Título: "A cross-generational analysis of second-hand online shopping: Comparing GenX, Millennials and GenZ".

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ABSTRACT

Purpose: Most of the previous research has largely ignored why Gen X, Millennials and Gen Z consumers purchase or avoid buying used items through the internet; and in this context, the present study aims to examine whether there are differences in second-hand online shopping behavior driven by the generational cohort.

Methodology: Based on the Generational Cohort Theory, this research examines what factors influence and prevent the purchase of second-hand products online, comparing generational cohorts. For this purpose data is analyzed through multiple-group Structural Equation Modeling (SEM) (Gen X=176; Millennials=197; Gen Z=233).

Findings: Findings report noticeable different motivations and barriers across consumer generations in their second-hand shopping behavior: Gen X are mostly driven by economic motivations, Gen Z are driven by ethical motives, while economic and environmental motivations exert greater influence for Millennials. Conversely, functional risk is the main barrier for the three generational cohorts.

Originality: This is one first attempt to examine why different generational cohorts of consumers purchase or prevent from purchasing used items through the internet.

Keywords: *Second-hand products; generational cohorts; purchase intention; online.*

1. INTRODUCTION

Today, there is an increasing consumer interest and awareness towards second-hand products (Turunen and Leipämaa-Leskinen, 2015; Ferraro et al., 2016; Parguel et al., 2017); and researchers are increasingly interested in understanding the factors that determine this consumption behavior (Parguel et al., 2017; Padmavathy et al., 2019). However, research on second-hand shopping behavior is relatively scant (Ross et al., 2022), and has mainly focused on second-hand shopping motives, identifying several reasons that explain why consumers purchase second-hand products (Guiot and Roux, 2010; Lundblac and Davies, 2016; Ross et al., 2022). Similarly, prior research reports that some consumer characteristics influence second-hand shopping behavior, such as consumer culture (Kim et al. 2002) or previous experience (Connell, 2011). With the exception of Zaman et al. (2019) who reported that second-hand shopping is led by Millennials and Gen Z individuals; none of the previous research has analyzed how the consumer generational cohort influences the second-hand online shopping behavior.

In this context, the objective of the present research is to examine whether there are differences in second-hand online shopping behavior driven by consumer generational cohort, and what are the main motivations and barriers that determine second-hand online shopping in Gen X, Millennials and Gen Z consumers. These two questions remain unsolved; and in turn, the aim of this study is to develop a cross-generational comparison of second-hand online shopping behavior. Therefore, this study contributes to second-hand shopping literature by proposing a generational cohort approach to understand and compare shopping behavior of Gen X, Millennials and Gen Zs, whereby drivers and barriers are identified.

2. THEORETICAL FRAMEWORK

2.1. The phenomenon of second-hand online shopping

The purchase of second-hand products has experienced a rapid growth in the past years, and used items offer today an alternative to conventional new products (Gautami et al., 2018). The term of second-hand products refers to those products that already belonged to someone else, regardless of whether they were used many or a few times (Machado et al., 2019). Accordingly, second-hand shopping could be defined as "*the acquisition of second-hand objects through methods and places of exchange that are generally distinct from those new products*" (Guiot and Roux, 2010). The main characteristic of second-hand products is that their prices are somehow cheaper compared to the new items commercialized in the conventional retail market (Chen et al., 2018). However, the underlying motivations for the purchase of used items have changed in the last years and today consumers decide to purchase second-hand products driven by different motivations such as economic, ethical and recreational motives (Guiot and Roux, 2010; Silva et al., 2021), as well as the search of value and uniqueness (Islam et al., 2021). Likewise, second-hand online or virtual stores and platforms have flourished in the last years, since the internet serves as a significant channel facilitating the exchange of used goods (Fernando et al., 2018).

Finally, it should be noted that the increased popularity of second-hand products is coherent with the sustainable consumption behavior (Rex et al., 2015). Nowadays, manufacturing and consumption have a detrimental impact on the environment and the concept of sustainability has been developed to solve these environmental issues and to fully utilize available resources and to reduce waste (Borusiak et al., 2020). More precisely, the concept of sustainable consumer behavior can be understood as those

consumer actions leading to the reduction of adverse environmental impacts and reduced use of natural resources across the lifecycle of a product (White et al., 2019). In line with this argumentation, the increasing consumer awareness of the negative environmental impacts of consumption has influenced them to switch to sustainable consumption habits (Turunen and Leipämaa-Leskinen, 2015), such as the purchase of second-hand products (Koay et al., 2023).

2.2. Generational cohorts and their purchase behavior

In the *Generational Cohort Theory,* Inglehart (1977) proposed that the difference in the aging process, as well as psychological and social circumstances are factors of the different generational cohorts that influence individual values, attitudes, beliefs and motivations (Inglehart, 1977). Relating to this theory, generational cohorts could be defined as "*groups of individuals who are born during the same time period, and share similar values, beliefs and norms which make them distinct from other generations*" (Jackson et al., 2011). Accordingly, each generational cohort exhibits unique behavior and consumption patterns (Chaney et al., 2017). This study proposes that consumers in the three different generational cohorts exhibit different shopping behavior towards online second-hand products, namely Generation X and Generation Z individuals, and Millennials. Millennials refer to those who are born between 1981 and 1996, Gen X individuals are those who are born between 1965 and 1980; while Gen Z are those individuals born in 1997- 2010s (Park, 2023).

