

# Analyzing the Influence of Sustainability Benefits on Chilean Consumers' Intentions to Purchase Refurbished Smartphones

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**Abstract.** *This study examines the willingness of Chilean consumers to buy refurbished smartphones and how various benefits associated with these products, including sustainability advantages, influence their decision-making processes. Utilizing the consumer acceptance model for refurbished smartphones, data was collected through personal interviews with 190 consumers in a shopping mall setting. The findings indicate that the intention of Chilean consumers to purchase refurbished products is primarily driven by their subjective evaluations of perceived product value and risk as well as their positive brand evaluations. However, environmental concerns did not significantly impact purchase intentions. The*

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*study discusses both the theoretical and practical implications of these findings. By identifying enablers and barriers to sustainable consumption among Chilean consumers, our study complements research on the sustainability marketing of refurbished products in emerging markets. Furthermore, it adds to the literature on the evolution of circular economy approaches in emerging markets such as Chile, which differ in both socio-economic and cultural terms from more developed markets.*

**Keywords:** *refurbished smartphones, sustainability benefits, perceived value, brand equity, Chile*

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## 1. Introduction

Refurbished products, particularly in consumer electronics, have emerged as a significant segment of global consumer markets due to the affordability and environmental benefits they offer. The increasing popularity of refurbished products is primarily attributed to rising environmental and financial concerns among consumers and businesses (Alyahya et al., 2023). Reusing or refurbishing consumer electronics is vital for reducing environmental waste and contributing to sustainability efforts. Waste production and resource consumption worldwide are at unprecedented levels (Esmaeilian et al., 2021), and, according to the World Bank, 2.01 billion tons of solid waste are generated annually (World Bank, 2024). Businesses often prioritize environmental and production-related waste decisions less and employ marketing strategies that frequently promote overconsumption, even when sustainable resource efficiency is integrated into product design and manufacturing processes (Esmaeilian et al., 2021). This approach leads to a continuous influx of new products that eventually become obsolete and less appealing to consumers. In 2019, global e-waste disposal reached approximately 54 million tons, with only 17 percent being recycled (Baldé et al., 2022).

To mitigate environmental damage, an effective strategy is to promote the reuse and sale of refurbished products, thereby accelerating environmental waste reduction. Despite the refurbished electronics market being projected to grow at a compound annual growth rate of 7.4% globally and offering a cost-effective alternative for price-conscious consumers, particularly in emerging markets, the market share of refurbished consumer electronics in these regions remains lower than that in developed countries such as those in North America and Europe. While various factors may contribute to this discrepancy, overcoming consumer mistrust and altering the perceived value of refurbished electronics remain significant challenges for marketers. Additionally, many consumers in developing countries are either unaware of the potential benefits of refurbished electronics or need educational programs to enhance their knowledge and awareness.

Although scholarly interest in examining consumers' intentions to purchase refurbished electronics has significantly increased over the past two decades, most research has concentrated on advanced markets in Europe and North America. Consequently, limited research attention has been devoted to consumer behavior in the developing markets of Latin America, despite the growth rate of refurbished electronic product

sales outpacing other regions globally (Custom Market Insights, 2022; Gaur et al., 2015). The literature search reveals that most studies conducted in Latin America are tangentially related to understanding consumer purchase behavior for refurbished electronics, primarily focusing on specific online topics, eco-friendly consumer behavior in general (Bronfman et al., 2015), and online or electronic purchase behavior (Andrews & Bianchi, 2013). To the best of the authors' knowledge, no studies have examined Chilean consumer buying behavior regarding refurbished electronics or provided additional empirical insights into the marketing efforts for such products in Chile. The novelty of this research lies in its focus on examining consumer purchase intentions regarding refurbished smartphones in the emerging market of Latin America, utilizing consumer behavior theory to understand psychological and individual factors. More specifically, environmental concerns have been argued to play a significant role in consumers' decisions to purchase refurbished electronics, particularly in developed countries, due to concerns about substantial waste and the potential environmental harm caused by the production of new devices. For example, smartphones are known to contain toxic substances and rare-earth materials such as copper, chromium, lithium, neodymium, and terbium (Bigliardi et al., 2022; Obadă et al., 2024). Additionally, smartphones have a deep penetration into consumers' daily lives and have become staple electronic devices, as evidenced by their high sales volumes, which align with population figures (i.e., the number of smartphone sales in Chile is approximately equal to the population—around 19 million units). Given the significant social and environmental concerns associated with new smartphones, empirical research that expands our understanding of the consumer decision-making process in the Latin American market would provide valuable insights. Such research could help researchers, marketers, and policymakers identify effective actions and strategies to reduce negative impacts by addressing consumers' sustainability needs through environmentally preferable purchasing options.

To address these research gaps, this study examines Chilean consumers' willingness to purchase refurbished smartphones and how various benefits offered by these products, including sustainability advantages, influence their decision-making (Alyahya et al., 2023). Additionally, the study aims to derive practical implications for effectively engaging different consumer segments in the purchase of refurbished goods. To achieve these objectives, we adopt the theoretical model of the consumer decision-making process to investigate the acceptance of refurbished smartphones in Chile, a developing market transitioning towards a circular economy. The acceptance of refurbished smartphones has significant potential for reducing electronic waste, ultimately benefiting sustainable development (Ylä-Mella et al., 2015; Van Weelden et al., 2016). Our study examines various stages of the decision-making process and provides a thorough analysis of the factors that influence consumers' acceptance of reconditioned smartphones, contributing to the body of knowledge on product life extension and the circular economy in emerging Latin American markets.

