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Cultural Influences on Privacy Calculus in Loyalty Programs: An Analysis of Individual and National-Level Cultural Values

ABSTRACT

This study examines the roles played by cultural factors in shaping consumer privacy concerns within loyalty programs (LPs), analyzing responses from 1,259 consumers across four culturally diverse countries. It uncovers how variations in cultural dimensions, specifically uncertainty avoidance and individualism/collectivism, influence privacy concerns, trust, and loyalty toward retailers. The research reveals that individual-level uncertainty avoidance and collective cultural norms notably amplify privacy concerns, shedding light on the nuanced relationship between cultural values and consumer perceptions in the context of LPs. This exploration contributes to a deeper understanding of cultural diversity's theoretical and practical implications on privacy concerns, offering insights vital for retailers looking to navigate the complexities of consumer trust and loyalty in a global marketplace. The findings underscore the necessity for culturally informed strategies to effectively manage privacy concerns.

Keywords: *privacy concerns; loyalty programs; cross-cultural; trust; retailing; privacy calculus*

Introduction

Loyalty programs (LPs) are pivotal in today's marketing strategies, boasting a 66% global participation rate with significant regional variations: 91% in the United States, 83% in Europe, and 65% in Southeast Asia (Nielsen, 2016). While LPs aim to boost retailer sales and customer visits, they also raise privacy concerns, as retailers collect extensive customer data, sometimes shared with third parties. The European Union's audits have spotlighted LPs' lapses in adhering to data privacy norms (GDPR Register, 2018). In North America, concerns are specifically pronounced around data use transparency (González-Pizarro et al., 2022), contrasting with the broader privacy concerns seen elsewhere, hinting at cultural and regulatory influences on privacy perceptions globally.

Privacy breaches have distinctly illuminated how cultural contexts shape consumer reactions, critically influencing trust and engagement with LPs. For instance, the 2013 Target breach led to a dramatic loss of trust among its 110 million affected customers, markedly reducing RedCard LP usage. In India, BigBasket's 2020 breach involving 20 million users spurred widespread concerns over data security, prompting reconsideration of LP memberships. Similarly, in Canada, the 2018 Hudson's Bay Company incident saw luxury shoppers expressly demanding enhanced data security, demonstrating heightened awareness and expectations regarding privacy protections. These incidents not only reveal the direct impact of privacy breaches on consumer trust but also underscore the variance in consumer expectations and reactions across cultural boundaries, driving the need to delve into cultural nuances in privacy concerns and their influence on loyalty to LPs.

Despite the critical role of LPs in marketing and the increasing concerns over data privacy, there is a noticeable gap in research exploring the cultural dimensions influencing privacy concerns within LPs. Current studies primarily focus on how privacy concerns affect LP participation, often overlooking the complex interplay of cultural factors. This oversight is

significant, especially given the global increase in LP participation, where the average American is enrolled in 14.8 LPs but actively engages with only 6.7 (Bond Brand, 2019). Furthermore, while 70% of consumers express concerns over data privacy in LPs, 78% still believe these programs enhance brand relationships (Deloitte, 2017; 2021; Bond Brand, 2022).

Research has shown fragmented and inconsistent findings regarding cultural impacts on privacy concerns, with some studies indicating higher concerns in individualistic cultures (Milberg et al., 2000; Dinev et al., 2006) and others finding no clear distinction or greater concerns in collectivistic cultures (Plangger and Montecchi, 2020; Bellman et al., 2004). This inconsistency highlights a gap in cross-cultural privacy research, further exacerbated by an overreliance on U.S.-based or student samples, thus overlooking broader international perspectives, particularly from collectivist societies (Martin and Murphy, 2017; Bélanger and Crossler, 2011). This inconsistency points to a significant research gap in understanding the cultural dimensions of privacy concerns, exacerbated by the dominance of U.S.-centric and student-focused studies which neglect the global diversity of perspectives, especially from collectivist societies (Martin and Murphy, 2017; Bélanger and Crossler, 2011). To bridge this gap, our study leverages privacy calculus theory (Beke et al., 2018; Smith et al., 2011) and draws on Fischer and Schwartz's (2011) conceptualization of national culture as a latent normative societal system. This approach, detailed in the literature review table in Web Appendix 1, highlights the research gaps and contributions of our study, emphasizing the importance of including individual-level cultural values to account for within-national culture variations. We focus on two cultural dimensions—individualism/collectivism and uncertainty avoidance—as identified by Triandis (2015) and DeWees and Lerner (2020), for their relevance in understanding the effects of culture on privacy concerns. Individuals with high uncertainty avoidance perceive ambiguous situations as more threatening, increasing privacy

concerns, whereas individualism at a personal level may amplify these concerns due to a focus on autonomy and control over information. Conversely, collectivism may mitigate concerns through a higher acceptance of information sharing within in-groups. This exploration aims to offer a refined understanding of how individual and national cultural dimensions influence privacy concerns in LPs, providing a solid foundation for addressing the noted limitations in current research.

Our research has three main objectives. Firstly, we want to examine how individual and national cultural dynamics interact with each other and affect people's concerns about their privacy in LPs. Secondly, we aim to understand how consumers weigh the perceived benefits of LPs against potential privacy risks in different cultural settings. Lastly, we want to expand current privacy calculus models by integrating these dual cultural dimensions. To achieve these goals, we have developed a conceptual framework and tested it empirically. Our framework takes into account both individual-level and country-level cultural values. By doing so, we hope to provide a more comprehensive understanding of how different cultures perceive and respond to privacy concerns related to LPs. As globalization continues to blur cultural boundaries, grasping these nuances becomes crucial for businesses. It allows them to design effective LPs, build genuine consumer trust, and achieve sustained cross-border growth.

Literature Review and Conceptual Framework

Privacy has become a pressing concern in the digital era, having wide-ranging ethical, policy, social, and economic implications for marketing practice (Martin and Murphy, 2017). Privacy concerns are a critical issue in marketing practice with the potential to affect consumer behavior (Hong and Thong, 2013). In the context of LPs, privacy concerns reflect the degree to which an LP member is apprehensive about practices related to the retailer's

“collection, storage, and use of personal information, or (a lack of) transparency and control” (Beke et al., 2018, p.8). This apprehension is especially significant given the prevalent role of LPs in today's digital economy. Studies by Lee (2008), Jai and King (2016), and Taylor, Ferguson, and Ellen (2015) investigated privacy concerns in consumers sharing data with LP providers. Chen and Jai (2021) noted that trust in LP decreased significantly after a data breach crisis in the hotel industry. However, a gap persists in LP privacy research, as noted by Chen et al. (2021). This study addresses this gap, examining how privacy concerns affect LP participants' trust in retailers. While Melnyk and Bijmolt (2015) explored LP effects on loyalty, and Leenheer et al. (2007) highlighted the role of rewards and privacy in LP enrollment, the present study adopts a different approach. Chen et al. (2021) and Plangger and Montecchi (2020) touched upon the balance between privacy risks and rewards, but due to complexities, a straightforward categorization remains elusive.

Building upon the existing literature, this research seeks to delve into the effects of privacy concerns among current LP participants. We aim to understand how these concerns influence trust and loyalty towards retailers. Central to our exploration is the trade-off between privacy risks and benefits, a domain highlighted by Plangger and Montecchi (2020). Our approach intends to dissect this intricate decision-making process, unravelling the nuances of privacy risks and LP benefits on consumers' emotions and attitudes. The main theoretical framework for this study is the privacy calculus theory. This theory elucidates the consequentialist trade-offs individuals engage in when deciding to disclose personal information online (Klopper and Rubenstein, 1977; Laufer and Wolfe, 1977; Posner, 1981). In the context of LPs, individuals assess the potential outcomes of sharing their information. Our model enhances this theory by shedding light on how privacy calculus affects trust and loyalty outcomes (Dinev and Hart, 2006).

Culture significantly influences individuals' views on privacy risks and benefits (Dinev et al., 2006). The privacy calculus theory emphasizes the importance of cultural differences in determining privacy-related actions (Smith et al., 2011). Limited empirical cross-cultural research indicates that culture influences privacy concerns and their effects. In this study, we delve into cultural values at two levels, individual and national. Milberg et al. (1995) find that none of Hofstede's three national culture dimensions are related to privacy concerns, while Milberg et al. (2000) report that power distance and individualism have a positive effect on privacy concerns, and uncertainty avoidance has a negative effect. However, Bellman et al.'s (2004) evidence from 38 countries reveals that high uncertainty-avoidance cultures are more concerned about online transaction security, while individualistic countries are more concerned about improper access and unauthorized use of personal data. Our study selectively emphasizes Hofstede's dimensions of individualism/collectivism and uncertainty avoidance due to their critical relevance to understanding privacy concerns and LP dynamics. This focus is informed by extensive research indicating these dimensions' profound impact on shaping consumer behaviors towards privacy and LP engagement.

Individualism/collectivism illuminates varying consumer attitudes towards data sharing and privacy, with individualistic cultures demanding stringent data protection due to a strong emphasis on personal autonomy, while collectivistic cultures may exhibit more lenient privacy expectations, aligning with communal values (Hofstede, 2001; Bellman et al., 2004; Triandis, 1995). Uncertainty avoidance further differentiates cultural preferences for security in transactions, influencing the design and acceptance of LPs. High uncertainty avoidance cultures necessitate clear privacy assurances for LP participation, contrasting with low uncertainty avoidance cultures' openness to innovative LP features (Hofstede, 2001; Bellman et al., 2004; De Mooij, 2010). Opting to exclude dimensions such as power distance, masculinity/femininity, long-term orientation, and indulgence versus restraint from our

analysis stems from their less direct linkage to the central themes of privacy concerns and LP engagement. Power distance, for example, closely correlates with individualism, potentially duplicating insights into privacy attitudes (Hofstede, 2001; Steenkamp, 2001). The other dimensions, while significant in broader consumer behavior contexts, offer limited direct insight into the nuanced interplay between cultural attitudes and LP-specific privacy concerns. Thus, guided by this research and by Fischer and Schwartz (2011) and Fischer and Boer (2016) studies, we examine collectivism/individualism (Triandis, 2015) and uncertainty avoidance (DeWees and Lerner, 2020). To interpret our research accurately, understanding the interaction between these two levels of culture is crucial (Fischer and Boer, 2016). It's also worth noting that according to Fischer and Poortinga, (2012) individual-level variations may sometimes eclipse cultural-level differences, especially in business contexts. In accordance with this literature, we develop a conceptual model to empirically test the effects of culture (see Fig. 1).