Prior research indicates that Generation X individuals are less tech-savvy than their younger counterparts, and have greater fear of risk in the use technology (Aoki & Downes, 2003); thus, experiencing greater levels of online purchase uncertainty. Likewise, Gen X individuals are the generation with the most disposable income, are

goal-focused and try to get as much information as possible when it comes to making purchase decisions (Dorie et al., 2017), and tend to seek high-quality products (Valentine and Powers, 2013). On the other hand, Millennials grew up in a digital environment (Prensky, 2001) and are supposed to shop mostly online due to been raised on technology (Dorie et al., 2017). Millennials are less financially secure than previous generations, with lower earnings and less wealth (Kurz et al., 2018), and due to their purchasing power are expected to show high economic motivations for the purchase of second-hand products (Çekirdekci and Latif, 2019). Some authors indicate that Millennials have a positive attitude to second-hand products because they focus on the experience rather than product ownership (Lim and Koo, 2022). However, other authors report that they greatly value material possessions (Islam et al., 2021); and thus, it is not expected that this generational cohort has high ethical motivations for the purchase of used items. Conversely, Millennials may not be influenced by personal embarrassment to avoid the purchase of used items, given that they do not hesitate to break the rules of society (Bird and Tapp, 2008). They are sensitive to sustainability concerns (Fromm and Garton, 2013), and perceive shopping as a form of relaxation, enjoyment and having fun (Bakewell and Mitchell, 2003). Finally, Gen Z individuals, are true digital natives raised in the development of digital technologies and the internet, and accustomed to make informed purchasing decisions (Bulut et al., 2017). Aligned with the previous argumentation, Gen Z individuals are the consumers most likely to make consumption decisions based on sustainable values, showing greater inclinations toward environmental concerns (Dabija et al., 2019). Further, Gen Z individuals advocate ethical consumption and show a heightened sensitivity regarding overconsumption (Dabija et al., 2019).

3. HYPOTHESES DEVELOPMENT

The central question being investigated in the present research is the potential differences in second-hand online shopping behavior among three generational cohorts. For greater clarity, this study develops some research hypothesis that will be examined in the shopping behavior of Gen X individuals, Millennials and Gen Z individuals.

3.1. Motives of second-hand online shopping

3.1.1. Economic motivation

Guiot and Roux (2010) defined the economic motivation in the purchase of second-hand products as related to the consumer desire to pay less, the search for a fair price, and the gratifying role of price. Consequently, the obtention of savings and economic bargains, have also become a reason why consumers purchase second-hand products, since used items are less expensive than brand-new ones (Machado et al., 2019). Likewise, authors like Seo and Kim (2019) highlighted that the economic motivation - mostly related to price consciousness and price sensitivity-, is the most prominent motive in second-hand shopping, regardless of the distribution channel. Accordingly, in online second-hand channels, consumers tend to purchase used items due to the lower price and to potential economic savings (Machado et al., 2019). This leads this study to hypothesize the positive influence of the economic motivation on second-hand purchase intention, with the aim of comparing this influence among the three cohorts under research. So, following hypothesis is presented:

H_1: Economic motivation has a positive influence on second-hand online purchase intention

3.1.2. Environmental motivation

Consumers concerned about the environment are aware of the long-term consequences of their consumption behavior on the natural environment (Epstein, 2008), and question the necessity and usefulness of a product before making the purchase to protect the environment (Parguel et al., 2017). In line with the previous argumentation, consumption environmental motivations are related to those actions leading to the reduction of adverse environmental impacts and reduced use of natural resources across the lifecycle of a product (White et al., 2019). The purchase of new products is perceived by some individuals as wasteful, while buying second-hand items is considered as a way of prolonging the lifecycle of products that can still be of use (Guiot and Roux, 2010). Accordingly, the purchase of second-hand products is driven by the consumer's environmental consciousness and motivations (Styvén and Mariani, 2020), since it extends the lifespan of products, reduces consumption waste and enhances resource conservation (Zaman et al., 2019). Hence, consistent with previous studies, the following research hypothesis is presented with the purpose of comparing this environmental motivation across the generational cohorts under analysis:

H_2: The environmental motivation has a positive influence on second-hand online purchase intention

3.1.3. Ethical motivation

The concept of ethical consumption can be understood as the purchase of products made with minimal harm to humans, animals and to the natural environment (Papaoikonomou et al., 2012). Likewise, ethical motivation for second-hand shopping refers to consumer ethical concerns and to the possibility of avoiding conventional retail channels, overconsumption and ostentation (Guiot and Roux, 2010). Accordingly, the ethical motivation underlying second-hand shopping is related to taking distance from the

consumption system and having a responsible consumption (Lastovicka et al., 1999; Styvén and Mariani, 2020). Extant research reports that the ethical motivation influences second-hand shopping (Guiot and Roux, 2010; Lundblac and Davies, 2016), leading consumers to disassociate themselves from the consumption society and the throw-away system (Lastovick et al., 1999; Guiot and Roux, 2010). Thus, consistent with ethical motivation theory, the following hypothesis is proposed to compare potential differences among generational cohorts:

H3: The ethical motivation has a positive influence on second-hand online purchase intention.

3.1.4. Hedonic motivation

Some individuals are motivated and compelled for second-hand shopping by the pleasure of browsing and bargaining (Guiot and Roux, 2010), and by hedonic reasons (Childers et al., 2002), since scavenging for second-hand items can be an enjoyable process (Yeap et al., 2022). More precisely, the hedonic motivation could be defined as the individuals' willingness to engage in behaviors that induce pleasant experiences and the emotional and entertainment aspects associated with their behavior (Babin et al., 1994; Li et al., 2022). Aligned with the previous argumentation, consumers with hedonic motivation are mainly driven by the enjoyment and pleasant experience of the shopping process, which can arouse in the purchase of second-hand goods (Lundblac and Davies, 2016), and on the unexpected finds when browsing second-hand items online. Consistent with prior studies, the following hypothesis is presented with the purpose of comparing this influence among the generational cohorts under research:

H4: The hedonic motivation has a positive influence on second-hand online purchase intention

