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Do consumers prefer personalized pricing? Analysis of the consumer perspective

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DO CONSUMERS PREFER PERSONALIZED PRICING? Analysis of the consumer perspective

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"Grab it tight and make it come true"

- *Disney Pixar*

To Grandpa and Grandma

Biographic Note

Marta Nunes was born on February 3rd, 1998, in São João da Madeira. She started her studies in economics while in high school, just before joining the bachelor in Economics at Faculdade de Economia da Universidade de Coimbra (FEUC), in 2016. After its completion, in 2020, she joined the Master in Economics at the Faculdade de Economia da Universidade do Porto (FEP).

In 2020 she carried out a 6-month professional internship at Banco Comercial Português S.A. (Millennium BCP). During the curricular year of her master's, she also did an internship at Permanent Representation of Portugal to the European Union – Ministry of Foreign Affairs, in Brussels, Belgium.

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Resumo

Devido ao progresso tecnológico e consequente transformação digital muitos setores têm vindo a revolucionar a sua forma de trabalhar, e a economia é apenas só um deles. Existe uma crescente facilidade na recolha de informação permitindo a aplicação de novas estratégias no mercado, cada vez mais personalizadas. A personalização de preços permite estabelecer preços diferentes a consumidores diferentes, considerando as suas preferências, hábitos de consumo e necessidades. No entanto, as empresas continuam reticentes quanto à sua aplicação, essencialmente devido à preocupação dos consumidores em matéria de privacidade e justiça. Torna-se assim fundamental procurar soluções de modo a transmitir às empresas a confiança necessária à implementação destas novas estratégias.

Os estudos têm explorado temas como a veracidade do paradoxo personalização-privacidade, bem como o sucesso da aplicação de tais estratégias no mercado, essencialmente num ponto de vista empresarial. No entanto, são ainda poucos os estudos que abordam os preços personalizados numa perspetiva do consumidor.

O objetivo principal deste estudo é contribuir empiricamente para a literatura desta área, abordando a necessidade de compreender o comportamento do consumidor e analisar as alterações nas suas preferências face à adoção de estratégias de preços personalizados no mercado. Para cumprir esse objetivo recolheu-se informação junto da população em geral, e potenciais consumidores, procedendo-se posteriormente à sua análise.

Constatou-se que os consumidores tendem a preferir que os preços aplicados sejam homólogos a todos os clientes, e que o contrário poderá gerar alterações no seu comportamento face à empresa que aplica a estratégia. Verificou-se ainda que os consumidores estão cada vez mais preocupados com a privacidade dos seus dados, não se verificando o paradoxo personalização-privacidade na amostra utilizada. Por fim, concluiu-se que os consumidores tendem a ver os preços personalizados como uma estratégia injusta, tornando-se um obstáculo para o sucesso da sua aplicação.

Códigos JEL: D11; D40; D21; L11.

Palavras-chave: Preço Personalizado; Privacidade; Equidade; Comportamento do Consumidor.

Abstract

Due to technological progress and the resulting digital transformation, many industries have been transforming their way of working, and the economy is just one of them. There is increasing ease in collecting information, allowing the application of new strategies in the market, more and more personalized. Pricing personalization allows different prices for different consumers by considering their preferences, purchasing habits, and needs. However, companies remain reluctant to implement them due to consumer concerns about privacy and fairness. It is therefore essential to seek solutions to give companies the necessary trust to implement these new strategies.

Research studies have explored the personalization-privacy paradox's veracity and the success of applying such strategies in the marketplace from a business perspective.

The purpose of the present study is to empirically contribute to the literature in this area, addressing the need to understand consumer behavior and analyze changes in consumer preferences, given the adoption of personalized pricing strategies in the market. To fulfill this goal, we collected information from the general population and potential consumers and analyzed it afterward.

It was found that consumers tend to prefer that the prices applied are the same for all customers; otherwise, they may change their behavior towards the company that applies the strategy. It was also found that consumers are increasingly concerned with the privacy of their data, the personalization-privacy paradox was not verified in the sample used. Finally, it was concluded that consumers tend to view personalized pricing as an unfair strategy, becoming an obstacle to its success.

JEL codes: D11; D40; D21; L11.

Keywords: Personalized Price; Privacy; Fairness; Consumer Behavior.

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1. Introduction

Personalization is the ability to tailor the purchasing experience to the consumers' desires based on their personal information (Chellappa & Sin, 2005).

Due to digital transformation, the world has been adapting to new realities and ways of doing things. The worldwide pandemic caused by COVID-19 has accelerated the evolution of the digital economy (IBM, 2021), increasingly requiring more accessible data collection and analysis. People create an amount of data every minute; according to Raconteur (n.d.), 463 exabytes of data will be generated each day as of 2050, as expected. As mentioned in the ninth edition of the infographic of Domo: "Data never sleeps, and it shows no sign of slowing down" (James, 2021).

Personal consumer data is a valuable resource for companies, as reported by Truyo (n.d.), since it allows them to anticipate consumer behavior and preferences, and identify new ways to improve their experience in the marketplace. It is from monitoring consumer data that companies can more effectively define their personalized strategies (Tucker, 2014).

Therefore, personalized pricing is becoming increasingly important (Weisstein et al., 2013), due to easy pricing algorithms, mobile-everywhere shopping applications, and profit-driven (Sahay, 2007). What happens is that consumers pay different prices for the same good based on the information companies collect about them. Suppliers generally charge each consumer at their maximum willingness to pay (or as close as possible), as mentioned in Coker and Izaret (2021).

The economic literature on personalized pricing has thus become increasingly relevant. The literature usually looks at companies' incentives to offer personalized pricing – (Chen, 2005; Chen et al., 2020; Eidhamar & Helberg, 2021; Esteves & Carballo-Cruz, 2021; Esteves & Resende, 2019; Esteves, 2021; Matsumura & Matsushima, 2015). However, due to increasing digitalization, one of the objects of most attention among the studies is related to privacy, that is, the frequent concern of consumers to share information that is fundamental and required by companies to provide personalized services – (Acquisti et al., 2016; Altman, 1976; Chellappa & Sin, 2005; Ku et al., 2018; Martin et al., 2017; Phelps et al., 2000; Steinberg, 2020). Although, with personalization, customers are more likely to receive benefits, leading to the personalization-privacy paradox. The paradox is a phenomenon of interest and essential for research, with some studies already providing

significant implications in this field, such as Awad and Krishnan (2006); Cloarec (2020); Karwatzki et al. (2017); Zeng et al. (2021). Consumer concerns and perceptions play a crucial role in the success of pricing personalization strategies. According to Coker and Izaret (2021), consumer welfare can be negatively affected due to pricing personalization, which is the reason why studies are increasingly being conducted from this perspective (Dubé & Misra, 2017; Moon et al., 2008; Victor et al., 2019). Specifically, consumers' perceptions of fairness have been a prominent topic since price differences (resulting from personalized pricing) can result in perceptions of unfairness, loss of credibility, loss of trust, price fears, and reduced purchase intentions (Elegido, 2011; Haws & Bearden, 2006; Richards et al., 2016; Rotemberg, 2011). If consumers do not perceive that the price is fair, they will not trust the seller and how the prices are applied, resulting in a decrease in demand. Negative results lead retailers back to more traditional pricing systems, as with Amazon's abandonment in 2000 (Reinartz, 2002).

The consumer perspective is, therefore, a fundamental analysis that, although it is gaining momentum, still deserves further research because times are constantly changing, and so are consumers' perceptions and preferences. Thus, the present study aims to contribute to the literature by empirically analyzing the extent to which consumers prefer using a personalized pricing strategy in the market. We aim to understand the impact of personalized pricing on consumer behavior - buying habits, preferences, and perceptions; as well as their privacy concerns to verify the veracity of the personalization-privacy paradox.

To undertake such an endeavor, we used a quantitative methodology, precisely the elaboration of a questionnaire and the respective analysis of the data.

This dissertation is organized as follows: Section 2 presents the theoretical background, followed by a discussion of empirical studies on personalized pricing; This is followed in section 3 by the presentation of the research hypotheses, as well as a description of the methodology used: the questionnaire; the results are presented in section 4 with data analysis; The last section encloses a brief discussion and some concluding remarks, as well as limitations of the present study and paths for future research.

2. Background and Theoretical Overview

2.1. Data

Our days are increasingly digital, and technology has made information becoming more and more abundant and valuable. Data is an important resource nowadays. In 2017, The Economist mentioned that "The World's most valuable resource is no longer oil, but Data", explaining the growing relevance of data to the economy and how it shapes new businesses. In addition to its growing availability, the economy is even more valuable considering the quality of that same data. Digital information was once characterized by personal data such as age, gender, and name. However, technological developments have improved its quality, and it is now possible to track data in real-time, such as shopping habits and online search behaviors. Digital information was once characterized by personal data such as age, gender, and name. However, technological developments have improved its quality, and it is now possible to track data in real-time, such as shopping habits and online search behaviors, which enables the creation of new infrastructures, new ways of rethinking business, and new economies. Data is increasingly seen as a driver of growth and change, according to The Economist (2017a) that "Data is giving rise to a new economy".

As an integral part of society, and as consumers, we are continuously creating data about ourselves, leaving digital footprints everywhere. The data collected by companies can be categorized into three categories: voluntary data (such as name, mobile number, email, date of birth, occupation); observed data (such as IP address, search history, past purchases, location, social media interactions); inferred data (such as income, health status, risk profiles, consumer loyalty, political ideologies). So, through our social media activity, our use of various types of apps (shopping, food, entertainment, etc.), and our entire online routine, we create amounts of data that can profile us.

Sometimes this data is tracked with our consent and agreement, for example by agreeing to the use of cookies online. However, in some cases, and as consumers, we have no choice since to access certain content or to buy a certain product and/or service is almost mandatory to share data and accept the policies. For example, companies like Google can

track information about their users just from their search history, with data collection already inherent to its use.

Data can be seen as an externality, people leave a digital trail in everything they do and everywhere they go, even offline. Conventional loyalty cards (physical format) are a good example of how to track information offline since users to join the card and its benefits need to provide some personal data, such as name, age, gender, and address. In exchange, they start receiving vouchers and offers depending on their purchases, either directly in the establishment or at the address (Eidhamar & Helberg, 2021). As mentioned in Truyo (n.d.), data and its monitoring can improve any part of a business by helping to better understand consumer behavior and identify ways to improve the consumer experience. Large companies such as Google, Facebook, Microsoft, and Amazon have used data as a source of business improvement since the access to information that companies collect as part of their relationship with their consumers can be a competitive advantage. Moreover, the use of such privileged information can generate productivity and increase the profits of companies (Martin et al., 2017). Due to the greater ease in acquiring and monitoring data about their consumers, companies have a greater possibility of improving their products and/or services, attracting new consumers, and consequently generating even more data - a strategy called "Data Network Effects".

2.2. Price Personalization

As previously stated, through the collected data, companies can profile their consumers according to various aspects such as age, gender, income, and preferences, among others (Steinberg, 2020). Data collection, therefore, allows companies to adopt personalization strategies, to the extent that, as mentioned in Truyo (n.d.), by better knowing their customers, preferences, and interests, companies are more capable of providing products and services that customers are more likely to buy. Personalization has thus become an increasingly effective and popular strategy.

Identical personalization definitions are provided in literature: Serino et al. (2005) describes personalization as a practice of using consumer information to provide personalized products and/or services tailored to the consumer's preferences. According to Blom (2000) personalization is a process that makes a process unique to increase its relevance to an

individual. Ho and Tam (2005) characterizes personalization as the adaptation of content to deliver it to the right person, in the right format and at the right time. Meanwhile, Serino et al. (2005) defines personalization as the use of information about a particular user that provides personalized or tailored services to that user.

It is important to clearly distinguish between personalization and customization since these definitions are often wrongly applied. Personalization differs from customization to the extent that it refers to the adaptation of a product and/or service to the consumer's preferences and requires the identification of personal information. In addition, personalization involves decisions that may not be known by the consumer, since it is the companies themselves that decide what data, they want to monitor about the customer to offer them more personalized benefits such as pricing and advertising. Customization, on the other hand, aims to personalize some features of a product and/or service so that the customer enjoys more convenience, lower cost, or some other benefit (Moon et al., 2008; Peppers & Rogers, 2016). In this case it is necessary for customers to make decisions regarding the product and/or service they are going to purchase, for example Nike offers its members the "Nike by you" experience that allows them to customize their own sneakers within a few available features such as material, color, and model. This experience allows the customer to get a customized sneaker that meets their tastes and preferences.

Data collection and utilization allow firms to improve the quality of their products and increase their competitive advantage by implementing sophisticated forms of price discrimination (Esteves & Carballo-Cruz, 2021). Economically, according to Clerides (2004), price discrimination refers to the practice of selling the same products and/or services at different prices to different consumers.

AdC Autoridade da Concorrência (2019) reports that price discrimination requires that:

- Firms hold some market power.
- There is an observable heterogeneity among consumers.
- There exists the possibility to regulate prices according to heterogeneity.
- No arbitrage among consumers.

Some other studies argue that it is essential to have different customers with different willingness to pay (heterogeneity), such as Chen et al. (2020) and Eidhamar and Helberg

(2021), otherwise it may affect the profitability of the company (Chen & Iyer, 2002; Choe et al., 2018; Thisse & Vives, 1988; Zhang, 2011).

The economic theory defines price discrimination in three categories: first, second and third-degree discrimination. According to Eidhamar and Helberg (2021), first-degree price discrimination, also known as personalized pricing, occurs when each consumer receives an individual price. Companies define their strategies based on their consumers' preferences, their browsing history, and their social media activity, among others, such as Björklund (2018). This is a popular practice, especially in the online market. There is also the possibility of companies charging different prices to different consumers according to how the product is sold (quantity and quality) - second-degree discrimination. Companies like Spotify, for example, offer their users the possibility to subscribe to a premium service, which provides its users with different versions of the product, without ads and of better quality. Finally, third-degree price discrimination is characterized by assigning a certain price, for the same product and/or service to a certain group of people. An example is the provision of all services that divide consumers into different age groups. Movie theaters, for example, offer tickets for children at a different price than tickets for adults.

This study aligns with the theoretical literature on first-degree price discrimination - personalized pricing - (Bester & Petrakis, 1996; Matsumura & Matsushima, 2015; Shaffer & Zhang, 1995; Thisse & Vives, 1988). The OECD (2018) establishes that a good definition of personalized pricing includes two important components: focus on business-to-consumer (B2C) versus business-to-business (B2B) relationships; and the use of personal characteristics as a reason to practice personalized pricing.

Throughout this dissertation, we resort to the definition frequently used by economists, and academics, and mentioned in many other related articles, to define custom pricing, given by the Office of Fair Trading:

> The practice where businesses may use information that is observed, volunteered, inferred, or collected about individuals´ conduct or characteristics, to set different prices to different consumers (whether or an individual group basis), based on what the business thinks they are willing to pay (OFT, 2013, p. 3).

According to Choe et al. (2021), personalization is one of the most widely employed pricing strategies by industries, which take advantage of it to offer more relevant prices to consumers, making their purchase decision easier. Overall, pricing personalization

encourages companies to compete more intensely for each consumer. As stated by the OECD (2018) such a strategy can improve efficiency and create gains for consumers. However, in the current digital economy, consumers still experience personalized pricing to a relatively limited extent (Eidhamar & Helberg, 2021). Therefore, the following question should be raised: can pricing personalization be a winning strategy? Esteves (2021) raised this same question in her study where she analyzes personalized pricing in oligopolistic markets.

In general, the economic literature examines companies' incentives to offer personalized pricing under different competitive scenarios, as well as how these incentives change to different extents. According to Eidhamar and Helberg (2021) any company will strive for a pricing policy that maximizes its profits. A pricing policy is, in the author's view, a method of setting prices based on the characteristics of the consumers in the market. A firm under perfect competition does not have any market power, and in the long run, will face a market price equal to the marginal cost of the good. In monopolistic markets, it is almost certain that pricing personalization is a winning strategy since the price charged to each consumer will correspond to his or her willingness to pay for the product. According to OECD (2018), more consumers may purchase the monopolist's product when faced with personalized pricing.

However, this issue becomes more complex when analyzed in the context of an oligopoly. In this type of market pricing strategies can intensify competition and benefit consumers, as mentioned by Chen (2005). A company with market power, such as in oligopolies, is already able to influence its price. In her research, Esteves (2021)concludes that when the data held by companies reveal types of consumer demand but do not provide any information about consumer preferences, this is always a winning strategy.

Even though this is a strategy that is gaining momentum, personalization depends not only on the ability of companies to acquire information about their consumers but also on their willingness to share that same information.

2.3. Consumers Behavior

Customer relationships are critical to the success of companies (Palmatier et al., 2006). Having said that, it becomes important to determine how consumers react to personalized

pricing strategies, and how their behavior changes when suppliers have accurate and detailed information about their preferences. A significant model in this regard is that of Esteves (2014).