Consumer Perceived Risks, Privacy Concerns, Trust, and Loyalty

Understanding the effects of privacy concerns on consumer behavior is essential for firms, particularly in shaping evaluations of the company and influencing subsequent buying behavior. Prior studies suggest that heightened privacy concerns can lead to reduced brand loyalty (Martin and Murphy, 2017; Beke et al., 2018). The collection and use of personal information, transaction history, and browsing behavior in LPs raise privacy concerns among consumers. To provide a theoretical grounding to this discussion, the main framework utilized for this study is the privacy calculus theory. This theory throws light to the consequentialist trade-offs individuals engage in when deciding to disclose personal information online (Klopfer and Rubenstein, 1977; Laufer and Wolfe, 1977; Posner, 1981).

Additionally, recent studies based on the privacy calculus theory (Chen et al., 2021), have reported a negative correlation between privacy concerns and loyalty. This relationship

is further supported by comprehensive meta-analyses from Maseeh et al. (2021) and Okazaki et al. (2020). On a related note, the protection motivation theory by Roger (1983) offers an insightful lens, detailing how privacy concerns can dampen consumer loyalty (Dinev and Hart, 2006; Xu et al., 2009). When data is exchanged in LPs, it introduces potential privacy threats which can lead to severe consequences such as identity theft and fraud. Thus, heightened privacy concerns can prompt consumers to take protective measures, including possibly discontinuing a retailer's services. To add depth, there's also indirect evidence suggesting that trust is a pivotal mediator between privacy concerns and loyalty behavior, a relationship echoed by studies like Hong and Thong (2013) and Lowry et al. (2011).

Taking the discussion forward, trust, in this context, refers to consumers' willingness to rely on a retailer's actions, drawing from positive expectations about the retailer's practices in relation to information collected in LPs (Mayer et al., 1995). Privacy concerns directly affect this trust (Malhotra et al., 2004). The magnitude of trust is moderated by the retailer's behavior, the volume of data amassed, and its management and utilization. For instance, it has been proposed by scholars like Milne and Boza (1999) and Smith et al. (2011) that retailers who adeptly address consumer privacy concerns through robust policies and transparent actions can augment the level of trust consumers place in them.

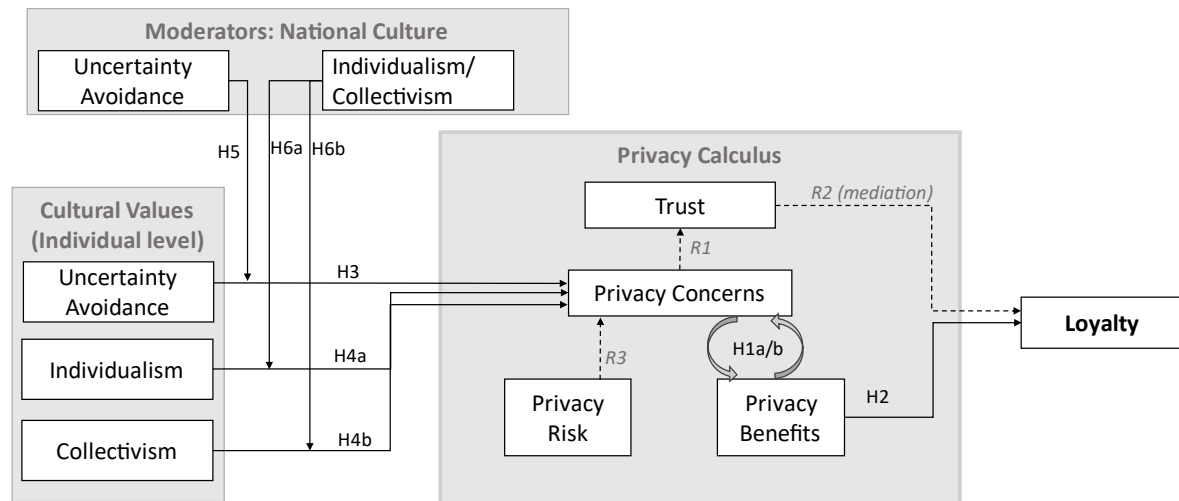
The trust–commitment theory in relationship marketing (see Garbarino and Johnson 1999) proposes that trust is a precursor of loyalty. Garbarino and Johnson (1999) propose that loyalty often requires sacrifice on the part of consumers, which can increase their vulnerability to the retailer. Trust is a necessary condition for loyalty, but it influences loyalty through another mechanism. Specifically, Gwinner, Gremler, and Bitner (1998) suggest that trust is influenced by the sense of congruence between consumers' values and those of the retailer. When consumers perceive that the retailer's values align with their own, including in terms of privacy protection, their commitment to the relationship and their loyalty tend to

increase. As these relationships are already established in the literature they are represented in the following conceptual model (figure 1) as relationships 1 (R1: the negative effect of privacy effects on trust in the retailer) and 2 (R2: the negative effect of privacy concerns on loyalty through trust).

Research grounded in protection motivation theory (Rogers, 1983) suggests that both benefits and privacy risk are key factors that contribute to privacy concerns (Dinev and Hart, 2006; Xu et al., 2009). Despite the perceived privacy risks associated with LPs, some consumers may still find these programs beneficial enough to participate. Such perceived benefits may stem from rewards, discounts, exclusive promotions, personalized offers, improved customer service, and enhanced experiences. Conversely, ‘privacy risk’ refers to a subjective evaluation by consumers of the potential loss resulting from the misuse of personal information (Featherman and Pavlou, 2003). Privacy risks can arise from a range of factors unrelated to the benefits of the LP, such as data practices, data breaches or security lapses, use of surveillance technologies, lack of transparency, or inappropriate use of personal information sharing with third-party partners. The misuse of personal information could manifest in unsolicited emails, junk mail, credit card fraud, identity theft, and other unauthorized uses of personal information. While ‘privacy concerns’ refer to a general feeling of unease or discomfort that consumers experience when they consider the potential consequences of disclosing personal information, privacy risks refer to a perceived likelihood and severity of privacy violations. Privacy concerns are not necessarily based on a specific risk, but rather a broader sense of unease or apprehension. Several empirical studies (e.g., Dinev and Hart, 2006; Youn, 2009) and a meta-analysis (Maseeh et al., 2021) suggest that perceived risk is an antecedent of privacy concerns, and research generally supports the positive impact of privacy risk on privacy concerns (see Maseeh et al., 2021 meta-analysis). Thus, as this relationship is already established from previous literature, it is depicted in

figure 1 as relationship 3 (R3) depicting the positive effect of privacy risks on privacy concerns.

Fig. 1. Conceptual model.



The Role of Privacy Benefits

Individuals often expect to receive positive outcomes or rewards in exchange for sharing or sacrificing their privacy when they participate in an LP. These rewards are called privacy benefits and are closely associated with privacy decisions. They can range from personalized services to exclusive discounts, tailored product recommendations, and much more. The underlying decision-making process can be better understood through the lens of the privacy calculus theory, which posits that individuals make disclosure decisions by weighing the expected benefits against potential privacy risks (Dinev and Hart, 2006). This assessment spans various categories of benefits, including financial rewards that incentivize personal information disclosure, the allure of personalization which underscores consumers' appreciation for tailored experiences, and social adjustment benefits tied to aspirations of fitting into desired social circles (Smith et al., 2011). In a marketplace setting, consumers often willingly share personal data to receive these benefits and, in doing so, might place less emphasis on privacy protection (Pavlou, 2011). This behavior is aligned with the social

exchange theory, which suggests that individuals anticipate returns in their interactions, expecting a sense of value and reciprocity (Pavlou, 2011). If the perceived advantages of an LP overshadow potential privacy threats, consumers become more amenable to data sharing (Phelps et al., 2000).

H1a: Perceived benefits derived from participating in an LP are negatively related to privacy concerns.

However, this dynamic between perceived benefits and privacy concerns is intricate. Keith et al. (2013) showed that the prospect of superior services can decrease privacy concerns, promoting more open data disclosure. Conversely, elevated privacy concerns, rooted in fears of unauthorized data usage, can temper the perceived advantages of an offering, making consumers more critical in their evaluations (Smith et al., 2011). Therefore, this relationship is possibly bidirectional, suggesting a continuous adjustment in consumers' perspectives. As users engage more with a retailer, their evolving understanding of privacy implications can redefine how they view the retailer's benefits (Xu et al., 2011). Furthermore, LPs that present a just balance of benefits for the data provided can further diminish privacy reservations (Phelps et al., 2000). Empirical studies, such as those by Awad and Krishnan (2006) and a meta-analysis by Maseeh et al. (2021), bolster the observed inverse relationship between privacy concerns and consumers' perception of benefits. Accordingly:

H1b: Privacy concerns derived from participating in an LP are negatively related to privacy benefits.

