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across product necessities ?***

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## 1. Introduction

Pricing is considered one of the most effective areas to increase profit. 1% price improvement increases operating profit by 11.1%, assuming no loss of volume (Marn & Rosiello, 2014). In light of technology and sophisticated data collection, pricing strategies have reached another level of effectiveness. Dynamic pricing is one of the most sophisticated pricing methods; In a setting where prices can easily and frequently be adjusted, this strategy aims to determine optimal selling prices of products or services (den Boer, 2015).

Dynamic pricing has been the norm for most of human history. Traditionally, two parties would negotiate a price for a product based on various factors, including who was involved, stock levels, time of day, and more. Aided by technological innovations and computerized automation, dynamic pricing would emerge anew in the 1980s, particularly in the airline industry (NPR, 2015). The most recent innovation in dynamic pricing — and the one felt most by consumers — is the rise of dynamic pricing in rideshare apps like Uber. Dynamic pricing has become commonplace in many industries; Hospitality, tourism, transportation, professional sports, retail, theme parks and brands.

Consumers tend to be more tolerant of dynamic pricing in industries that have been around for a while (Yang, 2020). Surge pricing in the taxi industry, on the other hand, is a relatively new concept which welcomes further analysis on the topic. With continuous technological development, we expect this real-time-based pricing to be a trend across industries. This trend welcomes another reason to investigate its effect on consumers. For instance, Uber experienced criticism from customers for its surge pricing, which affected its brand value negatively. In addition, Amazon's online retailing has also been criticized for affecting customers' trust (Singh & Dutta, 2015). This problem questions how the company can attract supply through increased prices while protecting its brand value.

Our thesis focuses on personalized dynamic pricing, where prices change over time across customers in internet marketplaces. By exploring how personalized dynamic pricing affects perceived fairness in the internet marketplaces, we raise our research questions (1) how does customer privacy concern as a mediator affect consumer perceived fairness in the personalized dynamic context? (2) how this

impact would be different across perceived product necessities. Most research focuses on how dynamic pricing influences consumer fairness perception and how price disclosure would enhance consumer fairness perception. This paper fills the gap by focusing on how dynamic pricing would impact consumer perception of fairness regarding the consumers' privacy concerns at the product necessity level, aiming to answer how companies in different industries can leverage this price method more fairly.

As product necessity perceptions can evolve over time (Rasanen, 2006), the term would need further research on this topic as well, which is what our study aims to contribute. Undertaking such research would not only enrich the academic literature on dynamic pricing but also provide businesses with more defined frameworks for understanding product necessities. Moreover, it will guide them on how to tailor dynamic pricing in a way that safeguards customer perceptions of fairness.

Overall, the study aims to gather empirical evidence to validate the proposed conceptual model and test the hypotheses related to perceived product necessity as a moderator and privacy concern as a mediator in the relationship between dynamic pricing and customer fairness. The findings will contribute to the existing literature and offer valuable insights for businesses seeking to develop fair and privacy-conscious dynamic pricing strategies.

## **2. Literature review**

### **2.1 History and development of dynamic pricing**

Dynamic pricing is one of the most common ways used to increase revenue. It enables the company to increase revenues by matching the demand and supply, responding to demand patterns, and achieving customer segmentation efficiently. The concept of dynamic pricing started as early as in the 1970s (Robinson & Lakhani, 1975; Lodish, 1980). Considering its novelty, the earliest literature focuses on the *seller*; Studies emphasize the methodology of dynamic price models and fundamental knowledge on how companies should utilize them to maximize profit.

Den Boer and Arnoud (2015) classify the literature on dynamic pricing into two significant categories: models where the demand function is dynamically changing over time (demand, time, sales, purchasing history) and models where the demand function is static, but where pricing dynamics are caused by inventory level. In many industries, managers face the problem of selling a given stock of items by a deadline (Gallego & van Ryzin, 1994). This concern points out the focus on tactics, specifically how to (dynamically) price the items to maximize revenue. With the emergence of the Internet, the focus of marketing has gone from a “supplier perspective” to a “customer perspective” (Sharma & Sheth, 2004), emphasizing strategic marketing issues rather than tactical, short-term business goals. Not surprisingly, this strategic concern would involve dynamic pricing considering its role in the four P’s of the classical marketing mix.

Due to the complexity of dynamic pricing, various factors that drive dynamic pricing have been extensively examined. Most studies focus on examined factors such as demand (Chen & Chen, 2018), customer perceived values (Cong et al., 2018; Lee & Monroe, 2008), perceived price fairness (Lee et al., 2011; Xia et al., 2004; Škare & Gospić, 2015), consumer characters and behaviors (Kannan, 2001).

## **2.2 Dynamic pricing among industries**

Dynamic pricing has different applications among these industries and is mainly used in two ways: Vendors selling their products and services via the Internet or to brick-and-mortar stores that make use of digital price tags (den Boer, 2015). There are several ways to execute a pricing strategy with dynamic pricing software, and they can all be combined to match any commercial strategy. With the advance in technology, the pricing method first emerged in the airline industry in the 1980s (Burger & Fuchs, 2005). Many applications have been reported in various branches, such as the hospitality sector, car rental, retail stores, internet advertisement, and many more (den Boer, 2015). A primary cause for this is that historical sales data is typically digitally available, which could further explain why these industries have been thoroughly researched. The airline, in particular, is well known for employing dynamic pricing by corresponding with price increases to late-arriving business travelers' high willingness to pay, which benefits early-arriving leisure consumers (Williams, 2022).

Uber and Amazon are great examples of dynamic pricing companies (Shartsis, 2019). Uber uses surge prices according to how many drivers are available, while Amazon gives buying recommendations to consumers based on what words they highlight on their Kindle (Neel Mehta, 2018). Another excellent example of dynamic pricing is Coca-Cola's vending machines, a summer experiment that raised the prices of their drinks in hot weather (Hays, 1999). The use of dynamic pricing in these companies has been controversial; In the year 2000, Amazon.com showed different prices at the same time for the same item to different customers, which was considered price discrimination and a violation of the Robinson–Patman Act (Ramasastry, 2005). Uber's surge pricing has also created controversy. During a New York storm in 2013, Uber increased their fares by eight times, causing outrage and bad press coverage (Weiner, 2014). In 1999, Coca-Cola's interactive vending machines could detect the surrounding temperature, thus increasing their prices as the temperature rose. These scenarios point out two significant themes in the literature of dynamic pricing: Perceived fairness and trust, which highlight the customer-centric approach of today's marketing, an area worth exploring further.

### **2.3 Personalized dynamic pricing (PDP)**

The data-driven technology enables firms to set pricing strategies based on consumers' personalized information to offer one-to-one pricing (Ban & Keskin, 2021; Priester et al., 2020). The OECD report defines *personalized pricing* as any practice of price discrimination based on consumers' identified information. *Personalized dynamic pricing* is the most advanced form applied in E-commerce sectors and defines as sellers changing the price setting dynamically for the products and services to different customers. This, with the aid of collecting and analyzing customer-specific data such as IP address, purchasing history, and customer demographic characteristics. Based on this sophisticated data collection, personalized dynamic pricing can be considered a unique form of dynamic pricing (Richards et al., 2016; Townley et al., 2017).

