3	1,3	40,9
	32	24	4,0	4,0	45,0
	33	20	3,4	3,4	48,3
	34	16	2,7	2,7	51,0
	35	22	3,7	3,7	54,7
	36	12	2,0	2,0	56,7
	37	16	2,7	2,7	59,4
	38	12	2,0	2,0	61,4
	39	14	2,3	2,3	63,8
	40	28	4,7	4,7	68,5
	41	10	1,7	1,7	70,1
	42	14	2,3	2,3	72,5
	43	8	1,3	1,3	73,8
	44	8	1,3	1,3	75,2
	45	12	2,0	2,0	77,2
	46	8	1,3	1,3	78,5
	47	2	,3	,3	78,9
	48	8	1,3	1,3	80,2
	49	10	1,7	1,7	81,9
	50	14	2,3	2,3	84,2
	51	14	2,3	2,3	86,6
	52	12	2,0	2,0	88,6
	53	10	1,7	1,7	90,3
	54	4	,7	,7	90,9
	55	4	,7	,7	91,6
	57	10	1,7	1,7	93,3
	58	2	,3	,3	93,6
	59	8	1,3	1,3	95,0
	61	2	,3	,3	95,3
62	4	,7	,7	96,0	

Appendix

64	6	1,0	1,0	97,0
65	2	,3	,3	97,3
66	2	,3	,3	97,7
68	6	1,0	1,0	98,7
70	4	,7	,7	99,3
79	4	,7	,7	100,0
Total	596	100,0	100,0	



Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than high school degree	8	1,3	1,3	1,3
	High school graduate (high school diploma or equivalent including GED)	48	8,1	8,1	9,4
	Some college but no degree	118	19,8	19,8	29,2
	Associate degree in college (2-year)	42	7,0	7,0	36,2
	Bachelor's degree in college (4-year)	254	42,6	42,6	78,9
	Master's degree	94	15,8	15,8	94,6
	Doctoral degree	18	3,0	3,0	97,7
	Professional degree (JD, MD)	14	2,3	2,3	100,0
	Total	596	100,0	100,0	

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Living comfortably on present income	220	36,9	36,9	36,9
	Coping on present income	262	44,0	44,0	80,9
	Finding it difficult on present income	80	13,4	13,4	94,3
	Finding it very difficult on present income	34	5,7	5,7	100,0
	Total	596	100,0	100,0	

Appendix G: SPSS Output-Manipulation Checks

Hedonic and utilitarian manipulation check- Factors Analysis

KMO and Bartlett's Test

<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</i>		,863
Bartlett's Test of Sphericity	Approx. Chi-Square	4380,388
	df	45
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,217	42,167	42,167	4,217	42,167	42,167	4,000	40,003	40,003
2	3,179	31,788	73,954	3,179	31,788	73,954	3,395	33,951	73,954
3	,744	7,442	81,396						
4	,479	4,793	86,189						
5	,303	3,034	89,223						
6	,286	2,859	92,083						
7	,252	2,524	94,607						
8	,197	1,966	96,573						
9	,180	1,803	98,376						
10	,162	1,624	100,000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component	
	1	2
- Effective:Ineffective	-,246	,847
- Helpful:Unhelpful	-,188	,878
- Functional:Not functional	-,175	,841
- Necessary:Unnecessary	,193	,684
- Practical:Impractical	,153	,832
- Not fun:Fun	,904	,030
- Dull:Exciting	,911	,003
- Not delightful:Delightful	,914	-,072
- Not thrilling:Thrilling	,872	,013
- Enjoyable:Unenjoyable reverse	,755	-,180

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 3 iterations.