## 2. Literature Review and Hypotheses

Refurbished products represent a significant portion of the consumer market, offering a more affordable and environmentally friendly alternative to new items. Although there is no universally accepted definition of refurbished electronics, refurbishing is defined as an industrial process that returns used products to good working condition to extend their lifespan (Nasiri & Shokouhyar, 2021). These refurbished products contribute to what is known as the circular economy through two main routes: (1) enabling individuals to recover value from obsolete items and (2) promoting a more sustainable consumption pattern that utilizes valuable resources more efficiently while generating less waste (Ellen MacArthur Foundation, 2012). Moreover, selling refurbished products allows companies to expand into a new and growing consumer market, improve revenue streams, and enhance positive brand perceptions associated with sustainability or environmentally friendly operations (Esmailian et al., 2021). Increased customer interest and demand for environmentally friendly product alternatives have significantly contributed to the growth of the refurbished electronics market in Latin America, a trend that is expected to continue.

While the literature has examined the barriers and enablers of refurbished smartphones in developed markets (e.g., Van Weelden et al., 2016), relatively little is understood about consumer behavior regarding this category in emerging Latin American markets, such as Chile. A study by Cordova-Pizarro et al. (2020), conducted in Mexico, focused on external barriers and contended that the lack of consumer incentives, combined with limited interest among market participants, impeded the effective functioning of the circular economy in Mexico's cellphone industry. Furthermore, existing studies lack a conceptual framework that provides insight into Chilean consumers' evaluations of refurbished electronics.

Consumers often engage physically with their smartphones and depend on them for positive social interactions with friends and loved ones. As a result, consumers are highly involved in their purchase decisions and undergo an extensive problem-solving process. This process is characteristic of the rational decision-making seen in utilitarian high-involvement products, where consumers navigate several phases as first outlined by John Dewey (1910). This process identifies five phases: *recognizing the problem*, *searching for information*, *evaluating alternatives*, *making a purchase decision*, and *post-purchase behavior* (Bruner & Pomazal, 1988). Since our aim is to explain the purchase of refurbished smartphones, we will focus on the pre-purchase and purchase stages.

*Need Recognition and Information Search.* The purchasing process begins with the consumer's identification of a problem or a need situation, when they recognize a gap between their current state and their desired outcome (Bruner & Pomazal, 1988). When consumers experience heightened awareness through their perception of need, they become increasingly receptive to new information about the product and actively seek out information to learn about potential products, brands, and their characteris-

tics. This research leads to a set of alternatives that consumers are aware of and recognize as valuable for thorough consideration (Mugge et al., 2017). The level of customers' involvement or interest significantly influences their perception of a need and their decision to engage in information search.

Involvement is a motivational construct characterized by a motivational or activating nature (Rodríguez-Santos et al., 2013, p. 1107) that reflects an individual's inner engagement or personal relevance with an object (Zaichkowsky, 1985). In our study, we define involvement in the specific product category of smartphones, as this category-dependent involvement is likely to influence consumers' subsequent purchasing decisions. Under conditions of high involvement, consumers become more aware of potential incongruence between their beliefs (e.g., related to sustainability) and their behavior patterns (e.g., using conventional instead of refurbished products), thereby enhancing their perception of need. Furthermore, this imbalanced state can be viewed as cognitive dissonance (Festinger, 1957), which, in turn, motivates individuals to return to equilibrium by adjusting either their cognition to align with their behavior or their behavior to align with their cognition, such as entering into a purchasing process for refurbished products.

Involvement is an affective or emotional construct that reflects the positive emotions associated with an object, such as smartphones in our case. Previous research has analyzed how emotions directly and indirectly impact consumers' intentions (Samoggia et al., 2025). Emotions can directly influence purchasing decisions, such as when a consumer experiences positive feelings while buying a sustainable product (Samoggia et al., 2025). Indirectly, emotions may shape consumers' preferences and attitudes over time, subtly guiding their behavior based on past experiences or perceived social norms (Carrus et al., 2008). Research suggests that positive emotional states can motivate consumers to engage in sustainable behaviors, such as pro-environmental or pro-social actions. This tendency is particularly strong when consumers view their purchasing decisions as a way to address pressing sustainability issues (Carrus et al., 2008; Berki-Kiss & Menrad, 2022). According to Perugini and Bagozzi's (2001, 2004) model of goal-directed behavior (MGB), positive anticipated emotions are seen as predictors of desire that impact intentions, alongside attitudes, subjective norms, and perceived behavioral control, as outlined in the Theory of Planned Behavior (TPB) (Ajzen, 1991). Consequently, many businesses have developed marketing strategies aimed at emphasizing the sustainable features of their products not only to inform consumers but also to strengthen emotional connections with the brand, leading consumers to feel more positively about consuming certain products (Samoggia et al., 2025; Vermeir & Verbeke, 2006).

Based on this argumentation, we postulate the following hypothesis:

**H1:** *Consumers' product involvement positively influences their purchase intentions of refurbished smartphones.*



Environmental concern can be defined as a general attitude regarding the evaluation of the concept of ‘environmental protection’ (Bamberg, 2003). According to the Theory of Planned Behavior (TPB) (Ajzen, 1991), attitudes, including environmental concern, positively influence behavioral intentions related to pro-environmental behavior (Kotzya et al., 2024). The perspective on environmental concerns views consumers as intrinsically motivated to engage in green behavior by purchasing refurbished products (Harms & Linton, 2015). In situations where individuals face new decisions, such as in the newly established product category of refurbished smartphones, consumers may rely on general attitudes like environmental concern as an easily accessible heuristic. This heuristic guides individual decision-making by helping to frame the decision problem, relevant alternatives, and personally salient decision criteria (Bamberg, 2003). According to Vlosky et al. (1999), there is a positive relationship between consumers’ willingness to pay and their environmental consciousness. They concluded that customers who value the environment are willing to pay more for ecologically friendly items. Laroche et al. (2001) found that approximately 13% of participants were prepared to pay more for environmentally friendly goods. Numerous studies have identified a positive relationship between environmental concern and pro-environmental intentions (e.g., Kotzya et al., 2024; Stern et al., 1995; Whitmarsh & O’Neill, 2010; Borusiak et al., 2021).