Companies can determine customized prices by combining data about specific customers with situational factors (such as time, location, and hardware used). In an ideal world, businesses could track each customer's unique propensity to pay and fully capitalize on it (Iyer et al., 2002; Martin et al., 2009). Tailored

personalized pricing holds enormous potential for businesses looking to maximize their profits. By anticipating customer preferences and individual price sensitivities, data-based price discrimination may thus generate a market imbalance in favor of the supply side. However, it may also pose significant business issues, as dynamic prices based on individual characteristics are seen as less fair compared to prices which are based on consumer segments (Priester, Robbert & Roth, 2020).

## **2.4 Consumer-perceived fairness**

Price fairness is the most prevalent problem when businesses use dynamic pricing strategies. Consumer perception of price fairness is critical in determining whether dynamic and personalized pricing offers are accepted and causes quick shifts in consumer behavior (Hufnagel G. et al., 2022). According to Xia et al. (2004), price fairness is the consumer's evaluation of a product's price to justify whether it is high or low. The conceptual framework raised by Xia et al. (2004) reveals that fairness is a relatively subjective rather than objective concept because it is what consumers perceive regardless of whether it is true. Their earlier conceptual model also demonstrates that buyers' judgments of price fairness include the similarity of comparative transactions, the choice of comparative other parties, and the buyer-seller relationship. The empirical studies provide the insights that the customer's fairness perception is formed based on factors such as competitor prices, past prices, and cost of manufacturing (Monroe, 1973). Overall, the consumer's perceived fairness is based on the comparison, and also customers tend to choose others who have a close relationship as comparison parties (Austin et.al., 1980). In addition, customer loyalty often mitigates the customer's perception of fairness. Martin et al. (2009) report that loyal customers perceive less price fairness than unloyal customers.

## **2.5 Privacy concerns**

The increasing collection of personal data leads to customers' concerns about their data security (Martin et al., 2017). Smith et al. (2011) classified information privacy into several dimensions: a collection of personal information, secondary use of personal information, eros in personal information, and improper access to personal information. Personalized dynamic pricing engaged a massive collection of consumer data to investigate their willingness to pay, leading to consumers'



concern about their privacy (Kochelek, 2008; Burnett et al., 2014). Personalized dynamic pricing is mostly a non-transparent pricing strategy that will mislead and manipulate customers (Nissenbaum, 2015, as cited in Priester, 2020).

The "newness" of dynamic pricing used in other industries can also be why the literature emphasizes customer perceptions around dynamic pricing. This can be explained by long-term conditioning; Consumers tend to be more tolerant of dynamic pricing in industries that have been around for a while (Yang, 2020), which can explain why industries that have recently employed dynamic pricing get scrutinized. Surge pricing in the taxi industry, for instance, is a relatively new concept, which welcomes further analysis on the topic by conducting a comparative analysis between industries. With continuous technological development, we expect this real-time-based pricing to be a trend across industries.

## **2.6 Perceived product necessity**

Perceived product necessity refers to a consumer's assessment of whether a product is essential in their daily lives or the broader economy (Huddleston et al., 2001; Javalgi et al., 2005; Sharma et al., 1994). As lifestyles evolve in response to changing societal and economic conditions, what consumers perceive as necessary also changes, making perceived product necessity an increasingly important factor in consumer behavior (Javalgi et al., 2005).

Beyond basic needs, socially perceived necessities encompass items that meet social and cultural needs. From an individual perspective, the "necessity" category can cover a wide range of personal wants, needs, and desires. Moreover, perceptions of what constitutes a necessity are shaped by the times and society in which individuals live. The definition of a decent life has evolved over time, with many goods and services transitioning from luxuries owned by a few to necessities owned by many. This societal consensus on what constitutes a necessity generates consumption norms, dictating what households should own and what activities they should participate in (Pantazis et al., 2006). Goods and services have been classified in different ways in the study of necessities, such as dichotomously between necessity and luxury (Taylor et al., 2016), necessity and non-necessity

(Pantazis et al., 2006), and on a broader scale, which welcomes more research on the topic to establish clear frames of the concept.

The implicit rules of economic exchange, known as social norms, significantly influence consumer evaluations of price fairness. As Maxwell's research suggests, consumers often base their assessments of price fairness on their understanding of the pricing strategies implemented by sellers, as well as the perceived affordability of prices, particularly for essential commodities such as pharmaceuticals (Maxwell, 1995). This can be linked to consumer perceptions of product necessity. Factors such as the immediate need for a product, habitual purchase behaviors, or the categorization of goods as essential can lead consumers to accept higher prices. Following the argument of essentiality, pricing strategies may be more flexible due to consumers' increased willingness to pay. Such goods, often integral to daily activities or basic needs, typically bear a higher perceived value, which can justify the increased cost. This pricing flexibility can help businesses optimize their profitability while maintaining a perceived sense of fairness among consumers.

However, for products perceived as non-essential or luxurious, dynamic pricing strategies might include elements of status signaling and perceived exclusivity, thus impacting consumer perceptions of fairness differently. Therefore, understanding these nuances in perceived product necessity is of paramount importance for businesses employing dynamic pricing strategies. This knowledge enables businesses to strike a balance between profitability goals and the necessity to maintain positive consumer relationships, ensuring their pricing practices are perceived as fair. This careful calibration is key to a successful and sustainable pricing strategy. However, as mentioned, these perceptions are not fixed and can change over time and would therefore need further research on the topic.

### **3. Theoretical framework**

Our strategy proposed the moderators (consumer privacy concern and perceived product necessity) in the relationship between personalized dynamic pricing and consumer-perceived fairness. Some of the most frequently used theories to investigate consumer perceived fairness are Social Comparison theory, Equity and Involvement theory.

### **3.1 Social comparison theory**

*Social comparison theory* may serve as one of the theoretical explanations to better understand customer perceived fairness. This theory posits that individuals evaluate their own beliefs, values, and abilities in comparison to others, which in the context of pricing, manifests as customers judging the fairness of prices based on how they fare compared to other customers, sellers, or their own past experiences (Festinger, 1954). Fairness perception of customers is based on the judgment of comparing themselves with others forms including comparison with other customers, other sellers, and experience. Most price fairness research uses others as a reference to conduct research (Xia et al., 2004; Campbell, 2007; Gielissen et al., 2008).

In the realm of pricing, consumers may compare the price they're asked to pay with the prices paid by others or with prices they've paid in the past. Lastner et al. (2019) found that consumers' perceptions of unfairness were higher if they knew that they were paying a different price to others. This comparative process directly influences perceptions of fairness, laying the groundwork for understanding how consumers evaluate and react to pricing decisions.

### **3.2 Equity theory**

*Equity theory* indicates that customers are concerned not only about the absolute outcomes but also the fairness outcome involving both parties in the transaction (Adams, 1965). Equity serves as the essential factor for accessing transaction fairness. According to Deutsch (1975), when an unfair trade is identified, the parties participate in activities that ease tension, or the person in a relatively worse position may decide to end the partnership. For example, customers can decide to end the relationship by not choosing the specific seller or even switching to the seller's rivals to compensate for their loss by requesting monetary compensation (Dai, 2010).

