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Anders Bergerud & Luisa Habild

Abstract

This master's thesis dives into the unexplored topic of private label embarrassment. Specifically, we were interested in whether private labels are more embarrassing compared to national brands and whether self-service checkouts mitigate this embarrassment, consequently yielding differences in purchase intention. We conducted a 2x2 between-subjects experimental design with the factors checkout type (self-service checkout vs. manned checkout) and brand type (private label vs. national brand). By assigning objects to one of the four possible conditions, we manipulated these factors. Through an online experiment (n = 288), we find that private labels indeed are perceived to be embarrassing compared to national brands. Moreover, we find support for the mitigating effect of self-service checkouts on private label embarrassment. Our findings further indicate that embarrassment is partially mediating the relationship between brand type and checkout type on purchase intention. Consequently, purchase intention for private labels was found to be higher in self-service checkouts compared to manned checkouts. Supporting theory-based expectations, our results further imply a moderating effect of brand embarrassment tendency on several relationships in our model. We derive several theoretical and managerial implications from our results that are valuable for both academicians and practitioners.

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1. Introduction

Take a moment to envision yourself standing in line at your local grocery store, eagerly awaiting your turn at the register. In your basket, you've gathered the essentials for a delightful Friday movie night – a mouthwatering frozen pizza, a fizzy soda, and a delectable bar of chocolate. As you glance down at your items, a subtle unease creeps in. You realize that the items you have chosen are not from expensive and well-known brands but from cheaper alternatives. As you stand in line, surrounded by fellow shoppers, the weight of self-consciousness intensifies. A warmth spreads across your cheeks, subtly flushing them with a rosy hue. You wonder if the cashier will silently judge your selections. Are the people around you casting judgmental glances, forming opinions based on the unbranded items you place on the conveyor belt? Will they think you cannot afford the "better" more expensive products? The unpleasant feeling intensifies, and a mild embarrassment washes over you.

1.1 Background and Motivation

This narrative touches upon the delicate dance between personal identity, social expectations, and the influence of consumer culture. It reflects the pressure some individuals may feel to conform to societal norms or demonstrate a certain status through their purchasing decisions. The mild embarrassment experienced by the person in the story shines a spotlight on the vulnerability and discomfort that can arise when items are on display for others to see. While the fields of consumer embarrassment, product-related embarrassment, and brand embarrassment in general are not novel, brand embarrassment specifically related to private labels (PLs), has not been explored yet.

Since the introduction of PLs, also known as store brands, their market share and popularity have experienced substantial growth on a global scale (Cuneo et al., 2015). One primary factor contributing to this growth is the diminishing gap in quality between PLs and national brands (NBs), to the point where PLs even are of equal quality (Quelch & Harding, 1996). Moreover, there has been a notable shift in many countries where PLs have transitioned from being perceived as inexpensive and low-quality items to actively competing with top-tier brands in specific market segments (e.g., Batra & Sinha, 2000; Cuneo et al., 2015; Keller et al., 2022). PLs are now found in over 90% of consumer-packaged goods categories (Cuneo et al.,

2015), and in 2022, they accounted for a 36% share of the value of fast-moving consumer goods in Europe (Ozbun, 2023).

The success of PLs heavily relies on variances in consumers' expectations of PL quality, uncertainties surrounding quality levels, and perceptions of functional risk (e.g., Beneke et al., 2012; Cuneo et al., 2015; Ramulu & Sapna, 2015). Additionally, the study by Batra & Sinha (2000) indicates that the willingness of consumers to switch to PLs is primarily influenced by the perceived risk associated with the quality of those brands (Batra & Sinha, 2000). However, the success of PLs also heavily depends on consumers' considerations of social image (Cuneo et al., 2015).

Despite the narrowed quality gap between PLs and NBs, we assume that some consumers still perceive PLs as inferior and fear judgment for choosing lower-quality products. This apprehension arises from the perceived risk associated with PLs and the prevailing image of them being associated with low prices and low quality. Hence, based on existing literature, we derive that buying PLs can be embarrassing due to the social stigma associated with perceiving PLs as a sign of financial constraint or an inability to afford higher-priced NBs. Furthermore, individuals concerned with social status and brand image may feel that purchasing PLs compromises their desired image. In addition, social comparison can also contribute to feelings of embarrassment (Wert & Salovey, 2004) if others, e.g., are exclusively buying NBs or premium products.

The existing body of literature indicates that consumers change their purchasing behavior when buying products that are considered embarrassing. For embarrassment to occur, it requires the presence of others, also referred to as social interaction. A series of studies (e.g., Blair & Roese, 2013; Brackett, 2004; Dahl et al., 2001; Goldfarb et al., 2015; Olden, 2018; Sun et al., 2022) have shown that social interactions alter consumer behavior in purchase-related situations. Among others, it was found that consumers apply coping strategies when encountering embarrassing situations. Consumers, for example, mask embarrassing items among several other items, leading to an increase in shopping basket size (Blair and Roese, 2013; Brackett, 2004; Nichols et al., 2015). Furthermore, Sun et al. (2022) find that dehumanizing service personnel when consumers encounter embarrassing purchase situations leads to a perceived decrease in embarrassment. Another aspect of consumer embarrassment is the variation in social interaction between checkout

types. Research by Olden (2018) and Sun et al. (2022) analyzed sales data of grocery chains and found evidence that consumers tend to buy more stigmatized and personal items through self-service checkouts (SSCs) compared to manned checkouts (MCs). Through SSCs, consumers can shop with a greater sense of anonymity, which is hypothesized to decrease embarrassment. However, all these studies only hypothesize embarrassment to be the underlying mechanism that leads to changes in purchasing behavior, but no study empirically tests for it.

Motivated by the rich literature on product-related embarrassment in purchase situations, we got curious about whether there exists a similar dynamic when it comes to PLs. In addition to product-related embarrassment, it has been shown that brands can elicit negative emotions, embarrassment being one of them. Brand-related embarrassment encompasses feelings of anxiety and negative emotions that are evoked by specific brands (Grant & Walsh, 2009). Studies indicate that consumers experience brand embarrassment in both private and public settings, although the desire to avoid the feeling in public is significantly stronger (Grant & Walsh, 2009; Krishna et al., 2019). Besides brand embarrassment in consumption contexts, we could not find any study that researched brand embarrassment in a purchase-related context. Furthermore, the studies researching embarrassment in retail settings are solely product oriented.