In general, consumers prefer retailers that offer personalized and customized offerings, which can be facilitated through LPs' data collection (Kumar and Shah, 2004). Social exchange theory posits that individuals expect to receive rewards or benefits in exchange for social interactions (De Wulf et al., 2001). Consumers' appreciation of LP benefits can strengthen their relationship with the retailer, despite disclosing personal information (De

Wulf et al., 2001). Positive attitudes and emotions towards the program and retailer are more likely to develop when consumers perceive greater benefits from participating in an LP (Henderson et al., 2011). This loyalty generation mechanism is triggered by benefits, leading consumers to express gratitude and reciprocity, increasing their loyalty to the retailer (Henderson et al., 2011). Consumers may feel thankful to the retailer and respond to the benefits being offered by increasing their loyalty (Henderson et al., 2011). Accordingly:

H2: The greater the perceived benefits derived from participating in an LP, the higher is consumers' loyalty.

Culture's Effects on Privacy Concerns and Related Variables

Okazaki et al.'s (2020) meta-analysis found geographical differences in the effects of privacy concerns on behavior and evaluation, indicating that the impact of privacy concerns on evaluative and information disclosure behaviors is weaker in Asian countries compared to other parts of the world. However, the effect sizes of privacy concerns on perceived risk and trust are more pronounced in Asian countries than in other regions. Interestingly, Okazaki et al. (2020) discovered that geographical variations in privacy concerns cannot be explained solely by economic development and suggest that cultural and regulatory differences should be considered in future research on privacy. Furthermore, Maseeh et al.'s (2021) meta-analysis revealed country-level variation in the relationship between privacy risks, benefits, privacy concerns, and trust. These findings highlight the significance of considering cultural and regulatory contexts in understanding the impact of privacy concerns on behavior and evaluation.

This study integrates individual-level cultural values with Hofstede's national culture values to probe the relationship between privacy concerns and LP benefits. While past research on cultural dimensions and privacy concerns yielded varied results, our approach views culture as both an individual's inherent value system and a latent normative societal

system. Plangger and Montecchi (2020) highlighted the influence of individual cultural values like uncertainty avoidance and collectivism on evaluating privacy concerns versus benefits. Fischer and Poortinga (2012) and Fischer and Schwartz (2011) emphasized that culture cannot be simplified as universally shared values. They proposed a two-tiered model: individual-level and national-level cultures, both shaped by distinct values.

Individual-level culture is rooted in one's personal experiences and micro-social contexts, driving their preferences, motivations, and behaviors (Fischer and Schwartz, 2011; Fischer and Boer, 2016). As Schwartz (1992) described, such values act as "abstract beliefs" guiding individual actions. Contrarily, national-level culture amalgamates individual beliefs into a shared system characteristic of a nation (Fischer and Schwartz, 2011; Fischer and Boer, 2016). Influenced by history, societal norms, and collective experiences, this culture represents shared values and distinguishes national or regional identities, often the focus of researchers like Hofstede. These cultural levels are interdependent, reciprocally influencing each other (Fischer and Boer, 2016; Sagiv and Roccas, 2017). While individual values are more adaptable, influenced by personal experiences, national culture remains relatively stable, grounded in traditions and societal norms. Yet, a feedback loop exists. Societal values shape individuals, and aggregated individual values can subtly modify national narratives. Given their intertwined nature, our study incorporates both individual and Hofstede's national cultural values.

Cultural Values at the Individual level

Uncertainty Avoidance at an Individual Level

At an individual level, uncertainty avoidance is defined as “the tendency to perceive or interpret information marked by vague, incomplete, fragmented, multiple, probable, unstructured, uncertain, inconsistent, contrary, contradictory, or unclear meanings as actual or potential sources of psychological discomfort or threat” (Norton, 1975, p. 608). DeWees and

Lerner's (2020) review of the uncertainty avoidance literature suggests that people high in uncertainty avoidance tend to interpret even moderately negative events more negatively. "At the individual level of analysis, uncertainty avoidance is associated with what clinical psychologists call a 'negative interpretation bias' This pattern describes the tendency to perceive ambiguous stimuli as threatening" (DeWees and Lerner, 2020, p. 5648). Consumers who are high in uncertainty avoidance are likely to perceive privacy risks as a more serious threat than others. Studies have shown that individuals who exhibit high levels of anxiety, stress, and concern for their privacy protection are more likely to have higher privacy concerns (Bellman et al., 2004; Lowry et al., 2011; Milberg et al., 2000). However, there are inconsistent empirical results reported in the academic literature (see the literature review table in Web Appendix 1 for more details). For instance, while some studies have reported a positive relationship between uncertainty avoidance and privacy concerns (Cao and Everard, 2008; Lowry et al., 2011; Krasnova et al. 2012), others have found a negative relationship (Milberg et al., 2000; Wang, Genc & Peng 2020) or no significant relationship (Bellman et al., 2004; Schumacher et al. 2023). Lowry et al.'s (2011) study, which utilized a combined sample from China and the U.S., indicated that people who are high in uncertainty avoidance have higher information privacy concerns. Similarly, Cao and Everard (2008) found that individuals who are high in uncertainty avoidance are more likely to feel threatened and have higher concerns about their privacy. Accordingly:

H3: Individuals with high (low) levels of uncertainty avoidance are more (less) concerned about privacy.

Individualism and Collectivism at the Individual Level

Most extant research focuses on the effects of individualism/collectivism at a national culture level. Cross-cultural evidence on privacy concerns is also mixed. Some studies (Dinev et al., 2006; James et al., 2017; Milberg et al., 2000; Wang, Genc & Peng 2020) report that

privacy concerns are positively related to individualism. Other studies (Bellman et al., 2004; Lowry et al., 2011; Park, 2008; Thomson et al., 2015; Krasnova et al. 2012) indicate that privacy concerns are higher in collectivist societies. Finally, one study (Cao and Everard, 2008) reports no difference in the privacy concerns of collectivist and individualist societies (see the literature review table in Web Appendix 1 for more details). The observed inconsistencies may be reconciled by examining differences in individualism and collectivism within a culture at an individual level. For example, Oyserman et al.'s (2002) meta-analytical study reveals significant differences in individualism and collectivism within the United States between European American and other American ethnic groups. To address the complex nature of individualism and collectivism and their impact on privacy concerns, we align with the conceptualization and operationalization proposed by Triandis and Gelfand (1998). This widely accepted framework in cross-cultural research treats individualism and collectivism not as opposite ends of a spectrum but as separate constructs, each with distinct attributes. Triandis and Gelfand argue that conceiving of individualism and collectivism purely as dichotomies overlooks the nuanced ways these dimensions manifest within cultures.

Drawing on Triandis's (1995) analogy, individualism and collectivism are seen as polythetic constructs where different attributes define various 'species' or cultural expressions of these constructs. Specifically, these dimensions are defined by four attributes: the definition of the self, the prioritization of personal versus in-group goals, the preference for exchange versus communal relationships, and the relative importance of attitudes versus norms in guiding social behavior. This refined understanding allows for the coexistence of individualistic and collectivistic traits within individuals, challenging the assumption that these are mutually exclusive and paving the way for a more detailed examination of their effects on privacy concerns at an individual level. The construct of individualism and collectivism at the individual level refers to independent and interdependent self-construal (or

the cognitive representation of the self). With independent self-construal, a person's self is the main referent for thoughts, emotions, and behavior. It is characterized by the perception that the self is separate, distinct, or independent from others (Markus and Kitayama, 1991). In contrast, people with interdependent self-construal perceive their relationships, social roles, and group memberships as a central part of their selves. Independent and interdependent self-construal refer to individual differences, whereas the terms "individualism" and "collectivism" are used to explain differences observed between cultural groups.

According to Triandis (1995, p. 76), "collectivists hold that one's business is also the business of the group.... The collective is entitled to know, even regulate, what individuals do and think in private. Individualists hold that people should mind their own business; privacy should be respected." Based on this argument, privacy is a defining characteristic of individualists, while the opposite is true for collectivists. In a recent study, Fleming et al. (2021) examined the effects of self-perception on privacy concerns. They use two dimensions of Vignoles et al.'s (2016) scale (i.e., self-perceptions of differentness from the group and a focus on group harmony over self-expression) that correspond to Triandis's (1995) individualism and collectivism dimensions. Fleming et al. (2021) show that privacy concerns are positively related to self-perceptions of being different from the group, which corresponds to Triandis's (1995) individualism dimension. However, their study shows that privacy concerns are not statistically related to group harmony over self-expression, which corresponds to Triandis's (1995) collectivism dimension. Accordingly:

H4a: Individualism at an individual level is positively related to privacy concerns.

H4b: Collectivism at an individual level is negatively related to privacy concerns.

Culture at a National Level

Uncertainty Avoidance at a National Level

Hofstede (2001, p. 113) defines uncertainty avoidance at a country level as “the extent to which the members of a culture feel threatened by uncertain or unknown situations.... [This feeling is] expressed through nervous stress and in a need for predictability.” Uncertainty avoidance reflects the extent to which ambiguous situations may be experienced or perceived as threatening (Hofstede, 2001). As noted previously, we adopt Fischer and Schwartz’s (2011) view of culture as a latent normative value system that allows for differences of cultural values at the individual level. What happens when culture’s normative values do not match those of the individual? What happens when an individual has a high tolerance for uncertainty in a culture that is high in uncertainty avoidance? Culture mismatch theory can provide some explanations. Gelfand and Harrington (2015) explain that a subjective norm’s influence is stronger when people experience high uncertainty, ambiguity, or threat. Privacy infringements may fulfil such conditions. People follow norms to elude internal insecurities and sanctions imposed by society, but this is only half the story. Morris and Liu (2015, p. 1282) suggest that norms are “people’s representations of what others do in particular situations [which] enable them to perform socially and mesh with others.” As such, people comply with cultural norms to promote their relationships within society. Culture mismatch theory suggests an interplay between cultural values at the national level (as normative pressures) and values at the individual level. Situational conditions characterized by high ambiguity and threat favor the prevalence of national-level values over individual-level values. In the context of social network sites, Thomson et al. (2015) show that in high uncertainty-avoidance cultures (e.g., Japan), individuals’ privacy concerns are intensified, compared with lower-uncertainty-avoidance cultures (e.g., the United States). Similarly, in the present context, in which LPs’ privacy is a potentially threatening situation for consumers, we hypothesize that cultural values of uncertainty avoidance at the national level will positively moderate the effect predicted in H3.