Notwithstanding its benefits, companies remain cautious about applying personalized pricing, mostly due to the uncertainty of how their customers might respond. Consumers are quite hesitant to pay different prices, especially when they pay more than others. Price differences can induce perceptions of unfairness, loss of trust, loss of credibility, and reduced purchase intentions (Garbarino & Lee, 2003; Haws & Bearden, 2006; Richards et al., 2016; Rotemberg, 2011).

Empirical studies show that if a consumer is not satisfied with the prices offered by a company, he might demonstrate negative behavior, such as a bias to avoid future purchases, or spreading negative news about the company, among others (Dubé & Misra, 2017; Xia et al., 2004).

According to Chellappa and Sin (2005) consumers' intention to use personalized services is positively related to the truth and honesty of the seller. Many aspects can influence consumers. Pricing personalization carries some negative perceptions by consumers regarding ethics and fairness. Research work on ethics is still quite limited. According to Coker and Izaret (2021) price discrimination is still often considered unethical by consumers. Such perception can be linked to the idea that price discrimination is a way of expressing dislike for some individuals (Elegido, 2011). Concerning perceptions of fairness, price personalization can be impactful to the extent of influencing consumers repurchase intentions. Several experts have raised questions about the fairness of practice such as pricing personalization (Krugman, 2000; Ramasastry, 2005; Turow et al., 2005).

The fact that a company charges different prices can show that there is not equal treatment for all consumers. Xia et al. (2004) defines fair price perception as the evaluation of the price of a product and/or service, by a consumer to determine whether it is reasonably justifiable. The more price-conscious a consumer is, the more they shape their perception of prices and the effect of prices on their decisions. This fairness perception is shaped through several reference points, such as past prices, competitors' prices, manufacturing costs, company reputation, other customers' satisfaction, and others (Briesch et al., 1997; Homburg et al., 2005; Monroe, 1973).

The perception of fairness can negatively affect businesses. Richards et al. (2016) conclude that if consumers perceive that the price they are paying is not fair, then they will not trust the seller and the way prices are set, which will decrease their demand. The perception of unfairness tends to increase, especially, when consumers are charged higher prices than others (Elegido, 2011; Krugman, 2000). According to Richards et al. (2016) consumers' perception of price unfairness is probably the most significant practical obstacle to the implementation of personalized pricing.

Moreover, such factors as purchase satisfaction, trust, and loyalty can influence consumer reaction to the implementation of personalized pricing in the market. Purchase satisfaction is a key factor that determines a consumer's repurchase intentions and it is related to trust and loyalty. Previous researchers suggest that satisfaction with a purchase improves buyers' trust in a seller (Cronin et al., 2000; Siau & Shen, 2003). Furthermore, Hill and Alexander (2017); Hocutt (1998), showed that consumers are satisfied when sellers can meet their expectations, which in turn makes them more loyal. At the same time, when consumers are not satisfied, their loyalty decreases. It can be expected that consumers who trust a brand or company, tend to perceive personalization as positive as stated by Victor et al. (2019).

It is worth mentioning that there is a higher difficulty for online markets in developing and maintaining customer trust, as personal interaction is somewhat limited when compared to offline markets (Serino et al., 2005).

2.4. Privacy Issues

In a world where data is becoming central, people are increasingly concerned about sharing their personal information. Data collection, although beneficial, brings with it some issues of important resolution, such as antitrust and privacy (The Economist, 2017a).

We felt that privacy deserved a particular emphasis in the research since this is one of the issues that is addressed in most of the literature related to personalized pricing. Several definitions emerge in the literature on privacy: Acquisti et al. (2016) describes privacy as protecting someone's personal space, and their right not to be troubled; Weisstein et al. (2013) states that privacy corresponds to the individual's ability to control the terms under which personal information is acquired and used, while (Stone et al., 1983) defines it as the "individual's ability to personally control information about themselves".

What happens is that consumers are increasingly concerned about protecting their data (Ku et al., 2018), as companies expand their efforts to collect information about them. According to Martin et al. (2017), this is usually referred to as "privacy issues". It is important to note that "Privacy issues" exist either in an online context or offline, however, according to Chellappa and Sin (2005), consumers tend to be more concerned in an online context since all forms of electronic access end up leaving a digital trace.

These problems are mostly associated with the ease which data can be used for previously not agreed purposes. According to Acquisti et al. (2016); Ku et al. (2018) the increasing ease in data collection brings with it a challenge for governments and companies, since information is easily stored, replicated, and transferred. As highlighted by many empirical studies, this (inappropriate) sharing of data generates a feeling of vulnerability among consumers, and the problem is that companies do not know how to prevent its negative effects (Martin et al., 2017).

The level of privacy concern has an impact on consumers' purchasing behavior. Previous studies have suggested that privacy concerns negatively affect customers' intention to use personalized services (Martin et al., 2017) and willingness to share personal data (Aguirre et al., 2015).

Some cases of pricing personalization applied by large companies, which have become public knowledge, have also increased consumer concerns as well as their perception of injustice. In 2000, Amazon took advantage of information about its consumers to charge different prices to different consumers for the same DVDs. When the case was taken public, many consumers criticized the company for the practice of price discrimination, resulting in bad advertising. Amazon was thus forced to publicly declare the discontinuation of the pricing policy (Garbarino & Lee, 2003), and to refund the thousands of customers who would have paid higher prices (Elegido, 2011; Turow et al., 2005). The company did not take any positive advantage of applying this strategy, and as stated by Unglesbee (2019) the company remains, even today, cautious to apply personalized pricing after its experience.

Consumers, upon becoming aware that their online activity and information are being monitored, collected, and possibly shared, start taking proactive measures to protect themselves (Chen et al., 2020). Often, this perception on the part of consumers leads them to "bypass the system" looking for more benefits. According to Acquisti et al. (2016),

consumers may anticipate future prices, eventually deciding not to buy "today" so that "tomorrow" they get the opportunity to access a lower price. Moreover, consumers may adopt other measures such as: banning or deleting browser cookies, maintaining multiple online accounts, and using private networks, negatively affecting companies' efforts to apply personalized pricing strategies (Chen et al., 2020).

It would be of great interest, especially for businesses, to find ways to decrease consumers' concerns about privacy. Lee et al. (2011) concluded in their study that privacy protection can be a mechanism that can increase the profit of companies that use pricing personalization. To achieve this, it is necessary to apply fair information practices to mitigate consumer concerns.

Some research suggests that by decreasing privacy risk, consumers would be more willing to share their information. Awad and Krishnan (2006) suggests that privacy risk could be reduced by increasing consumers' level of control over their data. This finding is aligned with the findings of Phelps et al. (2000), in which individuals who reported being very concerned about the collection of their data were more likely to believe that there should be limits on the number of data companies can collect. Accordingly, increased control over the information shared can suppress the negative effects of privacy concerns and increase the positive effects of personalization (Zeng et al., 2021), as well as increase information transparency.

Awad and Krishnan (2006), describes information transparency as the characteristics of consumers that allow access to the information a company collects about them, as well as how it will be used. Other researchers investigated the impact of transparency on personalization as well, pointing out that it is essential to address consumers' privacy preferences and concerns (Acquisti et al., 2015). Contradictorily, Karwatzki et al. (2017) noted that there is no direct impact on individuals' information disclosure that is caused by transparency. This is nonetheless a surprising observation since it is often suggested that more transparent procedures could be a successful way to encourage data disclosure, and hence participation in personalization.

The literature argues that consumers' participation in the price discrimination process can mitigate their concerns. Richards et al. (2016) report that aversion can be shaped if consumers participate in the price discrimination process by negotiating the price they pay. Furthermore, Victor et al. (2019) found that the impression that personalized pricing is a

choice induces a feeling of inclusion in the pricing process among consumers, further increasing their trust and decreasing their perceptions of unfairness.

To overcome the privacy issues, the European Union (EU) General Data Protection Regulation (GDPR) was adopted in May 2016, and implemented as of May 25, 2018, providing not only some guidance for companies who want to use private data, but also establishing the right of individuals to the protection of their personal information, access to the data collected, and the right to rectify or even delete it if they so require (Comission, 2018). Under the GDPR, personal information is any information that can identify an individual, such as cell phone number, username, IP address, location, and more sensitive information such as sexual orientation, medical history, or political opinion.

2.5. Personalization-Privacy Paradox

The more companies adopt personalization strategies, the stronger becomes the competition to get the consumer's attention. As previously mentioned, if this competition becomes intrusive, consumers start to feel manipulated and concerned about their privacy, reducing the sharing of their data - a valuable resource for businesses and the application of personalized strategies.

The key issue is that: on the one hand, consumers are uncomfortable with sharing their data, especially when they become aware of its inappropriate use (Martin et al., 2017), but on the other hand, they perceive personalization as useful, since they can get products and/or services tailored to their preferences. It should be noted that people are more likely to provide their data when they realize that in return, they receive benefits. According to Ku et al. (2018), consumers tend to compare the risks between providing their information and the benefits they get, to decide about sharing their data. However, although consumers are willing to share their information to obtain benefits, the non-transparent methods often applied in data collection create doubt about the potential advantages and disadvantages (Dienlin & Trepte, 2015; Palmer, 2005). This is in line with the Personalization-Privacy paradox, first discovered by Awad and Krishnan (2006). According to the authors, the personalization-privacy paradox refers: "to a continuous tension, between a firm's need for consumer information to personalize consumer experiences and a consumer's need for privacy".

The literature on this paradox is quite extensive. Mostly, the opinion is uniform: consumers tend to appreciate personalization, especially when they pay less for the product and/or service, but are still concerned about their privacy (Cloarec, 2020). There is thus a conflict of interest on the part of consumers. What effectively happens is that when they realize they can benefit from personalization, consumers are willing to give up some privacy (Phelps et al., 2000). According to Karwatzki et al. (2017), it can be expected that individuals who value privacy the most will be less willing to be profiled for personalization purposes.

The concept "homo economicus" is one that best explains the Personalization-Privacy paradox. This refers to consumers' behaviors that are conducted by attempting to maximize their benefits (Rittenberg, 2008). It is a theory of the privacy calculus whereby consumers analyze cost-benefit. In case the benefits generated by information disclosure (such as monetary discounts or vouchers) outweigh the risks associated with the loss of privacy (decreased security, identity theft, unintended use by third parties), consumers tend to give up their privacy (Sultan et al., 2009). Under this perspective, privacy is considered an economic good that can be traded in the market and that can be quantified (Hann et al., 2007).

This has become a popular topic. Companies such as Amazon, Apple, Facebook, Microsoft, and Google are increasingly joining efforts to deal with the paradox by implementing various consumer privacy controls. Companies must hold a greater understanding of consumers' perceptions of privacy and their intentions towards the use of personalization (Zhu & Chang, 2016), particularly personalized pricing.

The existing literature has made considerable contributions to the explanation of the paradox; however, no sufficiently comprehensive explanation has been discovered so far and user privacy remains a rather complex phenomenon (Kokolakis, 2017).

3. Methodological Considerations

Consumers are a crucial part of the success of applying personalized pricing strategies. They must perceive the strategy as positive so that it does not constrain them from sharing their data - which is a valuable resource. Therefore, it is essential to understand their behavior, motivations, and opinions about the use of personalized pricing,

It becomes essential to select the appropriate methodology to process the information and define the research path. According to Galego and Gomes (2005), the methodology is one of the fundamental pillars supporting scientific research.

This chapter will present the research goals, the hypothesis formulation process, and the methodology used.

3.1. Research Goals

The research study attempted to answer the following research objectives, under which the empirical study was oriented:

- Understanding consumer behavior and opinion towards personalized pricing strategy.
- Measuring the effects of personalized pricing strategies.
- Understanding consumers' position to personal data collection.
- Verify the personalization-privacy paradox.

3.2. Research Hypothesis

The formulation of research hypotheses allows explaining, in advance, the question raised by the investigation topic, working as a pre-solution that can be confirmed, or not, as the investigation progresses.

For a better understanding, the research hypotheses are grouped under the following themes: Consumer Behavior, Personalized Pricing, Personal Data Collection, and Personal Data.

Consumer Behavior

When exposed to personalized pricing consumers interact with the market in different ways. Perceiving the personalized pricing strategy as unfair, consumers may change their behaviors, potentially affecting their trust in the brand, and their willingness to repurchase. Consumers' perceptions of price fairness have been the subject of several research studies. According to Priester et al. (2020), perceptions of price fairness refer to the consumer's judgment of their price versus the price of another. By comparing prices, consumers may effectively perceive that the price they pay for a product and/or service is unfair, which, as stated by Richards et al. (2016) makes consumers less willing to pay. This leads us to formulate the first hypothesis:

H1 - Consumers change their behavior when they perceive personalized pricing strategies as unfair

Furthermore, Richards et al. (2016) show that perceptions of price fairness, and the subsequent effect on purchasing behavior, are well explained by a self-interested inequity aversion model. That is, consumers are more willing to buy if perceived price unfairness is in their favor, and less likely to buy if it is not. However, some literature suggests that consumers generally perceive price discrimination as unfair, even when they benefit from it (Garbarino & Lee, 2003; Huppertz et al., 1978; Levine, 2002; Odlyzko, 2004). It is, therefore, significant to formulate and investigate the following hypothesis:

H2 – Consumers' perceived fairness is influenced by the perceived benefits they can obtain

Being aware that personalization increases the likelihood of finding something consumers want, they can change the way they interact in the marketplace. It is likely that these consumers, by being able to identify and anticipate the benefit obtained from personalization, will change their behavior. These changes in behavior are often preplanned, to obtain advantages. For example, Acquisti et al. (2016) concluded that by being able to anticipate future prices, consumers may choose not to buy "today" to avoid being perceived as an old customer, and thereby have access to lower prices targeted at new consumers. That said, we formulate the following hypothesis:

H3 - Personalized pricing change consumer behavior

Personalized Pricing

Through pricing personalization, consumers can obtain benefits capable of addressing their preferences and needs. According to Victor et al. (2019), this can prove to be a positive

reaction from consumers. By being able to purchase more personalized products, consumers increase their satisfaction and as a result the value of the product and/or service improves, with price taking a secondary relevance, as discovered by Wind and Rangaswamy (2001).

It is to be expected that the more personalized the price is, the more it will meet the consumers' preferences and needs. Consequently, the consumer will enjoy the purchase more and appreciate more the product, thus appreciating the application of personalized pricing strategies. We formulate the following hypothesis:

H4 - Personalized pricing appreciation can be related to benefits

Consumers value the application of personalized pricing strategies, especially when they perceive that this is beneficial to them. However, charging different prices to different consumers for the same product and/or service could create feelings of unfairness among consumers. The fact that personalized prices do not treat consumers equally leads to them being perceived as unfair, leading to the formulation of the following hypothesis:

H5 - Personalized pricing tends to be perceived as unfair

A consumer's brand confidence is related to their satisfaction. Personalized pricing allows consumers to purchase products and/or services targeted to their preferences. When they realize that their purchase had benefited from the personalization of prices, consumers increase their satisfaction with the purchase made, increasing their willingness to repurchase, and consequently boosting loyalty and confidence in the brand or company.

In turn, loyal customers are more likely to accept the strategies applied by companies. According to Victor et al. (2019), it can be expected that consumers who trust a company or brand the most, perceive personalization as positive. However, if they perceive pricing personalization as unfair or fraudulent, it can negatively affect purchase satisfaction and consequently consumer loyalty. That said, we formulate the following hypothesis:

H6 - Personalized pricing can affect consumer confidence

Personal Data Collection

Consumers are becoming aware that their online activity and personal information are being monitored, collected, and possibly shared, which makes them take proactive measures to protect themselves (Chen et al., 2020).

Many studies address the relationship between privacy issues and personal information disclosure; however, these studies are ambiguous in their results. Some contradict the privacy paradox, others support it - where privacy concern does not reduce consumer information disclosure. When consumers are comfortable with sharing their data, they are more likely to appreciate personalized pricing strategies. Consumers who are more concerned about their privacy do not participate as much in personalization since they usually do not share their information. This study proposes the following hypothesis:

H7 - Data privacy concerns may be related to personal information disclosure

Consumer data is a key element in the personalization of pricing; however, consumers are increasingly concerned about the privacy of their data, being more attentive to their online activity, and the monitoring of their personal information. Nevertheless, according to Ku et al. (2018) the intention of individuals to disclose personal data will rely on a combination of the perceived risks and the expected benefits. Consumers can measure the benefit of sharing personal data.

Once consumers perceive that the benefits outweigh the risks of providing information, they will be more willing to share their data and preferences – Personalization-Privacy Paradox. According to Karwatzki et al. (2017), personalization motivates information disclosure. If the privacy paradox may exist, this study proposes the following hypothesis:

H8 - Personalization motivates the disclosure of information

Personal Data

One of the great tools for applying personalized pricing strategies is easier access to information about consumers, which has become faster due to rapid technological advances. In addition, the subscription to loyalty cards has been "automated" with more and more typical cards being replaced by APPs and e-cards.