1.2 Objective and Contributions

Current research lacks a thorough investigation of brand embarrassment in purchase-related situations. Therefore, our study concentrates on the embarrassment associated with PLs, aiming to provide significant insights into the differences between NBs and PLs in purchase situations. Additionally, we are interested in the impact of checkout types and whether embarrassment influences purchase intention.

By shedding light on the factors that shape consumer decision-making processes, our study contributes to the advancement of theories in areas such as social influence, self-identity, and purchase behavior, ultimately enhancing the understanding of consumer psychology. Consequently, this knowledge helps practitioners develop targeted marketing strategies that address consumer perceptions and emotions surrounding PLs. Understanding how PLs are perceived

contributes to effective branding strategies. It also guides retailers in making informed decisions about their checkout systems, optimizing the consumer experience. Leveraging this knowledge as a competitive advantage empowers practitioners to strategically position their brands, resulting in a positive brand experience and a stronger market presence.

1.3 Research Question

Inspired by the existing gap in the literature on PL embarrassment, we aim to answer the following research question:

Do consumers feel less embarrassed when buying private labels at self-service checkouts compared to manned checkouts, and does it affect purchase intention?

1.4 Structure

This thesis is organized as follows: First, we present a thorough review of the existing literature. Second, based on the literature review findings, we put forth our conceptual framework. Our conceptual framework describes the relationships between our constructs and serves as the foundation for our hypotheses. Third, we lay out our methodology regarding the type of study we conducted, as well as data collection and analysis methods. Finally, the data analysis and the results of the study are presented and discussed, as well as their theoretical and managerial implications.

2. Literature review

Reviewing the body of literature on consumer behavior in purchase settings, it becomes evident that several studies have focused on examining the variations in consumers' purchasing behavior across different types of checkouts. Moreover, it has been studied that removing social interaction from a purchase situation leads to increased sales in certain product categories. While these studies suggest that the reason behind these effects can be attributed to alterations in embarrassment, none of them has empirically tested embarrassment as the underlying mechanism that yields changes in purchase behavior. Furthermore, while previous research has examined the effects of social interaction in purchase situations on embarrassment

related to product type or services, no literature has been found that specifically investigates these effects across different types of brands.

In the remainder of this chapter, we will initially explore the current body of literature on how social interaction impacts consumer behavior in purchase-related settings, including differences in checkout types. Next, we assess the role of embarrassment and examine how embarrassment alters consumer behavior in purchase processes. Following that, we present existing findings on how brands impact consumer behavior. This section is followed by a comprehensive review of brand-related embarrassment. To conclude the literature review, we present identified gaps in the existing literature and our contributions. Finally, we present our conceptual framework based on the literature review and present our hypotheses.

2.1 The Influence of Social Interaction on Consumer Behavior

It is natural that humans are influenced by the behaviors and opinions of others. The effects of social interactions on human behavior have been investigated across various domains and disciplines, including but not limited to medicine, political science, psychology, sociology, and in economic transactions (e.g., Goffman et al., 1956; Goldfarb et al. 2015; Keltner & Buswell, 1997; Lee & Goldman, 1979; Meischke et al., 1995; Niemi, 1976). Empirical evidence has demonstrated that in different circumstances, social interactions can impact several aspects of human behavior. For example, social interactions have been shown to alter food consumption patterns (Lee & Goldman, 1979), influence voting choices (Niemi, 1976), and serve as an obstacle to the procurement of contraceptive products (Dahl et al., 1998). Another example from Ahmad et al. (2009), reveals that the utilization of electronic questionnaires instead of face-to-face interviews at medical facilities is demonstrated to substantially enhance patients' willingness to disclose occurrences of domestic violence. Furthermore, the more recent study by Sun et al. (2022) reports that, specifically, when it comes to purchasing embarrassing products or seeking embarrassing services, consumers tend to avoid human contact whenever possible.

Those findings have in common that the presence of one or several other persons leads to alterations in consumer behavior. In this vein, consumers may opt for alternative purchasing routes that minimize social interaction. One such option

is self-service technologies, which allow consumers to conduct a purchase without involving sales employees, clerks, or cashiers (Olden, 2018; Sun et al., 2022).

2.1.1 The Role of the Checkout Type

The options for retail checkout formats generally consist of self-service, self-selection, limited service, and full service, as ascertained by Goldfarb et al. (2015). The various types of checkouts are associated with varying degrees of social interaction, ranging from high to low. Since this study is conducted in Norway, the focus lies on SSCs (low social interaction) and MCs (high social interaction), as those are the most common options in Norwegian grocery stores.

Various authors have shown that sales of certain products differ between different checkout types (e.g., Goldfarb et al., 2015; Olden, 2018; Sun et al., 2022). In the upcoming sections, we will present three distinct examples, that demonstrate the asymmetric impact of sales for embarrassing or stigmatized products on purchasing behavior, arising from the transition of a checkout method with high social interaction to a lower social interaction alternative.

2.1.1.1 Self-selection in Systembolaget

Systembolaget is the government-run monopoly retailer of alcoholic beverages in Sweden. Prior to the early 1990s, Systembolaget utilized a behind-the-counter service model (Goldfarb et al., 2015), whereby customers would queue by the checkout area, await their turn, verbally place their order with a salesclerk, and the salesclerk would then proceed to retrieve the requested products from the storeroom. However, Systembolaget later commenced a transition towards a self-selection model, which allowed customers to select products displayed on shelves and make their selections without the need for clerk interaction until the point of purchase (Goldfarb et al., 2015).

In Goldfarb's et al. (2015) study, it was shown that stores that switched to self-selection models could also offer a wider variety of products compared to stores that still used behind-the-counter service. Interestingly, a significant portion of this increased diversity consisted of products with challenging names to pronounce. It showed that once a store adopted a self-selection model and eliminated the need for social interaction, consumers became more comfortable pursuing transactions that would otherwise be mildly embarrassing or frustrating. In addition, consumers

showed a reduced tendency to purchase products that necessitate the pronunciation of complex words (product names). In conclusion, the study posits that personal interactions have a significant influence on the sales of certain product types.