3.1.5. Trust toward the online store

Trust has been defined as the willingness to rely on another party based on the expectations of ability, benevolence, and integrity (Lee and Turban, 2001). Likewise, trust is a determining factor in online commerce, since compared with "brick-and-mortar" stores consumers cannot do not have a face-to-face personal interaction with the store or its sellers (Bart et al., 2005), and cannot physically inspect the products they are seeking to purchase and they may not feel comfortable about giving financial or personal information to the store or vendor due to information privacy concerns (Grabner-Krauter and Kaluscha, 2008). Moreover, trust towards the online store is especially relevant in second-hand purchases, since some consumers feel unsafe because they need to trust the description or picture of the used product on the website (Lee and Lee, 2005), and also need to trust the online store ability to deliver what was promised (Beldad et al., 2010). Consistent with prior studies, the following hypothesis is posed to be compared across the generational cohorts under analysis:

H_5: Trust towards the online store has a positive influence on second-hand online purchase intention

3.2. Barriers to second-hand online shopping

3.2.1. Contamination effect

One reason that prevents consumers from purchasing and using second-hand products is their perception of a greater contamination risk (Hur, 2020), as well as health and sanitary risks from used items (Rulikova, 2020). More precisely, contamination is somehow related to the perceived sanitary risk, referring to consumers' perceptions of second-hand products as being harmful to their life or health (Kim et al., 2021). This risk has been largely documented in the literature as a significant barrier to consumers' purchase of used items because of their reservations about the sanitary conditions of

used items (Sandes and Leandro, 2016; Koay et al., 2023). Similarly, consumers will only form positive attitudes towards second-hand products when they perceive them as hygienic (Kim et al., 2021). Accordingly, we propose that for those consumers concerned about the sanitary condition, health risks associated with second-hand products act as a barrier to their purchase. Consistent with prior research, the following hypothesis is posed with the purpose of comparing the influence of product contamination effect on second-hand online purchase intent across Gen X individuals, Millennials and Gen Z individuals:

H_6: Product contamination effects will negatively influence second-hand online purchase intention

3.2.2. Purchase uncertainty

Purchase uncertainty in online shopping refers to the difficulty of accurately evaluating the shopping circumstances due to information asymmetry (Pavlou et al., 2007; Tang and Lin, 2019). More precisely, when making an online purchase decision, consumers deal with two kinds of uncertainty: retailer uncertainty and product uncertainty (Tang and Lin, 2019). On one hand, retailer uncertainty is related consumers' concern with the trustworthiness and reliability of online stores (Kim and Krishnan, 2015); while product uncertainty is related to the lack of physical investigation of the product, making that product attributes cannot be experienced by consumers (Kim and Krishnan, 2015).

The purchase uncertainty is ever higher when shopping used products online, due to information asymmetry regarding product attributes and their condition, so that consumers cannot ascertain the true quality of the product and whether it will perform adequately (Dimoka et al., 2012), or whether the product is worth the price charged online (Yen and Lu, 2008). Hence, the following research hypothesis is proposed with

the aim of examining this relationship among the three generational cohorts under research:

H7: Purchase uncertainty will negatively influence second-hand online purchase intention

3.2.3. Product functional risk

Functional risk could be understood as the uncertainty about the product's expected quality and performance and has been demonstrated to influence consumer purchase behavior (Lang and Zhang, 2019). When referring to second-hand products, functional risk is related to the uncertainty about product performance, quality, durability and conditions (Schaefers et al., 2016); and in turn, second-hand products have been traditionally associated with being defective, damaged, worn-out, soiled or not working properly (Ross et al., 2022). Likewise, second-hand products may not be flawless, but their price is often cheaper than new items; and in turn, consumers may feel that used items may not perform their intended function adequately (Kim et al., 2021). Therefore, functional risk has been a major concern for consumers purchasing second-hand products (Koay et al., 2023). Consistent with prior studies, the following hypothesis is proposed with the purpose of analyzing this influence across the three generational cohorts under research:

H8: Perceived product functional risk will negatively influence second-hand online purchase intention

3.2.4. Embarrassment

The feeling of embarrassment and the stigma of being associated with the lower income consumers occur during the purchase of second-hand products, and consumers may feel

embarrassed to shop used items (Silva et al., 2021). The reasons are that second-hand products were considered as being purchased by disadvantaged poor consumers out of economic necessity (Rulikova, 2020; Hur, 2020), or the social humiliation and social disapproval to purchase used items (Silva et al., 2021). Similarly, some consumers may refrain from purchasing and using second-hand products to preserve their personal image, to avoid losing social recognition (Mukherjee et al., 2020), and to avoid the objection of their peers and friends (Koay et al., 2023). Therefore, the following hypothesis is proposed with the aim of analyzing this influence across the three cohorts considered in this research:

H9: Personal embarrassment will negatively influence second-hand online purchase intention

3.2.5. Low product perceived quality

Second-hand products have been traditionally regarded as inferior by some consumers (Norum and Norton, 2017) and perceived as having inferior quality compared to the new ones, because they were previously owned and used (Koay et al., 2023). In line with this argument, the unknown product origins and the product nature and conditions relate to the second-hand products' low perceived quality (Fernando et al., 2018), being identified as a strong shopping barrier for some consumers (Wang et al., 2022). Additionally, used products that are purchased online present an increased level of uncertainty and concern about product quality, due to the absence of experiential information (Kim and Krishnan, 2015), since online stores do not give consumers the opportunity to physically inspect the used products (Eastlick and Lotz, 2011). However, some second-hand online platforms whereby the closing of the commercial transaction entails a face-to-face meeting between buyer and seller, allow the potential buyer to

check the quality of the used product before purchase (Hinojo et al., 2022). Consistent with the explained above, the following research hypothesis is proposed to compare this influence on the three cohorts under research:

H$_{10}$: The low product perceived quality will negatively influence second-hand online purchase intention

conceptual proposed model is shown in Figure 1.