### **3.3 Privacy calculus theory**

In recent years, the increasing collection and use of personal data by businesses have raised concerns about data privacy among consumers (Benbasat et al., 2008). As personalized dynamic pricing relies on gathering and analyzing

customer-specific data, it becomes crucial to understand the role of data privacy issues in shaping consumer perceptions of fairness in pricing strategies. The Privacy Calculus Theory provides a theoretical framework to examine the moderating effect of data privacy issues in the relationship between dynamic pricing and customer fairness.

The Privacy Calculus Theory suggests that individuals engage in cost-benefit analysis when deciding whether to disclose personal information (Dinev & Hart, 2006). According to this theory, individuals weigh the perceived benefits of sharing personal data against the perceived risks to their privacy. The theory proposes that individuals are more likely to disclose personal data when they perceive greater benefits and lower risks.

Individuals may consider the potential benefits of personalized pricing, such as tailored recommendations, discounts, or customized experiences. However, they also have concerns about the privacy and security of their personal information, including potential misuse or unauthorized access. The theory suggests that individuals with higher privacy concerns may be more hesitant to disclose personal data, leading to potential implications for their perception of fairness in dynamic pricing.

### **3.4 Desire theory**

Recent research has emphasized the importance of understanding desire in addition to needs and wants. Desire represents a passionate longing for specific objects or experiences driven by factors such as novelty, social connections, excitement, and exclusivity (Belk et al., 2003).

According to the *Desire Theory*, consumers' desires play a significant role in their evaluation of product necessity and, consequently, fairness in pricing (Belk et al., 2003). Desire represents a profound passion intertwined with sociality, danger, and inaccessibility, instilling a heightened longing for a certain object or experience. It encompasses the emotional and experiential aspects of consumer behavior, going beyond mere needs and wants.

In the context of dynamic pricing, consumers' desires for a particular product can influence their perception of its necessity and, in turn, impact their fairness judgments. When consumers perceive a product as highly necessary, they are more likely to prioritize the benefits and value derived from the product over the pricing mechanism itself (Belk et al., 2003). The intensity of their desire for the product can lead to a higher willingness to pay and a greater acceptance of dynamic pricing strategies, even if they involve personalized pricing or price fluctuations. In such cases, consumers may view the pricing strategy as a reasonable trade-off for the added convenience, immediacy, or customization that dynamic pricing offers.

### **3.5 Involvement theory**

*Involvement theory* posits that consumers' level of involvement in a purchase decision can influence their perceptions and evaluations of the marketing activities surrounding that product or service (Rothschild, 1984; Zaichkowsky, 1985). It suggests that when individuals are highly involved in a purchase, they tend to process information more extensively, evaluate alternatives more critically, and have a greater sense of personal investment in the outcome. When consumers are highly involved in a purchase, they may engage in comparative evaluations and seek to maximize their personal benefits and value. Moreover, involvement theory suggests that consumers' heightened involvement can lead to a greater sensitivity to fairness-related concerns, such as transparency. Research by Nazari (2012) indicates that consumers with high involvement in obtaining a discount respond more positively to dynamic pricing strategies compared to uniform pricing. These consumers expect pricing strategies to align with fairness principles, and any deviation from their expectations may lead to a perception of unfairness.

## **4. Hypotheses development**

### **4.1 Data Privacy Issues as Mediator**

The Privacy Calculus Theory provides a theoretical foundation for understanding the role of data privacy issues as a mediator in the dynamic pricing context (Acquisti et al., 2016). According to this theory, individuals engage in a cost-benefit analysis when deciding whether to disclose personal information. The

perceived benefits of sharing personal data are weighed against the perceived risks to privacy. In the context of dynamic pricing, customers evaluate the benefits of personalized pricing (tailored recommendations, discounts, customization) against the potential risks to their privacy. This analysis influences their perception of fairness.

Companies leverage personal consumer data and situational factors, such as time, location, and device usage, to implement personalized pricing strategies (Miyazaki, 2008). This data-driven approach allows companies to accurately predict customer preferences and price sensitivities, maximizing profits by capturing each consumer's unique willingness to pay (Iyer et al., 2002; Martin et al., 2009). Privacy perceptions refer to consumers' willingness to disclose personal information online while using a service or making a purchase (Belanger et al., 2022). Concerns arise when personal data is improperly utilized, leading to issues such as the secondary use of information, identity theft, data breaches, and security vulnerabilities. Given that personalized dynamic pricing strategies rely on gathering customer information, customer concerns about the potential misuse of their data become pertinent.

The level of privacy concerns can mediate the relationship between dynamic pricing and customer fairness perceptions. Higher privacy concerns can lead to a more negative perception of fairness, as customers may perceive dynamic pricing as intrusive or unfair due to privacy infringements (Priester et al., 2020). On the other hand, customers with lower privacy concerns may be more willing to accept personalized pricing, focusing on the benefits and customization it offers rather than the potential privacy risks. Research has found that customers with higher privacy concerns are more likely to view individualized pricing as less fair compared to segment pricing. Therefore, we hypothesize that:

***H1: Customers' perceived fairness towards dynamic pricing is mediated by their privacy concerns.***

#### **4.2 Perceived Product Necessity as Moderator**

The role of perceived product necessity as a moderator and its influence on customer fairness, can be drawn upon the theoretical frameworks of Equity

Theory and Desire Theory. Equity theory suggests that individuals have an inherent desire for fairness and equity in their relationships and interactions (Adams, 1963). In the context of dynamic pricing, customers evaluate the effort they invest in acquiring a product and the outcomes they receive; When consumers purchase items they perceive as necessary, they consider these products to be highly important and essential. They tend to invest more effort and expect equal or greater return in this transaction process.

Dynamic pricing, on the other hand, could ensure product availability and immediate access through pricing fluctuations in market demand or other circumstances. For example, during high demand periods, prices might increase, potentially discouraging some buyers and thus ensuring the product remains available for those willing to pay more. However, during low demand periods, prices might decrease to stimulate purchases, providing buyers with a convenient opportunity to acquire the product at a lower cost.

From this perspective, customers might view dynamic pricing as a reasonable approach, as it assists in managing product availability and potentially offers moments of monetary advantage. When customers perceive that the pricing is customized to their specific needs and circumstances, they may be more likely to view it as fair, even if it necessitates compromising their privacy. In other words, customers could compromise their privacy in exchange for its benefits.

In addition, desire plays a role in shaping perceived product necessity. Necessity products are those that consumers deem highly desirable and essential to their needs and desires (Wilska and Aro, 2013). As customers' desire for a particular product intensifies, they perceive it as increasingly necessary (Belk et al., 2003). Dynamic pricing strategies such as raising prices based on purchase history or click frequency during peak times (e.g., surge pricing for Uber or holiday flight tickets), leverage this desire by capitalizing on customers' willingness to pay more. Despite potential privacy implications, customers may still perceive dynamic pricing as fair because it aligns with their strong desire for the products.