Without providing evidence for it, Goldfarb et al. (2015) contend that this social transaction cost is most likely linked to the possibility of experiencing embarrassment, though they acknowledge that it may also stem from a desire to avoid misunderstandings and the resulting frustration.

2.1.1.2 Ordering Pizza Online

Goldfarb et al. (2015) also introduce a study for another setting including a pizza chain that transitioned from only taking orders physically (in-person and by phone) to opening for orders through a website online. To process orders at the restaurant, employees use a touchscreen point-of-sale terminal for phone and counter orders, which are then sent to a display in the food preparation area. On the website, customers can customize their orders through a series of drop-down menus. The order is then sent directly to the food preparation display. Both in-store pickup and delivery options were available, with delivery requiring an additional fee.

It was anticipated that customers who order through the pizza chain's website are more inclined to choose options such as extra toppings or sauce that may be restricted by social barriers. This belief is supported by numerous scholars. For example, Polivy et al., (1986) claim that individuals in certain situations may reduce their calorie intake when they believe others are aware of them. Similarly, Ariely & Levav (2000) report that individuals may alter their behavior to impress the clerk by ordering products with fewer calories. In addition, Goffman et al. (1956) argue, placing complex orders in the presence of others is a situation that individuals tend to avoid, since ordering complex items may lead to feelings of embarrassment or frustration if customers believe that they are being difficult or unconventional. However, ordering online removes one or more layers of social interaction, and the presence of others will no longer have the same impact on behavior. As such, customers who place orders through the store's website are more likely to choose items that they would otherwise avoid due to social frictions, including calorie and complexity concerns.

The study found that for online orders, there was a 3.5% increase in the number of calories in the ordered items compared to the sample mean, and there is

an approximately 14.6% increase in the complexity of orders. These findings indicate that social interaction is likely to have an impact on consumers' decision-making when choosing between online and physical ordering methods (Goldfarb et al., 2015).

2.1.1.3 Self-service Checkouts in Grocery Stores

Entering a traditional MC, customers are required to queue up and patiently await their turn. They then proceed to present their chosen products on the conveyor belt, complete the purchase transaction, and subsequently pack their purchased items. Throughout this process, the customers' product selections are openly exposed to the cashier and the individuals present in the immediate surroundings. The integration of SSCs has witnessed a notable surge in its implementation within the retail sector, particularly in the domain of grocery stores (Turner & Szymkowiak, 2019). This technological advancement empowers consumers to autonomously transition their selected items from the shopping basket to their personal bags, thereby eliminating the interpersonal component of the transaction process (Olden, 2018).

In the study conducted by Olden (2018), the influence of checkout type on the sales of stigmatized products within grocery stores was investigated. The research methodology involved a comparison of sales data before and after the introduction of SSCs. Stigmatized products are defined as items that possess a certain level of social discomfort due to their association with either unhealthy or personal nature such as cakes, ready meals, alcohol, or pharmaceuticals (Olden, 2018). The empirical findings presented indicate that the implementation of SSCs in a store leads to a higher sales volume of stigmatized products compared to non-stigmatized items, such as milk. This observed increase in sales is primarily attributed to the elimination of social friction facilitated by SSCs, which grant customers a certain level of anonymity during the purchasing process. The estimated impact reveals a notable rise of 10-15% in the sales of stigmatized items.

Similar to the study from Olden (2018), Sun et al. (2022) conducted a study to explore consumers' preferences for different service options, including self-service, mechanistic service, or personable service, when given a choice. Their primary focus was to investigate whether consumers exhibit a preference for self-service options when purchasing embarrassing products. To examine this

hypothesis, the researchers tracked the sales machine number associated with each transaction, enabling them to differentiate between purchases made through cashiers and self-checkout systems. The findings from three stores indicated that customers who bought embarrassing products, such as condoms and menstrual pads, had a higher likelihood of selecting self-checkout (7.80%) compared to those purchasing non-embarrassing products (gum and liquid soap).

While these results align with the prediction that consumers tend to opt for self-checkout when buying embarrassing items, and thereby attempt to avoid cashier interactions, it should be noted that this finding alone does not establish embarrassment as the definitive underlying reason for this observed behavior.

2.2 Embarrassment as a Potential Explanation

The examples by Goldfarb et al. (2015) and Olden (2018) highlight varying explanations for changes in consumer behavior depending on the context. This is caused by the nature of the product and purchase setting itself, e.g., buying alcoholic beverages versus ordering a pizza naturally carries different factors that can influence behavior. While social factors are of particular interest, the authors also consider factors unrelated to social interactions, such as product unfamiliarity, lack of memory, or limited knowledge about product availability, which may also play a role. However, these studies all suggest that embarrassment arising from social interaction is highly likely to be an underlying factor (Goldfarb et al., 2015; Olden, 2018). Furthermore, Olden (2018) and Sun et al. (2022) observe increased sales at SSCs, especially for stigmatized and personal products, suggesting that reduced social interaction decreases embarrassment. Building on these findings, Dahl et al. (2001) investigated the occurrence of embarrassment in purchase situations and identified social presence as a motivating factor for the experience of embarrassment. Furthermore, they report that embarrassment can occur in different stages of the consumer journey. For example, during a purchase when buying condoms or other stigmatized products, in usage situations when e.g., the credit card is denied, or during disposal of an adult video (Dahl et al., 2001). In summary, these studies collectively affirm that embarrassment is a significant and essential emotional construct in consumer behavior, that presumably serves as the common underlying mechanism that drives changes in purchase behavior.

The recurring conclusion that embarrassment is the underlying reason for the changes in purchase decisions determined our focus on that variable. In the following, we will conceptualize embarrassment while emphasizing its occurrence in purchase-related contexts. This aspect is of great significance as it serves as a central construct in our research.

2.2.1 Conceptualizing Consumer Embarrassment

Embarrassment is an emotion that occurs in public situations (Miller, 1996; Modigliani, 1968). It is an unpleasant feeling we generally wish to avoid, and intense embarrassment can make us feel humiliated, ruin interactions and reputations, and cause substantial distress (Miller, 1996). When experiencing embarrassment, there are a variety of symptoms a person might go through. More objective and visible symptoms are, e.g., blushing, flustering, sweating, fumbling, stuttering, speaking with an unusually low- or high-pitched voice, or breaking of the voice (e.g., Edelmann, 1985; Goffman, 1956; Modigliani, 1968). On the other hand, invisible and rather subjective symptoms can be a feeling of wobbliness, being overly self-conscious, a dazed sensation, dryness of the mouth, and tenseness of the muscles (Goffman, 1956; Modigliani, 1968).