Consequently, we expect that existing environmental concerns will encourage consumers to prioritize environmentally friendly products when seeking information, selecting, and evaluating alternatives. This would ultimately have a positive effect on the intention to purchase refurbished products (Essiz et al., 2022). In areas where purchasing experience with refurbished products is still limited, such as the emerging market of Chile, general attitudes like environmental concern could play a more significant role as a guiding factor in the purchasing process compared to already developed markets, where concrete attitudes shaped by experience, such as satisfaction, have already developed. Based on the positive framing in favor of environmental product alternatives stemming from consumers’ environmental concerns, we anticipate a higher inclination to purchase refurbished products, as formulated in Hypothesis 2:

**H2:** *Consumers’ environmental concern positively influences their purchase intentions of refurbished smartphones.*

*Evaluation Phase.* During the evaluation phase of the purchasing process, the consumer analyzes previously obtained product information and assesses the alternatives. To make a well-informed purchase decision, consumers engage in a subjective comparative assessment of the risks and benefits associated with the different product alternatives (Mugge et al., 2017; Van Weelden et al., 2016). Perceived risk (benefit) is defined as recognizing the negative (positive) consequences of a purchase, weighted by the probability of these consequences occurring (Mitchell, 1992). Perceived risk (benefit) implies the expectation of losses (gains) associated with the purchase and serves

as an inhibitor (stimulant) to purchasing behavior (Wang et al., 2013; Peter & Ryan, 1976). Given the rational purchasing decision process that underlies the purchase of refurbished smartphones as a high-involvement product, we can assume consumers will make logical decisions, such as choosing products that maximize their expected utility, reflected in the highest perceived net benefit, i.e., the greatest positive benefit-risk difference or benefit/risk ratio that a product might offer (Liu, 2010).

According to perceived risk theory, various risks are associated with purchasing products from new categories, such as refurbished smartphones, which can adversely affect consumers' purchase intentions (Mitchell, 1992; Mugge et al., 2017). First, consumers may perceive heightened performance risk when considering refurbished smartphones compared to new models (Guide & Li, 2010; Hazen et al., 2017). This perception negatively impacts their purchase intentions (Bray et al., 2011). The concern arises mainly because refurbished smartphones are often older models, leading consumers to be uncertain about the extent of prior usage and, consequently, the devices' future performance (Van Weelden et al., 2016; Wang & Hazen, 2016). Second, purchasing a refurbished smartphone may also involve financial risk, as consumers might incur a financial loss if the product does not meet their expectations. This concern further diminishes their purchase intentions (Mugge et al., 2017; Wang et al., 2013). This apprehension may be particularly pronounced when the product is priced at a premium. Consequently, we would expect perceived product purchase risk to lower consumers' purchase intentions for refurbished smartphones, as formulated in the following hypothesis:

**H3:** *Consumers' perceived product purchase risk negatively influences their purchase intentions of refurbished smartphones.*

The literature identifies two primary categories of consumer benefits associated with purchasing refurbished smartphones instead of new ones: *economic* and *psychological* (Mugge et al., 2017). From an economic perspective, consumers may see financial advantages when buying refurbished smartphones due to their lower prices (Guide & Li, 2010), which can ultimately enhance purchase intentions (Jiménez-Parra et al., 2014; Wang & Hazen, 2016). From a psychological standpoint, consumers may gain satisfaction from acquiring refurbished smartphones because of their favorable environmental attributes, particularly appealing to environmentally conscious individuals (Van Weelden et al., 2016). However, these environmental characteristics can be classified as experience or credence attributes, as they cannot be thoroughly evaluated before consumer experience or may not be assessable at a reasonable cost (Nelson, 1970). This limitation may significantly affect purchasing behavior, especially in emerging markets such as Chile, where relevant purchasing experiences are largely absent. Consequently, consumers may base their decisions primarily on trust in the brand. Nonetheless, if the environmental benefits are perceived as tangible and credible before purchase, it can be assumed that such perceptions will positively influence purchase intentions (Marzouk

& Mahrous, 2020). Research considers perceived value or quality as prerequisites for consumer satisfaction and behavioral intention, reflecting consumers' feelings of the relative advantage of a particular product or service (Zhuang et al., 2021; Zeithaml, 1988). Green perceived value has been shown to positively impact consumers' purchase intentions for green products (Wu & Chen, 2014).

Therefore, generally, a higher perceived value associated with purchasing a refurbished smartphone will enhance consumers' purchase intentions as outlined in the following hypothesis:

**H4:** *Consumers' perceived product value positively influences their purchase intentions of refurbished smartphones.*

Van Weelden et al. (2016) emphasized the importance of having a strong and positive reputation for refurbished products in fostering consumer acceptance, which is reflected in favorable brand evaluations and high brand equity. According to information economics theory (Nelson, 1970), this assertion is supported by the idea that a positive evaluation of a product's sustainability benefits—considered as experience or credence attributes—depends on consumer trust in a reputable product brand. Such branding acts as a signal that mitigates information asymmetries between the seller and the buyer. Trust plays a crucial role in shaping consumers' perceptions and evaluations of products with sustainability features, thereby encouraging supportive brand behaviors, including increased purchase intentions and loyalty (Morgan & Hunt, 1994). It can be defined as the willingness to rely on a partner to establish and maintain a relationship (Grunwald et al., 2021). Conversely, a lack of trust in the provider and product sustainability attributes may lead to increased consumer skepticism, resulting in negative evaluations and reduced purchase intentions. Previous research has demonstrated that customer trust positively influences their purchase intentions (Schlosser et al., 2006; Chen & Chang, 2012). In line with this perspective, earlier studies have shown that a strong brand image positively affects consumers' adoption of refurbished smartphones (Hamzaoui Essoussi & Linton, 2014). Furthermore, corporate reputation was found to have a positive relationship with consumer purchase intentions and fully mediated the beneficial impact of corporate social responsibility on consumer purchase intention (Qasim et al., 2017; Huo et al., 2022).