Therefore, people with greater facility in the use and access to technologies are more likely to subscribe this type of strategy adopted by companies, which in turn are more likely to

face personalized prices. In general, the younger age groups end up being more comfortable with the use of these technological tools, ending up facing more personalized pricing strategies. The following hypothesis was put forward:

H9 - Knowledge of personalized pricing is highest among younger age groups.

H10 - Younger people are more likely to accept pricing personalization

The same tends to happen with more literate people. People with a higher level of education are more likely to recognize the use of personalized pricing in the marketplace. Furthermore, literacy is related to knowledge, and it is expected that people with greater knowledge will better understand the application of personalized pricing strategies. The following hypothesis is formulated:

H11 -Knowledge of personalized pricing is higher among people with a higher level of education

Table 1 shows a summary overview of all the research hypotheses under study.

Table 1 - Research Hypothesis

H1	Consumers change their behavior when they perceive personalized pricing strategies as unfair
H2	Consumers' perceived fairness is influenced by the perceived benefits they can obtain
H3	Personalized pricing change consumer behavior
H4	Personalized pricing appreciation can be related to benefits
H5	Personalized pricing tends to be perceived as unfair.
H6	Personalized pricing can affect consumer confidence.
H7	Data privacy concerns may be related to personal information disclosure.
H8	Personalization motivates the disclosure of information.
H9	Knowledge of personalized pricing is highest among younger age groups.
H10	Younger people are more likely to accept pricing personalization
H11	Knowledge of personalized pricing is higher among people with a higher level of education

Source: Own Elaboration

3.3. Methodology Employed

According to the literature, the methodology widely used in this topic and the one that seems most appropriate is a quantitative methodology, since it seeks to test previously established hypotheses and analyze the cause-and-effect relationships between them (Malhotra & Birks, 2006). As stated by Reis (2010), this methodology assumes that all data are quantifiable and can be expressed in numbers, opinions, and information to be classified and analyzed, usually using statistical methods.

The questionnaire is one of the methods used in quantitative methodology. It seemed to be the most appropriate for the validation of the hypotheses of the present research among the target population. Questionnaire research has several inherent strengths when compared to other research methods. Firstly, and according to Bhattacherjee (2012), is an excellent tool for measuring a wide variety of unobservable data, such as people's preferences, characteristics, attitudes, opinions, beliefs, and behaviors, which is in line with the aim of the present research. Second, it provides an overview that is efficient and effective in collecting larger volumes of data (Denscombe, 2017). Third, and due to its discrete nature and ability to respond at your convenience, it is a preferred method for multiple respondents (Bhattacherjee, 2012). And finally, is very cost-effective in terms of time, effort, and cost to the researcher compared to most of the other methods, which becomes an asset.

However, the questionnaire also has some disadvantages such as a lack of theory, since there are no scientific principles that ensure a perfect model (Malhotra & Birks, 2006). Also, sample bias can be a significant issue as the questionnaire may not reach all possible respondents, for example when the questionnaire is shared via the internet people without access to technological facilities, such as minority social groups, are unable to participate.

The preparation and implementation of the questionnaire took place in the following stages: 1. Planning of the problem to be studied and the type of information to be obtained; 2. Questionnaire design and development; 3. Pretesting; 4. Implementation; 5. Data collection; 6. Analysis of the data.

3.4. Questionnaire

3.4.1. Development

According to Fortin (2009), the questionnaire is a measurement instrument that reflects the study goals with measurable variables and helps to organize, standardize, and track data so that the required information can be collected rigorously. The first aspect that was taken into consideration when designing the questionnaire was the type of information to be collected to develop a measurement instrument capable of supporting research hypotheses (Freixo, 2011). To design the questionnaire, a literature review was conducted to analyze the questions to be addressed, their measurement, and the selection or adaption of scales.

To overcome the respondent's inability to answer due to lack of knowledge on the subject, information on the subject was provided, as well as simple questions with instructions so that the respondents knew how they should proceed, as suggested by Malhotra and Birks (2006). We use simple and direct language to make it easier to understand, and responses requiring memory were avoided. The questionnaire was designed mostly with closed questions, which became an advantage for the research since from the point of view of data analysis, statistical processing, and analysis are simplified (Malhotra & Birks, 2006). However, an open-ended question was presented to collect the respondent's opinion, allowing free answers, in this specific case: "Are there any other characteristics of a product and/or service that you rate as very important and would like to highlight?".

During the questionnaire, several types of closed-ended questions were used: dichotomous questions (Yes/No); multiple-choice, and scale. Dichotomous Yes/No questions were performed to simplify the questionnaire experience and to collect responses to help filter the respondents. Multiple-choice questions allow respondents to select one or more options from a list of pre-defined options, producing more intuitive questionnaires. However, since the response options are limited, this can cause bias in the results. To overcome this issue, the option "other" was added allowing respondents to express another answer option that they considered more convenient. Regarding scale questions, Acharya (2010) has found that horizontally laid out scale options are more reliable than vertically laid out if the respondents are well instructed and the questionnaire is self-administered, which proved to be a good strategy in the present questionnaire. Aiming to simplify the fact that several questions present the same response options, we chose to employ matrix

questions, asking respondents to select the category that best describes the object to be classified.

The Linkert scale is one of the most popular measurement scales used in questionnaires. This has proven to be efficient in this research thanks to its reliability in measuring opinions, perceptions, behavior, and feelings. Designed by the American social scientist Rensis Linkert, this is a 5- or 7-point scale (which included a neutral option) with response categories ranging from "strongly disagree" to "strongly agree," and which requires that respondents indicate a degree of agreement with each of several object-related statements (Malhotra & Birks, 2006). However, other response categories that range from an extreme attitude to another can be used to measure, for example, satisfaction, frequency, and desirability. Therefore, the present questionnaire used 5-point scales with different response options, such as: "does not influence at all" to "influences a lot"; "not relevant" to "very relevant"; "very bad idea" to "excellent idea"; "unlikely" to "very likely", "unlikely" to "sure I will change". According to Malhotra and Birks (2006) this scale allows for a high level of certainty and ensures greater ease of completion and understanding, increasing data quality. However, its major disadvantage is that it may require more time to complete than other rating scales, as it forces respondents to reflect on each statement.

The Thurstone scale has also been used to measure consumer opinions on various subjects, based on an agree/disagree question design. Many researchers are using these types of scales to try to collect data more consistently, allowing researchers to save space, especially for internet questionnaires. A response option "No opinion" was also employed in order not to force the respondents to express their opinion. According to Malhotra and Birks (2006) by adding this option, the accuracy of the data can be improved.

Please note that most of the questions are mandatory to answer, to avoid incomplete questionnaires, as suggested by Gendall and Davies (2003).

3.4.2. Pretesting

The requirement for accuracy makes it essential to test a questionnaire before it is applied. According to Pardal and Lopes (2011), it is necessary to first implement the questionnaire in a small sample, so that we can ensure the quality of the questions, the reasonableness of their order, and whether the answers reflect the desired information. In this way, some

improvements can be made to ensure the suitability of the questionnaire, the clarity of the questions, and the ability to address the research objectives.

It was considered important to use a pretest. A group of five individuals - with distinct characteristics and belonging to the target population - was thus previously requested to complete the questionnaire. Opinions were collected, as well as some information such as the time needed, difficulties experienced, and other observations relevant to the improvement of the questionnaire.

The development of the questionnaire had several stages, and several versions were carried out until reaching the final design. Feedback was considered in the final questionnaire, and it was found to be simple to understand and complete, with no significant issues to overcome.

3.4.3. Questionnaire

"Do consumers prefer personalized pricing?" is the title of the questionnaire that starts by providing respondents the possibility to select the language in which they would take the questionnaire (Portuguese or English), thus leading the respondent to the chosen language version.

A framework of the study and a brief explanation is presented, highlighting also the anonymous and voluntary nature of the respondents' participation, ensuring data confidentiality. Respondents were also informed that the completion of the questionnaire would take approximately 8 minutes, and in case of any question or request for information, they may feel free to contact the researcher. Before starting, the respondents stated that they were aware of the information about the study and agreed to answer the questionnaire as truthfully as possible, to obtain the closest answers to reality.

The questionnaire consists of a total of twenty-one questions. There was a concern about the length of the questionnaire because it was the most adequate to avoid the respondents giving up, and there is no incentive or financial reward in exchange for the respondents' participation.

The questions were organized into four essential sections:

Consumer Behavior

In this first phase, the aim is to collect information about consumer behavior, and how they, individually or in groups, interact with the market, trying to understand when, why, and how consumers buy the products and/or services available, and to understand what influences the actions of consumers in the act of purchasing.

We inquired about the use of loyalty cards and internet shopping (two ways that allow companies to collect information to apply customized pricing strategies) and asked to rate some factors and characteristics that might influence their purchasing decision.

Personalized Pricing

In what concerns the second section, the aim was to understand the consumers' knowledge about the personalized pricing strategy. Accordingly, it was inquired if the respondents were already aware of the definition and application of the personalized pricing strategy in the market, to evaluate their knowledge. Agreement and disagreement questions were also asked to perceive how consumers feel about the use of this strategy, as well as questions so that respondents were able to select the options that they thought best fit themselves.

Personal Data Collection

The third section of the questionnaire was linked to the attitude of consumers to personal data collected by companies, particularly to offer benefits and make loyalty cards. In addition, respondents were questioned about the likelihood that they would change their behavior after answering the questionnaire and their willingness to find out more about this topic, at a later stage.

Personal Data

The last section was made up of a total of four questions referring to the gender, age, education, and region of residence of the respondents, which allow us to build the socio-demographic characterization of the sample while maintaining the anonymity of the respondents.

Annex 1 presents the final questionnaire format released online.

3.5. Sampling

For the sample, were taken the elements of the population with internet access, available to receive and access the questionnaire link (by electronic mail or through social networks). For Malhotra and Birks (2006) this is a convenience sampling. social media to promote its sharing creates a Snowball effect. This technique allows the dissemination and dispersion of the study, reaching a wider scope.

3.6. Data Collection

The questionnaire was conducted through the *Google Forms* platform, used by several academic researchers since it is considered a reliable and secure platform for data collection and analysis. Data collection was carried out online, by sharing the link via email to the entire academic community of the University of Porto, as well as via social networks - *Facebook, Instagram, LinkedIn, WhatsApp* - to the public, to maximize the response rate. The questionnaire was also shared on several community pages and messages were sent to promote participation. Sharing the questionnaire via email and social networks generated a Snowball effect since respondents were asked to share the questionnaire with other potential respondents to obtain as many answers as possible, increasing the representativeness of the sample and the reliability of statistical measurements (Malhotra & Birks, 2006)

The questionnaire was available from April 8 to May 16, 2022. Overall, the invitation to participate in the study was well received by the people, who encouraged other members of their community to participate. Furthermore, the questionnaire's dissemination and availability on the internet became crucial, as it enabled faster responses, easier and more prompt monitoring of the respondents' answers, as well as greater convenience and speed in the data analysis, without any monetary cost. This proved to be the most effective method for achieving the research objectives.

4. Data Analysis

In this section we perform the processing and respective analysis of the data obtained through the disclosure of the questionnaire, using descriptive statistical methods.

4.1. Sample Profile

A final sample of 469 participants was achieved - all responses were eligible for the study. From the descriptive analysis of the demographic features, it was found that regarding gender, most of the respondents are female (66.31%), with 30.92% belonging to the male gender. About 3% of the participants preferred not to mention their gender or belong to another gender, as can be seen in Table 2.

Table 2 - Demographic Profile by Gender

Gender	**Sampling**	
	Frequence	%
Female	311	66.31%
Male	145	30.92%
I would rather not say	9	1.92%
Other Option	4	0.85%
Total	469	100%

Source: Own Elaboration

Concerning the age of the respondents (see Table 3), the predominant age group is between 18 and 25 years old, with a representation of 50.96%. The fact that the survey was disseminated using digital and academic platforms may justify the prevalence of younger age groups, an expected outcome. It should be noted, however, that despite the method used for data collection, the other age groups also have a strong representation, with respondents aged between 26 and 34 years representing 23.45%, between 35 and 54 years representing 17.70%, and between 55 and 64 years representing 7.04%.

Finally, the youngest respondents - aged under 18, and the oldest ones - aged over 64, both represent a residual percentage of 0.43%.

Table 3 - Demographic Profile by Age

Age (years)	Sampling	
	Frequence	%
Under 18	2	0.43%
18 to 25	239	50.96%
26 to 34	110	23.45%
35 to 54	83	17.7%
55 to 64	33	7.04%
Over 64	2	0.43%
Total	469	100%

Source: Own Elaboration

Regarding education (see Table 4), the sample is quite dispersed, with 75.91% of the respondents with higher education - 39.87% undergraduate, 29.42% with master's degree, and 6.61% with a Ph.D. - and 21.32% with high school education. The basic education degree represents a lower percentage of only 1.49%.

Table 4 - Demographic Profile by Education

Education	Sampling	
	Frequence	%
Basic	7	1.49%
High School Education	100	21.32%
Undergraduate	187	39.87%
Master´s Degree	138	29.42%
PHD	31	6.61%
Other	6	1.28%
Total	469	100%

Source: Own Elaboration

In terms of region of residence (see Table 5), respondents are predominantly from the Northern Region of Portugal (35.18%) and the Porto Metropolitan Area (23.24%) - making a total of 58.42% of respondents. The remaining Portuguese regions present a less significant percentage - 13.65% belong to the Center, 5.97% to the Lisboa Metropolitan Area, 0.85% to Algarve, 0.64% to Alentejo, as well as the Autonomous Region of Madeira, and 0.43% to the Autonomous Region of the Azores.

Table 5 - Demographic Profile by Region of Residence

Region of Residence	Sampling	
	Frequence	%
North	165	35.18%
Porto Metropolitan Area	109	23.24%
Center	64	13.65%
Lisbon Metropolitan Area	28	5.97%
Alentejo	3	0.64%
Algarve	4	0.85%
Região Autónoma dos Açores	2	0.43%
Região Autónoma da Madeira	3	0.64%
Other	91	19.4%
Total	469	100%

Source: Own Elaboration

It is important to point out that 19.40% of the participants live outside Portugal, thus ending up selecting the option "other". Since we consider that this is a significant percentage, we have highlighted in Figure 1 the answers obtained in this category, which we grouped by country. It should be noted that the most represented country is the Netherlands, with 15.38%, followed by Brazil and the USA, both with a percentage of 13.19%. Since the "other" option was an open answer, there were 12.09% of the participants who gave another type of answer that prevented us from identifying their country of residence, so we decided to group those responses into a group called "Outside Portugal".

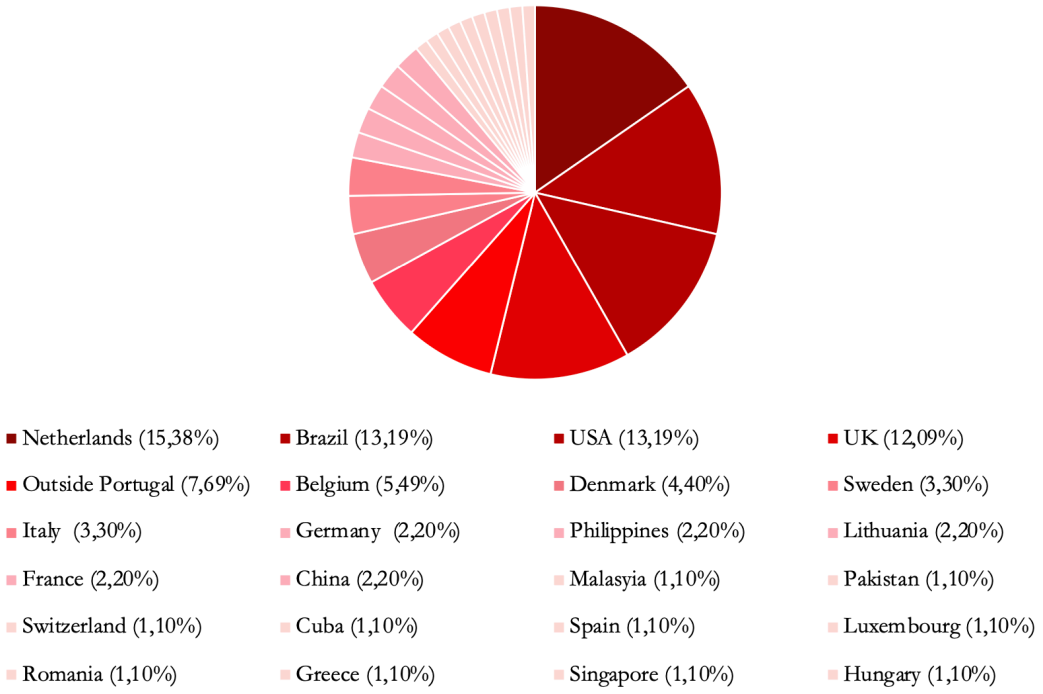


Figure 1 - Demographic Profile by Region of Residence: Other

Source: Own Elaboration

4.2. Analysis of principal results

We present the main results obtained with the application of the questionnaire, considered relevant for a better understanding of reality. To facilitate the analysis of the results, they were grouped according to the questionnaire.