H5: The effect of individuals with high (low) levels of uncertainty avoidance on privacy concerns will be strengthened in high uncertainty avoidance cultures.

Individualism and Collectivism at the National Level

Culture plays an important role in whether people develop an interdependent or independent self-construal. We expect that individualism will be more pronounced in individualist societies. However, we are interested in situations in which individual-level values do not match the dominant national cultural values (e.g., when people high in individualism live in collectivistic national cultures). Again, culture mismatch theory (Gelfand and Harrington, 2015) is applicable. Most consumers find it difficult to recognize the amount of data collected, which is imperceptible in many cases, by LPs and to understand the risks and intangible costs involved. By contrast, the rewards offered in exchange for personal data in LPs are easier to assess. This discrepancy may generate ambiguity with regard to privacy issues in LPs. As Gelfand and Harrington (2015) indicate, such conditions of increased ambiguity heighten the influence of prevalent cultural norms. In the present context, in which privacy issues related to LPs are difficult to assess, we hypothesize that cultural values of individualism and collectivism at a national level will moderate the effects stated in H4. Accordingly:

H6a: The effect of individualism at an individual level on privacy concerns, will be strengthened in highly individualistic cultures.

H6b: The effect of collectivism at an individual level on privacy concerns, will be strengthened in highly collectivistic cultures.

Methodology

We conducted a survey using Qualtrics to gather data from a random sample of 1,259 consumers across four different countries. The countries we selected were the United Kingdom (n=314), China (n=315), Mexico (n=315), and Spain (n=315). We chose these

countries based on their cultural values regarding collectivism/individualism and low/high uncertainty avoidance. China and Mexico scored higher on collectivistic values, while the United Kingdom and Spain scored higher on individualistic values. Mexico and Spain scored higher on uncertainty avoidance, while the United Kingdom and China scored lower in uncertainty avoidance.

To ensure the accuracy of our study, we carefully selected countries with similar regulatory frameworks and enforcement levels to minimize potential institutional confounders. DLA Piper offers a comprehensive guide to Global Data Protection Laws, which can be accessed through [<https://www.dlapiperdataprotection.com/>]. The guide classifies regulatory privacy protection standards for all countries into four categories based on the strictness of legislative privacy protection and its enforcement. These categories are "heavy", "robust", "moderate", and "limited". All four countries that we have chosen for our study fall into the "heavy" category, indicating that they have established a strong regulatory framework to protect data privacy. For more information, you can refer to the www.dlapiperdataprotection.com database. The regulatory frameworks of the UK and Spain are based on the EU's General Data Protection Regulation (GDPR), which is widely considered to be one of the most stringent regulations in the world. Similarly, China's Personal Information Protection Law is also known for its strictness. Mexico's Federal Law on Protection of Personal Data Held by Private Parties is another notable example of strict privacy laws, with authorities authorized to impose significant fines of up to USD \$1.6 million on companies found to be violating privacy laws (UNCTAD, 2023). Retailers in all four countries are required to obtain explicit consent from customers before collecting and sharing data. Customers have the right to access and delete their personal data and request corrections to inaccurate data. According to Nielsen's 2018 survey, department stores in all four countries have a high adoption rate of LPs. The UK has a penetration rate of 94%, Spain

has 88%, Mexico has 69%, and China has 97%. These LPs offer similar benefits such as discounts, reward points, cashback, and exclusive promotions. However, specific benefits may vary between department stores in each country. For example, some department stores in China may provide additional benefits such as priority access to events and free parking. Department stores are prevalent in all four countries. In the UK, John Lewis Partnership, Debenhams, Marks & Spencer, House of Fraser, and Selfridges & Co are the largest department stores by sales and size. In Mexico, Liverpool and Coppel are the largest retail chains, with El Palacio de Hierro being the largest in high-end retail, and Suburbia and Sears Mexico as mid-range department store chains. Other notable department store chains in Mexico include Fábricas de Francia, Sanborns, and Chedraui. El Corte Inglés is the largest department store chain in Spain and Europe, followed by Hipercor. Other major department store chains in Spain include FNAC, Cortefiel, and Zara. In China, the largest department store chains are Intime, Golden Eagle Retail Group, Parkson, Grandbuy Department Store, Wanda Department Store, V Park, Beijing apm, New World Department Store, Hualian Department Store, and Joy City.

In order to conduct our survey, we identified and listed all department stores that offered an LP in each country of our sample. At first, we conducted thorough research in each country to identify all available department stores. Subsequently, we visited the websites of each department store to confirm whether they offered an LP or not. To validate our list, we also recruited residents from each country to cross-check it. For each country, we presented the final list to our respondents and asked them to choose the most recent department store's LP they had participated in, and provide relevant information based on that program. To ensure the accuracy of the survey, we used a back-translation procedure to translate the English survey into Chinese and Spanish. Out of a total of 1,259 respondents, 52% were female and 48% were male. The majority of respondents were between 25-34 years of age

(41.9%), followed by 35-44 years (28.4%), 45-54 years (11.5%), 55 years and older (9.9%) and 18-24 years (8.7%).

Control Variables

To avoid confounding effects, the study includes the perceived effectiveness of privacy regulations as a control variable. The perceived effectiveness of privacy regulations is an important antecedent of the privacy constructs. As a country regulates personal information and management practices become more effective, privacy concerns are dampened (Bellman et al., 2004; Dinev et al., 2006; Milberg et al., 1995, 2000; Wirtz et al., 2007). Empirical findings consistently support the notion that the perceived effectiveness of the legal and regulatory framework in place for protecting privacy reduces individuals' privacy concerns and increases their trust in companies (see Beke et al., 2018; Martin and Murphy, 2017). In our study, we took into account demographic variations such as gender and age. Previous research by Faja and Trimi (2008) and Sheehan (1999) found that gender affects privacy concerns, with women being more concerned, whereas men tend to adopt more protective behaviors. Similarly, Goldfarb and Tucker (2012) discovered that older individuals show greater privacy concerns and are less likely to disclose personal information online than younger ones.

Measures

In our study, we used established multi-item scales to measure constructs, and all scales were assessed on a seven-point Likert scale. With the exception of culturally related measures, we adapted and posed all measures in reference to the LP the participants selected. All measures used in the study can be found in the Web Appendix 2. We measured cultural orientation at the individual level, following Triandis and Gelfand's (1998) classification of individualism and collectivism into vertical and horizontal dimensions. However, the vertical dimension of individualism, which measures competitiveness, was irrelevant to our study

because it does not reflect independence. Therefore, we used Triandis and Gelfand's horizontal individualism scale to measure individualism. The horizontal-vertical collectivism subscales of Triandis and Gelfand's (1998) are strongly interrelated. Singelis et al. (1995, p. 268) suggest that collapsing these two constructs into one general construct of collectivism would be reasonable if a researcher is not interested in the distinction. Therefore, we used a general construct of collectivism. We measured uncertainty avoidance using Jung and Kellaris's (2004) scale, perceived effectiveness of regulation using Kaufmann et al.'s (2011) scale, privacy concerns using Smith et al.'s (1996) scale, perceived benefits and perceived privacy risks using Dinev et al.'s (2013) scales, trust in the retailer using De Wulf et al.'s (2001) scale, and loyalty using both Wirtz et al.'s (2007) and Zeithaml et al.'s (1996) scales.

Measurement, Common Method Bias and Measurement Invariance

The results of the measurement indicate that there is a good fit ($\chi^2(263)=754.713$, $p<0.001$; comparative fit index [CFI]=0.966; Tucker–Lewis Index [TLI]=0.957; standardized root means square residual [SRMR]=0.037; and root mean square error of approximation [RMSEA]=0.042). The reliability indices and the average variance extracted (AVE) measures were found to be at acceptable levels (please refer to Table A1 in the Web Appendix 2 for more details). We used the heterotrait-monotrait ratio (Henseler et al., 2015) to assess the discriminant validity among constructs, and found that all pairs met Henseler et al.'s (2015) cutoff criterion of 0.85 for discriminant validity (please refer to Table A2 in the Web Appendix 2 for more details).

Multicollinearity is a phenomenon that occurs in SEM models and is linked to discriminant validity. According to Grewal, Cote, and Baumgartner (2004), meeting the Fornell and Larcker (1981) discriminant validity criterion reduces the likelihood of committing a Type II error that is associated with multicollinearity. In our case, we performed the Fornell and Larcker (1981) discriminant validity test (see Table 3 in Web

Appendix 2) and the heterotrait-monotrait ratio test of discriminant validity (Table 2 in Web Appendix 2), both of which indicated no such problem. We utilized the *mctest* R package to measure multicollinearity through traditional methods. For conducting the *mctest* tests, we built a linear regression analysis model with the average score of loyalty as the dependent variable and the average scores of other latent variables as independent variables. All Variance Inflation Factor (VIF) values were well below the cut-off value of 5, indicating no multicollinearity issues. Specifically, Trust had the highest VIF value (1.789), while the control variable gender had the lowest VIF value (1.038).

As part of our analysis, we used the confirmatory factor analysis (CFA) marker technique (Williams et al., 2010) to check for common method variance. The blue scale, recommended by Simmering et al. (2015), was used as the marker. We compared the baseline model with the noncongeneric (unequal marker variable effects) CFA marker model using the Satorra-Bentler scaled chi-square difference ($\Delta\chi^2(26)=134.37, p<0.001$). The results showed that the baseline model had a better fit, suggesting that common method variance is not a concern in our data.