One of the earliest definitions of embarrassment stems from Goffman (1956) who describes embarrassment as a social phenomenon in face-to-face interactions, which occurs when an individual perceives that they have presented conflicting versions of themselves to others. Given its resonance across different contexts in the research on embarrassment, we have chosen to adopt this definition. As a self-conscious emotion (Harter, 2012; Modigliani, 1968), embarrassment has a distinct social function. Embarrassment guides individuals in regulating their behavior and motivates them to uphold social and moral standards (Edelmann, 1985; Goffman, 1956; Harter, 2012). Goffman specifies that societal norms and values that have evolved over time, play a significant role in defining acceptable and unacceptable behavior, ultimately aiming to prevent individuals from feeling embarrassed. However, for one to experience embarrassment due to a violation of social rules and norms, one must be aware of their existence (Edelmann, 1985; Modigliani, 1968).

Colloquially, embarrassment is often wrongly used interchangeably with shame and guilt (Grant & Walsh, 2009; Walsh et al., 2016). However, it is essential

to recognize the distinct characteristics that trigger embarrassment in order to understand how the emotion occurs. While all three emotions belong to the concept of self-conscious emotions (Harter, 2012; Tangney et al., 1996), embarrassment almost never occurs alone – it is triggered through the real or imagined presence of others (Edelmann, 1985; Tangney et al., 1996; Tracy & Robins, 2004). Shame and guilt, in contrast, can be experienced in solitude, and especially the feeling of shame tends to be stronger than embarrassment (Miller, 1996). Tracy & Robins (2004) additionally reported that "…people tend to experience self-conscious emotions…only when they become aware that they have lived up to, or failed to live up to, some actual or ideal self-representation" (p. 105). Thus, social interaction as well as self-reflection is paramount for embarrassment to occur.

We naturally try to avoid embarrassing situations. As the literature on embarrassment in a purchase-related setting shows, consumers use different coping strategies to reduce embarrassment. For example, buying additional items to "mask" the embarrassing product with other products (Blair & Roese, 2013; Brackett, 2004; Nichols et al., 2015), or concealing the product inside a bag (Lewittes & Simmons, 1975), and even bringing along other people as support has been found to be a way of coping with embarrassment (Brackett, 2004). Furthermore, Sun et al., (2022) report that consumers tend to dehumanize service employees in embarrassing situations by attributing more robotic rather than human traits to the service employee. Thus, consumers attempt to lower the perceived threat of the employee judging their purchase. In addition, consumer embarrassment can occur not only in public contexts, where individuals seek the approval of others, but also in private situations (Krishna et al., 2019). When faced with private embarrassment, individuals commonly employ self-appraisal as a coping mechanism (Krishna et al., 2019).

2.3 The Impact of Brands on Consumer Behavior

Besides the impact of certain product types on embarrassment, the brand may also impact whether an individual experiences embarrassment and, thus, change behavior. Grant & Walsh (2009) highlight the longstanding recognition of brands as influential factors in consumer behavior, emphasizing their ability to shape and influence consumer emotions and feelings toward branded products. Furthermore, brands serve as invaluable tools for consumers, offering various

benefits such as risk reduction, guidance, and confidence, as well as indicating product quality (Aaker, 1996; Batra et al., 2012). While brands fulfill both functional and symbolic needs, our focus is specifically on the symbolic aspect, which is associated with self-image and social identification (Park et al., 1986). Bhat & Reddy (1998) further argue that symbolism comprises two dimensions, namely prestige and personality expression.

Research has established a strong association between self-congruence, brand attachment, and behavioral intentions within purchase contexts (e.g., Dolich, 1969; Escalas & Bettman 2003, 2005; Kautish et al., 2020; Malär et al., 2011). That is, individuals tend to purchase brands that are congruent with their self-concept (both the ideal and actual image of themself). According to Levy (1959) and Bairrada (2018), the decision to purchase or avoid certain products is often influenced by their symbolic meaning, which can have an impact on the user's social status and self-esteem, going beyond their functional attributes.

Sprotles & Kendall (1986) identified several key characteristics that influence consumers' purchase decision-making, one of which is brand consciousness, which was recognized as a significant contributor to consumer choices. The phenomenon of brand consciousness refers to consumers' inclination to purchase well-known NBs, even at a higher price point (Kautish et al., 2020; Sprotles & Kendall, 1986). Consumers who are highly brand conscious may choose to purchase expensive brands and exhibit brand loyalty not solely due to their perceptions of value, but also because they seek social recognition or admiration from others for their high-priced choices (Bao and Mandrik, 2004, as cited in Kautish et al., 2020). Furthermore, individuals who score high on this factor tend to associate higher prices with superior quality (Sprotles & Kendall, 1986). They additionally demonstrate a preference for popular brands that are extensively advertised and widely recognized as best-selling products (Sprotles & Kendall, 1986).

On the other hand, brands can also evoke negative emotions. Negative brand-related emotions include anger, discontent, dislike, embarrassment, sadness, and worry, as reported by Romani et al. (2012). Those emotions can be triggered by a variety of factors. Looking at factors within brands' symbolic function rather than physical functionality, consumers can develop a dislike for certain brands due to the unfavorable image associated with their symbolic meanings (Aaker et al., 2004; Dalli et al., 2006; Hogg & Banister, 2001). Building upon this perspective,

Hegner et al. (2017) identify three determinants of brand hate, which represent a more intense negative emotion compared to mere dislike. These determinants include negative past experiences, symbolic incongruity, and ideological incompatibility.

Given the focus of our study, we will specifically examine the phenomenon of brand-related embarrassment.