Figure 1. *Conceptual proposed model of motives and barriers of second-hand online shopping*

Figure 1. *Conceptual proposed model*
Source: Own elaboration
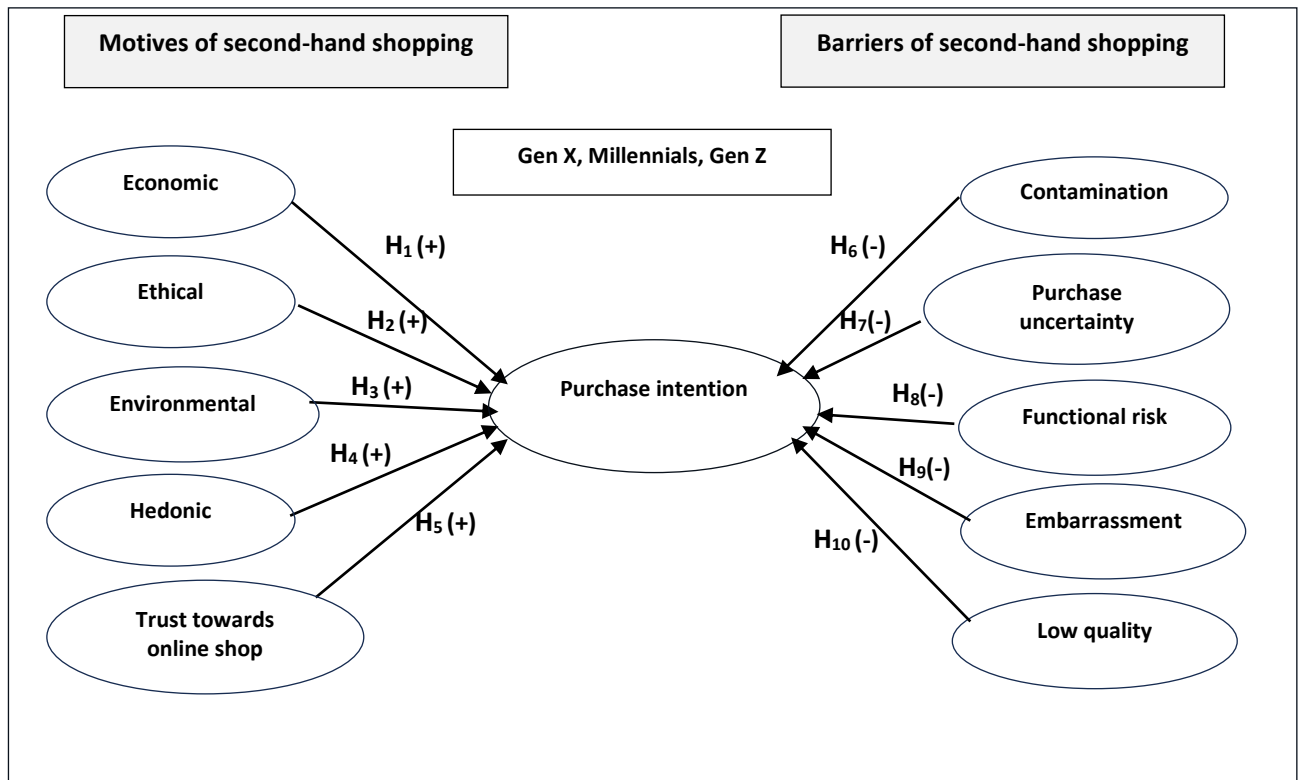
4. METHODOLOGY

4.1. Variables and measurement scale

All the constructs were measured by adapting scales from previous research (Table 1). In the first place, the *economic motivation* was measured based on the scale proposed by

Styven and Mariani (2020); the *environmental motivation* was gauged through a scale adapted from Styven and Mariani (2020) and Guiot and Roux (2010); while the *ethical motivation* was assessed through a scale adapted from Lastovicka et al. (1999). Similarly, the *hedonic motivation* was assessed through a three-item scale adapted from Wang et al. (2022); whereas *trust* towards the online store was evaluated through a scale adapted from Lee and Lee (2005). Regarding the barriers towards second-hand online shopping, the *contamination* effect was measured through a scale adapted from Parguel et al. (2017) and *purchase uncertainty* was gauged through three items adapted from Pavlou et al. (2007). the product *functional risk* was assessed using a scale proposed by Park and Sohn (2015); while consumer *embarrassment* was measured through a scale adapted from Wang et al. (2022). Finally, low product perceived quality was measured adapting three items from Want et al. (2022); and consumers' purchase intention was gauged using a scale adapted from Van der Heijden et al. (2003).

Table 1. Measurement scale and indicators

VARIABLES	INDICATORS
Economic (Styven and Mariani, 2020)	Econ1: I can save money if I purchase second-hand products online Econ2: I prefer to purchase second-hand products because they are cheaper than new ones Econ3: I do not want to pay more for a product just because it is new
Environmental (Guiot and Roux, 2010; Styven and Mariani, 2020)	Env1: Second-hand products have more environmental benefits than new products Env2: Buying second-hand products helps save natural resources Env3: Buying second-hand products will help in the protection of natural resources Env4: Buying second-hand products is a sustainable mode of consumption
Ethical (Lastovicka et al., 1999)	Ethic1: I believe I have an ethical obligation to choose a second-hand product when I need to buy something Ethic2: If you can purchase a second hand product, there is no sense in buying a new product Ethic3: My personal values encourage me to choose second-hand products when I need to buy something
Hedonic (Wang et al., 2022)	Hedon1: I purchase second-hand products online for pleasure Hedon2: Purchasing second-hand products online is enjoyable Hedon3: I feel fun when purchasing second-hand products online
Trust (Lee and Lee, 2005)	Trust1: Second-hand online retailers/stores provide a safe purchase environment Trust2: Second-hand online retailers/stores fulfill their commitments with customers Trust3: I trust/I have confidence in second-hand online retailers/stores Trust4: I consider second-hand online retailers trustworthy and believable
Contamination (Parguel et al., 2017)	Cont1: I have concern about sanity/hygienic conditions when I purchase second-hand products