Consumer Behavior

The respondents were asked how often they shop online and whether they use loyalty cards, to understand if they would be more likely to be exposed to personalized pricing strategies. Most respondents affirm that they shop on the internet, with 75.91% stating that they shop online less than five times per month. Only 10.87% claim not to make any online purchases, as we can see in Figure 2.

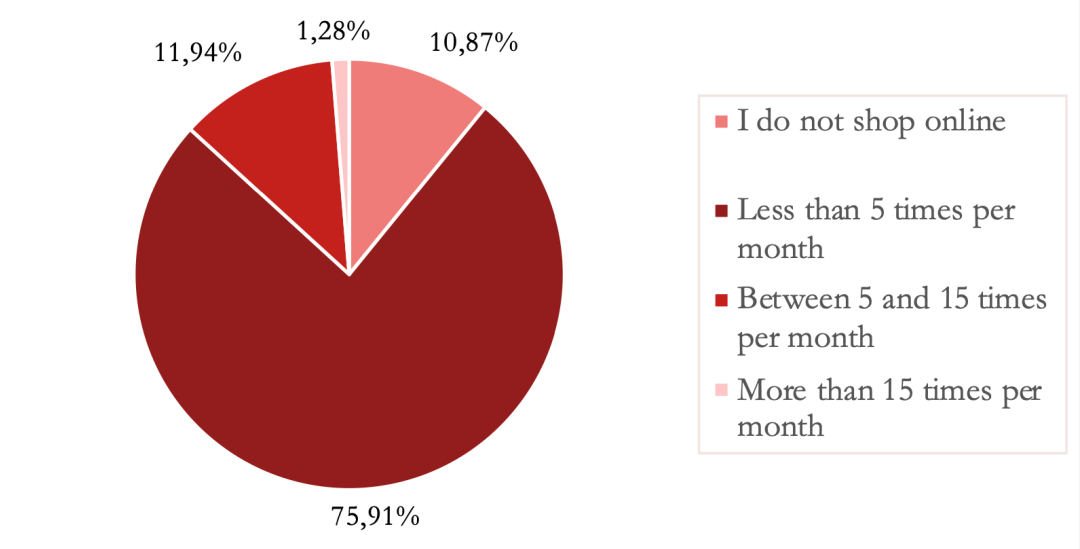


Figure 2 - Frequency of Online Shopping (Question 3)

Source: Own Elaboration

We can also verify, by analyzing the Table 6, that the most participants (68.02%) use loyalty cards.

Table 6 - Loyalty Cards Subscription (Question 4)

Do you use loyalty Cards?	**Sampling**	
	Frequence	%
Yes	319	68.02%
No	150	31.98%
Total	469	100%%

Source: Own Elaboration

To understand consumer behavior, and how they interact with the market, it was asked about the factors that influence their willingness to purchase, as well as the characteristics that they consider more relevant in a product and/or service, to better understand when, why and how, consumers buy the products and/or services available. For this, participants were asked to use a Linkert scale from 1 to 5.

Participants consider necessity (55.01%), price (51.39%), and personal preferences (47.76%) as the factors that " influence a lot" their willingness to purchase. Brand loyalty was the least significant factor, with 14.71% of participants voting "1. Does not influence at all" and 19.83% voting 2 (see figure 3). Statistically, the time available was the factor that

generated the least agreement among respondents, with a standard deviation of 1.2117, as we can see in annex 2.

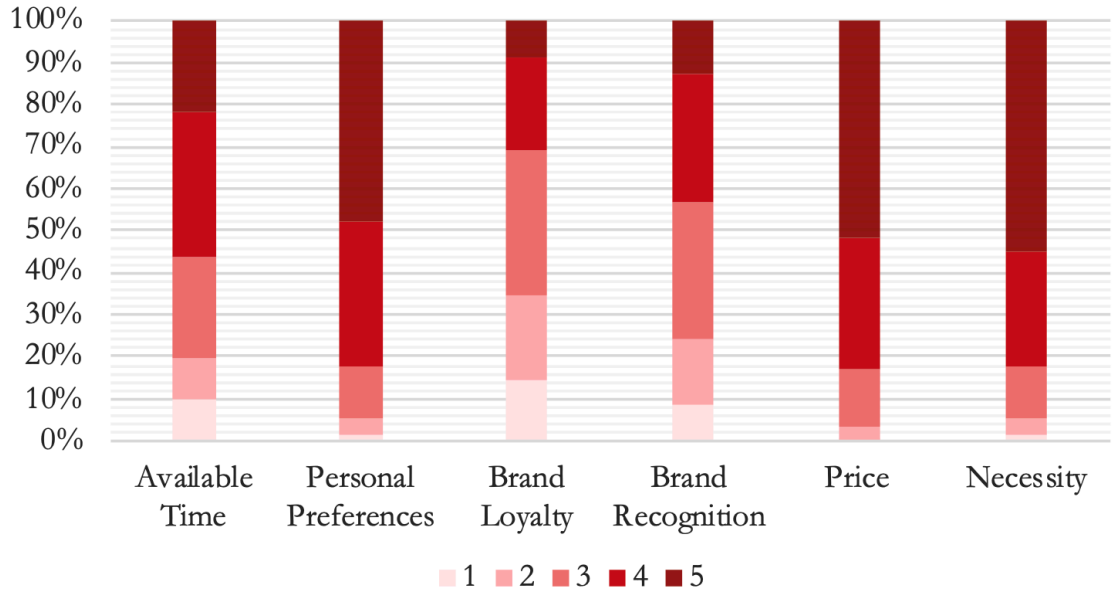


Figure 3 - Influence Factors on Willigness to Pay (Question 5) Source: Own Elaboration

Concerning the relevance of the characteristics of products and/or services, the participants considered quality as the most relevant characteristic, with 63.97% voting "5. Very relevant", followed by price with 54.58%, (see Figure 4.)

It should be noted that opinions towards the characteristic "brand" are more dispersed, and therefore had a higher standard deviation of 1.0619 (Annex 3).

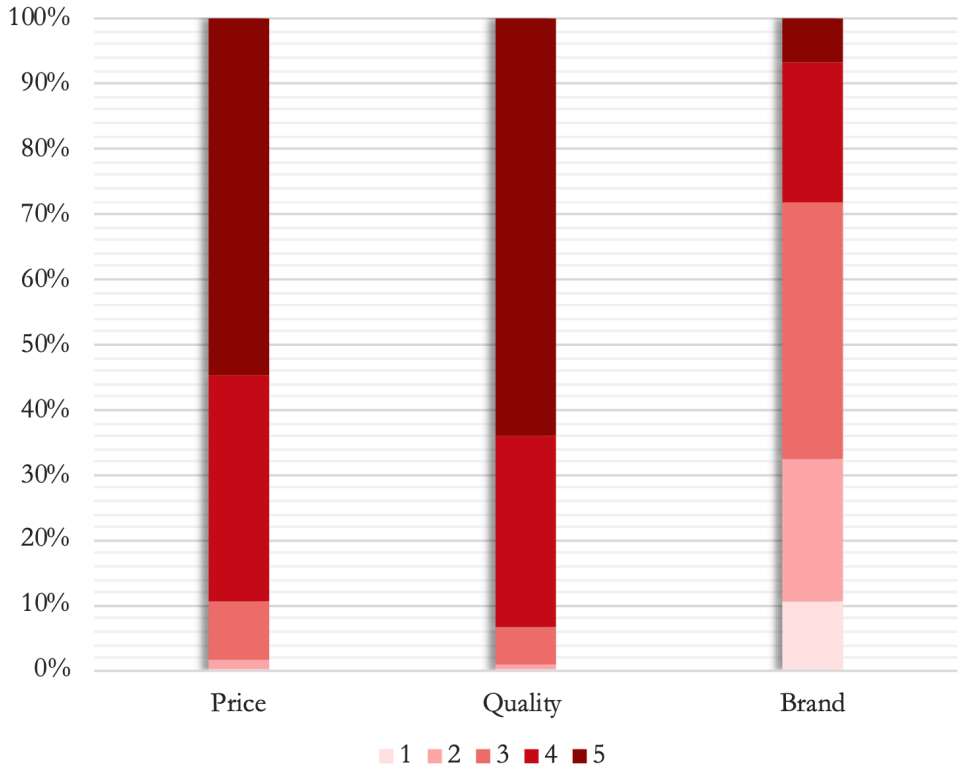


Figure 4 - Relevance of Product and/or Service Characteristics (Question 6) Source: Own Elaboration

In open-ended form (and not compulsory), participants were asked if there was any other characteristic they would like to highlight, having collected 96 responses. To make it easier to read and analyze the data collected, the outcome is presented as a " word cloud" where the words with higher frequencies are presented on a larger scale. Outcomes with similar meanings were grouped, so as not to misunderstand the idea that respondents wanted to convey, using synonymous terms. Figure 5 presents the main outcomes of this analysis.



Figure 5 - Other Relevant Characteristics (Question 7) Source: Own Elaboration

Analyzing the word cloud, we found that most people highlighted sustainability as an important characteristic, showing great concern about whether products and/or services are environmentally friendly. "Reviews" (ratings left by other consumers), were also a highly cited characteristic. This suggests that other consumers' opinions about a product and/or service are relevant characteristics for purchase decision-making. Another characteristic that we found important to mention, with a significant weight, was the time delivery, especially in the context of online shopping. Some participants pointed out that the fact that the product and/or service they wish to purchase is available, according to their need, is something quite relevant.

Personalized Pricing

The respondents were also asked about their knowledge and opinion about the Personalized Pricing strategy. It was shown that more than half of the respondents – 64,39% - did not know the term Personalized Pricing and were not aware of its use in the market – 57,36%, as shown in Table 7, and Table 8, respectively. This gap between the two questions may be related to the fact that the participants decide that they had already notice the use of personalized pricing in the market, considering the previously given explanation on the topic.

Table 7 - Knowledge of Personalized Pricing (Question 8)

Did you know the term Personalized Pricing?	**Sampling**	
	Frequence	%
Yes	167	35.61%
No	302	64.39%
Total	469	100%

Source: Own Elaboration

Table 8 - Personalized Pricing Perception (Question9)

Have you noticed the use of Personalized Pricing in the market?	**Sampling**	
	Frequence	%
Yes	200	42.64%
No	269	57.36%
Total	469	100%

Source: Own Elaboration

The participants were also asked to show their agreement with some statements, with the results shown in Table 9. 48.83% of the participants stated that when they hold benefits (coupons and discounts), it affects their purchasing habits. However, to try to understand if this change would be favorable, we tried to comprehend if the application of personalized pricing in the market affects negatively or positively the consumer's opinion about the company that applies it.

Table 9 - Personalized Pricing (Question 10)

10. Please select whether you Agree or Disagree with the following statements:	Agree	Disagree	No Opinion
When I get coupons and discounts, based on information about my purchase habits, I change my behavior (I buy more or less a product, I choose a different product, etc.)	48,83%	37,53%	13,65%
When I notice that a product has a lower price because of my online activity, I continue to try to get an even lower price.	47,76%	38,38%	13,86%
It bothers me that other consumers have access to the same product and/or service at lower prices	49,68%	37,74%	12,58%
I like when a company charges me different prices based on the information they have about me	26,23%	56,72%	17,06%
Consumers must be informed about the use of personalized pricing strategies	89,77%	4,90%	5,33%
It bothers me that other consumers have access to the same product and/or service at higher prices	28,40%	34,54%	17,06%
The fact that a company charges me different prices leads me to lose confidence in the brand	58,00%	27,93%	14,07%
I would buy the product and/or service regardless of the price charged to others	41,79%	39,66%	18,55%
The fact that a company charges me different prices leads me to not make any more purchases from that company	34,12%	46,70%	19,19%
I do not see a problem with a company charging me lower prices because it wants to keep me as a customer more than the other	39,66%	44,78%	15,57%
A company that applies personalized pricing is not credible	23,88%	47,97%	28,14%

Source: Own Elaboration

We found that more than half of the participants (58%) stated that they "lose confidence in the brand when a company charges them different prices". However, it may not affect their credibility, as well as not lead to extreme attitudes, such as not making more purchases from that company, since 46.70% disagreed with the following statement: "The fact that a company charges me different prices leads me to not make any more purchases from that company". Furthermore, it is noteworthy that 56.72% of the participants reported that they "do not like it when a company charges different prices based on their data". However, this issue may not only be related to a negative opinion of consumers towards personalized pricing strategies, but also the privacy issue.

41.79% of the participants affirmed that they would buy a product and/or service regardless of the price charged to other consumers, which may be related to the fact that price is not the most influencing factor to purchase or the most important characteristic in a product and/or service. However it is interesting to note that 49.68% of the participants showed their agreement with the following statement: "It bothers me that other consumers have access to the same product and/or service at lower prices", but when the same question is asked by changing only the fact that the price is higher – "It bothers me that other consumers have access to the same product and/or service at higher prices" - this percentage decreases significantly to 28.40%, with the gap from the "no opinion" participants not being meaningful. Such results may indicate that consumers may formulate a negative opinion about the use of this strategy only when they do not take advantage of it.

Finally, we would like to emphasize that 89.77% of the participants said they believe that consumers should be informed about the use of personalized pricing strategies, which leads us to assume that greater transparency in the application of the strategy could have a positive effect on consumer behavior.

According to the results of the previous question, we can see in Figure 6, that 56.29% of the participants mentioned that they prefer equal prices for all consumers, however, 45.20% recognize that this is a strategy that allows them to purchase products and/or services that better serve their needs and preferences at lower prices, as well as to have access to more discounts and advantages (44.56%).

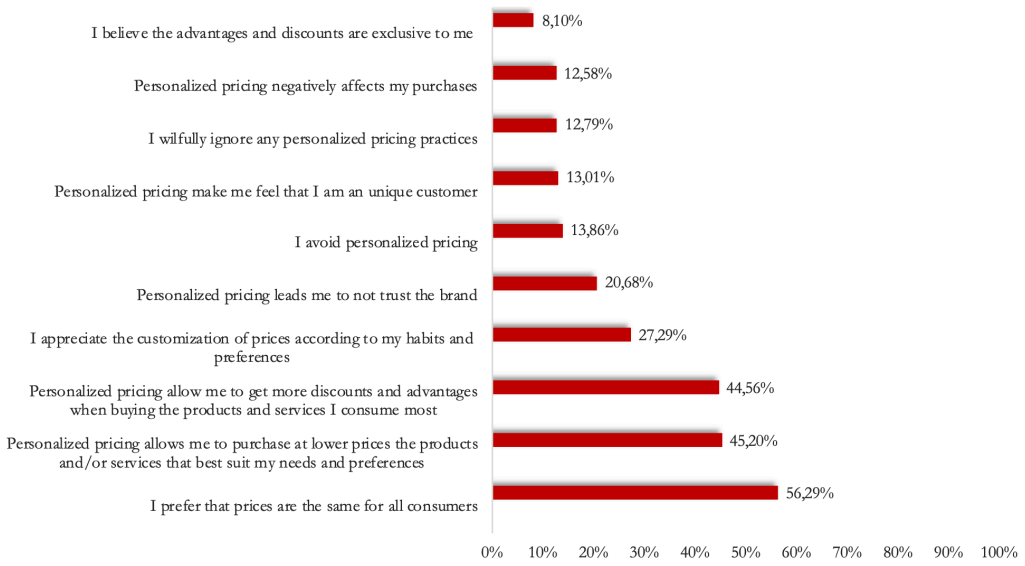


Figure 6 - Personalized Pricing (Question 11)

Source: Own Elaboration

When asked how they considered personalized pricing, we verify that the participants do not have a good impression. 40.72% considered personalized pricing as unfair, although 56.72% acknowledged that this is a good strategy to attract consumers (see Figure 7). 28 of the participants wanted to highlight "another option" of response, however, after analysis we consider that the results obtained are like the options already given and can be interpreted as synonymous.