We conducted a cross-cultural measurement invariance analysis using multigroup confirmatory factor analysis (CFA). The fit indices for the configural and metric invariance models were found to be acceptable across the four countries (using the robust maximum likelihood method). The relevant statistics are presented in Table 1. Based on the results of the Satorra-Bentler scaled chi-square difference test, there is no statistically significant difference in the fit statistics between the configural and metric invariance CFA models. This indicates that the measurement model is metrically invariant across the four countries. However, full scalar invariance was not supported. It is important to note that scalar invariance is not necessary for assessing the structural equation model, as metric invariance is sufficient.

Table 1

Testing measurement invariance across the four countries.

Model	Model fit statistics				Model differences				
	χ^2	df	RMSEA	CFI	χ^2 diff	df diff	p-value	RMSEA diff	CFI diff
Configural	1598.4	1052	0.043	0.962					
Metric	1657.2	1103	0.043	0.961	61.139	51	0.156	0.000	0.001
Scalar	2237.2	1154	0.058	0.924	644.69	51	<0.001	0.015	0.037
Partial scalar*	1700.1	1121	0.043	0.959	44.388	18	<0.001	-0.004	0.002

*Notes: Freed intercepts: “ER3,” “PPR1,” “ER2,” “IND2,” “PC1,” “PPR2,” “PB1,” “TR2,” “COL2,” “UA1,” “LR3.”

Latent Factor Means

Next, we compared the latent factor means of all constructs across the four countries.

Scalar invariance is a requirement for comparing latent factor means. As Table 1 shows, full scalar invariance was not supported. Following Steenkamp and Baumgartner’s (1998) recommendation, we examined the partial scalar measurement invariance. After freeing the intercepts of 13 items in total, the partial scale invariance model fulfilled Cheung and Rensvold’s (2002) criterion of changes in the CFI index ($\Delta\text{CFI}<0.01$). The differences in the CFIs of the metric and the partial scalar models were small ($\Delta\text{CFI}=0.001$), which indicates that partial scalar invariance can be assumed for the majority of items. Vandenberg and Lance (2000) suggest that a factor can be considered partially invariant if the majority of items on the factor are invariant. However, we found that the condition of scalar invariance in the majority of items is not fulfilled in three latent factors (perceived risk, effectiveness of regulation, and uncertainty avoidance), as a majority of factor items were not (scalar) invariant. Therefore, it was not possible to calculate latent mean score differences for these three factors. To manage comparison with partial noninvariance, Chen (2008) recommends comparing latent mean differences as estimated in the partially scalar invariant model with those estimated in the full scalar invariant model. Such a comparison shows a convergence for all of the observed differences, as presented in Table 2.

Table 2

Latent mean score differences.

	Collectivistic culture ^a	<i>p</i> -value	High UA culture ^b	<i>p</i> -value
Loyalty	0.492	0.000	0.142	0.030
Trust	0.285	0.000	0.331	0.000
Privacy concerns	0.543	0.000	0.254	0.001
Perceived benefit	0.378	0.000	-0.137	0.044
Individualism	0.004 ^{nc}	0.946	0.618	0.000
Collectivism	0.241	0.000	0.696	0.000

^a Individualistic culture is used as a reference group set to 0.

^b Low uncertainty-avoidance (UA) culture used as a reference group set to 0.

^{nc} Significance levels of latent score difference do not converge with the significance levels obtained from the full scalar model.

Results

In our study, we applied structural equation modeling (SEM) using the robust maximum likelihood method, with the assistance of the lavaan and SemTools packages in R, to explore our proposed hypotheses. Specifically, we investigated the non-recursive relationship between privacy concerns and perceived benefits of participating in LPs (i.e., H1a and H1b). Following the guidance of Nagase & Kano (2017), we ensured model identification by specifying a disturbance correlation to account for the possibility of correlated error terms between these two constructs. Moreover, we incorporated unique instrumental variables (IVs) to further support our model's identification: the history of respondent's experiencing a privacy breach served as the IV for privacy concerns, and his/her belief that LPs facilitate easier shopping was the IV for perceived benefits. These IVs are important for the identification of non-recursive models, as emphasized by Nagase & Kano (2017), and their inclusion is detailed in Table 3 of our analysis. Additionally, we controlled for perceived effectiveness of privacy regulations, age and gender within our models. A further step in our analysis involved modifying the model to include three new paths: from collectivism to trust, collectivism to benefits, and benefits to trust. These modifications contributed to an enhanced

fit of the model, demonstrating the nuanced interactions between these variables within our SEM framework (see Table 3).

Effect of Privacy Concerns on Trust and Loyalty

Relationship R1 suggests that there is a negative correlation between privacy concerns and consumers' trust in retailers. Our analysis, which is presented in Table 3, confirms this proposition by demonstrating a statistically significant negative relationship between the two variables ($b=-0.094$, $p=0.001$). To ascertain the strength and generalizability of this finding, we also conducted further analyses to examine its consistency across different cultural backgrounds. Using Wald tests based on Huber-White's robust standard errors, we found that the effect remained relatively consistent across both collectivistic and individualistic cultures (Wald=1.384, $p=0.239$) and between low and high uncertainty-avoidance culture (Wald=3.053, $p=0.080$). A marginally stronger effect was observed in low -uncertainty-avoidance cultures. According to Relationship R2, trust in the retailer plays a mediating role in the relationship between privacy concerns and loyalty. In support of this, we found that trust has a significant positive impact on loyalty (0.666 , $p<0.001$), as outlined in Table 3.

We conducted a mediation analysis to explore the relationship between privacy concerns and loyalty (see R2). The analysis was based on the methodology of Rucker et al. (2011) and used the lavaan R package. The analysis included the influence on both mediator and outcome variables. The goodness-of-fit indices for the global SEM model were as follows: $\chi^2(372)=1488.661$, $p<0.001$; CFI=0.925; TLI=0.914; RMSEA=0.049; SRMR=0.081. Results indicated that privacy concerns indirectly affect loyalty via trust (standardized $ab=-0.067$, $p<0.001$), with a confidence interval (CI) of -0.088 to -0.018 from 10,000 bootstrapped samples, supporting the hypothesis. Trust acts as a critical link; without it, even if customers have privacy concerns, these concerns won't necessarily lead to reduced loyalty unless trust is affected. However, the overall impact on loyalty was not significant (-0.013 , $p=0.677$, CI=

0.062, 0.039), underscoring trust's role in the privacy-loyalty relationship. This suggests that other factors, like the perceived benefits of the program might offset the negative impacts of privacy concerns on loyalty. Essentially, customers may tolerate some level of privacy concerns if they find value in the LP or trust the brand to manage their data responsibly. To assess cultural applicability, we performed Wald tests. Indirect effects were -0.048 ($p = 0.071$, $CI = [-0.090, -0.001]$) in individualistic cultures and -0.080 ($p = 0.016$, $CI = [-0.102, -0.008]$) in collectivistic cultures, with no significant difference between them ($Wald=0.257$, $p=0.611$). For cultures low in uncertainty avoidance, the effect was -0.073 ($p = 0.048$, $CI = [-0.142, -0.014]$), and for those high in uncertainty avoidance, it was -0.050 ($p = 0.091$, $CI = [-0.085, 0.007]$), also without significant differences ($Wald=0.334$, $p=0.563$). This suggests the mediation effect of trust between privacy concerns and loyalty is consistent across cultures.

The relationship R3 suggests that consumers' privacy concerns are intensified when perceived privacy risk associated with LPs increases. The data from our study supports this established relationship, showing a statistically significant amplification of privacy concerns due to increased perceived risk ($b=0.617$, $p<0.001$). This highlights the fact that heightened perceived risks in LPs intensify consumer privacy concerns. Further analysis revealed that the effect of perceived privacy risk on privacy concerns is stronger in collectivistic nations ($b=0.724$, $p<0.001$) compared to individualistic ones ($b=0.541$, $p<0.001$). This difference is statistically significant ($Wald=8.624$, $p=0.003$). However, there were no statistically significant differences between low and high uncertainty-avoidance culture ($Wald=0.326$, $p=0.567$).

Table 3
Hypotheses tests.