Based on this reasoning, we propose the following hypothesis:

**H5:** *Consumers' brand evaluation (brand equity) positively influences their purchase intentions of refurbished smartphones.*

*Purchase Decision Phase.* In the purchase decision phase, consumers evaluate risks and benefits to form preferences for products, ultimately selecting the option they believe best meets their needs. However, even with a strong preference, external factors can lead to deviations from the intended choice. According to the TPB (Ajzen, 1991), a positive attitude toward sustainable behavior does not necessarily translate into a



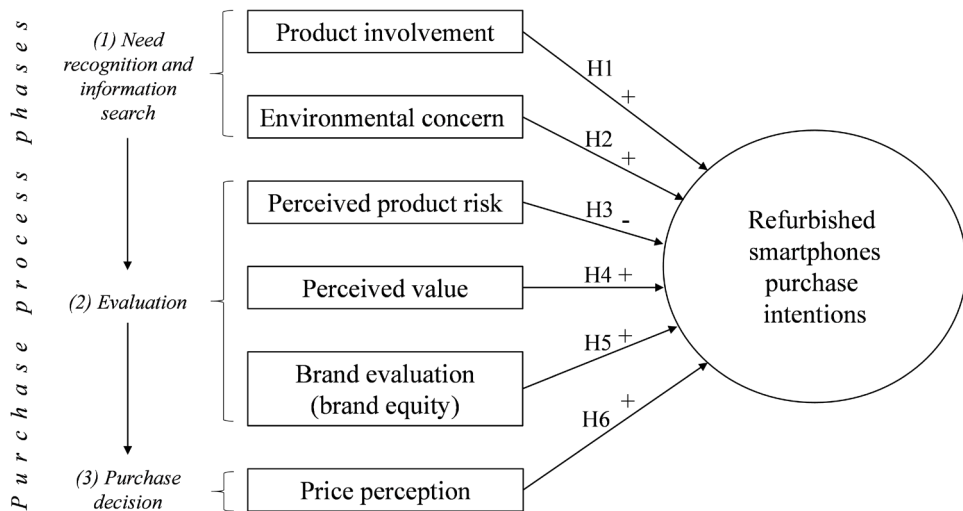
strong behavioral intention. This discrepancy may arise from insufficient subjective norms, where significant others (e.g., colleagues, friends, family) may expect different actions, or from inadequate perceived behavioral control, where individuals feel their options for actions—such as competencies and resources—are limited. For instance, a high product price can restrict purchasing options, potentially hindering the acquisition of a refurbished smartphone despite an overall favorable evaluation. Given that product prices may fluctuate until the point of purchase, the consumer's price perception becomes particularly crucial during this stage of the decision-making process.

This assessment involves comparing the currently perceived price signals with previously stored knowledge of price and quality from earlier stages of the purchasing process. This comparison results in a perceived price-performance ratio, reflecting the fairness of the price (Grunwald & Schwill, 2022, p. 252). Such consumer judgment is particularly relevant when buyers suspect significant quality variance in the market, which is a realistic concern for refurbished electronics. Chen et al. (2020) emphasized that pricing often holds more significance for customers than environmental preservation. However, it is important to note that a substantial discount can lower consumer favor by fostering mistrust. This notion aligns with the low-cost hypothesis articulated in the rational choice theory (Diekmann, 1996), which posits that the influence of environmental awareness on pro-environmental behavior is greater in contexts where the costs incurred by the individual are low rather than in situations involving higher costs (Diekmann & Voss, 2004, p. 13). Consequently, costs moderate the impact of environmental awareness on sustainable or ecological actions. When the environmental compatibility of a product is viewed as an almost free additional benefit, it is more likely to influence consumer behavior. Therefore, patterns of sustainable behavior are more likely to emerge in contexts that do not require significant behavioral changes or inconveniences (Grunwald & Schwill, 2022, p. 76). Based on this reasoning, we hypothesize that consumers' price perception, as reflected in their evaluation of value for money, positively impacts their purchase intention for refurbished smartphones. This is supported by previous research showing that higher costs of green products reduce consumers' purchase intentions, particularly among price-conscious customers who highly consider pricing when making selections (Bezawada & Pauwels, 2013; Van Doorn & Verhoef, 2015; Van Hoang & Le Thanh, 2024).

Accordingly, we propose the following hypothesis:

**H6:** *Consumers' price perception positively influences their purchase intentions of refurbished smartphones.*

Figure 1 displays the hypothesized relationships forming our conceptual model.

**Figure 1***Conceptual Model*

### 3. Methodology

#### 3.1 Study Design and Sample Selection

To test our hypotheses, we developed a standardized questionnaire. We selected a well-known smartphone brand (Samsung) based on its market share position as the context for the questionnaire. Subjects were invited to participate in the study and approached in various shopping center environments. They were informed that participation was completely voluntary, their data would be kept strictly confidential, and no personal identifiers would be shared under any circumstances. It was communicated that their agreement to participate in the study indicated their implied consent, and therefore, no signed documents were collected.

We targeted consumers aged eighteen and older who had the authority to purchase a smartphone for themselves. We conducted a total of 190 personal interviews. Using the QuestionPro platform, we created an offline survey to gather data. Consumers involved in the shopping process were approached in a shopping mall and invited to participate in the survey. The field study primarily took place in two large shopping malls in the retail areas of Talca, where contact was made through random personal interviews.

#### 3.2 Measures and Analysis Method

Study questionnaire was developed in English and then translated into Spanish. Back translations were conducted to minimize the translation errors in the process. We decided to use the Spanish word “reacondicionados” to represent the refurbished word

in English. Scale items used to measure perceived risk were adapted from Agostini et al. (2021) and Wang, Wang et al. (2018). Purchase intention was measured based on Wang and Hazen (2016) and Agostini et al. (2021). Items to measure the involvement construct are based on Sarkar and Sarkar (2019) and Zaichkowsky (1985). Perceived value was measured based on Agostini et al. (2021) and Wang, Wang et al. (2018). Items used to measure environmental concern were adapted from de Vicente Bittar (2018) and Wang, Hazen, and Mollenkopf (2018). Scale items used to measure price perceptions and brand equity were taken from de Vicente Bittar (2018). All scales were measured using a five-point Likert-scale, ranging from 5=Strongly Agree to 1=Strongly Disagree. Reliability analysis indicates that the constructs used in the study achieved higher alpha scores than the cutoff levels suggested in the literature (see Table 1).