Overall, the Desire Theory highlights the importance of perceived product necessity as a moderator in the relationship between dynamic pricing and

customer fairness. Consumers' desires and perceived necessity for a product can shape their judgments of fairness, influencing their acceptance towards dynamic pricing strategies. We therefore draw the following hypothesis:

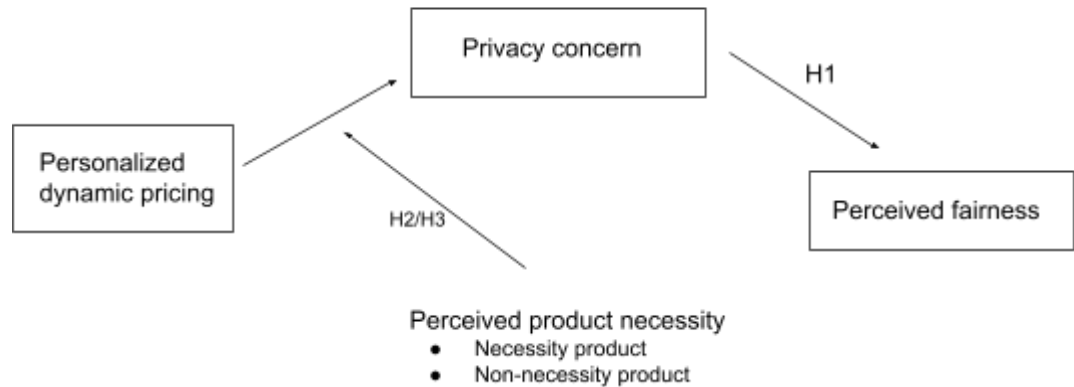
***H2: Customers who purchase products they perceive as necessary have less privacy concerns, therefore perceived personalized dynamic pricing seems fair.***

In the context of dynamic pricing and customer fairness, involvement theory becomes relevant in understanding how consumers' level of involvement in the purchase decision may influence their perceptions of fairness. The higher level of involvement can lead to heightened scrutiny of dynamic pricing practices and a potential perception of unfairness (Zaichkowsky, 1985); When consumers perceive a product as less necessary, they may be more personally invested in the purchase and more attentive to the pricing strategy employed. When consumers are highly involved in a purchase, they could engage in comparative evaluations and seek to maximize their personal benefits and value (Grewal & Baker, 1994). In the case of dynamic pricing, they may perceive personalized pricing or price fluctuations as manipulative tactics that exploit their involvement and desire for the product. This perception may arise from a belief that the seller is taking advantage of their heightened interest or emotional investment in the purchase (Zeithaml, 1988).

On the contrary, non-necessity products are considered less desirable and wanted. In this situation, consumers may scrutinize the pricing strategy more closely. This perception of necessity has an impact on consumers' value perception of the product, when customers view a product as non-necessity, they associate this product with negative value (Makanyeza et al., 2016). They become more sensitive to price fluctuations or personalized pricing (Dodds et al., 1991; Varki and Colgate, 2001). They perceive them as potential exploitation or unfairness. Consequently, when customers purchase non-necessity products, their perception of lower product value makes them more price sensitive, leading to a decreased perception of fairness towards dynamic pricing. Therefore, we hypothesize that:



***H3: Customers who purchase products that they perceive as non-necessity may have more privacy concerns, therefore perceived personalized dynamic pricing seems less fair.***



*Figure 1: Conceptual model*

At the end, the conceptual framework is provided to illustrate the direct relationship between dynamic pricing and customer fairness, moderated by perceived product necessity, and mediated by data privacy issues. The framework visually depicts the flow of influence among these constructs, providing a roadmap for understanding the underlying processes and interactions.

## **5. Research methodology and design**

This section outlines the research methodology and design that will be employed to investigate the proposed conceptual model, which incorporates perceived product necessity as the moderator and privacy concern as the mediator in the relationship between dynamic pricing and customer fairness. A quantitative research approach will be utilized to collect and analyze numerical data, allowing for the examination of the relationships and hypotheses. To ensure a comprehensive and coherent study, the following research methodology and design will be followed:

### **5.1 Research design**

In order to test the hypothesis, 2\*2 between-subjects design will be conducted. The participants will be randomly allocated into a stimulated purchase scenario for different products from an online shopping platform. Participants will read a

scenario asking them to imagine buying an item from this platform. In addition, the participants will be given information regarding the two factors: product type (necessity product vs. non-necessity product) and pricing strategy (without dynamic pricing vs. with dynamic pricing). Participants will be randomly assigned to one of the four scenarios: necessity product without dynamic pricing, necessity product with dynamic pricing, luxury product without dynamic pricing, or luxury product with dynamic pricing. Each participant will be presented with a specific scenario based on their assigned condition. The scenarios will describe the purchase of a product online, either a necessity product (e.g., handbag) or a non-necessity product (e.g., luxury handbag). (see figure 1) The scenarios will include information about the product's features, pricing, and potential privacy concerns.

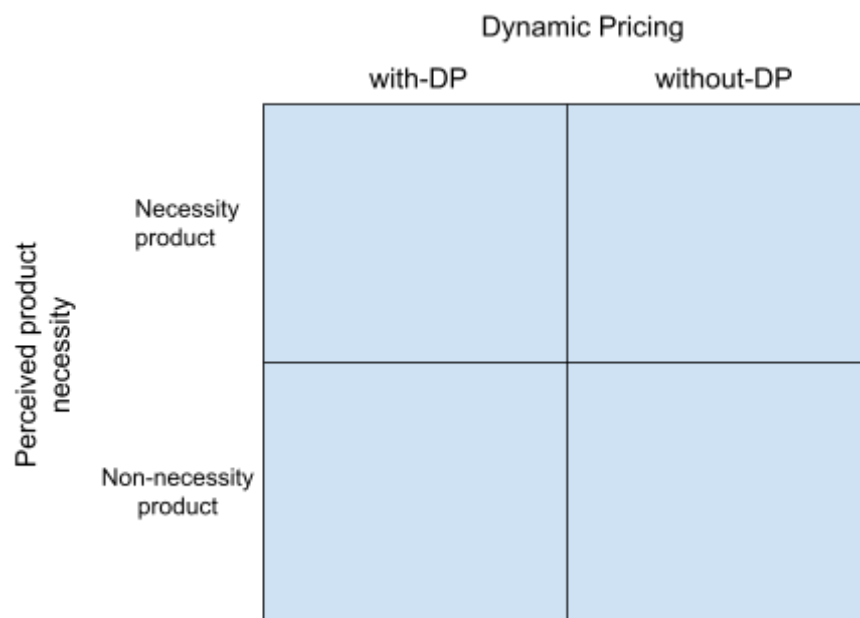


Figure 1: 2\*2 Factorial Design Illustration

## 5.2 Analysis tool

The collected data will be analyzed using IBM SPSS Statistics. Quantitative data from the Likert scale questions will be analyzed using descriptive statistics and inferential analysis techniques such as two-way ANOVA to examine the differences between groups. The mediation effect analysis was used to test the mediation effect. To test the mediation effect, the bootstrap method as suggested by Preacher and Hayes (2004) was employed using 5000 bootstrap samples at a 95% confidence interval.