	Pooled sample		Individualistic culture		Collectivistic culture		Low UA culture		High UA culture	
	Stdzd. coeff.	p-value	Stdzd. coeff.	p-value	Stdzd. coeff.	p-value	Stdzd. coeff.	p-value	Stdzd. coeff.	p-value
R1: Privacy concerns → Trust	-0.094	0.001	-0.087	0.039	-0.124	0.002	-0.116	0.004	-0.087	0.033
<i>Trust → Loyalty</i>	0.666	0.000	0.589	0.000	0.771	0.000	0.571	0.000	0.703	0.000
R2: Privacy concerns → Trust → Loyalty**	-0.067^a	0.000	-0.048	0.071	-0.080	0.016	-0.073	0.048	-0.050	0.091
R3: Privacy risks → Privacy concerns	0.617	0.000	0.541	0.000	0.724	0.000	0.624	0.000	0.605	0.000
H1a: Perceived benefits → Privacy concerns	-0.054	0.389	-0.104	0.268	-0.111	0.167	-0.173	0.056	-0.026	0.788
H1b: Privacy concerns → Perceived benefits	-0.141	0.084	-0.280	0.029	-0.057	0.619	0.022	0.783	-0.207	0.054
H2: Perceived benefits → Loyalty	0.180	0.000	0.251	0.000	0.058	0.346	0.281	0.000	0.127	0.026
H3: Uncertainty avoidance (UA) → Privacy concerns	0.148	0.000	0.050	0.350	0.177	0.005	0.223	0.000	0.072	0.234
H4a: Individualism → Privacy concerns	-0.015	0.721	0.063	0.315	-0.046	0.503	-0.054	0.276	0.100	0.158
H4b: Collectivism → Privacy concerns	0.032	0.578	0.030	0.700	0.068	0.439	0.095	0.352	-0.076	0.331
Instrumental variables										
<i>INST^c Privacy breach victim → Privacy concerns</i>	0.090	0.000	0.103	0.008	0.048	0.177	0.094	0.008	0.073	0.040
<i>INST^c LPs make shopping easier → Perceived benefits</i>	0.491	0.000	0.458	0.000	0.500	0.000	0.457	0.000	0.481	0.000
Model modifications										
Collectivism → Trust	0.388	0.000	0.300	0.000	0.474	0.000	0.201	0.095	0.357	0.000
Perceived benefits → Trust	0.422	0.000	0.508	0.000	0.336	0.000	0.542	0.000	0.380	0.000
Collectivism → Benefit	0.345	0.000	0.369	0.000	0.290	0.000	0.630	0.000	0.267	0.000
Control variables										
Effectiveness of regulation → Privacy concerns	-0.180	0.000	-0.248	0.000	-0.125	0.061	-0.089	0.135	-0.179	0.006
Effectiveness of regulation → Trust	0.107	0.001	0.038	0.421	0.159	0.001	0.093	0.163	0.166	0.001
Gender (fem) → Privacy concerns	-0.043	0.095	-0.101	0.009	0.025	0.471	-0.122	0.001	0.033	0.368
Gender (fem) → Trust	0.096	0.000	0.067	0.045	0.134	0.000	0.078	0.016	0.132	0.000
Age → Privacy concerns	-0.065	0.014	-0.013	0.734	-0.032	0.428	-0.124	0.002	0.013	0.729
Age → Trust	0.068	0.008	0.136	0.000	0.024	0.458	0.162	0.000	0.001	0.977
Full sample: $\chi^2 = 1488.661$, df = 372, $p < 0.000$; CFI = 0.925; TLI = 0.914; RMSEA = 0.049; SRMR = 0.081										
Collectivism vs. Individualism: $\chi^2 = 1867.113$, df = 744, $p < 0.000$; CFI = 0.926; TLI = 0.914; RMSEA = 0.049; SRMR = 0.079										
Low UA vs. high UA: $\chi^2 = 1897.427$, df = 744, $p < 0.000$; CFI = 0.923; TLI = 0.911; RMSEA = 0.050; SRMR = 0.082										

^a Standardized indirect effect (ab).

^b Mediating or moderating tests were performed separately; we these relationships excluded from the model fit reported in the table.

^c Instrumental variables, necessary to run non-recursive SEM models as per Nagase and Kano (2017)

Effect of LP Benefits on Privacy Concerns and Loyalty.

Our analysis examined the bidirectional impact between LP benefits and privacy concerns, as outlined in Hypotheses H1a and H1b. Our findings weakly support H1b (privacy concerns negatively affecting perceived benefits, $b=-0.141$, $p=0.084$) but not H1a (benefits impacting privacy concerns, $b=-0.054$, $p=0.389$), indicating privacy concerns more strongly diminish perceived benefits. The negative impact of privacy concerns on benefits was notably stronger in individualistic cultures ($b=-0.280$, $p=0.029$) compared to collectivistic ones ($b=-0.057$, $p=0.619$) and was marginally stronger in high uncertainty avoidance cultures ($b=-0.207$, $p=0.054$) versus low uncertainty avoidance cultures ($b=0.022$, $p=0.783$). However, the differences observed across cultural dimensions—collectivistic versus individualistic and high versus low uncertainty avoidance—were not statistically significant (Wald=1.905, $p=0.167$) and only marginally significant (Wald=3.168, $p=0.075$), respectively. For the influence of LP benefits on privacy concerns (H1a), the effect was slightly stronger in low uncertainty avoidance cultures ($b=-0.173$, $p=0.056$) compared to high uncertainty avoidance ones ($b=-0.026$, $p=0.788$). Nonetheless, Wald tests revealed that these effects were consistent across both cultural spectra—collectivistic/individualistic (Wald=0.021, $p=0.884$) and high/low uncertainty avoidance cultures (Wald=1.614, $p=0.204$). These findings suggest that privacy concerns have a more significant negative impact on the attractiveness of LP benefits than vice versa, across different cultural contexts. The marginally stronger effects of privacy concerns on benefit in high uncertainty avoidance cultures may suggest that cultures with a high proclivity to avoid uncertainty may place a premium on the predictability and control associated with LP benefits. Conversely, in low uncertainty-avoidance cultures, where ambiguity might be more tolerable, the impact of privacy concerns on LP benefits is less pronounced.

Our study validates Hypothesis H2, which states that perceived benefits from LP engagement improve consumer loyalty. We found a significant positive correlation ($b=0.180$, $p<0.001$) between perceived benefits and consumer loyalty, confirming the critical role of LP benefits in fostering and strengthening consumer commitment. However, our analysis of the data, taking into account cultural differences using Wald tests, revealed some interesting nuances. The impact of perceived benefits on loyalty was stronger in individualistic cultures than in collectivistic ones (Wald=4.960, $p=0.026$). This finding can be explained by the fact that in individualistic societies, where trust and loyalty might be based more on transactional considerations, LP benefits may be more persuasive. This is consistent with the theory proposed by Doney et al. (1998), which suggests that individualistic consumers may evaluate loyalty more in terms of concrete rewards or benefits.

There was a variation in the behavior of consumers in cultures with low and high uncertainty avoidance (Wald=4.195, $p=0.041$). People in low uncertainty avoidance cultures are likely to be more accepting of the risks and uncertainties associated with LPs, and more influenced by the perceived benefits. On the other hand, individuals in high uncertainty avoidance cultures may require stronger guarantees to counter their natural risk aversion, which could limit the potential of LPs to drive customer loyalty. Overall, these findings highlight the complex ways in which LP benefits can impact consumer behavior, underlining the role of cultural context in shaping these dynamics.

Relationship between Uncertainty Avoidance and Privacy Concerns

According to Hypothesis H3, individuals with higher scores on uncertainty avoidance indices would have more concerns about privacy. The data presented in Table 3 confirms this hypothesis, showing a positive association between elevated uncertainty avoidance and increased privacy concerns. The coefficient value of $b=0.148$ confirms this relationship statistically significantly ($p<0.001$). This finding highlights the idea that individuals who are

more averse to ambiguity or unfamiliar situations tend to have heightened privacy concerns. Our study delved deeper into the relationship between national cultural tendencies towards uncertainty avoidance and privacy concerns. Specifically, we examined whether this relationship was influenced by a pronounced inclination for uncertainty avoidance in nations. Our hypothesis, H5, predicted that in cultures with high uncertainty avoidance, the relationship between uncertainty avoidance and privacy concerns would be more pronounced than in those with low uncertainty avoidance. However, our multigroup structural equation modeling analysis revealed an unexpected trend. The relationship outlined in H3 was more pronounced in cultures with low uncertainty avoidance ($b=0.223$, $p<0.001$) than in those with high uncertainty avoidance ($b=0.072$, $p=0.234$). At first glance, this might seem counterintuitive. In order to clarify our findings, we analyzed the latent mean scores from Table 2. Our research indicates that nations with high levels of uncertainty avoidance tend to have greater privacy concerns. The standardized mean difference of 0.188, which is statistically significant ($p=0.001$), implies that these concerns are more prevalent in high uncertainty-avoidance nations compared to their low uncertainty-avoidance counterparts. This heightened level of concern in such nations could potentially overshadow the subtle individual variations in the relationship between uncertainty avoidance and privacy concerns. This, in turn, can explain the observed muted, albeit statistically insignificant, relationship. We also conducted a subsequent Wald test to determine potential variances in the regression coefficients across the two cultural groups. However, this test did not indicate any statistically significant differences (Wald=1.760, $p=0.184$) which suggests the effect is consistent in low and high UA cultures. Furthermore, we found that the broader cultural dichotomy of collectivism versus individualism did not notably influence the way uncertainty avoidance informed privacy concerns, as supported by a Wald statistic of 2.699 and a p-value of 0.100.

Individualism/Collectivism and Privacy Concerns.

Hypotheses H4a and H4b explored the relationship between individual cultural orientations and privacy concerns. H4a predicted a positive relationship between individualism and privacy concerns, suggesting that values like autonomy and self-expression heighten privacy anxiety. H4b proposed a negative relationship between collectivism and privacy concerns, implying that communal values might reduce such anxieties. However, our findings do not support these hypotheses. The analysis revealed no significant relationship between individualism and privacy concerns ($b=-0.015$, $p=0.721$) nor between collectivism and privacy concerns ($b=0.032$, $p=0.578$).

The next step is to examine hypotheses H6a and H6b, which suggest that national-level individualism and collectivism respectively, moderate the relationships proposed in H4a and H4b. The multi-group SEM analysis and Wald tests failed to provide support for H6a (Wald=1.384, $p=0.239$), and for H6b (Wald=0.0731, $p=0.786$) as they are statistically insignificant. H6a and H6b, which propose that national-level cultural dimensions moderate the impact of individual-level cultural orientations on privacy concerns, are refuted. The results also reveal that individualism and collectivism (both at an individual level) effects on privacy concerns are consistent in low and high uncertainty-avoidance cultures with Wald tests (Wald=3.053, $p=0.080$ and Wald=1.774, $p=0.182$). The results suggest no differences across the two cultural groups.