**Table 1**

*Construct Operationalization and Scale Reliability*

<b>Constructs</b>	<b>Mean</b>
<b>Perceived risk (Alpha=0.89; <math>\mu</math>=3.2614)</b>	
Items adapted from Agostini et al. (2021) and Wang, Wang et al. (2018)	
• I'm afraid that the security of refurbished smartphones isn't as good as that of new products, so it may pose security risks (physical risk).	3.49
• I fear that refurbished smartphones may not perform as well as new ones (performance risk).	3.68
• I'm afraid that buying refurbished smartphones isn't a good investment (financial risk).	3.31
• I'm worried about having to repair the refurbished smartphone more frequently than a new one (time-related risk).	3.57
• I'm concerned that refurbished smartphones may not meet the required expectations (functional risk).	3.53
• I'm afraid of what my friends might say when they see me with a refurbished smartphone (social risk).	1.98
<b>Purchase Intention (Willingness to buy) (Alpha=0.85; <math>\mu</math>=2.3447)</b>	
Items adapted from Wang and Hazen (2016) and Agostini et al. (2021)	
• I might buy refurbished smartphones in the near future.	2.56
• I will encourage my family and friends to buy refurbished smartphones.	2.42
• When I have to choose between new and refurbished smartphones, I usually start by considering refurbished ones first.	2.23
• I have bought refurbished products before.	2.17
<b>Involvement (Alpha=0.94; <math>\mu</math>=3.6442)</b>	
Items adapted from Sarkar and Sarkar (2019) and Zaichkowsky (1985)	
• I have a keen interest in smartphones.	3.62
• Smartphones are very important to me.	3.52
• I would choose my smartphones carefully when buying them.	3.78
• Choosing a smartphone is an important decision for me.	3.70
• The smartphone I buy matters a lot to me.	3.61

**Perceived value (Alpha=0.93;  $\mu$ =2.7526)**

Items adapted from Agostini et al. (2021) and Wang, Wang et al. (2018)

• If I bought a refurbished smartphone, I would feel that my money is worth it.	2.69
• If I bought a refurbished smartphone, I believe I would be getting good value for money.	2.81
• I think purchasing a refurbished smartphone meets my quality and price requirements.	2.76
• Compared to new smartphones, refurbished ones have a better performance-to-cost ratio.	2.76

**Environmental concern (Alpha=0.93;  $\mu$ =2.9401)**

Items adapted from de Vicente Bittar (2018) and Wang, Hazen, and Mollenkopf (2018)

• I always buy products that are less harmful to the environment.	2.82
• I have switched products for environmental reasons.	2.76
• I have convinced my family or friends NOT to buy environmentally harmful products.	2.75
• I do my best to buy products made from recycled paper.	2.81
• I don't buy household products that harm the environment.	2.82
• I won't buy products that have excessive packaging.	2.98
• Buying refurbished smartphones is an environmentally responsible decision.	3.24
• Buying refurbished smartphones can reduce the harmful effects of waste on the environment.	3.34

**Price perceptions (Alpha=0.95;  $\mu$ =3.1000)**

Items adapted from de Vicente Bittar (2018)

• The offer for this refurbished smartphone is an excellent buy for the money it costs.	3.15
• At the selling price, this refurbished smartphone has a very good value for money.	3.13
• The offer for this refurbished smartphone represents an extremely fair price.	3.02

**Brand equity (Alpha=0.91;  $\mu$ =2.8513)**

Items adapted from de Vicente Bittar (2018)

• It makes sense to buy this smartphone brand instead of any other, even if they are the same.	2.85
• Even if another smartphone brand may have the same features, I would prefer to buy from this brand.	2.83
• If there were another smartphone brand as good as this one, I would still prefer to buy from this brand.	2.80
• If a smartphone from another brand doesn't differ at all from this brand, it still seems smarter to buy from this brand.	2.93

Hierarchical regression analysis served as the primary statistical tool to measure the influence of involvement, environmental concern, risk perception, perceived value, brand evaluation (brand equity), and price perceptions, all considered as independent variables, on consumers' willingness to purchase refurbished smartphones (purchase intention), which is the dependent variable. Consumers' age was added in the first stage to isolate its effects from the other variables used in the model. By including the participants' age as an independent variable first, we were able to assess the potential variation in consumers' purchase intentions based on demographic characteristics.

#### 4. Findings

Approximately 54% (190 out of 350 subjects approached) of those who were invited to participate in the study agreed to complete the survey. The sample primarily consists of younger female consumers with higher education (college degrees). Nearly half of the respondents (45%) express skepticism toward refurbished products, and a similar percentage (46%) report having purchased refurbished items. About 13% of respondents indicate having negative experiences, while 19% share positive experiences, and 15% have neither positive nor negative experiences. Most respondents have a relatively low income, closely reflecting the annual income statistics for the general population in Chile.

The regression model is significant ( $F=25.285$ ,  $df=189$ ,  $p<0.001$ ), with an R-squared value of 0.493. Multicollinearity is assessed not to be a major concern, as all VIF scores are well below the suggested cutoffs (5.0) in the literature. Refer to Table 2.