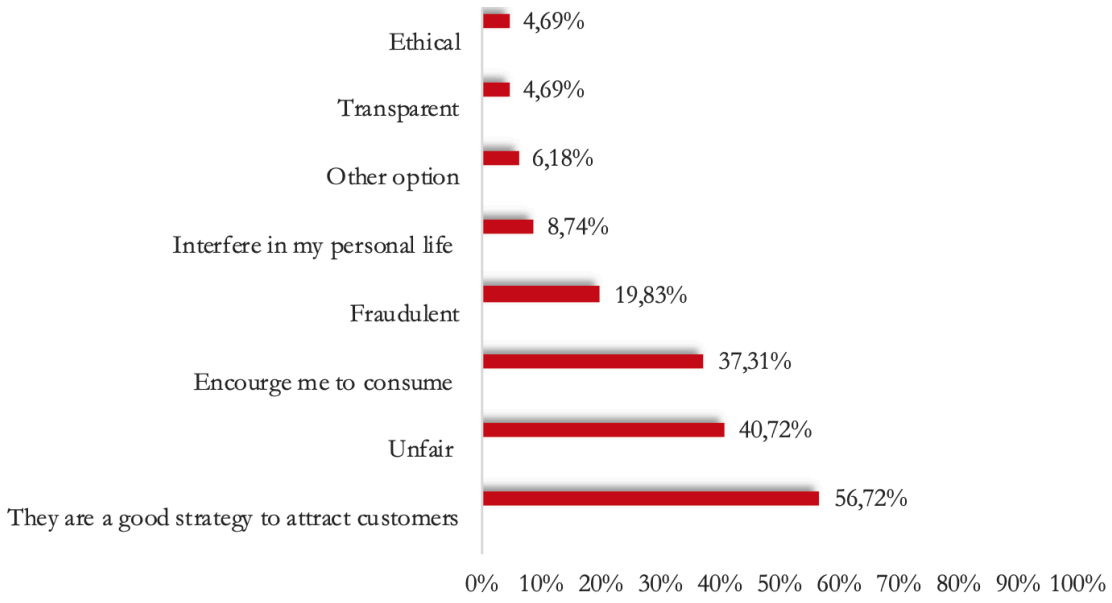


Figure 7 - Personalized Pricing (Question 12) Source: Own Elaboration

To conclude this group of questions, 2 scenarios were given for the respondents to evaluate on a 5-point Linkert scale - where 1 corresponded to "Very bad idea" and 5 to "Excellent idea". Observing Figure 8 it is possible to notice that in both scenarios - 32.84% in 1st scenario, and 33.69% in 2nd scenario - participants preferred to adopt a position of indifference - position 3. This attitude may be related to the fact that consumers are not comfortable expressing an opinion (either positive or negative) toward personalized pricing.

Scenario 1 presents a company that uses personalized pricing based on consumers' purchasing habits and their personal information. Scenario 2, on the other hand, describes a company that collects personal data to provide discounts and offers to consumers. Scenario 2 has a more negative evaluation than scenario 1, only 26.87% of the participants selected positions on the scale as 4 or 5, and in scenario 1 this percentage increases to

33.26%. Considering the standard deviation displayed (Annex 4) we verify that, in both scenarios, the respondents' answers were quite dispersed.

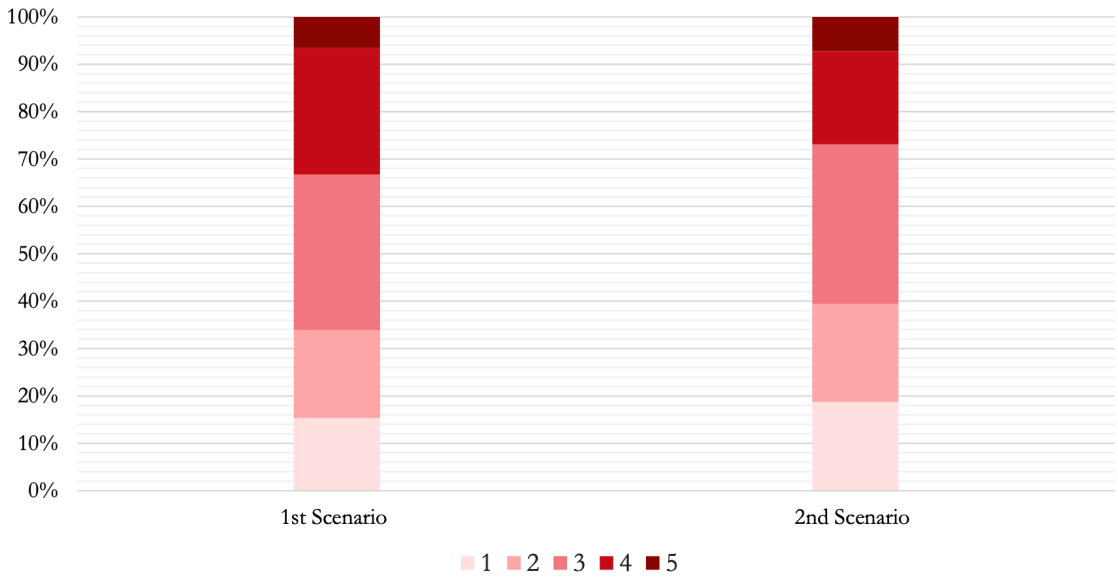


Figure 8 - Personalized Pricing (Question 13) Source: Own Elaboration

Personal Data Collection

Regarding the collection of personal data for personalized pricing strategies, the majority state that they usually share personal information to subscribe to loyalty cards (59.06%), as well as to shop online (64.82%), as we can see in Table 10 and Table 11, respectively.

Table 10 - Personal Data Sharing for Loyalty Cards Subscriptions (Question 14)

Do you usually share your personal data to subscrive loyalty cards?	**Sampling**	
	Frequence	%
Yes	277	59.06%
No	192	40.94%
Total	469	100%

Source: Own Elaboration

Table 11 - Personal Data Sharing for Online Shopping (Question 15)

Do you usually share your personal data to shop online?	Sampling	
	Frequence	%
Yes	304	64.82%
No	165	35.18%
Total	469	100%

Source: Own Elaboration

It turns out that most participants are concerned about their privacy, either when they shop online (86.99%) or when they subscribe to loyalty cards (79.74%) – as we can verify in table 12. We find that even when consumers trust a company (73.35%) or when the collection of their information is from a company that they visit regularly (56.29%), they still tend to care about the collection of their information.

Furthermore, it is important to highlight that 58.42% of the participants mentioned that they do not like to share their data, even if it is to benefit from offers.

Table 12 - Personal Data Collection (Question 16)

16. Please select whether you Agree or Disagree with the following statements:	Agree	Disagree	No Opinion
I care about my privacy when I shop online	86,99%	7,89%	5,12%
I care about my privacy when I share information to subscribe loyalty cards	79,74%	10,02%	10,23%
For me, it is very important to keep my privacy intact while shopping online	78,04%	12,15%	9,81%
I do not mind that companies where I shop often collect data about my purchasing habits	31,77%	56,29%	11,94%
If I trust an online company, I do not mind that this company collects personal information without asking me	17,70%	73,35%	8,96%
I do not mind if companies collect information about me	18,34%	68,87%	12,79%
I like to share personal data to get offers on products and/or services that I like best	26,44%	58,42%	15,14%

Source: Own Elaboration

We tried to understand how consumers feel when they realize that their information is being collected to apply offers and discounts, finding that 78.46% are concerned about the improper use of their information, as we can see in Figure 9. In addition, 70.58% of

respondents reported feeling uncomfortable with their information being shared without their permission, and 59.91% believed it was misused. Privacy concerns may be influencing consumers' opinions about personalized pricing, leading them not to share their information for these purposes - only 16.63% reported being willing to share their information for personalized pricing. However, it should be mentioned that this concern does not tend to lead consumers to take extreme behaviors such as not shopping online (13.65%) or signing up for loyalty cards (20.04%).



Figure 9 - Personal Data Collection (Question 17)

Source: Own Elaboration

We considered that by filling out the questionnaire, participants might think about changing their behavior, since it may have caused some judgment on the topic. We asked participants to use a 5-point Linkert scale, ranging from "unlikely" to "Sure I will change", to assess their likelihood of changing their behavior. It was considered that respondents willing to change their behavior in the market would answer 4 or 5; respondents in an indifferent position would answer 3; respondents who show no willingness to change their behavior would answer 1 or 2. It can be seen from Figure 10, that 36.46% of the participants are in a position of indifference - position 3, and that 40.09% of the respondents do not show a willingness to change their behavior, i.e. answered 1 or 2.

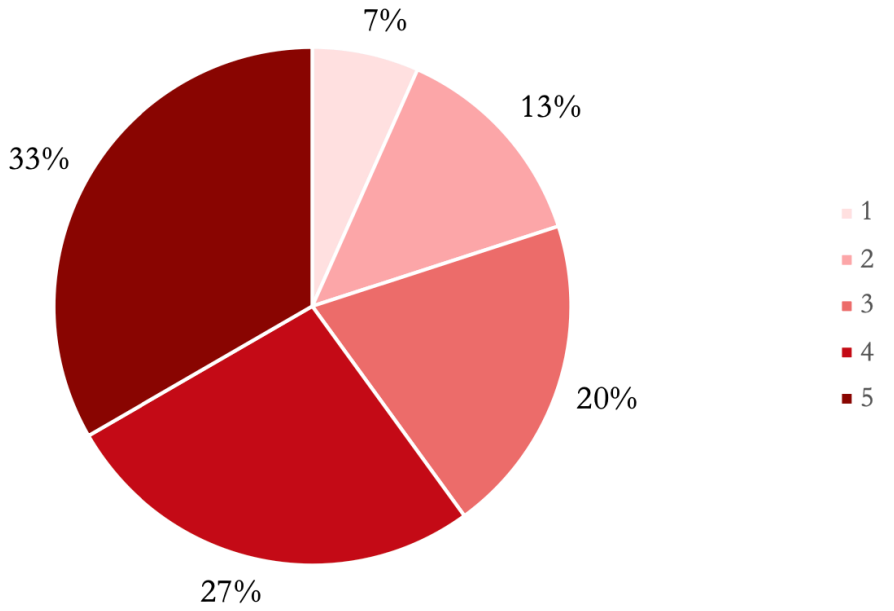


Figure 10 - Likelihood of Participants Changing Behavior (Question 18) Source: Own Elaboration

Finally, and to know what attitudes consumers might take after filling out the questionnaire, we put some statements so that they could rate according to a 5-point Linkert scale - where 1 corresponds to "Unlikely" and 5 to "Very Likely".

We found that it is less likely (positions 1 and 2) that the participants will adopt extreme attitudes such as no longer buying products and/or services from companies that adopt the strategy of personalized pricing (47.55%), no longer subscribing to loyalty cards or allow online data collection anymore (47.60%) (see Figure 11). 60.55% of the participants said that after completing the questionnaire they would be more aware of the prices that will be applied, as well as they would look more for offers to obtain lower prices (58.21%), i.e., answering 4 or 5.

It is noteworthy that more than half of the participants (54.37%), answered 4 or 5, and showed interest in knowing more about personalized pricing.

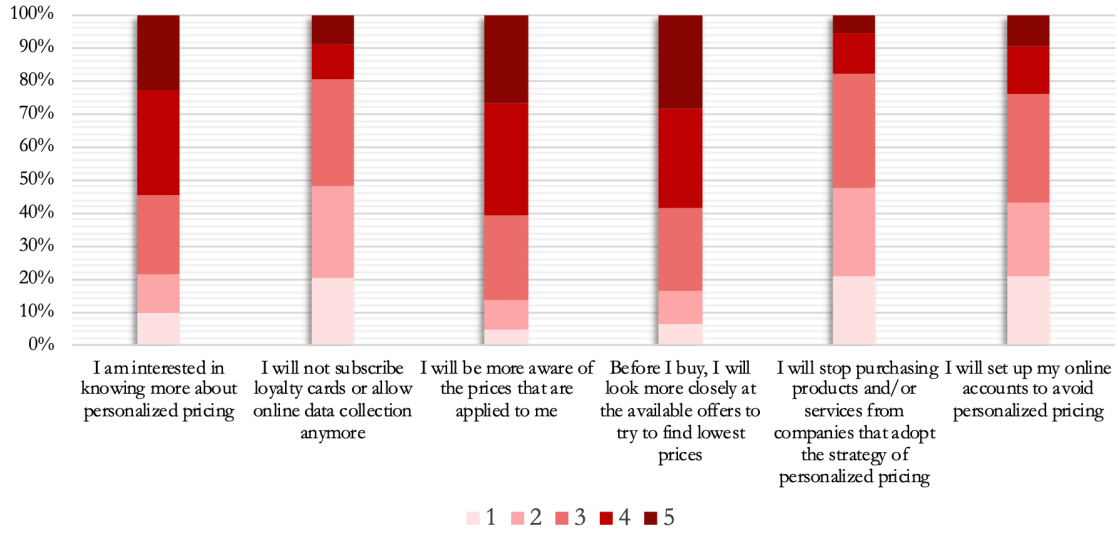


Figure 11 - Attitudes after Participating in the Questionnaire (Question19) Source: Own Elaboration

4.3. Hypothesis Research Validation

To address the research questions, a statistical analysis has been performed to draw some conclusions on the proposed hypotheses. Furthermore, a cluster analysis was performed to improve the research, using the IBM SPSS Statistics 28.0.1.1 software. This is a statistical method used to group elements based on their similarity. A two-stage cluster analysis was performed: a hierarchical cluster analysis, aiming to find a final number of groups (clusters); and a non-hierarchical cluster analysis (K-means) with the 2-cluster solution determined in the first step. For the hierarchical cluster analysis, it was used as a similarity measure the "Squared Euclidean distance", and as a preliminary solution to find the clusters, the Ward's Method.

We refer that a hypothesis is accepted when it is verified and confirmed by the investigation, otherwise, it is rejected.

Consumer Behavior

H1 - Consumers change their behavior when they perceive personalized pricing strategies as unfair

Price is quite significant for consumers. 82.73% of the total number of respondents rated price as a factor that "influence" or "influences a lot" their willingness to purchase. It should be noted that 56.29% of the total sample expressed a preference for prices to be the same for all consumers and agreed that it bothers them that other consumers have access to the same product and/or service, either at lower prices (49.68%) or at higher prices (48.40%). We can thus conclude that there is an aversion on the part of consumers to pay different prices than other consumers for the same product and/or service, even if they benefit from it. This aversion can generate perceptions of unfairness on the part of consumers, which consequently can influence their behavior in the market. Of the 469 participants, we found that 40.72% considered the personalized pricing to be unfair.

It is important to understand to what extent by perceiving personalized pricing as unfair, consumers change their behavior. Of those respondents who considered the strategy as unfair, only 38.22% reported changing their behavior when they get coupons or discounts based on information about their purchasing habits. Also, a non-significant percentage reported that personalized pricing interferes with their personal life (15.18%), and that personalized pricing negatively affects their purchases (9.42%).

When asked if the fact that the company charges different prices lead the consumer not to purchase from that company anymore, only 34.12% of the 469 respondents agreed with the statement. However, when analyzing the respondents who classified the personalized pricing as unfair, this percentage increases to 47.64%. We can thus conclude that if consumers perceive personalized pricing as unfair, this perception can influence their behavior.

As a complement to these observations, we performed a cluster analysis. In the dendrogram of Annex 3, it is possible to verify the formation of 2 clusters. From the K-means cluster analysis, individuals were divided into the following groups:

- "May change behavior": respondents who by considering personalized pricing as unfair, believe that it has a negative impact on their purchases and that it interferes with their life.
- "Change behavior": respondents who when considering personalized pricing as unfair tend to change their behavior in the market.

As can be seen in Annex 4, the chi-square tests confirm that there are significant differences, for a significance level of 0.05, which mean that the respondents who rated the personalized pricing as unfair contribute to the formation of clusters, i.e. to a greater divergence of the sample.

Overall, consumers tend not to adopt extreme and negative behaviors. This finding may be linked to the fact that perceptions of fairness are not only related to price, but also to consumer purchase satisfaction. When we analyze the consumers who considered the prices as unfair together with those who evaluated with "4. Relevant" or "5. Very relevant" the characteristics of the products and/or services, we see that, although the price is relevant (92.15%), quality is the most significant one (95.29%). The same happens when we analyze the consumers who considered the prices as unfair together with those who evaluated with "4. Influence" or "5. Influences a lot" the factors that can influence their willingness to purchase. Need was the factor with the best percentage (85.34%) followed by price (84.82%).

We thus conclude that although perceptions of unfairness on personalized pricing may lead to changes in consumer behavior, this is not the only influencing factor. Moreover, consumers do not usually take extreme measures. However, as already mentioned,

consumers who perceive personalized prices as unfair, tend to adopt new behaviors in the market, when compared to those who do not perceive as unfair.

Therefore, **hypothesis 1 is rejected,** that is, the perception that prices are unfair generates strong reactions from consumers.

H2 – Consumers' perceived fairness is influenced by the perceived benefits they can obtain

It might be thought that a consumer obtaining a benefit from pricing personalization may change his or her opinion about the strategy. However, in the case of prices, consumers prefer to have prices that are the same for all consumers (56.29% of total sample).