Furthermore, the results indicate that privacy concerns are higher in collectivistic cultures than in individualistic ones, as shown by latent mean differences in Table 2 (latent mean difference =0.543, $p<0.001$). This aligns with previous research (Bellman et al., 2004; Lowry et al., 2011; Thomson et al., 2015) and can be explained by understanding that while cultures that prioritize individualism may prioritize success and economic gains over privacy (Bellman et al., 2004), those with a collectivist orientation are more likely to have concerns

about information privacy. The reluctance in collectivist cultures to share personal information beyond closely-knit groups, possibly due to potential negative consequences for the individual within the group (Schwartz et al., 2011), may explain the heightened privacy concerns in such cultures, especially with regard to LPs, where information may be shared beyond the in-group.

In the process of refining our SEM model, we discovered three relationships that were not part of our initial hypotheses. We will discuss these new findings, placing them in the broader academic context and linking them to their theoretical underpinnings. After examining the changes to the SEM model (Table 3), we found that collectivism at the individual level has a strong positive correlation with trust in the retailer, with a coefficient of $b=0.388$ and a p -value of less than 0.001. This correlation remained consistent across different cultural groups, as confirmed by corresponding insignificant Wald tests (Wald=0.274, $p=0.601$ and Wald=1.002, $p=0.317$). This finding supports Lim et al.'s (2021) assertion that trust is deeply ingrained in collectivist values, while individualistic values often reject such moralistic inclinations. One could argue that in collectivistic societies, trust is reinforced by societal norms and potential social sanctions. Therefore, actions that are purely self-centered are discouraged, given the prominent societal norms in such contexts. In contrast, individualistic societies rely more on a calculated trust-building process, where individuals weigh information and sometimes engage in self-serving behaviors. This difference in the fabric of social relationships, being loosely woven in individualistic societies and tighter in collectivistic ones, potentially explains the difference in trust transference. Additionally, this is supported by the higher average latent factor scores for trust and loyalty observed in collectivistic nations compared to their individualistic counterparts (latent factor score differences: 0.285, $p<0.001$; 0.492, $p<0.001$, respectively).

Our analysis revealed that perceived benefits from LPs significantly boost trust in retailers ($b=0.422$, $p<0.001$), with this effect more pronounced in individualistic cultures ($b=0.508$, $p<0.001$) compared to collectivistic ones ($b=0.336$, $p<0.001$), as confirmed by a Wald test (Wald=4.233, $p=0.039$). Similarly, the influence of perceived benefits on trust is stronger in cultures with low uncertainty avoidance ($b=0.542$, $p<0.001$) than in those with high uncertainty avoidance, further supported by a significant Wald test (Wald=4.186, $p=0.041$). This aligns with Doney et al.'s (1998) assertion that trust formation in individualistic cultures often relies on a calculative process. Consumers in such cultures might weigh these benefits as tangible proof of the retailer's commitment to their customers, thereby boosting trust. Similarly, in cultures with low uncertainty avoidance, which are more open to taking risks and are less focused on strict rules and guarantees, the perceived benefits play a crucial role in forming trust. The willingness to engage despite potential risks implies a belief that the benefits outweigh possible uncertainties, leading to higher trust in the retailer's offerings.

Our study found that individual collectivism positively affects the perceived benefits of LPs (LPs) ($b=0.345$, $p<0.001$), highlighting how these programs' communal rewards resonate with collectivist values. This effect remains stable across cultures, regardless of a national tendency towards individualism or collectivism (Wald=0.003, $p=0.954$). However, the impact is stronger in cultures with low uncertainty avoidance ($b=0.630$, $p<0.001$) compared to those with high ($b=0.267$, $p<0.001$), as evidenced by a significant Wald test (Wald=17.476, $p<0.001$). In high uncertainty avoidance environments, the appreciation for LP benefits exists but is dampened, likely due to a higher valuation of predictability and security, making individuals more reserved about the rewards' reliability. Collectivist individuals' perception of LP benefits thus appears universally positive but varies in intensity depending on cultural attitudes towards uncertainty.

Regarding the control variables (Table 3), perceived privacy regulation effectiveness consistently reduces privacy concerns ($b=-.180$, $p<0.001$) and increases trust ($b=.107$, $p=0.001$), with no significant differences across cultural groups (privacy concerns $\text{Wald}=1.898$, $p=0.168$ for collectivistic vs. individualistic; trust $\text{Wald}=2.072$, $p=0.150$) or uncertainty avoidance levels (privacy concerns $\text{Wald}=1.333$, $p=0.248$ for low vs. high; trust $\text{Wald}=0.816$, $p=0.366$). Gender influences trust positively ($b=0.096$, $p<0.001$), with gender differences in privacy concerns more pronounced in individualistic cultures ($b=-0.101$, $p=0.009$; $\text{Wald}=5.728$, $p=0.016$) compared to collectivistic ones ($b=0.025$, $p=0.471$). Age is associated with reduced privacy concerns ($b=-0.064$, $p=0.014$) and increased trust ($b=0.068$, $p=0.008$), with age effects on trust notably stronger in individualistic cultures ($\text{Wald}=3.841$, $p=0.050$). Differences in privacy concerns and trust due to gender and age are significant in low versus high uncertainty avoidance contexts. Gender impacts privacy concerns significantly ($\text{Wald}=7.955$, $p=0.005$) and age also shows significant differences ($\text{Wald}=5.033$, $p=0.024$), particularly in low uncertainty cultures, where older individuals and females exhibit lower privacy concerns and higher trust, highlighted by the age effect on trust in low uncertainty cultures ($\text{Wald}=7.715$, $p=0.005$). This indicates that cultural attitudes towards uncertainty influence how demographics relate to privacy and trust within LPs.

Discussion and Conclusions

This study attempts to reconcile the inconsistent findings of previous cross-cultural studies on privacy (Bellman et al., 2004; Dinev et al., 2006; Milberg et al., 1995, 2000,) by taking into account individual-level cultural values in the privacy calculus. Specifically, we adopt Fischer and Schwartz's (2011) perspective, which views culture as a latent normative value system. Given the intracountry divergence in cultural values they observe, Fischer and Schwartz (2011) support the notion that the effects of cultural values should be examined at

both national and individual levels for more accurate hypothesis testing and more complete theoretical explanations. We test our hypotheses in four different national culture settings while taking into account individual variations in cultural values within each setting. Based on the literature review, we concentrate our efforts on two key cultural values, uncertainty avoidance and individualism/collectivism, which are considered important influences on privacy concerns. The focus of the study is on privacy concerns that arise due to information collected by retailers from those who participate in their LPs.

In our study, we identified a negative relationship between privacy concerns and trust in retailers. This finding is consistent with Leenheer et al. (2007), who reported that privacy concerns discourage consumers from joining gasoline LPs. Similarly, we found a negative effect of privacy concerns on perceived LP benefits. Gómez et al. (2012) recognized privacy concerns as a considerable barrier to LP participation, a point reinforced in our research. Nonetheless, while Gómez et al. (2012) addressed barriers like shopping enjoyment, our focus was predominantly on privacy risks and the perceived benefits of LPs. We further observed that perceived privacy risks impact customer behaviors, resonating with Melnyk and Bijmolt's (2015) insights on the influence of privacy perceptions, especially concerning LP termination. However, while Melnyk and Bijmolt (2015) centered their research on the initial and concluding phases of LP membership, we examined the overarching correlations of privacy concerns, trust, and loyalty. The negative effect we discerned of privacy concerns on LP benefits finds parallels with Lee's (2008) work, which highlighted the significance of perceived LP value. Lee's (2008) study, however, was oriented around the willingness to share information, which is absent in our findings.

Our results also shed light on the influential role of cultural dimension of uncertainty avoidance on privacy concerns, an aspect that aligns with Taylor et al.'s (2015) emphasis on contextual significance in privacy attitudes. However, it's noteworthy that Taylor et al.

(2015) utilized the Meta-theoretical Model of Motivation (3M), an approach distinct from ours. Considering the cultural impact of uncertainty avoidance, we discovered an intriguing pattern: higher uncertainty avoidance correlates with increased privacy concerns, especially pronounced in low uncertainty avoidance cultures. This unexpected observation suggests a complex relationship, not merely direct or linear, between individual attitudes towards uncertainty and cultural influences. It challenges straightforward assumptions, emphasizing the intricate interaction between personal and cultural determinants in shaping privacy concerns. This observation mirrors Lowry et al.'s (2011) results, which highlighted higher privacy concerns among high in UA values individuals in China, a low UA nation. Cao and Everard (2008) similarly reported elevated privacy concerns among individuals with high UA values, irrespective of national-level culture. Furthermore, Plangger and Montecchi (2020) indicated that uncertainty avoidance affects privacy attitudes, as pragmatists, less tolerant of uncertainty, differentiated from apathists. Nevertheless, Plangger and Montecchi's work didn't discern national-level cultural differences and predominantly centered on data disclosure decisions. In contrast, our exploration was rooted in understanding privacy concerns in a commercial context, particularly concerning trust in retailers. While certain studies such as Bellman et al. (2004) argued national-level UA doesn't influence privacy concerns, or even suggested cultures with heightened UA possess diminished privacy concerns as per Milberg et al. (2000), our findings lend weight to the individual-level analysis of cultural dimensions.

Examining the impact of individualism/collectivism, our study identified that privacy concerns are significantly more pronounced in collectivistic cultures compared to individualistic ones, corroborating the perspectives of Bellman et al. (2004) and Krasnova et al. (2012). This aligns with findings from James et al. (2017) and contrasts with Plangger and Montecchi (2020), suggesting a significant connection between individual-level collectivism

and privacy concerns. The data supports an intensified perception of privacy risk in collectivistic nations versus individualistic ones, with no statistically significant differences found between low and high uncertainty-avoidance cultures in this regard.