	Cont2: There is a possibility of contamination through second-hand products
	Cont3: Second-hand products are more likely to have stains or dirt
Purchase Uncertainty (Pavlou et al., 2007)	Unc1: I feel that purchasing second-hand products involves a high degree of uncertainty
	Unc2: There is a high degree of uncertainty when you purchase second-hand products online (for example, that the product received does not function properly
	Unc3: Consumers are exposed to many uncertainties when they purchase second-hand products online
Functional risk (Park and Sohn, 2015)	Func1: It is difficult to find reliable second-hand products online
	Func2: Consumers can never be sure that second-hand products are in proper working order
	Func3: I am concerned about the condition and durability of second-hand products
Embarrassment (Wang et al., 2022)	Emb1: I associate poverty with the purchase of second-hand products
	Emb2: I am worried about what other people will think of me if I purchase second-hand products
	Emb3: I will not feel comfortable using second-hand products in public
Low product quality (Wang et al., 2022)	Qual1: The overall quality of second-hand products is low
	Qual2: Second-hand products that meet my quality standards are not available
	Qual3: It is not possible to purchase high-quality second-hand products at affordable prices
Purchase intention (Van der Heijden et al., 2003)	Pint1: I expect to purchase second-hand products online in the future
	Pint2: It is likely that I will purchase second-hand products online in the future
	Pint3: I would consider buying second-hand products online next time I need a product

Source: Own elaboration

4.2. Sampling and fieldwork

Research was conducted in March 2023 in Spain, and data was gathered using an online web-based self-administered structured questionnaire designed through Qualtrics software. Subsequently, the research questionnaire was distributed through social media among consumers on a random basis, inviting them to participate in the study. Consumers experienced in the purchase of second-hand products through the internet were invited to participate in a survey. So, a definition of "second-hand product" was provided at the beginning of the research questionnaire, followed by a "*yes/no*" screening question regarding whether participants had previous experience in the purchase of used items online, asking them: "*Have you purchased second-hand products online*?". Those consumers answering "*yes*" were then routed to the full questionnaire; while those participants with no experience were excluded from the research survey. Following the criteria of Ross et al. (2022) we considered the purchase of second-hand products through any kind of online store, platform or retailer.

Then, the questionnaire included questions to assess the variables under research through a seven-point Likert-type scale ranging from 1="*strongly disagree*" to 7= "*strongly agree*". The last part of the questionnaire gathered socio-economic and demographic information of the research participants. One question specifically asked about the "*age*" of participants, and this information was used to divide research participants according to their generational cohort. Finally, one sample consisted of 176 Gen X individuals, a second sample consisted of 197 Millennials, and a third sample consisted of 233 Gen Z individuals. The sampling error was 4.82%, with a confidence level of the 95 %.

5. RESULTS

5.1. Analysis of the measurement model

Multiple-group Structural Equation Modelling (SEM) using Amos 28.0 software is used to analyze the data based on the two-step approach (Anderson and Gerbing, 1988), given that this statistical software allows to analyze the validity of theoretical models across different sub-samples and to test for invariance (Hair et al. 1998).

Confirmatory factor analysis (CFA) is developed to evaluate discriminant validity, convergent validity and reliability (Table 2). A first analysis indicated that items Econ3, Ethic2, Qual2, Cont3 and Emb1 need to be excluded from the initial scale, since their standardized loadings were below the recommended level of 0.50 (Hair et al., 1998). Then, the internal consistency reliability is examined by using composite reliability (CR) and coefficient alpha. The threshold values of CR and the coefficient alpha are set as 0.70 (Hair et al., 1998); and all the obtained values exceed this recommended threshold, confirming the internal reliability. Likewise, standardized lambda coefficients higher than 0.70, and the average variance extracted values (AVE) that surpass 0.50 value support convergent validity (Hair et al., 1998).

Table 2. Reliability and validity of the measurement scale

Construct	Items	Cronbach Alpha	GENERATION X			MILLENNIALS			GENERATION Z		
			Lambda	CR	AVE	Lambda	CR	AVE	Lambda	CR	AVE
Economic	Econ1 Econ2	0.787	0.752 0.755	0.725	0.568	0.876 0.845	0.851	0.741	0.785 0.762	0.749	0.698
Environmental	Env1 Env2 Env3 Env4	0.891	0.870 0.825 0.900 0.905	0.930	0.770	0.828 0.769 0.765 0.830	0.876	0.638	0.757 0.769 0.861 0.875	0.888	0.668
Ethical	Ethic1 Ethic3	0.790	0.726 0.711	0.681	0.526	0.907 0.867	0.886	0.796	0.780 0.773	0.748	0.598
Hedonic	Hedon1 Hedon2 Hedon3	0.914	0.906 0.885 0.876	0.941	0.842	0.877 0.906 0.913	0.931	0.819	0.871 0.898 0.826	0.901	0.752
Trust	Trust1 Trust2 Trust3 Trust4	0.937	0.891 0.887 0.906 0.916	0.948	0.822	0.892 0.861 0.866 0.906	0.938	0.790	0.872 0.850 0.898 0.878	0.931	0.772
Contamination	Cont1 Cont2	0.811	0.919 0.849	0.892	0.805	0.849 0.797	0.868	0.768	0.768 0.792	0.757	0.609
Uncertainty	Unc1 Unc2 Unc3	0.926	0.818 0.918 0.931	0.919	0.793	0.829 0.899 0.911	0.914	0.852	0.829 0.897 0.899	0.980	0.767
Functional risk	Func1 Func2 Func3	0.868	0.786 0.837 0.839	0.861	0.675	0.904 0.914 0.844	0.903	0.817	0.727 0.774 0.819	0.817	0.619
Embarass	Emb2 Emb3	0.787	0.872 0.702	0.784	0.658	0.786 0.784	0.763	0.616	0.762 0.821	0.770	0.629
Perceived quality	Qual1 Qual3	0.806	0.882 0.790	0.823	0.701	0.873 0.844	0.849	0.737	0.851 0.823	0.824	0.701
Purchase intention	Pint1 Pint2 Pint3	0.905	0.838 0.844 0.907	0.898	0.746	0.906 0.870 0.903	0.915	0.804	0.863 0.875 0.835	0.897	0.744