As concluded by Acquisti et al. (2016), we find that consumers do care if other consumers have access to the same product and/or service at a different price, even if they pay a higher price (48.40% of total sample). Considering the consumers who referred to the personalized pricing as unfair, this percentage significantly increases. More than half agreed that it is bothersome that other consumers have access to the same product and/or service at either a lower price (65.45%) or a higher price (68.06%). 44.78% out of 469 respondents reported that they mind if a company charges them lower prices just because they want to keep them as a customer more than the other. This percentage increases to 71.20% when analyzing those who considered the personalized pricing as unfair.

We conclude that even when benefiting from a lower price, consumers still prefer that prices are the same for everyone, stating that the opposite bothers them.

Then, **hypothesis 2 is rejected**. The fact that consumers benefit from personalized pricing does not influence their perception of fairness, since in general (even those who considered personalized pricing as unfair) individuals prefer prices to be the same for everyone.

H3 - Personalized pricing change consumer behavior

The application of personalized pricing in the market can create changes in consumer behavior. The fact that they get discounts or vouchers can influence their way of purchasing and acting in the market. Less than half of the total sample (48.83%) agreed that when they get coupons and discounts, based on information about their purchasing habits, they change their behavior (buy more or less of a product, choose a different product, etc.).

However, it is unspecified whether this change is positive or negative, and if it is intentional. Consumers can negatively change their behavior. For example, having no repurchase intentions and no longer sharing their data and information to get personalized pricing. Only 12.79% of the total sample said that personalized pricing negatively affects their purchases. Additionally, only 19.40% mentioned that it would be "4. Likely" or "5. Very Likely" to stop subscribing loyalty cards or allowing online collection of data anymore. 17.48% said they would stop purchasing products and/or services from companies that adopt personalized pricing strategies. In general, we conclude that personalized pricing does not lead to negative changes from consumers.

This negative behavior can also be connected to the consumer's loyalty and opinion about a company. When analyzing the total sample, we find that only 20.68% of the respondents said that personalized pricing leads to not trusting the brand, however, 58% agreed that the fact that a company charges different prices leads to a loss of trust in the brand. This is a conflicting observation, which may be associated with the wording employed in the questions since one of them refers to " personalized pricing" and the other just refers to "different prices". Given this observation we can conclude that personalized pricing can indeed influence consumer loyalty.

Moreover, knowing that they can obtain benefits, consumers may increase their purchases, as well as their willingness to share information. However, only 16.63% of the total sample said they would be willing to share their data for the purpose of getting personalized pricing strategies. Only 37.31% of the respondents stated that this practice encourages them to consume. The fact that consumers do not show positive changes in their behavior is closely related to privacy concerns.

Finally, when consumers notice that personalized pricing gives them more discounts and benefits, they may deliberately change their behavior. 47.76% of total sample agreed that, when they notice that a product has a lower price because of their online activity, they continue to try to get an even lower price. It should also be noted that only 12.58% of the respondents said that they ignore the application of personalized pricing.

Since the filling out of this questionnaire may have brought some new or clearer information about the practice of personalized pricing, we consider as important to know if it could influence how participants will behave in the future. Only 23.45% said they would

change their behavior after answering the questionnaire. However, 54.37% reported being interested in knowing more about the subject, giving a Linkert scale rating of 4 or 5.

It can be concluded that personalized pricing can influence consumer behavior, especially in an intentional way. It should be noted that the practice of personalized pricing does not tend to make consumers behave negatively. Then, **hypothesis 3 is accepted.**

Personalized Pricing

H4 - Personalized pricing appreciation can be related to benefits

Personalized pricing allows consumers to purchase products and/or services at prices that satisfy their needs and preferences. Having said that, we would expect consumers to appreciate the utilization of personalized pricing in the marketplace.

We verify that less than half of the respondents perceive that personalized pricing allows them to acquire products and/or services that better correspond to their preferences and needs, at lower prices (45.20%), as well as to acquire discounts and advantages associated with the products and/or services they consume the most (44.56%). Furthermore, about 39.45% reported as "1. Very bad idea" or "2. Bad idea" that a company (online or physical) collects personal data about consumers to offer special offers and discounts. It is also noteworthy that, only 27.29% of the total participants expressed appreciation for the customization of prices according to their habits and preferences.

We find that although consumers can obtain advantages and lower prices with the application of personalized pricing in the market, they do not usually appreciate it more. We thus conclude that **Hypothesis 4 is Rejected.**

H5 - Personalized pricing tends to be perceived as unfair

As verified earlier, 40.72% of the total respondents considered the personalized pricing as unfair. With 56.29% of respondents preferring that prices be the same for all consumers.

It is concluded that personalized prices tend to be perceived by consumers as unfair. However, this analysis should be complemented with consumer purchase satisfaction, which can influence the perception of unfairness. Therefore, **hypothesis 5 is accepted**.

H6 - Personalized pricing can affect consumer confidence

Personalized pricing can impact consumer confidence. By considering personalized pricing as a bad practice, consumers may change their behavior and consequently stop trusting in the brand.

From the total sample of 469 participants, 58% agreed that the fact that a company charges different prices leads to a loss of confidence in the brand, and 80.63% mentioned that the fact that a company charges different prices leads to a loss of confidence in the brand. Although it turns out to be a contradictory result, only 23.88% agreed that a company that applies personalized pricing is not credible. It can be stated, therefore, that personalized pricing tends to lead to a loss of consumer confidence. This loss can be mitigated if the price difference is not directly perceptible, for example applied through vouchers. The loss of trust may be related to the satisfaction the consumer takes away from the whole purchasing experience.

A significant percentage of respondents (73.35%) reported that they mind if an online company collects their personal information without permission, even if they trust the company. Since the application of the strategy of personalized pricing still raises many concerns, especially in terms of privacy, this can lead consumers to doubt the company's ways of operating, leading to a loss of trust.

Then, **hypothesis 6 is accepted,** meaning that from the sample it is concluded that the personalized pricing strategy leads to consumers losing confidence in the brand.

Personal Data Collection

H7 - Data privacy concerns may be related to personal information disclosure

Generally, participants showed great concern with the collection of their personal data. Analyzing the total sample, respondents showed to care about their privacy when shopping online (86.99%), as well as when sharing information to join loyalty cards (79.74%). In addition, 69.97% reported caring that a company collects personal information about them. This privacy concern is connected to consumers' perception that companies may mismanage their data. A significant percentage of respondents (78.46%) reported being concerned about the misuse of their personal data.

However, and despite the great concern, consumers tend to share their data. Many times, and as mentioned earlier in this research, to enjoy a product and/or service they are

"forced" to share at least some of their information. When asked whether they usually share data, more than half of the respondents answered "yes" for the purpose of subscribing to loyalty cards (59.06%), as well as for making online purchases (64.82%).

We find that of those respondents who mentioned sharing information to join loyalty cards, 79.42% stated that they care about their privacy when sharing data for this same purpose. Of the respondents who mentioned sharing information to make online purchases, 82.89% stated that they care about their privacy when sharing information for this same purpose. It should be noted that these percentages, although higher, are not much different when analyzing the total sample.

Of those respondents who mentioned sharing information to join loyalty cards, we also found that 64.62% reported being concerned about companies collecting their personal information. We see that once again, despite concerns about their privacy, consumers continue to share their information for certain purposes. The same conclusions are drawn when we analyze respondents who mentioned sharing information to make online purchases, as 62.17% reported being concerned about companies collecting their personal information.

We conclude that, individuals are concerned about their information, and this can influence their data sharing. People who are more concerned about their privacy tend to share more data, and the opposite is also true. Then, **hypothesis 7 is accepted.**

H8 - Personalization motivates the disclosure of information

Besides the mandatory sharing of data for the use of certain products and/or services, the perception of the benefits can also be a motivating factor when deciding whether to share information.

Through personalization consumers get products that are more targeted to their preferences and needs. In return companies need information about their consumers to be able to implement such strategies. 56.29% of respondents showed that they mind if a company collects data about their purchasing habits.

One would expect that consumers, realizing that price personalization benefits them, would increase their willingness to share data, even if they are concerned about privacy. – Personalization-Privacy Paradox. However, 39.45% of respondents reported as "1. Very bad idea" or "2. Bad idea" the fact that a company (online or physical) collects their

information to offer advantages and discounts. Furthermore, 58.42% of the participants expressed a position of disagreement, regarding the following statement: “I like to share personal data to get offers on products and/or services that I like best". Moreover, a residual percentage (16.63%) said they were willing to share their information to get personalized prices. Of those consumers who disagreed with the above statement, 94.84% reported being concerned about the misuse of their information.

Such results suggest some ambiguity in consumer behavior, who remain concerned about sharing their data. Consumers tendo to compromise certain benefits in favor of less vulnerabiloity when it comes to privacy and personal data sharing. In this case, the paradox does not hold.

Then**, hypothesis 8 is rejected.** It is concluded that personalized pricing strategies do not motivate information disclosure, since concern about the misuse of their information, and their privacy is an ongoing issue.

Personal Data

H9 - Knowledge of personalized pricing is highest among younger age groups

It was considered as "younger age groups" the participants that, when characterized by age, fall into the categories: "under 18 years old"; "18 to 25 years old"; "26 to 34 years old", with the remaining categories characterizing the "older age groups".

When questioned if they know the term personalized pricing, 34.76% of the “younger age groups” and 38.14% "older age groups” stated “No”. When questioned if they have noticed the use of these strategies in the market, 41.31% of the “younger age groups” and 47.46% "older age groups” stated “No”. From the data obtained, it cannot be concluded that "younger age groups" are more knowledgeable about personalized pricing.

A cluster analysis proved to be useful. Through the dendrogram in Annex 5, it is possible to observe the formation of 2 clusters for a distance greater than 10, and 3 clusters for a distance less than 5. The formation of 3 clusters proved to be the most appropriate for the study. A K-means cluster analysis was then performed with a 3 clusters solution. After the results, the sample was divided into the following groups:

- "Underage and over 55": individuals younger than 18 or older than 55, who showed low personalized pricing knowledge scores

- "Youth": individuals between the ages of 18 and 25, who showed high personalized pricing knowledge scores
- "Adults": individuals between the ages of 26 and 54, who showed intermediate personalized pricing knowledge scores.

As we can see from Annex 6, each pair formed within the 3 groups is statistically significant for a significance level of 0.05, which mean that the respondents who know the term personalized pricing and those who have noticed its use in the market contribute to the formation of clusters, i.e. to a greater divergence of the sample, according to their age.

This result proved that it is meaningful to divide the population into three groups instead of two ("younger age groups" and "older age groups"). We can verify that by grouping into 3 groups, there is clear evidence that the "youth" are those who have the most knowledge about personalized pricing. The "Underage and over 55": showed low values of knowledge about personalized pricing, which may be associated with the fact that the under-18s do not yet have economic independence, as well as the fact that the over-55s do not share their information as much and are not as present in the online market.

We can conclude that there is clear evidence that young people and adults have greater knowledge about personalized pricing when compared to older people and those under 18, and therefore **hypothesis 9 is accepted.**

H10 - Younger people are more likely to accept pricing personalization

The fact that younger people are more present in the online market, makes them more exposed to personalized pricing. In addition, their greater knowledge of the subject can generate more confidence and a larger acceptance of the use of personalized pricing strategies in the market.

Given the results obtained previously, we divided the individuals into three groups according to age: "Underage and over 55": "Youth"; and "Adults". We found that in all groups a residual percentage appreciated the personalization of pricing according to their habits and preferences ("Under age and over 55" – 5.41%; "Youth" – 8.37%; "Adults" – 5.70%). Furthermore, only 13.51% of the respondents from the "Underage and over 55" group agreed with the following statement: "I like to share personal data to get offers on products and/or services that I like best". This percentage increases to 28.45% in the "Youth" group and to 26.42% in the "Adults" group. Even fewer respondents mentioned

being willing to share their data to get personalized pricing ("Underage and over 55" - 10.81%; "Youth" - 20.08%; "Adults" - 13.47%).

We find that although respondents between 18 and 25 years of age (Youth group) are more open than the other age groups to appreciate personalized prices and are willing to share their data for that purpose, these values are not significantly higher.

We proceeded to a cluster analysis. Through the dendrogram in Annex 7, it is possible to observe the formation of 2 clusters for a distance greater than 10, and 3 clusters for a distance less than 5. The formation of 3 clusters proved to be the most appropriate for the study. A K-means cluster analysis was then performed with a 3 clusters solution. The sample was divided into the following groups:

- "Underage and over 55": individuals younger than 18 or older than 55, who showed low appreciation scores for personalized pricing.
- "Youth": individuals between the ages of 18 and 25, who showed high appreciation scores for personalized pricing.
- "Adults": individuals between the ages of 26 and 54, who showed intermediate appreciation scores for personalized pricing.

As we can see from Annex 8, each pair formed within the 3 groups is statistically significant for a significance level of 0.05, which mean that the respondents who agree with the following statement: "I like to share personal data to get offers on products and/or services that I like best", and those who appreciated the personalization of prices according to their habits and preferences, as well as those who considered themselves willing to share data to obtain such strategies, contribute to the formation of clusters, i.e. to a greater divergence of the sample.

We conclude that, apart from underage people, youth and adults tend to appreciate personalized pricing more. However, the difference is not high since youth and adults are still concerned about their privacy. Then, **hypothesis 10 is accepted.**

H11 -Knowledge of personalized pricing is higher among people with a higher level of education

For analyzing the sample by education levels, we divided the "low education levels" and the "higher education levels". In the first group we considered those who had not attended

higher education or more, while in the other group we considered the remaining ones, except “other option”.

It is important to note that the "low education levels" group represents only 22.81% of the total sample. When questioned if they know the term personalized pricing, 70.09% of the low education levels" stated “No” and 62.36% "higher education levels" stated the same answer. When questioned if they have noticed the use of these strategies in the market, 57.01% of the low education levels" stated “No” and 57.30% "higher education levels" stated the same answer. From the data obtained, it cannot be concluded that "higher education levels" significantly are more knowledgeable about personalized pricing.

A cluster analysis proved to be useful. Through the dendrogram in Annex 9, it is possible to observe the formation of 2 clusters for a distance of 10, and 3 clusters for a distance less than 5. A K-means cluster analysis was then performed with a 2 clusters solution. The sample was divided into the following groups:

- " Other levels of education": Individuals who hold one of the following degrees: basic education, high school education, PhD or other, and who showed low personalized pricing knowledge scores
- "Higher Education up to Master's degree": Individuals who hold one of the following degrees: undergraduate or master degree, and who showed high personalized pricing knowledge scores.

As we can see from Annex 10, each pair formed within the 3 groups is statistically significant for a significance level of 0.05, which mean that the respondents who know the term personalized pricing and those who have noticed its use in the market contribute to the formation of clusters, i.e. to a greater divergence of the sample, according to their level of education.

We find that individuals with higher education levels have greater knowledge about personalized pricing. Individuals with PhD were not included in this group, which may be linked to the fact that they represent only 6.61% of the sample. A 3-cluster analysis gives the same conclusions, only separating in a third group individuals with high school education.

We conclude that the greater the education levels, the greater the individual's knowledge tends to be towards personalized pricing strategies. Then, **hypothesis 11 is accepted.**

5. Conclusion

Personalization is becoming more and more significant in the marketplace. In the present digital age, this has been a key component of business-to-consumer communication. However, companies can only implement such strategies if they have access to consumer data, such as their needs and preferences. A major barrier to the implementation of such a strategy is privacy issues. This is a sensitive topic, since consumers tend to show high levels of concern about the collection, sharing and consequent monitoring of their information. One would expect that consumers, although concerned about their privacy, would be more willing to participate in personalization when they perceive that it can bring benefits – Personalization-Privacy Paradox.

Personalized pricing is a strategy that allows consumers to obtain products and/or services they value at special prices. However, privacy concerns, as well as consumer perceptions of unfairness, make companies cautious in their application. The Amazon case is one of the examples where the application of personalized pricing has not been well accepted by consumers. It is therefore important to understand consumers' opinions towards the application of personalized pricing in the market and their behavior.

This research has the following objectives: i) Understand the impact of personalized pricing on consumer behavior - buying habits, preferences, and perceptions; ii) Understand consumers' position to personal data collection; and iii) Assess whether the personalization-privacy paradox exists in the sample considered.

To accomplish this, quantitative data collection was conducted to gain a greater understanding of consumer attitudes and opinions towards personalized pricing using a questionnaire, later shared online. A final sample of 469 participants (consumers) was obtained. This approach highlights key aspects such as the factors that most influence the consumer to buy, the perceived fairness of personalized prices, and the change in consumer behavior towards personalized prices. This seemed to be the best way to capture the opinion and attitudes of consumers.

A statistical analysis of the collected data was performed. The research has demonstrated that personalized pricing is still a strategy that is little known to the public, who prefer the same prices for all consumers. The perceptions of unfairness proved not to be directly related to change in consumer behavior, since these are mostly associated with the

satisfaction that the consumer gets with the purchase of a product and/or service, which can be quantified according to: price, product quality, brand, among others. However, personalized pricing has proved to be an unfair strategy in public view.