2.4 Brand-related Embarrassment

As mentioned, brands play a significant role in consumer behavior, as they possess a symbolic nature that allows individuals to communicate aspects of their identity to others (Bhat & Reddy, 1998). However, this symbolic power of brands also carries the potential to evoke feelings of embarrassment in consumers across various contexts. As defined by Grant and Walsh (2009) brand embarrassment refers to "…anxiety and negative emotions evoked by brands in certain consumption contexts" (p. 218). When consumers perceive a brand as incongruent with their personal identity and beliefs, they tend to reject that brand (Malär et al., 2011). Moreover, Blair & Roese (2013) argue that purchasing products that contradict one's desired public identity can lead to a sense of embarrassment. For example, consumers who prioritize environmental sustainability may experience embarrassment when they consume products that are seen as wasteful, regardless of their perceived status (Walsh et al., 2016). As a result, consumers may encounter feelings of brand embarrassment when engaging with or displaying brands that hinder acceptance within their social groups.

In the study conducted by Walsh et al. (2016), participants demonstrated associations with brand embarrassment across diverse product categories, including alcoholic beverages, cars, and clothing. Notably, some participants specifically mentioned unbranded products, which lack brand equity and encompass PLs or generic alternatives. These unbranded products are commonly found in discount retailers, and consumers generally prefer to avoid associating themselves with such brands (Jedidi, Jagpal, & Ferjani, 2009, as cited in Walsh et al., 2016).

The experience of brand embarrassment can thereby vary depending on the context and the presence of peers. As mentioned earlier in the chapter, both social interaction and the imagined presence of others play a significant role in the occurrence of consumer-related embarrassment (Krishna et al., 2019).

Consequently, there may be differences in brand-related embarrassment between private and public contexts. This notion is supported by the findings of Dolich (1969), DelVecchio (2001), and Grant & Walsh (2009) who observed variations in brand embarrassment between these contexts. Dolich (1969) discovered that there is a stronger alignment between the self-concept and the images of products consumed socially, whereas a weaker congruence is observed between the self-concept and images of privately consumed products. Moreover, according to the research conducted by Grant & Walsh (2009), individuals exhibit a strong inclination to safeguard their public image and avoid unfavorable assessments that can potentially lead to embarrassment.

Walsh et al. (2016) further argue that the likelihood of experiencing brand embarrassment varies depending on the type of brand, with a higher probability of encountering embarrassment linked to lower-tier brands. However, there are interesting findings that present contradictory results in terms of the occurrence of embarrassment related to PLs. One example stems from DelVecchio's (2001) study, which investigates the success of PLs across different product categories. The study revealed that consumers who consider brands as symbolic resources tend to hold a more favorable attitude toward PLs. What adds to the interest of this finding is that this positive perception of PL quality is specific to product categories associated with private consumption situations. In other words, consumers with a symbolic perspective on brands demonstrate a stronger preference for PLs in product categories that are typically consumed in private settings. In line with that perspective are the studies from Beneke et al. (2012) (on premium PLs) and Ramulu & Sapna (2015), which have investigated the impact of social risk on consumers' decisions to purchase PLs. While they highlight that the prevailing perception of PLs as inferior to NBs may be influenced by functional risk, these studies failed to prove that social risk significantly discourages consumers from buying PLs. In addition, Richardson et al. (1996), could not find significant evidence to support the idea that social risk negatively influences the purchase intention of PLs. While consumers' negative perceptions of store brands primarily stem from the perceived poor quality of such products (DelVecchio, 2001), there is limited empirical support for the notion that social risk plays a significant role in shaping consumers' willingness to purchase PLs.

As a result, the influence of social risk on purchase intention remains inconclusive based on the existing body of research. The prevailing perception of functional risk may contribute to the perceived inferiority of PLs, but further investigation is needed to fully understand the dynamics between social risk and consumers' decision-making processes regarding PLs.

2.4.1 Different Brand Types: Private Labels vs. National Brands

As we briefly introduced, brand embarrassment can vary between different brands. Researchers have dedicated considerable attention to investigating the disparities in attitudes and perceptions associated with different brands, particularly NBs and PLs (Beneke et al., 2012; Collins-Dodd & Lindley, 2003; Erdem et al., 2004; Parker & Kim, 1997). These so-called brand types are widely recognized, and they help categorize brands based on their characteristics. A notable characteristic of NBs is that they are developed and named by the manufacturers themselves. Thus, the responsibility for establishing and maintaining the brand's value lies directly with the manufacturer (Hasan & Nika, 2014).

The counterpart to NBs is known as PLs, store brands, own brands, and house brands (Collins-Dodd & Lindley, 2003), however, in this paper, we refer to this brand type as PLs. The American Marketing Association (n.d., as cited in Hasan & Nika, 2014) defines PLs as "a brand name or label name attached to or used in the marketing of a product other than by the product manufacturers; usually by a retailer" (p. 234).

> Another popular, more comprehensive definition is from the Private Label Manufacturers' Association which argues "Private label products encompass all merchandise sold under a retailer's brand. That brand can be the retailer's own name or a name created exclusively by that retailer. In some cases, a retailer may belong to a wholesale group that owns the brands that are available to only the members of the group.". (PLMA International, n.d.)

One of the key distinctions between PLs and NBs is the perceived difference in quality, with PLs often being considered of lower quality compared to NBs (e.g., Batra & Sinha, 2000; Cuneo et al., 2015; Richardson et al., 1994). In fact, quality,

as emphasized by Strizhakova et al. (2008), is widely regarded as the most important attribute associated with branded products worldwide. Consequently, the perceived lower quality of PLs poses a challenge to their market position. Another significant difference lies in the aspect of price. While the quality gap between PLs and NBs has narrowed in recent decades (e.g., Cuneo et al., 2015; Muruganantham & Priyadharshini, 2017; Quelch & Harding, 1998;), PLs offered by retailers still present a more affordable alternative to NBs across a wide range of grocery categories. This price differential remains a fundamental factor influencing consumer choices between PLs and NBs (Sinha & Batra, 1999).

2.5 Gaps and Limitations in Literature

Our research contributes to the extant literature in several ways. First, we advance the literature on consumer behavior in social interactions, particularly in retail settings. Second, although previous research has attributed changes in purchase behavior between checkout types to embarrassment (Goldfarb et al., 2015; Olden, 2018), it has not been studied whether embarrassment in fact is the underlying mechanism. By measuring embarrassment in our study across checkout types and between brand types, we aim to fill that gap. Furthermore, we assess the moderating effect of individuals' proneness to embarrassment. Finally, we add valuable insights to the literature by examining embarrassment on a brand level. While there are several studies with a product-specific focus, e.g., contraceptive products (Dahl et al., 2001), alcoholic beverages (Goldfarb et al., 2015), and unhealthy and personal products (Olden, 2018; Sun et al., 2022), differences across brands remain unexplored.