Source: Own elaboration

Discriminant validity is supported if the 95% confidence interval for the construct correlations does not include 1.0 (Anderson and Gerbing, 1988). Alternatively, when the average variance extracted (AVE) estimates of a given pair of constructs are greater than the square of the construct correlation, discriminant validity is supported. Research findings indicate that AVE values are greater than the squared correlations; thus, supporting discriminant validity (Table 3 and Table 4).

Table 3. Discriminant validity and correlations for motives

	GENERATION X	MILLENNIALS	GENERATION Z

	Econ	Env	Eth	Hedon	Trust	Pint	Econ	Env	Eth	Hedon	Trust	Pint	Econ	Env	Eth	Hedon	Trust	Pint
Econ	**0.754**						**0.861**						**0.835**					
Env	0.188	**0.875**					0.448	**0.799**					0.394	**0.817**				
Eth	0.350	0.602	**0.725**				0.437	0.584	**0.892**				0.559	0.610	**0.773**			
Hedon	0.515	0.216	0.199	**0.918**			0.587	0.321	0.453	**0.905**			0.526	0.406	0.450	**0.867**		
Trust	0.437	0.179	0.169	0.493	**0.906**		0.545	0.472	0.563	0.553	**0.889**		0.516	0.375	0.503	0.530	**0.879**	
Pint	0.408	0.210	0.125	0.195	0.185	**0.863**	0.539	0.244	0.432	0.617	0.535	**0.897**	0.412	0.212	0.120	0.190	0.179	**0.862**

Source: Own elaboration

Table 4. Discriminant validity and correlations for barriers

	GENERATION X						MILLENNIALS						GENERATION Z					
	Cont	Unc	Func	Emb	Qual	Pint	Cont	Unc	Func	Emb	Qual	Pint	Cont	Unc	Func	Emb	Qual	Pint
Cont	**0.897**						**0.876**						**0.780**					
Unc	0.418	**0.890**					0.525	**0.923**					0.539	**0.876**				
Func	0.419	0.542	**0.821**				0.510	0.528	**0.904**				0.490	0.562	**0.787**			
Emb	0.558	0.352	0.241	**0.811**			0.504	0.460	0.346	**0.785**			0.490	0.408	0.470	**0.793**		
Qual	0.406	0.377	0.216	0.564	**0.873**		0.342	0.421	0.390	0.195	**0.858**		0.564	0.436	0.519	0.561	**0.837**	
Pint	-0.202	-0.405	-0.345	-0.120	-0.346	**0.863**	-0.407	-0.426	-0.505	-0.444	-0.447	**0.897**	-0.176	-0.415	-0.355	-0.130	-0.316	**0.862**

Source: Own elaboration

5.2. Analysis of the full metric invariance

To test the full metric invariance, compare the configural model with the metric model using a chi-square difference test (ΔX^2 test). For this purpose, we compared an unconstrained model with a constrained model whereby the factor loadings were assumed to be equal across the three sub-samples, but the incepts were allowed to vary between samples (Hair et al., 1998). Fit indices of the unconstrained (RMSEA=0.041; CFI= 0.953; TLI=0.950; X^2=608.252) and the constrained model (RMSEA=0.042; CFI= 0.952; TLI=0.940; X^2=622.977) indicate that both models achieve adequate model fits;

being the X^2 difference significant (ΔX^2=14.725; p=0.001); thus, supporting full-metric invariance (Hair et al., 1998).

5.3. Analysis of the structural model

The structural model indicated a good overall fit. Our findings report the significant value of Chi-Square (X^2=608.252; df=360) as well as the significant value of coefficients (p<0.000). Similarly, the incremental and parsimony fit indices reach appropriate values (CMIN/DF=1.690, RMR=0.098; AGFI=0.805; GFI=0.883; RMSEA=0.041; IFI=0.958; TLI=0.950; CFI=0.953), showing an adequate model fit (Hair et al., 1998).

6. DISCUSSION

6.1. Generational differences in second-hand online shopping

Research findings indicate noticeable different motivations and barriers in second-hand online shopping among Gen X, Millennials and Gen Z (Table 5).