Theoretical Implications

This study provides insights into the dynamics of LPs, specifically addressing the often-overlooked impact of privacy concerns on LP-induced loyalty. While enriching academic discourse by applying existing theoretical frameworks, our analysis notably expands the cultural exploration of privacy concerns. We delve into the intracultural divergence of values as noted by Fischer and Schwartz (2011) and integrate the culture mismatch theory conceptualized by Gelfand and Harrington (2015). Significantly, our findings elucidate the variable influence of individual-level uncertainty avoidance on privacy concerns, particularly highlighting a distinct variability in contexts of low uncertainty avoidance cultures. This specific observation enhances our understanding of the complex interrelation between cultural dimensions and privacy concerns within the LP context, offering a more sophisticated interpretation of the privacy calculus as it relates to trust and loyalty towards retailers. Consequently, the theoretical contributions of this study not only broaden the scope of cultural explanations for privacy concerns but also ensure these insights are aligned with the realities revealed through our examination of uncertainty avoidance. We develop and use an extended privacy calculus framework adapted to the context of LPs as a foundation for examining cultural variation on privacy concerns. The refined theoretical framework will be helpful in future academic research on privacy concerns across different cultural settings.

A critical distinction our study makes is between individual-level and national-level cultural effects on privacy perceptions. We document a dynamic interaction between individual values and national cultural norms, finding that national norms can sometimes overshadow individual differences in collectivism or individualism, thus significantly shaping

privacy concerns. This observation nuances the universal applicability of the cultural mismatch theory by Gelfand and Harrington (2015), suggesting that its relevance varies across different cultural dimensions. Our exploration into how cultural mismatches—specifically, individuals with low uncertainty avoidance in cultures of high uncertainty avoidance—affect privacy concerns reveals that the impact is not uniform across all cultural dimensions. This insight is crucial in challenging the prevailing belief that national norms invariably dictate individual privacy attitudes in uncertain situations.

Our study contributes to understanding the complex influence of culture on shopping behavior and privacy concerns. Against the backdrop of existing literature, including the works of Bellman et al. (2004), Schwartz et al. (2011), Milberg et al. (2000), and Lowry et al. (2011), we present findings that collectivistic cultures may exhibit greater privacy concerns. This stands in contrast to the widely held view that privacy concerns are more pronounced in individualistic societies. Our analysis provides evidence that collectivistic cultures demonstrate a heightened sensitivity to social risks associated with privacy breaches, suggesting a more pronounced cultural divide in privacy concerns between collectivistic and individualistic cultures than previously understood. These insights not only highlight the complex interplay between national culture and individual values in shaping privacy concerns but also emphasize the need for culturally sensitive LP design and implementation.

Further, our investigation into the privacy calculus concept, informed by Dinev and Hart (2006), showcases how cultural factors significantly moderate the cost-benefit analysis consumers undertake when deciding on LP participation. We find that collectivistic cultures evaluate privacy risks with a focus on social repercussions, whereas individualistic cultures prioritize personal autonomy. This finding challenges the efficacy of LP benefits in mitigating privacy concerns, underscoring the need to reassess the privacy calculus theory's

cultural sensitivity as posited by Dinev and Hart (2006), Smith et al. (2011), and Pavlou (2011).

Moreover, our research delves into the role of perceived benefits in LP participants' decision-making processes, drawing upon the empirical studies of Keith et al. (2013), Awad and Krishnan (2006), and Maseeh et al. (2021). Despite the potential of these benefits to assuage privacy concerns, our findings underscore that privacy concerns consistently outweigh the perceived benefits of LPs across different cultural settings. This reveals a complex, bidirectional relationship between privacy concerns and LP benefits, challenging the conventional notion that benefits effectively mitigate privacy concerns and calling for a reassessment of how these benefits are valued across diverse cultural landscapes.

In sum, our study provides critical insights into the interplay between LPs and privacy concerns, with a particular focus on the role of culture. Here are the key contributions of our research to various theories. Previous work mainly addressed the contrast between collectivism and individualism. Our research reveals a more nuanced cultural influence. We found that when individuals deviate from national cultural norms, as presented by Fischer and Schwartz (2011), their privacy concerns amplify. This suggests that individual cultural values can, at times, supersede national norms, particularly in ambiguous situations. Culture mismatch theory (Gelfand and Harrington, 2015) theory proposes that in situations of high ambiguity, national values typically prevail over individual ones. Our findings support this, indicating that individual-level variations in uncertainty avoidance significantly influence privacy concerns more than national cultural values. Privacy calculus theory emphasizes a cost-benefit evaluation of privacy risks. Our study indicates that this evaluation is culturally dependent. Specifically, collectivistic societies prioritize the social consequences of privacy risks, whereas individualistic ones focus on personal freedom. Consistent with past studies, we found that privacy concerns are inversely related to trust in retailers. Our research further

elaborates that despite heightened privacy concerns in collectivistic and high uncertainty-avoidance cultures, this inverse relationship remains consistent. While Shavitt and Barnes (2020) suggested that individualistic cultures prioritize privacy, our findings challenge this by indicating a greater privacy concern in collectivistic cultures. This can be attributed to their hesitance to disclose personal details outside their in-group and the importance they place on social consequences.

Managerial Implications

This study provides valuable insights and practical guidance for managers operating in diverse cultural contexts to address privacy concerns while fostering customer trust and loyalty. Proactive measures need to be taken by companies to tackle privacy issues as they can significantly affect the effectiveness of LPs. It is crucial for customer relationship managers to prioritize offering consumers credible assurances about the management and control of their personal information. Managers must also adeptly balance privacy risks and benefits. They should recognize that privacy risks exacerbate concerns. By highlighting the advantages of their products or services and addressing potential risks, businesses can mitigate the negative effects of privacy concerns on trust.

Managers should strategically adapt their approaches to acknowledge the cultural influences on privacy concerns and perceived benefits, without assuming widespread variations in the impacts on trust and loyalty across different cultural contexts. Our findings indicate that while privacy concerns and perceptions indeed vary across cultural landscapes, the foundational effects on trust and loyalty towards LPs maintain a degree of consistency across collectivistic and individualistic, as well as low and high uncertainty-avoidance cultures. This suggests that while a culturally informed approach to LPs is crucial, strategies should focus on addressing specific privacy concerns and highlighting perceived benefits rather than assuming differential impacts on trust and loyalty. For instance, while retailers in

any cultural setting should emphasize the security and beneficial use of data, the manner of communication might be tailored to respect cultural preferences—such as leveraging community endorsements in collectivistic societies or highlighting autonomy in individualistic ones. Importantly, recognizing intracultural diversity, retailers must also be prepared to engage with consumers who may not align perfectly with national cultural norms, ensuring that privacy communication strategies are inclusive and resonate with all segments of their customer base. While individual differences in uncertainty avoidance play a significant role in shaping privacy concerns, it's essential to recognize that national norms still exert a considerable influence, particularly in the dimension of collectivism/individualism. To effectively address privacy concerns in LPs, managers can utilize uncertainty avoidance as a segmentation variable. By recognizing individual variations in uncertainty avoidance, managers can tailor their strategies to accommodate differing privacy concerns within their customer base.

It is important for retailers to ensure that their customers understand and appreciate the benefits of their LP. To address any privacy concerns, particularly in cultures with high levels of uncertainty avoidance, the emphasis should be on the tangible benefits of the program (given their higher effect on trust and loyalty), while actively working to minimize any perceived risks. In high uncertainty avoidance cultures, highlighting the tangible benefits can help offset privacy concerns effects on trust. It is also crucial to highlight how customers directly benefit from sharing their information. Retailers must emphasize the benefits that shoppers receive from LPs. This is particularly important in individualistic societies, where the relationship between perceived benefits, trust and loyalty is more significant. Trust is based on a process of costs and benefits evaluation. Emphasizing benefits can enhance trust. The study suggests that both national-level and individual-level values play crucial roles in shaping privacy concerns. Retailers operating in high uncertainty-avoidance cultures should

not assume that there are heightened privacy concerns based purely on the cultural background. It is essential to understand the complex interplay between individual and national values. Despite anticipations, the study found no evidence to suggest that high uncertainty-avoidance cultures necessarily have heightened privacy concerns, indicating that other factors might be at play. Therefore, retailers should invest in market research and consumer insights to understand both broad cultural trends and individual deviations within their target market.

Furthermore, our research indicates that trust in a country's regulatory framework can significantly reduce privacy concerns and increase trust in companies. Hence, managers should use these regulations to their advantage by reinforcing their commitment to comply with these rules and clearly communicating this to customers. In countries where regulations and penalties are clear, managers should highlight their compliance as a competitive advantage to win over privacy-conscious customers.

Limitations and Suggestions for Future Research

The study has some limitations that need to be addressed. Although it provides deep insights into the cultural aspects that affect LPs in the retail sector and privacy concerns, the findings may not be relevant to other sectors or industries. Moreover, the study mainly focuses on collectivism versus individualism and uncertainty avoidance, while other cultural dimensions such as masculinity versus femininity or long-term versus short-term orientation have not been fully explored. Future research should investigate these dimensions to provide a broader theoretical understanding of privacy concerns in LPs.

Additionally, while the study uses existing frameworks such as privacy calculus theory, it may overlook other theories related to privacy that could be adapted to the LP context. To make the research more relevant and precise, future studies should develop or adapt frameworks specifically tailored to the LP context. Furthermore, future research should

examine the behavioral aspects of cultural influences on privacy concerns. This would involve exploring how cultural values translate into actual consumer behaviors and decision-making processes regarding LPs. Emotional factors might also influence privacy concerns, and it would be interesting to see how culture impacts these emotional considerations.

Lastly, the study is based on a cross-sectional analysis, which may not capture changes over time in the interplay between cultural values and privacy concerns. To establish causal relationships and identify how privacy calculus evolves over time, future research should use longitudinal analysis or experimental or quasi-experimental analysis, especially given the rapid technological advancements.

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