**Table 2**

*Summary of Hierarchical Regression Analysis for Variables Predicting Refurbished Smartphone Willingness to Buy*

	Fixed effects	Unstan- dardized Coefficients		Standard- ized Coef- ficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	SE	$\beta$			LL	UL	Tolerance	VIF
1	Intercept	2.805	.158		17.744	<.001	2.493	3.117		
	Age	-.209	.064	-.232	-3.271	.001	-.334	-.083	1.000	1.000
	Intercept	.736	.302		2.437	.016	.140	1.331		
	Age	-.112	.049	-.125	-2.288	.023	-.209	-.015	.934	1.071
	Involvement	.043	.058	.048	.736	.463	-.072	.158	.665	1.505
2	Environmental concern	.087	.068	.082	1.271	.206	-.048	.222	.670	1.492
	Risk perceptions	-.140	.058	-.140	-2.398	.018	-.256	-.025	.813	1.230
	Perceived value	.412	.066	.451	6.281	<.001	.283	.542	.539	1.854
	Brand equity	.229	.064	.229	3.601	<.001	.104	.355	.689	1.451
	Price percep- tions	.036	.064	.042	.570	.569	-.090	.163	.506	1.976

Note. Dependent variable = willingness to buy; r-square = 0.493.

We conducted a hierarchical regression analysis where age was controlled in the first step. The analysis reveals that consumers' age has a significant negative effect ( $\beta = -.125$ ;  $p = .023$ ) on their purchase intention. This means that as age increases, the intention to purchase refurbished smartphones decreases. In descending order of intensity, perceived value ( $\beta = .451$ ;  $p < .001$ ), brand equity ( $\beta = .229$ ;  $p < .001$ ), and risk perception ( $\beta = -.140$ ;  $p = .018$ ) significantly affect consumers' purchase intention for refurbished



smartphones, thereby supporting hypotheses H3, H4, and H5. The indirect influence of risk perception, as expressed in hypothesis H3, is confirmed by the negative sign of the corresponding regression coefficient. Descriptive analysis shows slightly above-average mean values for perceived value ( $\mu = 2.7526$ ;  $\sigma = 1.11566$ ), brand equity ( $\mu = 2.8513$ ;  $\sigma = 1.01799$ ), and risk perception ( $\mu = 3.2614$ ;  $\sigma = 1.02041$ ).

However, contrary to expectations, product involvement ( $\beta = .048$ ;  $p = .463$ ), environmental concern ( $\beta = .082$ ;  $p = .206$ ), and price perceptions ( $\beta = .042$ ;  $p = .569$ ) were found to have an insignificant impact on Chilean consumers' intentions to purchase refurbished smartphones. Thus, hypotheses H1, H2, and H6 cannot be confirmed based on our sample. The descriptive analysis results reveal a higher level of product involvement in our sample ( $\mu = 3.6442$ ;  $\sigma = 1.12882$ ), along with a medium to higher level of price perception, indicating average to good perceptions of the price-performance ratio ( $\mu = 3.1000$ ;  $\sigma = 1.18235$ ) and a slightly above average level of environmental concern ( $\mu = 2.9401$ ;  $\sigma = .96180$ ).

Table 3 summarizes the results of hypotheses testing.

**Table 3**

*Summary of Results of Hypotheses Testing*

Hypothesis	Description	Supported/Not Supported
H1	Product involvement positively influences consumers' purchase intentions of refurbished smartphones.	NOT SUPPORTED
H2	Environmental concern positively influences consumers' purchase intentions of refurbished smartphones.	NOT SUPPORTED
H3	Perceived product risk negatively influences consumers' purchase intentions of refurbished smartphones.	SUPPORTED
H4	Perceived value positively influences consumers' purchase intentions of refurbished smartphones.	SUPPORTED
H5	Brand evaluation (brand equity) positively influences consumers' purchase intentions of refurbished smartphones.	SUPPORTED
H6	Price perception positively influences consumers' purchase intentions of refurbished smartphones.	NOT SUPPORTED

While our empirical study supports three hypotheses related to the evaluation phase of consumers' purchase process, the three unsupported hypotheses pertain to the first stage of need recognition and information search, as well as the purchase decision as the final stage.

## 5. Discussion

While not all hypotheses of the study were supported, we argue that the findings—both significant and statistically insignificant—provide additional empirical evidence to address gaps in existing literature. This study was conducted in an emerging market in Latin America, unlike most prior research which has focused on developed markets. Additionally, among studies conducted in Latin America, few have examined popular consumer electronics, such as refurbished smartphones. Our results indicate that the purchase decisions of Chilean consumers regarding refurbished smartphones were primarily influenced by brand equity, perceived value, and risk perceptions. Although age was found to have an indirect effect on purchase intentions, environmental concerns did not appear to influence younger consumers. The literature suggests that high levels of collectivism and uncertainty avoidance are associated with stronger preferences for brand loyalty, with Chile rated highly on both dimensions according to Hofstede's cultural index. Our findings further affirm the importance of brand loyalty and risk avoidance in shaping the decisions of Chilean consumers to purchase refurbished smartphones. Therefore, our study results indicate that a lack of involvement or interest in the smartphone product category does not limit the purchase of refurbished smartphones, nor does it enhance consumers' purchasing decisions (H1). This finding contrasts with previous studies (e.g., Van Weelden et al., 2016), which identified insufficient consumer awareness and interest as significant obstacles to engaging in sustainable purchasing behaviors.

Contrary to our expectations, environmental concern was found to be an insignificant factor affecting the purchase intentions of Chilean consumers regarding refurbished smartphones (H2). This finding aligns with previous research indicating low to moderate correlations between environmental concern and actual behavior. For instance, Bamberg (2003) posits that environmental concern functions primarily as an indirect determinant of specific behaviors. More precisely, it serves as a broad orientation that creates context-specific cognition influencing how specific situations are framed. This perspective may elucidate the negligible impact of environmental concern on purchase intentions. However, this outcome does not imply that environmental concern is unimportant for evaluative judgments regarding refurbished smartphones; rather, it suggests that such concerns are only weakly associated with immediate purchase decisions.

Considering the insignificant influence of environmental concern (H2) and the negligible impact of price perception (H6) on purchase intention, our results provide only limited support for the low-cost hypothesis (Diekmann, 1996) within the Chilean consumer market. While price perception shows a positive yet insignificant effect on purchase intention, it indicates that a negative price perception—particularly a poor price-performance ratio—could become a relevant limiting factor for Chilean consumers' purchase intentions regarding refurbished smartphones if it were to gain significance. This aligns with prior literature identifying high prices as a major barrier to

purchasing eco-friendly products, especially in developing countries, where consumers often view conventional products as more affordable (Nguyen et al., 2017). Nevertheless, the average to slightly favorable assessment of refurbished smartphones' price-performance ratio in our sample may explain the absence of (negative) price perceptions constraining purchase intention.