Table 5. Structural model estimates and hypotheses test

| Relationships | GENERATIONAL SECOND-HAND SHOPPING | | | | | | | | |
| | GENERATION X | | | MILLENNIALS | | | GENERATION Z | | |
	Standardized Coefficients	p-value	Hypotheses test	Standardized Coefficients	p-value	Hypotheses test	Standardized Coefficients	p-value	Hypotheses test
DRIVERS									
Economic → Purchase intention	β_{1X}=0.697	p=0.004	H1: Supported	β_{1M}=0.504	p=0.000	H1: Supported	β_{1Z}=0.378	p=0.001	H1: Supported
Ethical → Purchase intention	β_{2X}=0.015	p=0.358	H2: Not Supported	β_{2M}=0.113	p=0.347	H2: Not Supported	β_{2Z}=0.502	p=0.005	H2:Supported
Environmental → Purchase intention	β_{3X}=0.021	p=0.513	H3: Not Supported	β_{3M}=0.309	p=0.002	H3: Supported	β_{3Z}=0.302	p=0.002	H3: Supported
Hedonic→ Purchase intention	β_{4X}=0.017	p=0.927	H4: Not Supported	β_{4M}=0.179	p=0.141	H4: Not Supported	β_{4Z}=0.267	p=0.001	H4: Supported
Trust → Purchase intention	β_{5X}=0.365	p=0.002	H5: Supported	β_{5M}=0.196	p=0.165	H5: Not Supported	β_{5Z}=0.217	p=0.003	H5:Supported
BARRIERS									
Contamination → Purchase intention	β_{6X}=-0.629	p=0.005	H6: Supported	β_{6M}=-0.033	p=0.789	H6: Not Supported	β_{6Z}=-0.431	p=0.002	H6: Supported
Purchase uncertainty →	β_{7X}=-0.098	p=0.273	H7: Not Supported	β_{7M}=-0.017	p=0.528	H7: Not Supported	β_{7Z}=-0.008	p=0.300	H7: Not Supported

Purchase intention									
Functional risk → Purchase intention	$\beta_{8X}=-0.803$	p=0.004	H8: Supported	$\beta_{8M}=-0.369$	p=0.002	H8: Supported	$\beta_{8Z}=-0.790$	p=0.000	H8: Supported
Embarrassment → Purchase intention	$\beta_{9X}=-0.624$	p=0.004	H9: Supported	$\beta_{9M}=-0.297$	p=0.001	H9: Supported	$\beta_{9Z}=-0.443$	p=0.002	H9: Supported
Low quality → Purchase intention	$\beta_{10X}=-0.086$	p=0.133	H10: Not Supported	$\beta_{10M}=-0.283$	p=0.001	H10: Supported	$\beta_{10Z}=-0.035$	p=0.160	H10: Not Supported
	R^2(Motives Purchase intention)=0.757 R^2(Barriers Purchase intention) = 0.649			R^2(Motives Purchase intention) = 0.605 R^2(Barriers Purchase intention) = 0.413			R^2(Motives Purchase intention)=0.670 R^2(Barriers Purchase intention) = 0.595		

Source: Own elaboration

Regarding the motivations of second-hand shopping for Gen X individuals, results indicate that the main variable influencing the purchase of used items is the *economic motivation* (H1:β_{1X}=0.697; p<0.004); followed by *trust* on the online store (H5:β_{5X}=0.365; p<0.002). Thus, in terms of the effect size, the economic motivation of Gen X consumers contributes the most to the purchase of second-hand products online. These findings are in line with Zaman et al. (2019), reporting the great influence of trust on the purchase intention of used items online. Conversely, *ethical motivation* (H2:β_{2X}=0.015; p<0.358), *environmental motivation* (H3:β_{3X}=0.021; p<0.513) and *hedonic motivation* (H4:β_{4X}=0.017; p<0.927) showed not influence on the intention to purchase used items online for Gen Xs. Contrary to our initial expectations, consumers' ethical motivation did not prove to be a significant influencing factor. One possible explanation is that Gen X individuals are motivated to reduce their consumption due to their ethical motives, both including new and used products.

On the other hand, regarding the shopping behavior of Millennials, we found empirical evidence of the significant positive influence of *economic motivation* (H1:β_{1M}=0.504; p<0.000) and *environmental motivation* (H3:β_{3M}=0.309; p<0.002) on the purchase intention of used products online. These findings are coherent with Paço et al. (2021),

since we show that young consumers are concerned with environmental issues, and their purchases are in turn motivated by environmental concerns. However, Millennials' *ethical motivation* (H$_2$:β$_{2M}$=0.113; p<0.347), *hedonic motivation* (H$_4$:β$_{4M}$=0.179; p<0.141) and *trust* towards the online store (H$_5$:β$_{5M}$=0.196; p<0.165) showed not influence on the purchase intention of second-hand items, since the relationship was in the expected direction, but failed to reach statistical significance. These findings are not aligned with Wang et al. (2022) who reported that among younger consumers, second-hand products' purchase is best motivated by fun and hedonic motivations, rather than by economic or environmental motivations (Wang et al., 2022). One potential explanation for this result could be that Millennials may expect to have fun and an enjoyable shopping experience when shopping second-hand products in traditional "brick-and-mortar" thrift shops or flea markets, instead of through the internet.

Finally, referred to the shopping motives of Gen Z individuals, findings show the significant influence of *economic motivation* (H$_1$:β$_{1Z}$=0.378; p<0.001), *ethical motivation* (H$_2$:β$_{2Z}$=0.502; p<0.005), *environmental motivation* (H$_3$:β$_{3Z}$=0.302; p<0.002), *hedonic motivation* (H$_4$:β$_{4Z}$=0.267; p<0.001), and *trust* (H$_5$:β$_{5Z}$=0.217; p<0.003) on the purchase intention of used products through the internet. More precisely, in terms of the effect size, the ethical motivation of Gen Z seems to contribute the most to the purchase intention of second-hand products online, followed by economic and environmental motivations. Research findings are coherent with Liang and Xu (2018) and with Wang et al. (2022) since they highlight the significant influence of the hedonic motivation among young consumers for the purchase of second-hand products online, indicating that young consumers care about the fun and pleasure of the shopping experience. However, the obtained findings are not aligned with Wang et al.

(2022) who reported that the economic motivation failed to exert any significant influence on young consumers' purchase of second-hand products.