Understanding the distinctions in embarrassment levels between NBs and PLs holds significant importance for both academicians and practitioners. Comprehensive insights into consumer behavior patterns, allow researchers to gain a deeper understanding of the underlying factors that shape consumer decision-making processes. For practitioners, this information serves as a valuable resource in developing targeted marketing strategies that effectively address consumer perceptions and emotions related to embarrassment. Moreover, understanding how NBs and PLs are perceived in terms of social status, image, and self-identity aids in shaping brand strategies and enhancing brand loyalty. Additionally, it enables retailers to make informed decisions regarding the design of their checkout systems

and point-of-sale setup, considering the potential impact on consumer experiences. Ultimately, utilizing this knowledge as a competitive advantage empowers practitioners to position their brands and checkout options strategically, creating a more positive shopping experience and gaining a stronger foothold in the market.

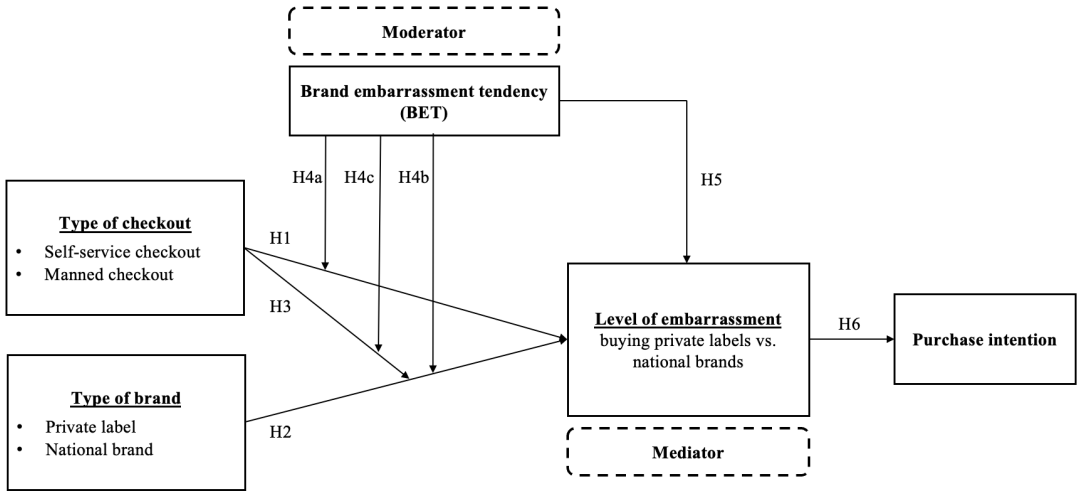
2.6 Conceptual Framework and Hypotheses

In this chapter, we introduce our conceptual framework which was derived from the literature review. Existing literature has not only provided empirical evidence to develop the relationships under investigation but also offered valuable insights that inform the formulation of our hypotheses.

Our central assumption is that consumers feel less embarrassed when buying PLs in SSCs compared to MCs and that this affects the purchase intention of PLs. Thereby, we aim to examine the relationship between two independent variables, namely checkout type (MC vs. SSC) and brand type (NB vs. PL), and their influence on the occurrence of embarrassment throughout the purchase process. Additionally, we aim to examine if and how embarrassment is mediating the relationships between these independent variables and purchase intention. Moreover, we investigate the moderating effect of an individual's proneness to embarrassment, their brand embarrassment tendency (BET), on embarrassment and the relationship between the independent variables and embarrassment. Our conceptual framework, illustrated in Figure 1, outlines these relationships.

Figure 1

Conceptual Framework



2.6.1 Variation of Social Interaction between Checkout Types

Drawing upon the findings from Goldfarb et al. (2015), Olden (2018), and Sun et al. (2022), we infer that the variation in social interaction between SSCs vs. MCs influences purchase behavior. That is, we assume the variation in anonymity alters consumers' level of embarrassment. Therefore, removing layers of social interaction reduces the level of potential embarrassment during the purchasing process, which leads us to the first hypothesis:

> **H1:** The use of self-service checkouts has a negative effect on the level of embarrassment.

2.6.2 The Influence of Brand Types on Embarrassment

As previously mentioned in this chapter, prior research has shown that PLs, particularly those in the lower tiers, can generate feelings of embarrassment among consumers (Walsh et al., 2016). However, the conflicting findings suggest that social risk and its associated embarrassment have no significant impact on the intention to purchase PLs. In order to establish a reference group for PLs, we chose NBs. Considering consumers' perceptions of PLs being positioned as lower-cost and lower-quality options (Cuneo et al., 2015; Del Vecchio, 2001), along with the potential for PLs to elicit embarrassment, we propose the following hypotheses:

> **H2:** Purchasing private labels has a positive effect on the level of embarrassment.

Furthermore, the SSC option mitigates social friction in purchasing settings, and thus, conducting a purchase that might elicit embarrassment becomes less embarrassing (Olden, 2018). Consequently, we put forth the subsequent hypothesis:

> **H3:** The effect of private labels on embarrassment is negatively influenced by self-service checkouts, such that the level of embarrassment decreases when the private label is purchased in a self-service checkout.

2.6.3 Individuals' Proneness to Embarrassment

According to the research conducted by Nichols et al. (2015) and Walsh et al. (2016), the level of embarrassment experienced by individuals is influenced by their inherent susceptibility to embarrassment. Considering this, we introduce the individual's proneness to embarrassment as a moderator variable in our study. In

line with the terminology introduced by Walsh et al. (2016), we refer to this tendency of being embarrassed by brands as "brand embarrassment tendency" (BET). Accordingly, we have formulated the following hypotheses:

> **H4a/b/c:** The effects of H1 (H4a), H2 (H4b), and H3 (H4c) are moderated by brand embarrassment tendency, indicating that individuals with high (low) susceptibility will exhibit higher (lower) levels of embarrassment.

Furthermore, we assume that the consumers' general susceptibility to being embarrassed will predict the level of embarrassment. This assumption is reflected in the fifth hypothesis:

> **H5:** The individuals' susceptibility to being embarrassed has a positive direct effect on the level of embarrassment.