On the other hand, our findings suggest that the moderate level of price perception observed in our sample may have diluted the impact of environmental concern on consumers' intentions to purchase refurbished products. This outcome is inconsistent with studies that support the low-cost hypothesis, which posits an inverse U-shaped relationship between environmental concern and consumer behavior, as illustrated by Guagnano et al. (1995) in their 'A-B-C model.' According to this model, moderate behavioral costs (i.e., average price perception) should yield a strong impact of environmental concern on behavior, while low and high costs (low and high price perceptions) should weaken this effect. Contrary to this theoretical assumption, our study identified a weak relationship between environmental concern and behavior under conditions of moderate perceived behavioral costs (price perception), thereby challenging the validity of the low-cost hypothesis within the context of the Chilean consumer market for refurbished smartphones.

Consumers typically form price perceptions primarily during the purchase phase by comparing the current offer price with previously established net benefits. Consequently, the insignificant effect of price perception on purchase intention (H6) may be due to consumers being less influenced by the current price signal alone. Instead, their decisions appear to be driven more by risk-benefit evaluations established during the earlier evaluation phase, which includes an assessment of financial risk.

As anticipated, both risk perception (H3) and perceived value (benefits) (H4) were recognized as relevant factors influencing consumers' decision-making and intention to purchase refurbished smartphones. While this finding aligns with some studies (e.g., Van Weelden et al., 2016), it contrasts with others that have reported negligible direct impacts of perceived risks and perceived benefits on purchase intention (Wang et al., 2013). Notably, perceived value has been shown to exert a more decisive influence on consumers' purchase intentions than perceived purchase risk. This suggests that the potential benefits of purchasing and using refurbished smartphones outweigh any perceived disadvantages. Such a positive overall assessment indicates that refurbished smartphones could achieve market success within the Chilean context.

Additionally, we identified consumers' brand evaluation (brand equity) (H5) as the second strongest factor significantly influencing purchase intentions for refurbished smartphones. This finding underscores the importance of consumers' high levels of brand awareness, brand image, and trust in the brand when purchasing this relatively new product subcategory. According to information economics theory, strong brands can mitigate perceived risks associated with buying new products while credibly com-

municating the potential benefits of refurbished products' environmental and performance attributes.

As refurbished products are a relatively new concept, they may be met with increased skepticism, particularly among older, more cautious consumers. Our finding that age negatively influences purchase intentions for refurbished items reinforces this skepticism. While this result aligns with previous research indicating that younger consumers tend to be more environmentally concerned and base their purchasing decisions on the environmental attributes of products (Akehurst et al., 2012; Sheoran & Kumar, 2022), it contrasts with other studies suggesting that older consumers are more ecologically conscious (Han et al., 2009; Yahya et al., 2015).

## **6. Study Implications**

### **6.1 Theoretical Implications**

First, our study contributes to previous research focused on identifying enablers and barriers to sustainable consumption, particularly regarding refurbished products (e.g., Van Weelden et al., 2016; Hazen et al., 2017). While our study reveals that product category involvement and environmental concern, established at the start of the purchasing process, along with price perceptions formed in the final phase, are insignificant factors influencing Chilean consumers' purchase intentions, future research should investigate the reasons behind this insignificance in the context of emerging markets. Qualitative research involving in-depth interviews with potential customers differing in demographic, socio-economic, and psychographic profiles could yield deeper insights into the factors that facilitate or hinder the purchase of refurbished products in general, and refurbished smartphones in particular.

Moreover, considering that age, as a sociodemographic characteristic, significantly impacts consumers' purchase intentions in our study, future research should take sociodemographic factors and additional segmentation variables into account. This approach is especially relevant in emerging markets, where the diffusion of refurbished products is still in its early stages. Such research could provide valuable insights into the specific preferences and behaviors of different consumer segments, enhancing our understanding of market dynamics in these contexts. Since material and immaterial individual consumer needs associated with the purchase and use of refurbished smartphones depend on the cultural context, future research could conduct segmentation studies based on consumers' priority order for fulfilling certain types of needs, as reflected in Maslow's hierarchy of needs theory (Ghorab, 2022). While consumers who prioritize basic needs are likely to be motivated to purchase by the availability of a refurbished cell phone and its simple functions (Weissmann & Hock, 2021), more sophisticated consumers who prioritize higher-order needs may be motivated by the brand

and its promise regarding the product's environmental benefits, potentially leading to greater inner satisfaction through better product choices (Ghorab, 2022).

Second, our study complements research on the sustainability marketing of refurbished products in emerging markets (e.g., Mugge et al., 2017; Laroche et al., 2001; Grunwald & Schwill, 2022). It emphasizes the significance of the evaluation phase in consumer decision-making for this product category. Future research could explore this phase in greater detail by breaking it down into finer sub-phases that reflect consumers' product assessments and beliefs. Additionally, future studies could investigate the relationship between retailer and manufacturer brands in the consumer purchasing process concerning promoting purchase intention, particularly since the sale of refurbished smartphones in emerging markets is mainly organized through retailers who also act as suppliers, with original equipment manufacturers (OEMs) usually playing a limited role.

Third, our study contributes to the literature stream focused on analyzing the evolution of circular economy approaches in emerging markets like Chile, which differ socio-economically and culturally from more developed markets (e.g., Boubakri et al., 2021). Additionally, it complements research on the influence of environmental concern as a generalized attitude on consumers' sustainable purchase behavior, confirming the diminishing explanatory power of the concept of environmental concern (Bamberg, 2003). Specifically, our study provides only weak evidence for the validity of the low-cost hypothesis in the Chilean market, which is often considered particularly relevant for sustainable consumption in developing markets. In this context, future studies could explore how consumers' price perception in different market segments (which vary according to prioritized needs, for instance) moderates the impact of environmental concern on purchase intentions.