Regarding the barriers to the purchase of used items online for Gen X consumers, results report that *functional risk* ($H_8:\beta_{8X}$=-0.803; p<0.004), followed by the *contamination effect* ($H_6:\beta_{6X}$=-0.629; p<0.005); and by *embarrassment* ($H_9:\beta_{9X}$=-0.624; p<0.004), are the main barriers restraining the purchase of used items online. Conversely, the *purchase uncertainty* ($H_7:\beta_{7X}$=-0.098; p<0.273), and the perceived *low product quality* ($H_{10}:\beta_{10X}$=-0.086; p<0.133) did not show significant influence on consumers' purchase intention. Similarly, referring to the barriers that prevent Millennials from shopping second-hand products online, results show empirical evidence to propose a significant negative relationship between *functional risk* ($H_8:\beta_{8M}$=-0.369; p<0.002)*, embarrassment* ($H_8:\beta_{8M}$=-0.299; p<0.001)*,* perceived *low product quality* ($H_{10}:\beta_{10M}$=-0.283; p<0.001) and the purchase intention of used items. On the contrary, Millennials' experienced *contamination effect* ($H_6:\beta_{6M}$=-0.033; p<0.789) and *purchase uncertainty* ($H_7:\beta_{7M}$=-0.017; p<0.528) when shopping second-hand products online do not show a significant influence on their purchase intention.

Finally, regarding the barriers that prevent Gen Z consumers from purchasing second-hand products' online, our findings report that the *functional risk* is the variable that exerts the greatest influence ($H_8:\beta_{8Z}$=-0.790; p<0.000) followed by *embarrassment* ($H_9:\beta_{9Z}$=-0.443; p<0.002) and the *contamination effect* ($H_6:\beta_{6Z}$=-0.431; p<0.002). Derived from research findings it can be stated that the used product potential functional risk, followed by the consumer personal embarrassment and the contamination effect is the stepwise order to prevent Gen Z individuals from the purchase of used items online.

This result is coherent with Wang et al. (2022) who reported that the personal embarrassment and the sanitary conditions deterred young consumers' purchase of used items. Interestingly, and contrary to the initial expectations, findings do not support the negative influence of the *purchase uncertainty* (H_7:β_{7Z}=-0.008; p<0.300) or the perceived *low product quality* (H_{10}:β_{10Z}=-0.035; p<0.160) on the intention to purchase second-hand products online.

7. CONCLUSIONS

This research aims to extend knowledge on second-hand online shopping from a generational cohort perspective, providing empirical evidence of the motives and barriers that influence the purchase of used items through the internet. Research results depict interesting differences in second-hand shopping behavior for the three generational cohorts under analysis, supporting that the date when consumers are born strongly influences and forms behaviors and consumption patterns within each generational cohort. In general terms, findings indicate that Gen X individuals are mostly driven by economic motivations, Gen Z are driven by ethical motives, while economic and environmental motivations exert greater influence for Millennials in their second-hand shopping behavior. Conversely, the perceived functional risk of the used item seems to be the major barrier for the three generational cohorts.

7.1. Theoretical and managerial contributions

This study yields three theoretical contributions. In the first place, it extends the *Generational Cohort Theory* (Inglehart, 1977) to online second-hand shopping behavior, showing that each generational cohort exhibits different purchase and

consumption behavior for used items; thus, supporting different second-hand online shopping patterns among Gen Xs, Millennials and Gen Z individuals. In the second place, the present research provides empirical evidence of the influence of age of the consumer when shopping used items through the internet. Third, this study contributes to the literature on the second-hand market providing an empirical examination of the variables that drive and prevent the purchase of used items through the internet; thus, reporting the main drivers and barriers in the purchase of used items online.

Some managerial implications could be derived from this study. Research findings reveal that marketers of second-hand products online should better understand each generational cohort motivations and barriers when shopping used products through the internet. Further, our findings provide second-hand business managers with useful insights in order to develop effective strategies to target these three generational cohorts. For example, considering that Millennials and Gen Z individuals are driven by environmental motives, second-hand managers should better communicate and promote that purchasing second-hand products extends the product lifecycle and reduces waste. As recommendations for managers targeting Gen X individuals, and since they are motivated by economic reasons, managers can enhance and promote the concept of *smart shopping* over cheap shopping. On one hand, and considering the barriers towards second-hand shopping, managers should develop different marketing strategies for the three different consumer groups. To persuade GenX and GenZ consumers to purchase second-hand items, marketers must focus on the mitigation of personal embarrassment and to alleviate consumers' perception of contamination risk. For instance, in order to overcome the consumer embarrassment, second-hand managers are encouraged to actively promote and increase the awareness of the positive environmental impact of the

use and consumption of used items, aiming to increase individuals' acceptance of second-hand products. Similarly, second-hand managers could reduce the perceived contamination risk among GenX and GenX individuals providing abundant information about the process whereby used products are handled and treated prior to their sale online.

On the other hand, second-hand retail managers should put great emphasis on reducing the perception of the used product functional risk. In this regard, second-hand product return policies provide customers with an explicit promise of the ability to return the product, and this return policy may reduce consumer functional risk perception, thereby increasing the purchase likelihood, as suggested by Ross et al. (2022). Likewise, second-hand stores and retailers could also consider the offering of a warranty of one week on all the used items purchased online, in order to reduce the perceived functional risk.

Accordingly, and in order to reduce individuals' concerns of second-hand purchase, greater product information regarding product source and origin, the sanitary methods implemented by the company or even the offering of the product technical documentation and product guarantees should be made available to consumers. Lastly and considering the lack of influence of the purchase uncertainty for the three generational cohorts, maybe second-hand managers could put greater effort to enhance the hedonistic nature of the second-hand shopping experience.

6.2. Limitations and future research guidance

The authors acknowledge several limitations of this work. First, the present study develops a cross-generational research and does not consider different consumer profiles, such as for example, distinguishing between those consumers who are experienced in second-hand shopping, and those consumers who purchase used items for the first time. Second, this study does not consider different product types or product categories, but the product category may influence second-hand shopping behavior. Finally, a great variety of second-hand online stores and platforms are available today, and further research could investigate how generational cohort shopping behavior might vary by store type in the online market.

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