2.6.4 The Impact of Embarrassment on Purchase Intention

The desire to protect one's public self from unfavorable evaluations is a strong motivator to drive certain behaviors. Embarrassment can be seen as a significant influence on social behavior, as highlighted earlier. It affects consumer behavior by influencing their purchasing decisions, such as buying more stigmatized products at SSCs (Olden, 2018). Furthermore, the need to avoid embarrassment prompts consumers to employ various coping strategies during shopping, ranging from concealing their shopping baskets (Blair & Roese, 2013), hiding items in bags (Lewittes and Simmons, 1975), to even engaging in shoplifting (Dahl et al., 2001). Based on these findings, we hypothesize, that embarrassment is mediating the relationship between brand type and purchase intention, and is based on checkout type and BET. Thus, we formulated the following hypothesis:

> **H6:** The relationship of brand type on purchase intention is mediated by embarrassment, and dependent on the checkout type and BET. That is, higher levels of embarrassment lead to lower purchase intention, while lower levels of embarrassment lead to higher purchase intention.

2.6.5 Summary of Effects

In the context of purchases that induce embarrassment (PLs in our case), our prediction is that the utilization of SSCs will result in significantly lower levels of

embarrassment among consumers compared to MCs due to reduced social interaction. Brands have the power to elicit emotions, such as embarrassment. As PLs have more negative associations compared to NBs, PLs might increase embarrassment. Since people tend to avoid embarrassing situations, the individuals' purchase intention is mediated by embarrassment based on what type of checkout is used and what type of brand is purchased. Furthermore, people are different in nature and possess various traits, and therefore, the level of embarrassment is moderated by the proneness to be embarrassed, as well as being directly influenced by this proneness.

3. Methodology

3.1 The Objective of the Research

The objective of this thesis is to explore whether consumers experience a higher level of embarrassment when buying PL products compared to products from NBs and if the level of embarrassment differs across the two checkout types of SSC and MC. Moreover, we want to investigate if the level of embarrassment is moderated by the individuals' proneness to be embarrassed. Consequently, we are interested in assessing the purchase intention associated with brand type and checkout type. Malhotra's (2020) renowned contributions to marketing research provided valuable insights and served as a guiding reference for formulating an appropriate and well-suited research design.

3.2 Research Design

In our research, we are applying a statistical experimental research design, more precisely, a 2×2 factorial design. Moreover, our research has a causal design rather than a descriptive one. To explore causal relationships, a causal design is necessary, involving the manipulation of causal or independent variables within a controlled environment (Malhotra, 2020). Thus, the manipulated variables (brand type and checkout type) are the causal variables that presumably cause different results in the ratings of the level of embarrassment which constitutes the effect variable. As argued by Malhotra (2020), we acknowledge that marketing effects are influenced by a variety of factors and the relationship between cause and effect often is probabilistic, and thus "we can never prove causality" (p. 236). Therefore,

it is important to mention that we acknowledge that experimental research will not lead to a proof of causality, but rather enable us to infer causality.

3.3 Population and Sample

Due to practical considerations and variations in consumer behavior across different cultures, we decided to restrict our survey to the Norwegian population. Consequently, individuals who indicated that they do not reside in Norway were excluded from further participation. Furthermore, we imposed an age limit, excluding children and individuals under the age of 18. Since we are specifically interested in the general perception of brands for grocery stores, we did not impose any additional population restrictions. The experiment comprises four distinct treatment groups, with the objective of obtaining a minimum of 50 respondents in each group to ensure reliable results. Therefore, our target sample size was at least 200 respondents.

3.4 Experiment

3.4.1 Experimental Design

To test the hypotheses, a 2 × 2 factorial design has been adopted. The independent variables were defined as two levels of checkout type, SSC and MC, and two levels of brand type, PL and NB (see Table 1). The two independent variables also referred to as factors, were manipulated as follows: The checkout type is manipulated by assigning the subject either the SSC or MC. Brand type is manipulated by assigning the subject to a private-label body wash as herein from First Price or a branded body wash which is from the NB Dove (see Figure 2).

Table 1

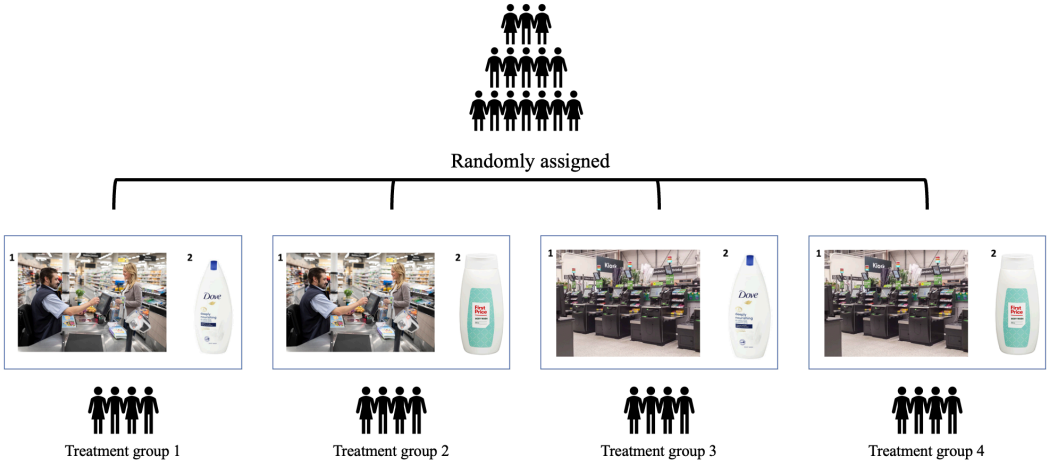
Factorial Experiment: 2x2 Design

		Type of brand (Factor B)	
		Private Label *(Level 1)*	National brand *(Level 2)*
Type of checkout (Factor A)	Self-service checkout *(Level 1)*	SSC/PL	SSC/NB
	Manned checkout *(Level 2)*	MC/PL	MC/NB

Note. The measurement of both the level of embarrassment and purchase intention is conducted within each group, allowing for a comparative analysis of the results based on the specific conditions under investigation.

Figure 2

Between-Subjects Design with Experimental Stimuli



Note. Own representation.