Reliability Statistics

Cronbach's Alpha	N of Items
,768	10

```
RELIABILITY
/VARIABLES=Voss_1 Voss_2 Voss_3 Voss_4 Voss_5, Voss_6 Voss_7 Voss_8 Voss_9
Voss_10R
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

Appendix

Reliability Statistics

Cronbach's Alpha	N of Items
,854	5

```
RELIABILITY
/VARIABLES=Voss_6 Voss_7 Voss_8 Voss_9 Voss_10R
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

Reliability Statistics

Cronbach's Alpha	N of Items
,924	5

```
RELIABILITY
/VARIABLES=Voss_1 Voss_2 Voss_3 Voss_4 Voss_5
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

Hedonic and utilitarian manipulation check-ANOVA

Overall:

Between-Subjects Factors

		Value Label	N
Cumsumption Goals	1	Hedonic	298
	2	Utilitarian	298

Descriptive Statistics

Dependent Variable: Mean Voss Scale Utilitarian vs. Hedonic

Cumsumption Goals	Mean	Std. Deviation	N
Hedonic	4,0809	,78642	298
Utilitarian	3,1896	,73525	298
Total	3,6352	,88175	596

Tests of Between-Subjects Effects

Dependent Variable: Mean Voss Scale Utilitarian vs. Hedonic

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	118,361 ^a	1	118,361	204,238	,000
Intercept	7876,100	1	7876,100	13590,578	,000
Mani2_HU	118,361	1	118,361	204,238	,000
Error	344,239	594	,580		
Total	8338,700	596			
Corrected Total	462,600	595			

a. R Squared = .256 (Adjusted R Squared = .255)

Computer:

Between-Subjects Factors

		Value Label	N
Mani2_H_U_Com	1	Hedonic	148
	2	Utilitarian	150

Appendix

Tests of Between-Subjects Effects

Dependent Variable: Mean Voss Scale Utilitarian vs. Hedonic Computer

Source	Type III Sum of			F	Sig.
	Squares	df	Mean Square		
Corrected Model	60,493 ^a	1	60,493	161,691	,000
Intercept	4611,503	1	4611,503	12325,926	,000
Mani2_H_U_Com	60,493	1	60,493	161,691	,000
Error	110,743	296	,374		
Total	4775,860	298			
Corrected Total	171,236	297			

a. R Squared = .353 (Adjusted R Squared = .351)

Kitchen Whisk:

Between-Subjects Factors

	Value	Label	N
Mani2_H_U_Whi	1	Hedonic	150
	2	Utilitarian	148

Descriptive Statistics

Dependent Variable: Mean Voss Scale Utilitarian vs. Hedonic Whisk

Mani2_H_U_Whi	Mean	Std. Deviation	N
Hedonic	3,7813	,82351	150
Utilitarian	2,8919	,73443	148
Total	3,3396	,89757	298

Tests of Between-Subjects Effects

Dependent Variable: Mean Voss Scale Utilitarian vs. Hedonic Whisk

Source	Type III Sum of			F	Sig.
	Squares	df	Mean Square		
Corrected Model	58,935 ^a	1	58,935	96,733	,000
Intercept	3317,480	1	3317,480	5445,186	,000
Mani2_H_U_Whi	58,935	1	58,935	96,733	,000
Error	180,338	296	,609		
Total	3562,840	298			
Corrected Total	239,273	297			

a. R Squared = .246 (Adjusted R Squared = .244)

Manipulation check-Magnitude of price difference

Between-Subjects Factors

	Value	Label	N
Price Difference	1	30%	296
	2	5%	300

Appendix

Descriptive Statistics

Dependent Variable: In your opinion, how significant is the difference between the price you paid and the price your friend paid?

Price Difference	Mean	Std. Deviation	N
30%	5,70	1,469	296
5%	2,95	1,507	300
Total	4,32	2,025	596

Tests of Between-Subjects Effects

Dependent Variable: In your opinion, how significant is the difference between the price you paid and the price your friend paid?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1123,479 ^a	1	1123,479	507,262	,000
Intercept	11154,902	1	11154,902	5036,546	,000
Mani1_PD	1123,479	1	1123,479	507,262	,000
Error	1315,587	594	2,215		
Total	13547,000	596			
Corrected Total	2439,065	595			

a. R Squared = .461 (Adjusted R Squared = .460)