## **6.2 Practical Implications**

Given that both risk perception and perceived value are significant factors influencing purchase intention, it is evident that Chilean consumers recognize the risks and benefits associated with refurbished products. Therefore, marketing strategies should focus on tailored communication to specific segments that further alleviate perceived product risks. Although our findings indicate that price perception was not a significant factor in influencing purchase intentions among Chilean consumers, this does not exclude the possibility that price could serve as a limiting factor for certain subsegments within this emerging market. Consequently, suppliers—including retailers and manufacturers—should consider offering refurbished smartphones at lower prices than comparable new products to attract potential consumers who may find new options unaffordable (Wang et al., 2013).

To enhance consumers' perception of the benefits –linked partly to sustainability properties and therefore uncertain in occurrence – companies could present product



value in measurable terms, such as cost savings and reduced environmental burden. Although the minimal impact of environmental concern suggests that environmental motives may not be the primary purchase drivers for refurbished smartphones in the Chilean consumer market, they may become more appealing in the future. As consumer experience in this product category increases and basic needs are fulfilled (such as product availability, smooth operation, and a good price-performance ratio), addressing higher-order sustainability needs may become more critical for consumers in the near future. Consequently, making environmental benefits more prominent could transform their perception of refurbished smartphones and enhance product adoption, even in emerging markets (Harms & Linton, 2015; Van Weelden et al., 2016). For consumers to perceive and assess these benefits at the time of purchase, the proportion of experience or credence attributes of the refurbished product should be minimized in their perception. Signaling measures, such as transparency and certification of refurbished products, are particularly suitable for this purpose to credibly communicate both high performance and ecological characteristics.

Credibly signaling the high quality of refurbished smartphones requires fostering quality control and applying related techniques to ensure that these products are as good as new (Wang et al., 2013). Setting high quality standards for refurbished products and offering consumers certification of these standards typically necessitates close collaboration between governments and industry (Michaud & Llerena, 2010). Eco-labeling is advisable to inform consumers about the environmental properties of refurbished smartphones, which usually also requires cooperation with government institutions (Wang et al., 2013).

Utilizing well-established brands and potentially developing new strong brands for marketing refurbished smartphones is a vital strategy for enhancing product adoption in the Chilean consumer market. In developing markets like Chile, where retailers rather than OEMs currently sell the majority of refurbished smartphones, manufacturers should reassess their approach and reposition refurbished products under their own manufacturer brand to capitalize on the image transfer from their original new products to the refurbished items, which have significant market potential. A strong positive retailer brand image can also enhance purchase intentions. Both manufacturer and retailer brands can help build consumer trust, which is crucial given the perceived risks and uncertain benefits consumers experience.

### **6.3 Limitations**

Although our study supported the relevance of the extensive purchase process model, other theoretical frameworks, such as diffusion theory, might have provided additional insights into the factors affecting consumers' intentions to buy refurbished smartphones in emerging markets. This is important because refurbished products may be seen as innovations in these markets, where experience is largely lacking.

Although we have identified key factors influencing purchase intention, considering additional elements from the Theory of Planned Behavior (TPB), such as attitudes towards purchasing refurbished products, subjective norms within consumers' environments, and perceived behavioral control, may provide further insights. In our study, we assume that consumers' expressed intentions are valid predictors of their behaviors when they are free to choose and are not constrained by external factors (Ajzen, 1991). However, incorporating actual consumer behavior as an additional factor could have supplied insights into the existence and extent of a Value-Action Gap regarding refurbished smartphones (Mugge et al., 2017; Khor & Hazen, 2017).

The focus of our study is the pre-purchase phase, which should be viewed critically since the long-term adoption of refurbished smartphones is primarily determined by repeat purchase behavior during the post-purchase phase (Nasiri & Shokouhyar, 2021). Additionally, our study does not segment consumers, treating them as a homogeneous group. However, literature indicates that acknowledging variations in consumers' purchase intentions is critical for successfully selling refurbished products (Mhatre & Srivatsa, 2019).

Although we did not find support for environmental concerns influencing consumers' purchase decisions regarding refurbished products, this does not necessarily imply that Chilean consumers overlooked these factors in their decision-making process. Scholars have argued that examining sustainability and environmental effects in consumer decision-making is inherently complex, and traditional linear analytical models may have limited ability to capture this complexity. Therefore, more flexible methodologies, such as fuzzy-set qualitative comparative analysis (fsQCA), may effectively capture these influences. Future research should consider using alternative methods to explore the role of sustainability factors in consumer decisions.

## 7. Conclusion

Based on the empirical evidence from this study and utilizing a purchasing decision process model typical of rational choices made under conditions of high involvement as a structuring framework, we can conclude that the purchasing intention of Chilean consumers to buy refurbished products is primarily influenced by their subjective evaluations of perceived product value (benefits) (H4) and risks (H3), alongside their positive brand evaluations (brand equity) (H5). These evaluations reflect a high level of brand awareness, brand image, and trust in the brand. Since these assessments occur in the middle phase of the purchase decision process, we can infer that this phase is critical for influencing consumer behavior regarding the adoption of refurbished smartphones in the emerging market context considered.

Moreover, we have identified factors that are prominent during the early stage of consumers' purchasing process, including their level of involvement with the product category (refurbished smartphones) (H1) and their environmental concern (H2),

which reflects their general attitude towards environmental protection. However, these factors are not particularly relevant for consumers' intention to purchase refurbished smartphones in the Chilean market context. The same applies to consumers' price perceptions (H6), which are likely to emerge in the final phase of the purchasing process as they make a final judgment about the product's value for money based on the seller's current price offering. Finally, we found that consumer demographics appear to influence purchase decisions regarding refurbished products as older Chilean consumers are less willing to buy refurbished smartphones compared to younger consumers.

### Disclosure statement

The authors report there are no competing interests to declare.

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