### 5.3 Sample

Participants will be recruited through various online platforms, social media groups, and email lists. Participants' anonymity and confidentiality will be ensured throughout the research process. Informed consent will be obtained from participants before their participation in the survey. The study will comply with relevant data protection and privacy regulations. Gender, age, education level, income range, and frequency of online shopping will be collected as demographic information. The survey will be conducted over a specified period, with data collection and analysis occurring afterward. The exact timeline will depend on the research objectives and available resources. At the end in total 256 responses were collected. 160 responses were complete and valid (N=160). As the demographic table shows most of the participants are female, having a master's degree, earning under 200,000 Nok, and occasionally shopping online.

Demographics	Frequency	
Gender	Female	<b>101</b>
	Male	55
	Prefer not say	4
Age	18 - 24	<b>83</b>
	25 - 34	51
	35 - 44	2
	45 - 54	4
	55 - 64	2
	65 +	3
Education level	Bachelor's Degree	50
	Master's Degree	<b>83</b>
	Doctorate Degree	2
	High School	25
Income	200,000 – 400,000 NOK	28
	400,000 – 600,000 NOK	18
	600,000 – 800,000 NOK	4
	Over 800,000 NOK	6
	Under 200,000 NOK	<b>104</b>
Online shopping frequency	Frequently	68
	Occasionally	<b>71</b>
	Rarely	21

*Table 1: Demographic Table (N=160)*

### 5.4 Measurement

After completing the simulated scenario stimulated, the participants were asked to fill in a survey. The survey will consist of two main sections: Thoughts on Pricing and Privacy Concerns. In the Thoughts on Pricing section, participants will be

asked to indicate their agreement with statements related to fairness, need, desire, and price transparency.

The survey is based on Martin et al. (2009) 7-point Likert scale to indicate their agreement with statements related to price fairness, need, desire, and price transparency such as "The price you paid was fair", "The price you paid was reasonable" and "The price you paid was acceptable." In the Privacy Concerns section, participants will rate their agreement with statements related to privacy concerns, trust in data protection, and comfort based on the scale developed by Smith et al. (1996).

**Open-ended questions:** After the structured questionnaire, participants will be given the opportunity to provide open-ended responses. Two open-ended questions will be included to gather qualitative insights related to the impact of necessity perception on purchase decisions and examples of fair or unfair dynamic pricing situations.

### **5.5 Pilot test**

In order to establish good reliability and validity of construct measures (necessity products, non-necessity products), a pilot survey was conducted. Participants (n=40) were asked to answer questions regarding whether they agreed with the definition of necessity products and non-necessity products (Karlsson et al., 2004; Halleröd, 2006). In addition, the Pew Research luxury/necessity questionnaire (2009), as well as Norris and Larsen (2011) questionnaire, are leveraged to test the extent to which a variety of different consumer goods such as luxury products, designer clothes, and household appliances whether they perceived those as necessary or not. All questions are rated from 1-5 Likert scale. In addition, the participants are asked to name three products they perceive as necessity and non-necessity products in the open-ended questions section.

Cronbach's alpha is used to test the reliability. The Cronbach's alpha of .70 indicates an adequate scale and a cut-off of .80 or higher indicates good reliability for the scale items (Gliem et al., 2003). The overall Cronbach's alpha score is reported as  $\alpha = .795$ , which indicates satisfactory reliability. Question number three asked participants whether they perceive necessity products as items they

desire in daily life. The results (mean=3.65) suggest that most participants agree with this statement. The results (mean=3.32) of question four indicate the majority of participants also agree that non-necessity products are items they do not desire or need for daily lives.

The results of open-ended questions suggest that the majority of participants consider necessity products as what can meet their daily living needs such as phones, dishwashers, and TV, while most participants consider luxury products in general are not necessary products. Based on the results of the pilot test, the functional handbag and luxury handbag were chosen for developing purchase scenarios.

## **6. Analysis and results**

In this section, the experiment data will be analyzed and the results will be presented. The univariate linear regression and Bootstrap method are selected to analyze the data in order to reveal the results. A step-by-step discussion of analytical procedures and the results of the experiment will be provided.

### **6.1 Mediation effect testing**

The mediation effect tests whether the effect of dynamic pricing (IV) on price fairness perception (DV) is operated through the third variable privacy concern (M). Given the fact that the privacy concern and fairness perception were measured by 1-5 Likert scale in different dimensions such as price transparency, desire and trust. The average value of privacy concern and fairness perception were considered as a composite score for each participant to conduct analysis. The bootstrap method proposed by Preacher and Hayes (2004) was used to test the mediation effects. The results show (see Table 2) that when privacy concerns the outcome variable, the dynamic pricing has no effect on privacy concerns ( $P > 0.05$ ). Also, the results of the indirect effect between dynamic pricing and fairness perception show that the confidence interval includes zero (BootULCI= 0,0823), which suggests that the mediation effect is not supported. However, the  $P=0.048 < 0.05$  suggests that there is a direct effect between privacy concern and fairness perception. Specifically, when customers purchase a certain product online, whether customers worry about their privacy or not has no effect on the customer's fairness perception towards dynamic pricing. However, when consumers engage in online shopping, their

privacy concerns directly impact their perception of price fairness. Overall, the mediator privacy concern serves no mediation effect between dynamic pricing and price fairness perception, which indicates that the H1 hypothesis is not valid.

	P	BootLLCI	BpptULCI
Outcome Variable: privacy concern	0.6354		
Outcome Variable: Fairness perception	0.0000		
Direct Effect of X on Y	0.0486		
Indirect Effect of X on Y		-0.1152	0.0823

*Table 2 Mediation Effect Analysis Results*

## **6.2 Testing the moderator effect of Perceived Product Necessity**

The two-way ANOVA test is used to assess whether the cell means for customers' privacy concerns were significantly different with/without dynamic pricing and perceived necessity/non-necessity. The average score of fairness perception and privacy concern are still used to conduct the analysis. The descriptive statistical results show that the customers have a higher privacy concern when the dynamic pricing is not active and also when they purchase non-necessity products (See Table 3). In contrast, the ANOVA results (see Table 4) suggest that the statistical results are not significant enough for the dynamic factor ( $P=0.632$ ) and perceived product necessity factor ( $P=0.209$ ). In other words, whether those products are dynamically priced, or whether customers perceive them as necessary or not, does not independently affect consumer privacy concerns.

However, there are interaction effects between dynamic pricing and perceived product necessity. The result of the ANOVA table (see Table 4) indicates that the privacy concern was significantly associated with dynamic pricing and perceived product necessity together ( $P=0.049 < 0.05$ ). Specifically, whether or not customers are worried about their privacy depends on if they are aware of being charged for different prices and if they perceive the product as necessary or not.

The ANOVA table (see Table 5) shows that the non-necessity product without dynamic pricing contributes the largest mean 3, and the necessity product without dynamic pricing has the smallest mean 2.663. The chart 1 clearly illustrates the interaction relationship between dynamic pricing and product necessity. More specifically, under the condition of no dynamic pricing, consumers who purchase non-necessity products are more concerned about their privacy than purchasing necessity products. When dynamic pricing is active, the customers who purchase necessity products (Mean=2.819) are worried more about their privacy than purchasing non-necessity products (Mean=2.744). Therefore the first and second hypotheses are not supported.