Manipulation check-Product price level

Between-Subjects Factors

	Value	Label	N
Product Price Level	1	Computer	298
	2	Whisk	298

Descriptive Statistics

Dependent Variable: How significant is the expenditure for this ... as a portion of your income?

Product Price Level	Mean	Std. Deviation	N
Computer	5,4597	1,30786	298
Whisk	2,3188	1,47791	298
Total	3,8893	2,10110	596

Tests of Between-Subjects Effects

Dependent Variable: How significant is the expenditure for this ... as a portion of your income?

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1469,960 ^a	1	1469,960	754,848	,000
Intercept	9015,309	1	9015,309	4629,504	,000
Mani3_PP	1469,960	1	1469,960	754,848	,000
Error	1156,732	594	1,947		
Total	11642,000	596			
Corrected Total	2626,691	595			

a. R Squared = .560 (Adjusted R Squared = .559)

Appendix H: SPSS Output-Effect of Magnitude of Price Difference and Product Price Level

ANOVA: Price difference on perceived price fairness

Between-Subjects Factors

		Value Label	N
Price Difference	1	30%	296
	2	5%	300

Descriptive Statistics

Dependent Variable: Perceived Price Fairness

Price Difference	Mean	Std. Deviation	N
30%	2,5313	1,44800	296
5%	4,1025	1,60545	300
Total	3,3221	1,71842	596

Tests of Between-Subjects Effects

Dependent Variable: Perceived Price Fairness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	367,839 ^a	1	367,839	157,284	,000
Intercept	6556,694	1	6556,694	2803,571	,000
Mani1_PD	367,839	1	367,839	157,284	,000
Error	1389,184	594	2,339		
Total	8334,875	596			
Corrected Total	1757,023	595			

a. R Squared = ,209 (Adjusted R Squared = ,208)

ANOVA: Price level on perceived price fairness

Between-Subjects Factors

		Value Label	N
Product Price Level	1	Computer	298
	2	Whisk	298

Descriptive Statistics

Dependent Variable: Perceived Price Fairness

Product Price Level	Mean	Std. Deviation	N
Computer	2,9262	1,55686	298
Whisk	3,7181	1,78254	298
Total	3,3221	1,71842	596

Tests of Between-Subjects Effects

Dependent Variable: Perceived Price Fairness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	93,450 ^a	1	93,450	33,367	,000
Intercept	6577,852	1	6577,852	2348,706	,000
Mani3_PP	93,450	1	93,450	33,367	,000
Error	1663,573	594	2,801		
Total	8334,875	596			
Corrected Total	1757,023	595			

a. R Squared = .053 (Adjusted R Squared = .052)

Appendix I: SPSS Output-Moderating Effect of Purchase Motive

ANOVA: Moderating effect of purchase motive between magnitude of price difference and perceived price fairness

Between-Subjects Factors

		Value Label	N
Price Difference	1	30%	296
	2	5%	300
Purchase motive	1	Hedonic	298
	2	Utilitarian	298

Descriptive Statistics

Dependent Variable: Perceived Price Fairness

Price Difference	Purchase motive	Mean	Std. Deviation	N
30%	Hedonic	2,6327	1,54673	147
	Utilitarian	2,4312	1,34122	149
	Total	2,5313	1,44800	296
5%	Hedonic	4,1407	1,56806	151
	Utilitarian	4,0638	1,64685	149
	Total	4,1025	1,60545	300
Total	Hedonic	3,3968	1,72866	298
	Utilitarian	3,2475	1,70776	298
	Total	3,3221	1,71842	596

Tests of Between-Subjects Effects

Dependent Variable: Perceived Price Fairness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	371,286 ^a	3	123,762	52,872	,000
Intercept	6557,237	1	6557,237	2801,314	,000
Mani1_PD	367,383	1	367,383	156,950	,000
Mani2_HU	2,887	1	2,887	1,233	,267
Mani1_PD * Mani2_HU	,577	1	,577	,247	,620
Error	1385,737	592	2,341		
Total	8334,875	596			
Corrected Total	1757,023	595			

a. R Squared = ,211 (Adjusted R Squared = ,207)