Consumers tend to change their behavior in the face of personalized pricing. This proved to be mostly negative or intentional. Consumers showed that the application of personalized pricing in the market leads to a loss of confidence in the company, as well as encourages the intentional search for more discounts and lower prices.

Data privacy concerns are high and intensify when combined with personalized pricing making consumers more averse to it. Data privacy concerns have been shown to negatively influence the sharing of personal data, and thus the personalization-privacy paradox is not verified in this study's sample. However, loyalty card users and online shoppers, despite having high privacy concerns, continue to disclose personal information. Interestingly, according to the literature, control over privacy seems to positively influence data privacy concerns.

It is important to highlight that, through cluster analysis, the sample was segmented into three groups according to age - including "Underage and over 55", "Youth" and "Adults" - and into two groups according to education levels - including "Other levels of education" and "Higher Education up to Master's degree". Throughout the research it was found that individuals with higher levels of education, as well as representatives of younger age groups, have greater knowledge about personalized pricing and a greater appreciation of the strategy.

This study contributes to the literature, firstly, by proposing a new view from the consumer's side regarding the use of personalized pricing strategies in the market. Although there is some literature that analyzes the consumer side, it is scarce since the majority approaches or a perspective of who applies the personalized pricing or specify the personalization-privacy paradox.

The present research provides significant contributions to firms, academics, and consumers by helping to achieve a greater understanding of the consumer impact of personalized pricing. Our results provide interesting economic implications in support of business and personalized pricing strategies. It helps marketers understand how to better implement personalized pricing in a way that addresses consumers' concerns, particularly regarding their privacy.

Furthermore, if marketers know how to implement personalized pricing in a way that mitigates the negative effects, consumers will tend to be more receptive to such strategies. On the one hand, users will have the opportunity to enjoy the intrinsic benefits of personalized pricing in a less intrusive way and without involving the violation of their privacy. Based on the results, we recommend that data collection be done as transparently as possible.

Finally, understanding the factors that increase and decrease consumer welfare is central to the application of personalized pricing and its effectiveness since the goal of all companies is to maximize profit by increasing purchase intentions, which can be influenced by the perception of the strategy.

5.1. Future Work

Even though the contributions and the study were made with a high degree of scientific rigor, it is worth pointing out some limitations. First, the research was based on a convenience sample. The fact that the methodology used was a questionnaire, later shared online, reduces the possibility of generalization – total sample of 469 respondents. Moreover, sharing the questionnaire via internet restricts the sample to individuals only included in these environments and may not be adequate to cover older age groups and those with lower education levels.

Another limitation is because the questionnaire was analyzed by using MS Excel, presenting the statistical results obtained and not performing exhaustive data correlations, a limiting factor for the presentation of possible conclusions of data correlation. The fact that we are going through a pandemic crisis has changed consumers' purchasing power, thus changing their habits and behavior - the results could be different if we lived in unconditioned times. Finally, we should also mention the difficult generalizability of the study due to constantly changing privacy policies.

Therefore, we can make some suggestions that we consider relevant for future research. First, and to better approximate the reality of the research in the context of the world population, a more heterogeneous and representative sample of the population should be considered. Existing indicators (databases) can also be used to improve the research, such

as indicators related to consumer consumption habits. It may also be interesting to conduct research for a specific region.

The quantitative research model can be adjusted by including other variables and grouping them into factors that can more accurately measure consumer feelings, such as opinions and intentions. This may be a contribution to the creation of a more accurate model. Additionally, considering that the subject of this research is quite current and is gaining more relevance, it is likely that there are other constructs that could be added to the proposed conceptual model to give more value to the research.

It would be interesting for further research to apply this analyze in a more specific way. For example, looking only at those consumers who shop online, or at consumer who do not shop online.

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Annex

- *Annex 1 - Final Questionnaire*

"Do consumers prefer personalized pricing?"

1. Por favor, selecione a língua em que pretende realizar este questionário / Please select the language in which you would like to take this survey

- ○ Português/ Portuguese
- ○ Inglês/ English

- Portuguese Version -

Caro(a) participante,

Convidamo-lo a participar no presente estudo, enquadrado no âmbito de uma investigação do Mestrado de Economia na Faculdade de Economia da Universidade do Porto (FEP), e que visa compreender qual o comportamento dos consumidores face às estratégias de preços personalizados aplicadas no mercado e como pode tal estratégia alterar a sua decisão de compra.

O preenchimento do presente questionário demora aproximadamente 8 minutos. O questionário encontra-se implementado numa conta Google abrangida pela licença subscrita pela Universidade do Porto. Ao longo do inquérito, não será solicitada qualquer informação que permita identificá-lo(a). Os dados recolhidos serão tratados de forma confidencial e utilizados

Para esclarecer qualquer questão acerca deste estudo poderá contactar a estudante Marta Nunes, através do seguinte endereço eletrónico up202002400@up.pt.

A sua participação é muito importante para a nossa investigação!

Muito se agradece a sua disponibilidade e colaboração!

2. Declaração de consentimento

- ○ Declaro que li e tomei conhecimento das informações sobre o estudo e aceito responder ao seguinte questionário da forma mais sincera possível

Comportamento enquanto consumidor

As seguintes questões destinam-se a estudar o comportamento do consumidor, isto é, como os consumidores, individualmente ou em grupo, interagem com o mercado, com o objetivo de compreender quando, porquê e como os consumidores compram os produtos e/ou serviços disponíveis.

Desta forma, queremos perceber o que influencia as ações dos consumidores no ato de compra.

Durante o inquérito utilizamos o conceito de cartões de fidelização significando a estratégia aplicada pelas empresas (em formato físico ou online como APPs) para atrair e fidelizar os clientes mediante uma recompensa, em forma de descontos e outras vantagens. A utilização dos cartões de fidelização é monitorizada pelas empresas, o que permite reter informação sobre os seus clientes, ajudando na aplicação de estratégias como, por exemplo, os preços personalizados.

3. Com que frequência faz compras na internet?

- ◯ Não faço compras na internet
- ◯ Menos de 5 vezes por mês
- ◯ Entre 5 a 15 vezes por mês
- ◯ Mais de 15 vezes por mês

4. Utiliza Cartões de Fidelização?



- ◯ Sim
- ◯ Não

5. Como classifica os seguintes fatores quanto à influência sobre a sua vontade de adquirir um produto e/ou serviço? (sendo que 1 corresponde a "não influencia nada" e 5 a "influencia muito")

	1	2	3	4	5
Tempo disponível	◯	◯	◯	◯	◯
Preferências pessoais	◯	◯	◯	◯	◯
Lealdade à Marca	◯	◯	◯	◯	◯
Reconhecimento da Marca	◯	◯	◯	◯	◯
Preço	◯	◯	◯	◯	◯
Necessidade	◯	◯	◯	◯	◯

6. Como classifica as seguintes características de um produto e/ou serviço, por ordem de importância? (1 corresponde a "Nada importante" e 5 "muito importante")

	1	2	3	4	5
Preço	◯	◯	◯	◯	◯
Qualidade	◯	◯	◯	◯	◯
Marca	◯	◯	◯	◯	◯

7.Há alguma outra característica de um produto e/ou serviço que classifica como muito importante e gostaria de salientar? (Em caso negativo, por favor siga para a página seguinte)

Preço Personalizados

A personalização de preços é uma estratégia adotada por muitas empresas e consiste em definir, para um mesmo produto, preços diferentes para consumidores diferentes (individualmente ou em grupo).

Na definição de preços personalizados as empresas consideram informações sobre os consumidores nomeadamente as suas preferências, hábitos de compra e necessidades, bem como a avaliação sobre o montante que cada consumidor está disposto a pagar pelo produto e/ou serviço.

8. Já conhecia o termo Preços Personalizados?

- ○ Sim
- ○ Não

9. Já se apercebeu do uso de Preços Personalizados no mercado?

- ○ Sim
- ○ Não

10. Por favor, selecione se Concorda ou Discorda com as seguintes afirmações:

	Concordo	Discordo	Não tenho opinião
Quando obtenho vales e descontos, baseados em informação sobre os meus hábitos de compra, mudo o meu comportamento de compra (compro mais ou menos de um produto, opto por um produto diferente, etc.)	○	○	○
Quando reparo que um produto apresenta um preço mais baixo em consequência de pesquisas na internet por mim realizadas continuo a pesquisar para tentar obter um preço ainda mais baixo	○	○	○
Incomoda-me que outros consumidores tenham acesso ao mesmo produto e/ou serviço que eu, a preços mais baixos	○	○	○
Agrada-me que uma empresa me cobre preços diferentes com base na informação que tem sobre mim	○	○	○
Os consumidores devem ser informados sobre o uso destas estratégias de preços personalizados	○	○	○
Incomoda-me que outros consumidores tenham acesso ao mesmo produto e/ou serviço que eu, a preços mais altos	○	○	○
O facto de uma empresa me cobrar preços diferentes leva-me a perder confiança na marca	○	○	○
Eu compraria o produto e/ou serviço independentemente do preço cobrado a outras pessoas	○	○	○
O facto de uma empresa me cobrar preços diferentes leva-me a não realizar mais compras nessa empresa	○	○	○
Não vejo problema em uma empresa me cobrar preços menores porque me quer manter mais a mim como cliente do que ao outro	○	○	○
Uma empresa que aplica preços personalizados não é credível	○	○	○

11. Selecione todas as opções que se aplicam a si

- ○ Ignoro intencionalmente qualquer prática de preços personalizados
- ○ Prefiro que os preços sejam iguais para todos os consumidores
- ○ Evito preços personalizados
- ○ Os preços personalizados permitem-me adquirir a preços mais baixos os produtos e/ou serviços que mais vão ao encontro das minhas necessidades e preferências
- ○ A prática de preços personalizados afeta negativamente as minhas compras
- ○ Os preços personalizados permitem-me obter mais descontos e vantagens na aquisição dos produtos e serviços que mais consumo
- ○ Os preços personalizados fazem-me sentir que sou um cliente único
- ○ Acredito que as vantagens e descontos aplicados são exclusivos a mim
- ○ A aplicação de preços personalizados leva-me a não confiar na marca
- ○ Valorizo que as empresas personalizem os preços de acordo com os meus hábitos e preferências

12. "Eu considero os preços personalizados:" (Selecione todas as opções que se aplicam a si)

- ○ Injustos
- ○ Fraudulentos
- ○ Transparentes
- ○ Éticos
- ○ Interferem na minha vida pessoal
- ○ Incentivam-me ao consumo
- ○ São uma boa estratégia para atrair clientes
- ○ Outra opção: _____

13. Avalie os seguintes cenários: (sendo que 1 corresponde a "Muito Má ideia" e 5 a "Muito boa ideia")

	1	2	3	4	5
Cenário 1: enquanto consumidor o que pensa de uma empresa (online ou física) que aplica preços personalizados baseada no conhecimento dos seus hábitos de compra e informações pessoais	○	○	○	○	○
Cenário 2: enquanto consumidor o que pensa de uma empresa (online ou física) que recolhe os seus dados pessoais para lhe proporcionar ofertas e descontos	○	○	○	○	○

Recolha de Dados Pessoais

O recente avanço tecnológico permite um maior e mais fácil acesso a informação sobre os consumidores, os seus hábitos, preferências e necessidades, permitindo às empresas aplicar novas estratégias, mais personalizadas e direcionadas para cada consumidor em específico ou um grupo de consumidores, melhorando a experiência dos consumidores.

Esta informação é recolhida com base na atividade dos consumidores, como o seu histórico de compras, e pode ser monitorizada através dos meios eletrónicos e também por vias de cartões de fidelização.

Desta forma, gostaríamos de compreender a posição dos consumidores à recolha de dados por parte dos diversos websites e também através de cartões de fidelização.

14. Costuma partilhar os seus dados pessoais para aderir a cartões de fidelização?

- ○ Sim
- ○ Não

15. Costuma partilhar os seus dados pessoais para realizar compras online?

- ○ Sim
- ○ Não

16. Por favor, selecione se Concorda ou Discorda com as seguintes afirmações:

	Concordo	Discordo	Não tenho opinião
Preocupo-me com a minha privacidade quando faço compras online	○	○	○
Preocupo-me com a minha privacidade quando partilho informações para obter cartões de fidelização	○	○	○
Para mim, é muito importante manter intacta a minha privacidade ao fazer compras online	○	○	○
Não me importo que estabelecimentos onde compro frequentemente recolham dados sobre os meus hábitos de compra	○	○	○
Se confio numa empresa online não me importo que esta empresa recolha informações pessoais sem me perguntar	○	○	○
Não me importo que as empresas recolham informações pessoais	○	○	○
Gosto de partilhar informações pessoais com o objetivo de obter ofertas relativas a produtos e/ou serviços que mais gosto	○	○	○

17. Quando eu percebo que a minha informação está a ser recolhida para fins de aplicação de ofertas e descontos (preços personalizados) (selecione todas as opções que se adequam a si)

- ○ Sinto-me desconfortável quando a minha informação é partilhada sem o meu consentimento
- ○ Preocupo-me com o mau uso da minha informação pessoal
- ○ Acredito que as informações pessoais podem ser usadas incorretamente
- ○ Penso que as empresas partilham informação entre si sem a minha permissão
- ○ Pondero não fazer mais compras online
- ○ Pondero não aderir a mais cartões de fidelização
- ○ Estou disposto a partilhar a minha informação para obter preços personalizados

18. Quão provável é mudar o meu comportamento após responder ao presente questionário?

	1	2	3	4	5	
Nada provável	○	○	○	○	○	Certo que vou mudar

19. "Após este questionário:" (Sendo que 1 corresponde a "Nada Provável" e 5 a "Muito Provável")

	1	2	3	4	5
Tenho interesse em saber mais sobre preços personalizados	○	○	○	○	○
Não vou aderir a cartões de fidelização ou permitir a recolha de dados online	○	○	○	○	○
Vou estar mais atento aos preços que me são aplicados	○	○	○	○	○
Antes de comprar vou pesquisar mais atentamente as ofertas disponíveis para tentar identificar quais os preços mais baixos	○	○	○	○	○
Vou deixar de adquirir produtos e/ou serviços de empresas que adotem a estratégia de preços personalizados	○	○	○	○	○
Vou configurar as minhas contas online para evitar preços personalizados	○	○	○	○	○

Dados Pessoais

20. Género

- ○ Feminino
- ○ Masculino
- ○ Prefiro não dizer
- ○ Outra opção: _____

21. Idade

- ○ Menos de 18 anos
- ○ 18 a 25 anos
- ○ 26 a 34 anos
- ○ 35 a 54 anos
- ○ 55 a 64 anos
- ○ Mais de 64 anos

22. Nível de Escolaridade

- ○ Ensino Básico
- ○ Ensino Secundário
- ○ Licenciatura
- ○ Mestrado
- ○ Doutoramento
- ○ Outra opção: _____

23. Região de Residência

- ○ Norte
- ○ Área metropolitana do Porto
- ○ Centro
- ○ Área metropolitana de Lisboa
- ○ Alentejo
- ○ Algarve
- ○ Região Autónoma dos Açores
- ○ Região Autónoma da Madeira
- ○ Outra opção: _____

- English Version -

Dear participant,

We invite you to participate in this study, which is part of a research project of the Masters in Economics at the Faculdade de Economia da Universidade do Porto (FEP). This study aims to understand the consumer behavior towards personalized pricing strategies, and if this strategy can change purchase decisions.

The completion of this questionnaire should take approximately 8 minutes. The questionnaire is implemented in a Google account covered by the license subscribed by Universidade do Porto. Throughout the survey, you will not be asked for any information that could identify you. The data collected will be treated confidentially and used only for scientific purposes of this study.

Your participation is very important for our research!

To clarify any questions about this study you can contact the student Marta Nunes through the email address up202002400@up.pt.

Thank you very much for your availability and collaboration!

2. Agreement Declaration

- ○ I declare that I have read and understood the information about the present study and agree to answer the following survey as truthfully as possible

Consumer Behavior

The following questions aim to study the consumer behavior, i.e., how consumers, individually or in groups, interact with the market, trying to understand when, why and how consumers buy the available products and/or services.

Thus, we want to understand what influences the actions of consumers in the act of buying.

During the survey we used the definition of Loyalty Cards, which is the strategy applied by companies (in physical format or online as APPs) to attract and retain customers through a reward, in the form of discounts and other advantages. Loyalty Cards usage is monitored by companies, which allows them to retain information about their customers, helping them to apply strategies such as personalized pricing.