In order to further analyze if the perceived product necessity directly moderates the effect on fairness perception, the dependent variable has been changed to fairness perception to run the ANOVA tests. The results show that perceived product necessity has no impact on customers' fairness perception ( $P=0.774$ ), however, dynamic pricing has an effect on customer fairness perception ( $P=0.044$ ) (see Table 6). Despite the product necessity, the customers' view of dynamic pricing (Mean=2.916) is less fair than without dynamic pricing (Mean=3.184).

Conditions	Total		
	M	SD	n
With dynamic pricing	2,781	0,675	40
without dynamic pricing	2,831	0,655	40
Necessity Product	2.741	0,749	40
Non-necessity Product	2,872	0,562	40

*Table 3: Descriptive Statistic for Privacy Concern (N=160)*

Hypothesis	Effect	F	P	S.E.
	Dynamic pricing	0.231	0.632	0.074
	Perceived product necessity	1.589	0.209	0.074
H2 H3	Dynamic pricing * Perceived product necessity	3.925	0.049	0.104

Table 4: Test of Between-subjects Effect for Privacy Concern (N=160)

Dynamic pricing	Perceived Product Necessity	Mean
Without dynamic pricing	Non-necessity Product	3
	Necessity Product	2.663
With dynamic pricing	Non-necessity Product	2.744
	Necessity Product	2.819

Table 5: Interaction Effect of Dynamic Pricing and Perceived Product Necessity (N=160)

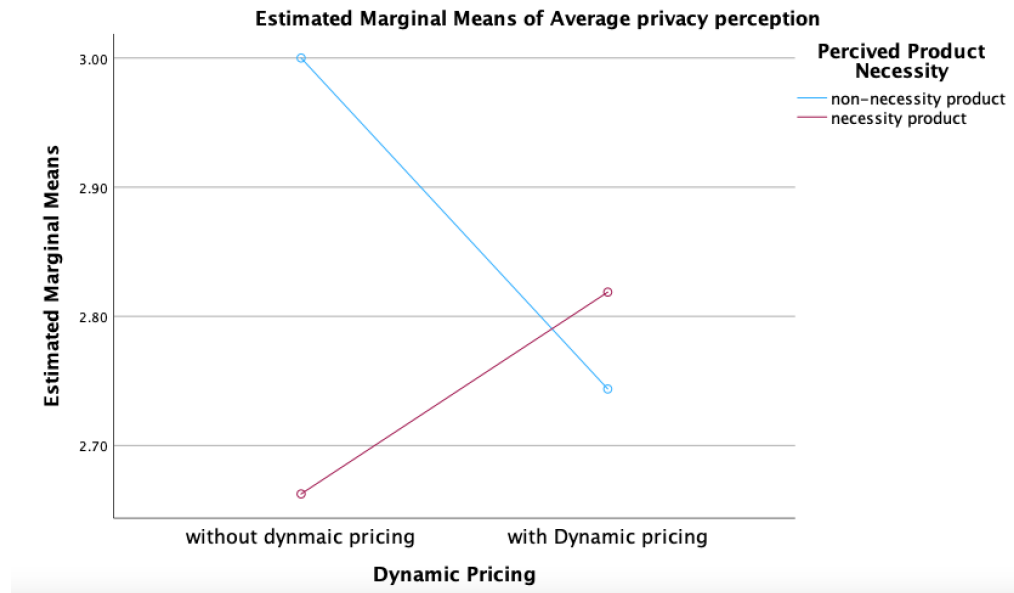


Chart 1: Interaction Effect



<b>Effect</b>	<b>F</b>	<b>P</b>	<b>S.E.</b>
Dynamic pricing	4.129	0.044	0.094
Perceived product necessity	0.080	0.777	0.094
Dynamic pricing * Perceived product necessity	2.146	0.145	0.132

*Table 6: Test of Between-subjects Effect for fairness perception (N=160)*

### **6.3 Results of Open-ended Questions: Impact of Necessity Perception and Fairness in Dynamic Pricing**

The open-ended questions revealed the significant influence of necessity perception on consumers' decision-making regarding dynamic pricing. Participants emphasized the roles of urgency and perceived value in their willingness to pay higher prices. During emergencies, participants demonstrated a readiness to pay any price for essential products, while in normal circumstances, they deemed it unfair to pay more than others unless the product was highly necessary. The perceived value of a product and its impact on daily life further shaped their purchasing decisions. Additionally, participants expressed concerns about the fairness of pricing between necessity and luxury items, suggesting a perceived inequity between these categories.

Moreover, participants provided specific examples to illustrate their views on fair and unfair instances of dynamic pricing. They considered lower prices for winter clothes during summer, surge pricing by ride-hailing services during rainy days, and fluctuating prices for airplane tickets based on demand and stock availability as fair practices. Conversely, they found it unfair when prices fluctuated based on browsing behavior or purchase history, leading to a sense of inconsistency. Participants also considered it unfair when monetary influence determined the prioritization of hospital beds, regardless of illness severity. They noted that fairness in dynamic pricing depends on the context, suggesting that high demand justifies market-based pricing, while essential products related to medical or humanitarian needs should be treated differently.

Opinions varied regarding the fairness of dynamic pricing for different goods and services. Participants generally believed it was fair for plane tickets to be expensive during peak travel seasons when demand is high. However, they expressed a concern that if a simple clothing item or a bag's price changed based on the time of day, they would no longer use that particular website or brand. Overall, participants tended to perceive dynamic pricing as fairer for services and potentially unfair for goods. The fairness of food products was seen as questionable, while dynamic pricing for luxury items was considered potentially fair. These findings highlight the complexity of fairness perceptions in dynamic pricing, emphasizing the influence of necessity, context, and product/service categories on consumer perspectives.

## **7. Discussion**

Based on the results and analysis, several findings can be drawn. Firstly, privacy concern does not mediate the relationship between dynamic pricing and fairness perception. In other words, privacy concerns do not influence how customers perceive the fairness of dynamic pricing; When customers are in an online shopping context, customers' privacy concern has no impact on whether customers view dynamic prices as fair or not.

Secondly, the study reveals that the utilization of dynamic pricing does not significantly impact customer privacy concerns in the online shopping context. Whether dynamic pricing is used or not, customers' privacy concerns remain relatively unchanged. Similarly, whether a product is perceived as a necessity or not does not significantly affect customers' privacy concerns when shopping online. These findings suggest that privacy concerns are not strongly influenced by the presence of dynamic pricing or the perceived necessity of a product.

Thirdly, an important finding is the interaction effect between dynamic pricing and perceived product necessity in influencing customers' fairness perception. Customers show heightened privacy concerns when purchasing necessity products in dynamic pricing situations. This suggests that customers are more sensitive to privacy issues when they consider the product to be necessary. One possible explanation can be that their privacy concerns may be heightened due to the importance associated with these products; As customers repeatedly engage in

transactions for necessity items, their personal information is collected more often, leading to a greater awareness and sensitivity to privacy risks. The cumulative effect of these data collection instances may amplify customers' concerns about the privacy and security of their personal information, which highlights the importance of data privacy measures and transparent communication. Nevertheless, despite these heightened concerns, customers generally perceive dynamic pricing to be unfair regardless of the product being purchased.