ANOVA: Moderating effect of purchase motive between price level and perceived price fairness

Between-Subjects Factors

		Value Label	N
Product Price Level	1	Computer	298
	2	Whisk	298
Purchase motive	1	Hedonic	298
	2	Utilitarian	298

Descriptive Statistics

Dependent Variable: Perceived Price Fairness

Product Price Level	Purchase motive	Mean	Std. Deviation	N
Computer	Hedonic	2,9983	1,61111	148
	Utilitarian	2,8550	1,50343	150
	Total	2,9262	1,55686	298
Whisk	Hedonic	3,7900	1,75564	150
	Utilitarian	3,6453	1,81242	148
	Total	3,7181	1,78254	298
Total	Hedonic	3,3968	1,72866	298
	Utilitarian	3,2475	1,70776	298
	Total	3,3221	1,71842	596

Tests of Between-Subjects Effects

Dependent Variable: Perceived Price Fairness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	96,540 ^a	3	32,180	11,473	,000
Intercept	6577,547	1	6577,547	2345,046	,000
Mani3_PP	93,217	1	93,217	33,234	,000
Mani2_HU	3,090	1	3,090	1,102	,294
Mani3_PP * Mani2_HU	7,499E-5	1	7,499E-5	,000	,996
Error	1660,483	592	2,805		
Total	8334,875	596			
Corrected Total	1757,023	595			

a. R Squared = ,055 (Adjusted R Squared = ,050)

Appendix J: SPSS Output- Strategic Price Tracking Behavior

Regression: strategic price tracking behavior

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,305 ^a	,093	,089	1,15463

a. Predictors: (Constant), Perceived Price Fairness, How significant is the expenditure for this ... as a portion of your income?, In your opinion, how significant is the difference between the price you paid and the price your friend paid?

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81,054	3	27,018	20,266	,000 ^b
	Residual	789,239	592	1,333		
	Total	870,293	595			

a. Dependent Variable: Strategic PriceTracking Behavior

b. Predictors: (Constant), Perceived Price Fairness, How significant is the expenditure for this ... as a portion of your income?, In your opinion, how significant is the difference between the price you paid and the price your friend paid?

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5,023	,221		22,716	,000		
	How significant is the expenditure for this ... as a portion of your income?	,094	,026	,164	3,571	,000	,726	1,377
	Perceived Price Fairness	-,090	,034	-,128	-2,665	,008	,667	1,499
	In your opinion, how significant is the difference between the price you paid and the price your friend paid?	,052	,031	,087	1,659	,098	,561	1,784

a. Dependent Variable: Strategic PriceTracking Behavior

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,023	,221		22,716	,000
	In your opinion, how significant is the difference between the price you paid and the price your friend paid?	,052	,031	,087	1,659	,098
	How significant is the expenditure for this ... as a portion of your income?	,094	,026	,164	3,571	,000
	Perceived Price Fairness	-,090	,034	-,128	-2,665	,008

a. Dependent Variable: Strategic PriceTracking Behavior

ANOVA-Price difference and strategic price tracking behavior

Between-Subjects Factors

		Value Label	N
Price Difference	1	30%	296
	2	5%	300

Descriptive Statistics

Dependent Variable: Strategic PriceTracking Behavior

Price Difference	Mean	Std. Deviation	N
30%	5,3986	1,11778	296
5%	5,2325	1,29004	300
Total	5,3150	1,20941	596

Tests of Between-Subjects Effects

Dependent Variable: Strategic PriceTracking Behavior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4,113 ^a	1	4,113	2,821	,094
Intercept	16839,418	1	16839,418	11547,962	,000
Mani1_PD	4,113	1	4,113	2,821	,094
Error	866,180	594	1,458		
Total	17706,938	596			
Corrected Total	870,293	595			