3. How often do you shop online?

- ◯ I do not shop online
- ◯ Less than 5 times per month
- ◯ Between 5 and 15 times per month
- ◯ More than 15 times per month

4. Do you use Loyalty Cards?



- ◯ Yes
- ◯ No

5. How do you rate the following factors according to their influence on your willingness to purchase a product and/or service? (Where 1 corresponds to "Does not influence at all" and 5 to "Influences a lot")

	1	2	3	4	5
Available time	◯	◯	◯	◯	◯
Personal Preferences	◯	◯	◯	◯	◯
Brand loyalty	◯	◯	◯	◯	◯
Brand recognition	◯	◯	◯	◯	◯
Price	◯	◯	◯	◯	◯
Necessity	◯	◯	◯	◯	◯

6. How would you rate the following characteristics of a products and/or service, in order of relevance? (Where 1 corresponds to "Not relevant" and 5 "Very relevant")

	1	2	3	4	5
Price	◯	◯	◯	◯	◯
Quality	◯	◯	◯	◯	◯
Brand	◯	◯	◯	◯	◯

7. Are there any other characteristic of a product and/or service that you rate as very important and would like to highlight? (If not, please go to the next page)

Personalized Pricing

Personalized pricing is a strategy adopted by many companies and consists in defining, for the same product, different prices for different consumers (individually or in groups).

In setting personalized pricing, companies consider information about consumers, such as their preferences, buying habits and needs, as well as the amount each consumer is willing to pay for the product and/or service.

8. Did you know the term Personalized Pricing?

- ○ Yes
- ○ No

9. Have you noticed the use of Personalized Pricing in the market?

- ○ Yes
- ○ No

10. Please select whether you Agree or Disagree with the following statements:

	Agree	Disagree	No Opinion
When I get coupons and discounts, based on information about my purchase habits, I change my behavior (I buy more or less a product, I choose a different product, etc.)	○	○	○
When I notice that a product has a lower price because of my online activity, I continue to try to get an even lower price.	○	○	○
It bothers me that other consumers have access to the same product and/or service at lower prices	○	○	○
I like when a company charges me different prices based on the information they have about me	○	○	○
Consumers must be informed about the use of personalized pricing strategies	○	○	○
It bothers me that other consumers have access to the same product and/or service at higher prices	○	○	○
The fact that a company charges me different prices leads me to lose confidence in the brand	○	○	○
I would buy the product and/or service regardless of the price charged to others	○	○	○
The fact that a company charges me different prices leads me to not make any more purchases from that company	○	○	○
I do not see a problem with a company charging me lower prices because it wants to keep me as a customer more than the other	○	○	○
A company that applies personalized pricing is not credible	○	○	○

11. Select all the options that better applies to you

- ○ I willfully ignore any personalized pricing practices
- ○ I prefer that prices are the same for all consumers
- ○ I avoid personalized pricing
- ○ Personalized pricing allows me to purchase at lower prices the products and/or services that best suit my needs and preferences
- ○ Personalized pricing negatively affects my purchases
- ○ Personalized pricing allow me to get more discounts and advantages when buying the products and services I consume most
- ○ Personalized pricing make me feel that I am an unique customer
- ○ I believe the advantages and discounts are exclusive to me
- ○ Personalized pricing leads me to not trust the brand
- ○ I appreciate the customization of prices according to my habits and preferences

12. "I consider personalized pricing:" (Select all the options that suits you better)

- ○ Unfair
- ○ Fraudulent
- ○ Transparent
- ○ Ethical
- ○ Interfere in my personal life
- ○ Encorage me to consume
- ○ They are a good strategy to attract customers
- ○ Other option: _____

13. Evaluate the following scenarios: (Where 1 corresponds to "Very bad idea" and 5 to "Excellent idea")

	1	2	3	4	5
1st Scenario: as a consumer, what do you think of a company (online or physical) that applies personalized pricing based on knowledge of your purchase habits and personal information	○	○	○	○	○
2nd Scenario: as a consumer, what do you think of a company (online or physical) that collects your personal data to provide you with offers and discounts	○	○	○	○	○

Personal Data Collection

Recent technological advances allow greater and easier access to information about consumers, their habits, preferences, and needs, allowing companies to apply new strategies, more personalized and targeted to each specific consumer or a group of consumers, improving the consumer experience.

This information is collected based on consumer activity, such as their purchase history, and can be monitored through electronic means and through loyalty cards.

Therefore, we would like to understand the position of consumers to data collection by various websites and through loyalty cards.

14. Do you usually share your personal data to subscribe loyalty cards?

- ○ Yes
- ○ No

15. Do you usually share your personal data to shop online?

- ○ Yes
- ○ No

16. Please select whether you Agree or Disagree with the following statements:

	Agree	Disagree	No Opinion
I care about my privacy when I shop online	○	○	○
I care about my privacy when I share information to subscribe loyalty cards	○	○	○
For me, it is very important to keep my privacy intact while shopping online	○	○	○
I do not mind that companies where I shop often collect data about my purchasing habits	○	○	○
If I trust an online company, I do not mind that this company collects personal information without asking me	○	○	○
I do not mind if companies collect information about me	○	○	○
I like to share personal data to get offers on products and/or services that I like best	○	○	○

17. When I understand that my personal data is being collected for the purpose of applying offers and discounts (personalized prices) (select all the options that suit you best)

- ○ I feel uncomfortable when my information is shared without my permission
- ○ I am concerned about the improper use of my personal data
- ○ I believe personal data may be misused
- ○ I think companies share data with each other without my permission
- ○ I am thinking of not shopping online anymore
- ○ I am thinking not joining any more loyalty cards
- ○ I am willing to share my data to get personalized pricing

18. How likely am I going to change my behavior after answering this survey?

	1	2	3	4	5	
Unlikely	○	○	○	○	○	Sure I will change

19. "After this survey" (Where 1 corresponds to "Unlikely" and 5 to "Very likely")

	1	2	3	4	5
I am interested in knowing more about personalized pricing	○	○	○	○	○
I will not subscribe loyalty cards or allow online data collection anymore	○	○	○	○	○
I will be more aware of the prices that are applied to me	○	○	○	○	○
Before I buy, I will look more closely at the available offers to try to find lowest prices	○	○	○	○	○
I will stop purchasing products and/or services from companies that adopt the strategy of personalized pricing	○	○	○	○	○
I will set up my online accounts to avoid personalized pricing	○	○	○	○	○

Personal Data

20. Gender

- ○ Female
- ○ Male
- ○ I would rather not say
- ○ Other option:_____

21. Age

- ○ Under 18 years old
- ○ 18 to 25 years old
- ○ 26 to 34 years old
- ○ 35 to 54 years old
- ○ 55 to 64 years old
- ○ Over 64 years old

22. Education

- ○ Basic
- ○ High School Education
- ○ Undergraduate
- ○ Master Degree
- ○ PhD
- ○ Other option:_____

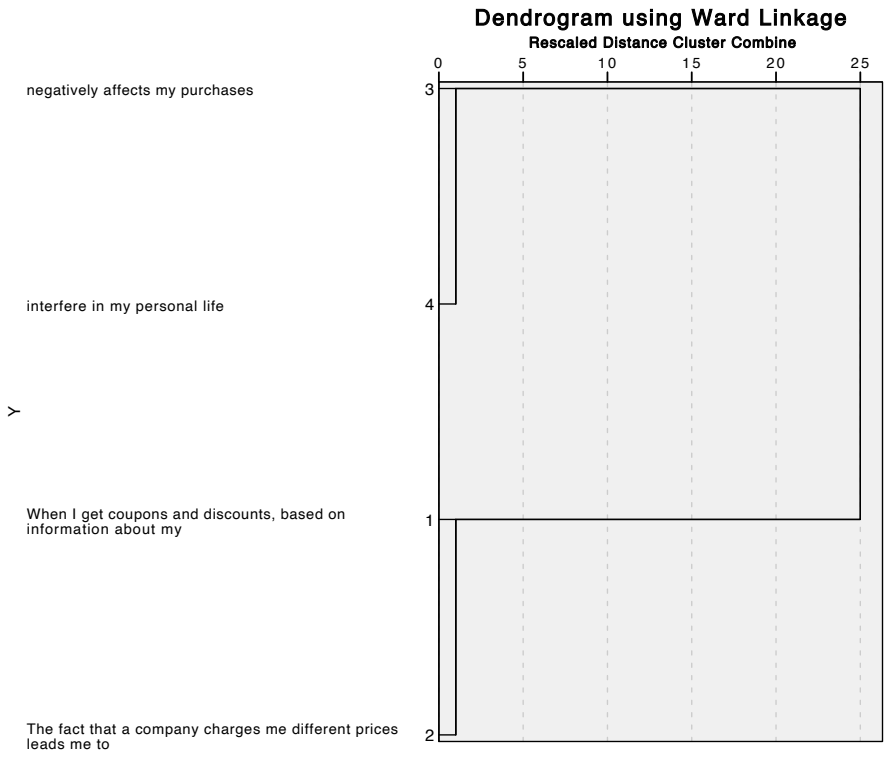
23. Region of Residence

- ○ North
- ○ Porto Metropolitan Area
- ○ Center
- ○ Lisboa Metropolitan Area
- ○ Alentejo
- ○ Algarve
- ○ Região Autónoma dos Açores
- ○ Região Autónoma da Madeira
- ○ Other option:_____

- *Annex 2 - Standard-Deviation*

Variables	Mode	Mean	Standard deviation
Consumer Behavior			
Q5: How do you rate the following factors according to their influence on your willigness to purchase a product and/or service?			
Available time	4	3.4819	1.2117
Personal Preferences	5	4.2303	0.9189
Brand loyalty	3	2.9019	1.1598
Brand recognition	3	3.2239	1.1242
Price	5	4.3028	0.8486
Necessity	5	4.3028	0.9326
Q6: How would you rate the following characteristics of a products and/or services, in order of relevance?			
Price	5	4.4200	0.7342
Quality	5	4.5608	0.6594
Brand	3	2.9168	1.0619
Personalized Pricing			
Q13: Evaluate the following scenarios:			
1st Scenario: as a consumer, what do you think of a company (online or physical) that applies personalized pricing based on knowledge of your purchase habits and personal information a company (online or physical) that applies personalized pricing based on knowledge of your purchase habits and personal information	3	2.9062	1.1509
2nd Scenario: s a consumer, what do you think of a company (online or physical) that collects your personal data to provide you with offers and discounts	3	2.7591	1.1783
Personal Data Collection			
Q18: How likely am I to change my behavior after answering this survey	3	2.7100	1.1042

- *Annex 3 - Dendrogram H1*

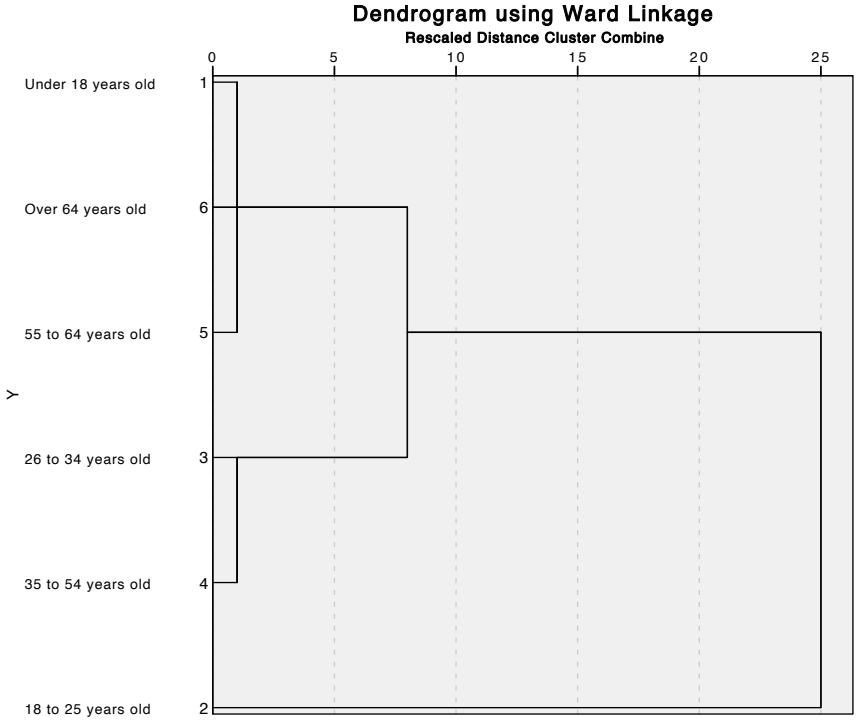


- *Annex 4 - ANOVA Table H1*

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Q12.1_Unfair	3422,250	1	111,250	2	30,762	,031

- *Annex 5 - Dendrogram H9*

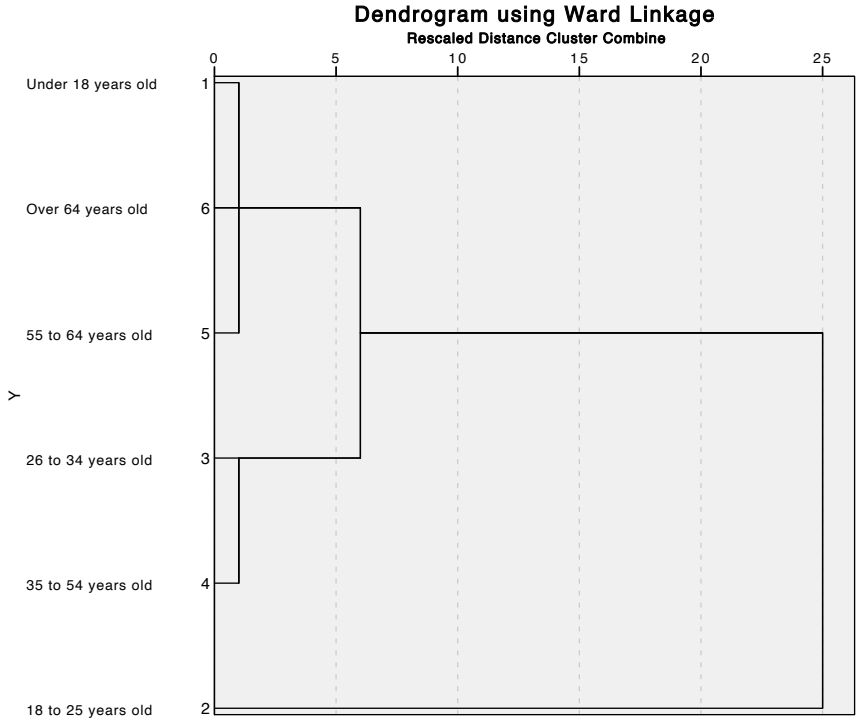


- *Annex 6 - ANOVA Table H9*

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Q9_Yes	3823,500	2	69,500	3	55,014	,004
Q8_Yes	2440,417	2	48,667	3	50,146	,005

- *Annex 7 - Dendrogram H10*

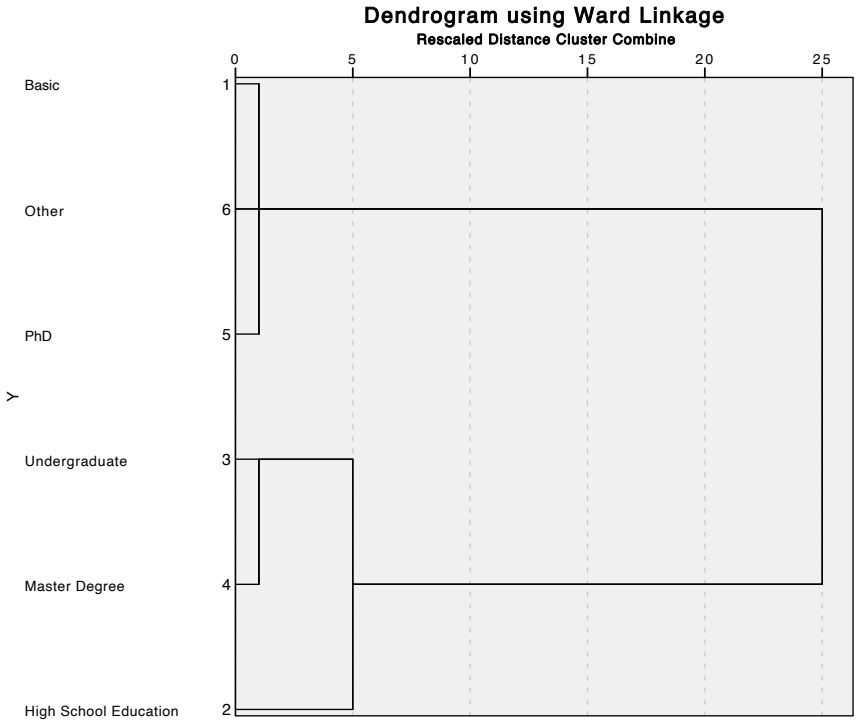


- *Annex 8 - ANOVA Table H10*

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Q11.10	1357,333	2	34,889	3	38,904	,007
Q16.7_Agree	1685,083	2	5,056	3	333,313	<,001
Q17.7	816,667	2	6,889	3	118,548	,001

- *Annex 9 - Dendrogram H11*



- *Annex 10 - ANOVA Table H11*

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
Q8_Yes	1916,167	2	18,833	3	101,743	,002
Q9_Yes	2341,667	2	57,333	3	40,843	,007