## **8. Managerial implications**

Based on the findings and analysis, the study provides important managerial implications. Firstly, businesses should prioritize addressing customers' privacy concerns directly, as the study reveals that privacy concerns do not mediate the relationship between dynamic pricing and fairness perception. Relying solely on addressing fairness perception may not alleviate privacy concerns. Therefore, implementing robust privacy protection measures, transparent data practices, and clear communication about data usage are crucial in building customer trust and mitigating privacy concerns effectively. This notion is also confirmed by Lu et al. (2019), who concludes that price increases under dynamic pricing may not be perceived as unfair when sellers provide justifications for their price changes to customers.

Secondly, it is important for businesses to understand that the utilization of dynamic pricing does not significantly impact customer privacy concerns in the online shopping context. This highlights the need for businesses to consider privacy protection as a separate and essential aspect of pricing strategies. By implementing privacy-enhancing measures such as secure data collection and storage practices, businesses can reassure customers about the security of their personal information and address privacy concerns effectively, irrespective of whether dynamic pricing is used.

Additionally, businesses should not assume that customers are more willing to compromise their privacy for necessary products. The study reveals that the perceived necessity of a product does not significantly affect customer privacy concerns during online shopping. Thus, prioritizing privacy protection across all

product categories is essential, as privacy concerns can arise regardless of perceived necessity.

Furthermore, businesses should be mindful of the interaction between dynamic pricing and perceived product necessity in influencing customers' fairness perception. When customers are purchasing necessity products online, their privacy concerns may be heightened due to the sensitivity or importance associated with these products. It is crucial for businesses to strike a balance between offering the benefits of dynamic pricing and addressing privacy concerns. Simply emphasizing the advantages of dynamic pricing without considering potential privacy implications can result in a perception of unfairness, particularly among customers who consider the products necessary. To address this, businesses should clearly explain the rationale behind dynamic pricing and highlight its benefits, such as personalized offers or enhanced convenience. By providing customers with an understanding of the value they receive in exchange for their personal data, while ensuring their privacy is respected and protected, businesses can effectively manage customer expectations and foster a perception of fairness, increasing customer satisfaction.

These findings also shed light on the complex nature of fairness perceptions in dynamic pricing and offer valuable insights for businesses and policymakers seeking to establish equitable pricing practices. Understanding the role of necessity perception and addressing concerns related to consistency and fairness can help businesses better cater to consumer preferences and foster trust and satisfaction. Policymakers can consider these insights to develop regulations that promote fairness in dynamic pricing across different industries.

Overall, businesses should prioritize addressing privacy concerns through transparent data practices, robust security measures, and clear communication. By doing so, businesses can positively influence fairness perceptions, alleviate privacy concerns, build customer trust, and create a positive online shopping experience. These managerial implications provide valuable guidance for businesses to navigate the complexities of privacy concerns and pricing strategies in the online marketplace.

## **9. Conclusion, limitations and future research**

This study has provided valuable insights into how dynamic pricing affects customer fairness, with findings establishing the importance of responsible privacy measures and transparent communication of its employment. This practice is especially important to consider for necessity products in a dynamic pricing context, as the interaction effect proves customers' heightened privacy concerns during this particular purchasing situation.

However, the study has some limitations that need to be considered. Firstly, the use of self-report measures introduces the potential for response biases, as participants may provide socially desirable or biased responses. Secondly, the study relies on hypothetical scenarios, which may not fully capture real-world dynamics and behaviors. Additionally, the findings may not be generalizable to all consumer populations, as the study focuses on specific product categories and pricing strategies. Replication of the study with different samples and settings is encouraged to improve the external validity of the results.

The findings indicate that the first and second hypotheses, which propose the effects of dynamic pricing and perceived product necessity on privacy concerns and fairness perception, are not supported. Rather, we find interaction effects between dynamic pricing and product necessity, which means customers' privacy concerns depend on their awareness of being charged different prices and their perception of the product's necessity. In other words, the results show the opposite relationship of our hypotheses, and would therefore need further testing of other contributing factors.

In order to enhance our understanding of the complex dynamics between perceived product necessity, dynamic pricing, and fairness perceptions, conducting additional empirical research is highly recommended. This further research would delve into the underlying mechanisms and shed light on the intricate relationships between these variables, allowing businesses to gain more nuanced insights for their pricing strategies.

By conducting empirical studies, researchers can delve into the interaction between perceived product necessity and dynamic pricing in shaping customers'

fairness perceptions. This can be achieved through the design of experiments or surveys that manipulate the perceived necessity of products and examine its impact on customers' fairness perceptions under different pricing conditions. By systematically varying the levels of perceived necessity and implementing dynamic pricing scenarios, researchers can gain a better understanding of how different product categories influence customer fairness in a dynamic pricing context, assisting businesses in achieving pricing optimization.

Furthermore, it would be valuable to investigate the role of contextual factors that may moderate the relationship between perceived product necessity, dynamic pricing, and fairness perceptions. For instance, exploring how cultural differences or product categories impact customers' sensitivity to dynamic pricing and privacy concerns can provide valuable insights for businesses operating in diverse markets.

Additionally, researchers could explore how different communication strategies affect customers' fairness perceptions in the context of dynamic pricing and privacy concerns. For example, examining the impact of providing clear explanations about the benefits of dynamic pricing and privacy protection measures on customers' fairness perceptions can offer practical guidance for businesses seeking to effectively manage customer expectations and concerns. Moreover, longitudinal studies could be conducted to observe changes in customers' fairness perceptions and privacy concerns over time in response to dynamic pricing strategies. This would provide insights into the long-term effects and sustainability of pricing practices on customers' perceptions and behaviors.

By pursuing further research in these areas, businesses can gain a deeper understanding of the interplay between perceived product necessity, dynamic pricing, and fairness perceptions. This knowledge will empower them to make informed decisions about pricing strategies that align with customers' expectations, enhance fairness perceptions, and effectively address privacy concerns.

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# Appendix

## Pilot survey

### Section 1: Demographics

Gender:  Male  Female  Prefer not to say

Age: \_\_\_\_\_

Education level:  High School  Bachelor's Degree  Master's Degree

Doctorate Degree

Income range:  Under 200,000 NOK  200,000 - 400,000 NOK  400,000 - 600,000 NOK  600,000 - 800,000 NOK  Over 800,000 NOK

### Section 2: Product Necessity Perception

Please indicate your level of agreement with each of the following statements using the scale below when describing whether you think a product is a necessity or not.