a. R Squared = ,005 (Adjusted R Squared = ,003)

ANOVA-Price level and strategic price tracking behavior

Between-Subjects Factors

		Value Label	N
Product Price Level	1	Computer	298
	2	Whisk	298

Descriptive Statistics

Dependent Variable: Strategic PriceTracking Behavior

Product Price Level	Mean	Std. Deviation	N
Computer	5,5948	,98986	298
Whisk	5,0352	1,33917	298
Total	5,3150	1,20941	596

Tests of Between-Subjects Effects

Dependent Variable: Strategic PriceTracking Behavior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46,654 ^a	1	46,654	33,646	,000
Intercept	16836,644	1	16836,644	12142,408	,000
Mani3_PP	46,654	1	46,654	33,646	,000
Error	823,639	594	1,387		
Total	17706,938	596			
Corrected Total	870,293	595			

a. R Squared = ,054 (Adjusted R Squared = ,052)

PROCESS: Mediating effect of price fairness between price difference and strategic price tracking behavior

Run **MATRIX** procedure:

***** PROCESS Procedure for SPSS Version 3.5.3 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 4
 Y : M_SPTB
 X : Manil_PD
 M : M_PPF

Sample
 Size: 596

OUTCOME VARIABLE:
 M_PPF

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.4576	.2094	2.3387	157.2838	1.0000	594.0000	.0000

Model							
	coeff	se	t	p	LLCI	ULCI	
constant	4.1025	.0883	46.4646	.0000	3.9291	4.2759	
Manil_PD	-1.5713	.1253	-12.5413	.0000	-1.8173	-1.3252	

Standardized coefficients	
	coeff
Manil_PD	-.9144

OUTCOME VARIABLE:
 M_SPTB

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2402	.0577	1.3829	18.1577	2.0000	593.0000	.0000

Model							
	coeff	se	t	p	LLCI	ULCI	
constant	5.9799	.1462	40.9119	.0000	5.6928	6.2670	
Manil_PD	-.1201	.1083	-1.1085	.2681	-.3329	.0927	
M_PPF	-.1822	.0316	-5.7742	.0000	-.2441	-.1202	

Standardized coefficients	
	coeff
Manil_PD	-.0993
M_PPF	-.2589

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:
 M_SPTB

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.0687	.0047	1.4582	2.8206	1.0000	594.0000	.0936

Model							
	coeff	se	t	p	LLCI	ULCI	

Appendix

constant	5.2325	.0697	75.0514	.0000	5.0956	5.3694
Manil_PD	.1661	.0989	1.6795	.0936	-.0281	.3604

Standardized coefficients
 coeff
 Manil_PD .1374

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c'_ps
.1661	.0989	1.6795	.0936	-.0281	.3604	.1374

Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c'_ps
-.1201	.1083	-1.1085	.2681	-.3329	.0927	-.0993

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
M_PPF	.2863	.0581	.1830	.4073

Partially standardized indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
M_PPF	.2367	.0456	.1509	.3280

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
 1000

NOTE: Standardized coefficients for dichotomous or multicategorical X are in partially standardized form.

----- END MATRIX -----

PROCESS: Mediating effect of price fairness between price level and strategic price tracking behavior

Run **MATRIX** procedure:

***** PROCESS Procedure for SPSS Version 3.5.3 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
 Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 4
 Y : M_SPTB
 X : Mani3_PP
 M : M_PPF

Sample
 Size: 596

OUTCOME VARIABLE:
 M_PPF

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2306	.0532	2.8006	33.3674	1.0000	594.0000	.0000

Model							
	coeff	se	t	p	LLCI	ULCI	
constant	3.7181	.0969	38.3534	.0000	3.5277	3.9085	
Mani3_PP	-.7919	.1371	-5.7765	.0000	-1.0612	-.5227	

Standardized coefficients	
	coeff
Mani3_PP	-.4609

OUTCOME VARIABLE:
 M_SPTB

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2981	.0889	1.3372	28.9205	2.0000	593.0000	.0000

Model							
	coeff	se	t	p	LLCI	ULCI	
constant	5.5402	.1249	44.3585	.0000	5.2950	5.7855	
Mani3_PP	.4520	.0974	4.6427	.0000	.2608	.6432	
M_PPF	-.1358	.0284	-4.7908	.0000	-.1915	-.0801	

Standardized coefficients	
	coeff
Mani3_PP	.3737
M_PPF	-.1930

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:
 M_SPTB

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.2315	.0536	1.3866	33.6461	1.0000	594.0000	.0000

Model							
	coeff	se	t	p	LLCI	ULCI	

Appendix

constant	5.0352	.0682	73.8163	.0000	4.9013	5.1692
Mani3_PP	.5596	.0965	5.8005	.0000	.3701	.7490

Standardized coefficients
 coeff
 Mani3_PP .4627

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c_ps
.5596	.0965	5.8005	.0000	.3701	.7490	.4627

Direct effect of X on Y						
Effect	se	t	p	LLCI	ULCI	c'_ps
.4520	.0974	4.6427	.0000	.2608	.6432	.3737

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
M_PPF	.1076	.0309	.0484	.1726

Partially standardized indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
M_PPF	.0889	.0247	.0413	.1405

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
 95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
 1000

NOTE: Standardized coefficients for dichotomous or multicategorical X are in partially standardized form.

----- END MATRIX -----

Appendix K: SPSS Output-Other Potential Influencing Factors

ANOVA: Purchase motive and violation of price fairness expectations

Between-Subjects Factors

		Value Label	N
Purchase motive	1	Hedonic	298
	2	Utilitarian	298

Descriptive Statistics

Dependent Variable: Violation of Price Fairness

Purchase motive	Mean	Std. Deviation	N
Hedonic	5,0749	1,61015	298
Utilitarian	5,3233	1,40369	298
Total	5,1991	1,51429	596

Tests of Between-Subjects Effects

Dependent Variable: Violation of Price Fairness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9,188 ^a	1	9,188	4,027	,045
Intercept	16110,294	1	16110,294	7061,409	,000
Mani2_HU	9,188	1	9,188	4,027	,045
Error	1355,185	594	2,281		
Total	17474,667	596			
Corrected Total	1364,373	595			

a. R Squared = ,007 (Adjusted R Squared = ,005)

ANOVA: Price difference, price level, price consciousness and violation of price fairness expectations

Between-Subjects Factors

		Value Label	N
Price Difference	1	30%	296
	2	5%	300
Product Price Level	1	Computer	298
	2	Whisk	298

Descriptive Statistics

Dependent Variable: Violation of Price Fairness

Price Difference	Product Price Level	Mean	Std. Deviation	N
30%	Computer	6,0068	1,13104	147
	Whisk	5,2864	1,39013	149
	Total	5,6441	1,31637	296
5%	Computer	5,3179	1,24623	151
	Whisk	4,1946	1,66265	149
	Total	4,7600	1,56970	300
Total	Computer	5,6577	1,23785	298
	Whisk	4,7405	1,62465	298
	Total	5,1991	1,51429	596

Appendix

Levene's Test of Equality of Error Variances^a

Dependent Variable: Violation of Price Fairness

F	df1	df2	Sig.
10,916	3	592	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + M_PC + Mani1_PD + Mani3_PP + Mani1_PD * Mani3_PP

Tests of Between-Subjects Effects

Dependent Variable: Violation of Price Fairness

Source	Type III Sum of			F	Sig.
	Squares	df	Mean Square		
Corrected Model	290,218 ^a	4	72,555	39,920	,000
Intercept	1593,585	1	1593,585	876,791	,000
M_PC	40,718	1	40,718	22,403	,000
Mani1_PD	110,909	1	110,909	61,022	,000
Mani3_PP	126,518	1	126,518	69,610	,000
Mani1_PD * Mani3_PP	7,494	1	7,494	4,123	,043
Error	1074,154	591	1,818		
Total	17474,667	596			
Corrected Total	1364,373	595			

a. R Squared = ,213 (Adjusted R Squared = ,207)