**1. I perceive necessary products as items that are essential for meeting my daily needs.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**2. I perceive necessary products as items that I desire or want for my daily life.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**3. I perceive unnecessary products as items that I don't need for my daily life.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**4. I perceive unnecessary products as items that I don't desire or want for my daily life.**



Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**5. I consider a product to be a necessity based on whether it fits within my budget and financial means.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**6. I consider purchasing luxury products (e.g., high-end fashion) as unnecessary for my daily life.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**7. I consider purchasing designer clothes unnecessary for my daily life.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**8. I consider purchasing video game systems (e.g., Xbox, Switch) as unnecessary for my daily life.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**9. I consider cars, phones, TV, and dishwashers are necessity products.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**10. Compared with normal functional handbags, I consider luxury handbags (e.g. Hermes, Gucci, Chanel) as unnecessary products.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**11. Compared with electronic watches (e.g. Casio), I consider luxury watches (e.g. Rolex) unnecessary products.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**Open-ended questions:**

Please name three products you consider as necessary products:

Please name three products you consider as unnecessary products:

## **Main survey**

### **Section 1: Participant Information**

Gender:  Male  Female  Prefer not to say

Age: (multiple choice)

Education level:  High School  Bachelor's Degree  Master's Degree   
Doctorate Degree

Income range:  Under 200,000 NOK  200,000 - 400,000 NOK  400,000 -  
600,000 NOK  600,000 - 800,000 NOK  Over 800,000 NOK

Frequency of online shopping:  Rarely  Occasionally  Frequently

You are about to read a purchase scenario describing the purchase of a specific product online. Please carefully read the scenario and complete the questions on the following pages.

### **Necessity product**

#### **Scenario 1: WITHOUT dynamic pricing**

Imagine you're on a quest to find the perfect handbag. You need it to be spacious, easy to carry, and durable enough for everyday use like going to work/school or the gym. You do a quick online search and find a bunch of options. As you browse different options online, the website even suggests some bags based on what you've been looking at. Soon, you find a reasonably priced unisex bag that ticks all your boxes. You go ahead and buy this bag online for \$70.



## **Section 1: Thoughts on Pricing**

Please tell us how much you agree with these statements about the price you paid:

**I think the price I paid for the handbag is fair.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My need for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My desire for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am confident that the price of the handbag was openly displayed on the website.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

## **Section 2: Privacy concerns**

Now imagine, to purchase this product, you would need to agree with terms and conditions to share a lot of personal data.

Please tell us how much you agree with these statements:

**I am concerned that my personal data might be used for purposes other than what I have agreed to when buying a functional product like this.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I trust that the company / website has taken adequate measures to protect my personal information from data breaches.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable sharing personal data in exchange for personalized offers or dynamic pricing for products like this, which I consider a necessity.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with the idea that my browsing history and shopping habits are used to determine the price I pay for a product online.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

### **Scenario 2: WITH dynamic pricing**

Imagine you're on a quest to find the perfect handbag. You need it to be spacious, easy to carry, and durable enough for everyday use like going to work/school or the gym. You do a quick online search and find a bunch of options. As you browse different options online, the website even suggests some bags based on what you've been looking at. Soon, you find a reasonably priced unisex bag that ticks all your boxes. At the time of purchase, you are not aware that the website uses dynamic pricing. You go ahead and buy this bag online for \$70. Later that same day, a friend tells you they bought the exact same bag on the same website, but for 20% less. You find out this lower price was due to them shopping early in the morning when demand was lower.



### **Section 1: Thoughts on Pricing**

Please tell us how much you agree with these statements about the price you paid:

**I think the price I paid for the handbag is fair.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My need for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My desire for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am confident that the price of the handbag was openly displayed on the website.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

## **Section 2: Privacy concerns**

Now imagine, to purchase this product, you would need to agree with terms and conditions to share a lot of personal data.

Please tell us how much you agree with these statements:

**I am concerned that my personal data might be used for purposes other than what I have agreed to when buying a functional product like this.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I trust that the company / website has taken adequate measures to protect my personal information from data breaches.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable sharing personal data in exchange for personalized offers or dynamic pricing for products like this, which I consider a necessity.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with the idea that my browsing history and shopping habits are used to determine the price I pay for a product online.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

## **Non-necessity product**

### **Scenario 3: WITHOUT dynamic pricing**

Envision yourself browsing the web for a luxury handbag. You're seeking a high-end designer accessory to enhance your fashion statement. Your hunt begins on established luxury fashion websites that boast a broad array of designer bags. You spend time carefully reviewing the handbags on offer, including exclusive limited editions. Soon enough, you spot the perfect bag that aligns with your taste and aspirations, and decide to purchase it for \$1000.



### **Section 1: Thoughts on Pricing**

Please tell us how much you agree with these statements about the price you paid:

**I think the price I paid for the luxury handbag is fair.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My need for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My desire for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am confident that the price of the luxury handbag was openly displayed on the website.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

## **Section 2: Privacy concerns**

Now imagine, to purchase this product, you would need to agree with terms and conditions to share a lot of personal data.

Please tell us how much you agree with these statements:

**I am concerned that my personal data might be used for purposes other than what I have agreed to when buying a high-end product like this.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I trust that the company / website has taken adequate measures to protect my personal information from data breaches.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with sharing personal data in exchange for personalized offers or dynamic pricing for this luxury product.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with the idea that my browsing history and shopping habits are used to determine the price I pay for a product online.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree



#### **Scenario 4: WITH dynamic pricing**

Envision yourself browsing the web for a luxury handbag. You're seeking a high-end designer accessory to enhance your fashion statement. Your hunt begins on established luxury fashion websites that boast a broad array of designer bags. You spend time carefully reviewing the handbags on offer, including exclusive limited editions. Soon enough, you spot the perfect bag that aligns with your taste and aspirations. You don't know it at the time, but the website uses dynamic pricing. You decide to purchase it at the price of \$1000. Later that same day, a friend tells you they bought the exact same bag on the same website, but for 20% less. You find out this lower price was due to them shopping early in the morning when demand was lower.



#### **Section 1: Thoughts on Pricing**

Please tell us how much you agree with these statements about the price you paid:

**I think the price I paid for the luxury handbag is fair.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My need for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**My desire for the handbag influenced my acceptance of the price I paid.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am confident that the price of the luxury handbag was openly displayed on the website.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

## **Section 2: Privacy concerns**

Now imagine, to purchase this product, you would need to agree with terms and conditions to share a lot of personal data.

Please tell us how much you agree with these statements:

**I am concerned that my personal data might be used for purposes other than what I have agreed to when buying a high-end product like this.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I trust that the company / website has taken adequate measures to protect my personal information from data breaches.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with sharing personal data in exchange for personalized offers or dynamic pricing for this luxury product.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**I am comfortable with the idea that my browsing history and shopping habits are used to determine the price I pay for a product online.**

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

### **Open-ended questions:**

Before proceeding with the last part of the survey, here's a brief explanation of dynamic pricing:

Dynamic pricing, also known as surge pricing, demand pricing, or time-based pricing, is a strategy where businesses adjust prices for products or services based on real-time market demands. This means that the price of a product can vary depending on factors such as demand, time of day, customer's location, or browsing history.

For instance, when booking a flight or an Uber, the price you pay may fluctuate based on the number of people trying to book at the same time. Similarly, some online retailers change product prices throughout the day based on factors like online traffic or inventory.

With that understanding, we will now proceed to some open-ended questions. While we encourage you to answer as many questions as possible for a comprehensive understanding, feel free to respond to the number of questions you're comfortable with. Your responses should reflect your unique perspectives, feelings, and experiences related to dynamic pricing.

- How does the perception of necessity impact your decision to purchase a product at a dynamic price?
- Could you give an example of a situation where you believe dynamic pricing is particularly fair or unfair?

**Thank you for your participation!**