The dependent variable in this study is purchase intention, while the level of embarrassment serves as a mediating factor in the relationship between checkout type and brand type on purchase intention. As illustrated in Table 1, each intersection of a row and a column identifies one of the possible combinations. As a result, there are a total of four experimental groups. The decision to utilize a factorial experiment is based on its ability to accommodate multiple variables reasonably well and that it is a commonly used method in marketing research

(Patzer, 1996). Furthermore, it provides a significant advantage by leveraging the concept that the combination of two factors can generate distinct conditions that neither factor alone can achieve (Gravetter & Forzano, 2016). In alignment with our study's objective to investigate the cause-and-effect relationship between two independent variables and purchase intention, we aim to gather data on the dependent variable for every possible combination of independent variables (Patzer, 1996). Moreover, a between-subjects design was used. Some notable downsides that come with this design are that it requires a larger number of participants because each respondent is exposed to only one treatment condition (Gravetter & Forzano, 2016). Additionally, individual differences such as personality traits can become confounding variables and increase score variances. However, by utilizing randomization in the sampling procedure this risk should be mitigated. Besides a few potential downsides, there are two main reasons why we assessed a between-subjects design to be most appropriate. Firstly, it allows us to avoid the issue of order effect since each score is independent of others (Gravetter & Forzano, 2016). Considering the relatively high likelihood of order effects occurring in our scenarios, opting for a between-subject design was a logical decision. Secondly, a within-subjects design would necessitate each participant to undergo every treatment condition which would be four in our case, resulting in significant time consumption. This bears the risk of losing participants during the survey process (Gravetter & Forzano, 2016).

To evaluate the outcomes of our experiment, participants were randomly assigned to four different treatment conditions. The results obtained from the groups were compared against each other.

3.4.2 Creation of Stimuli

An important aspect of an effective survey is to facilitate an environment in which the respondents can easily understand and resonate with the treatment condition (Malhotra, 2020). Hence, we incorporated a visual cue comprising an image that showcased both the checkout type and the product (see Appendix A). In the subsequent sections, we will elaborate on our careful considerations regarding the selection process for the checkout visual, the product itself, and the brands.

3.4.2.1 Choice of Product

When looking for a suitable product for the experiment, the following three factors were considered. First, availability and consumer demand. We were looking for a grocery retail product that we would expect everyone to buy or consume so the respondents could identify themselves better in the situation of buying this product. Second, no stigmatized products. That is, we were aware of not choosing products that on their own could elicit negative emotions such as embarrassment, e.g., toilet paper, condoms, or unhealthy foods. In that case, we would have needed to control for several extraneous variables which would have made the experiment even more complex. Third, the product needed to exist as both NBs as well as PLs.

The selection of body wash was motivated by several factors. Firstly, its widespread consumer demand played a significant role. As a commonly used personal care product and given its integral role in many people's hygiene routines, it is relevant and appeals to a diverse range of potential participants. Secondly, the convenience and accessibility of body wash in various retail stores made it an ideal choice for the experiment. Another advantage of selecting body wash was the opportunity it provided to manipulate the variable of the brand type. Since body wash offerings are available from both PLs and NBs, we could examine and compare the effects of different brand options on consumer behavior and preferences. Furthermore, the broad consumer base that uses body wash enhances the potential for generalizability of the experimental findings. This strengthens the external validity of the experiment and increases the likelihood that the insights gained from studying consumer behavior related to body wash can be extrapolated to similar product categories within the personal care industry.

3.4.2.2 Choice of Brand

In order to determine the representation of the NB, we conducted an examination across four prominent grocery stores in Oslo, including Meny, Kiwi, Rema1000, and Coop Mega. We focused the analysis on identifying body wash brands with the highest degree of distribution across all four stores. Considering this criterion and the internationally recognized stature of the brand, we have chosen "Dove" to be the optimal representation of the NB.

Regarding the selection of the PL, we took into account that most retailers offer diverse tiers of PLs, encompassing economy, standard, and premium segments (Keller et al., 2022). Given the challenge of consumers accurately discerning

between standard and premium PLs (Keller et al., 2022), we carefully decided to choose an economy PL to ensure that respondents would associate the selected PL with the intended characteristics. Consequently, we selected the "First Price" PL.

To control for the individuals' attitude towards either of the two brands, the first item in the measurement for purchase intention, asks "I am likely to purchase products from this brand". Thus, we can account for the general perception of the brands.

3.4.2.3 Choice of Checkout Image

We utilized the Google image search to find appropriate images for the representation of the SSC and MC. When looking for suitable images, it was crucial that the presented checkout type was authentic to the Norwegian stores' checkouts. However, our intention was to procure images that did not include any logos, store names, or other discernible characteristics, thus minimizing the potential for biases.

3.4.3 Data Collection

To gather the necessary data, we employed an online experiment utilizing a survey approach. Specifically, we chose to use self-administered questionnaires administered through Qualtrics, a web-based tool made accessible to us by BI Norwegian Business School. By programming the questionnaire in Qualtrics, we ensured that the four treatment conditions were randomly and equally assigned. The data was collected during the first three weeks of May 2023. In the subsequent sections, we will provide an overview of the sampling procedure and the design of the questionnaire.

3.4.3.1 Sampling Procedure

To gather participants for our study, we utilized a nonprobability sampling approach, combining convenience sampling and snowball sampling methods (Malhotra, 2020). Specifically, we recruited participants through online platforms, such as social media networks. Additionally, we encouraged participants to share the survey link with their connections, expanding our reach. This decision was primarily driven by limitations in resources, which made it difficult to obtain a more representative sample using traditional probability sampling methods (Malhotra,

2020). By leveraging online platforms and utilizing a snowball effect, we aimed to mitigate the constraints and gather a diverse range of participants for our study.

3.4.3.2 Questionnaire Design

When designing the questionnaire, we closely relied on the guidelines from Malhotra (2020) covered in Chapter 10. Accordingly, a good questionnaire should 1) translate the required information into specific questions that respondents can and will answer, 2) engage and motivate respondents to participate fully and complete the interview, and 3) minimize response error (Malhotra, 2020).
Drawing upon the relevant constructs and hypotheses identified in the literature, the conceptual framework presented in Chapter 2.6 served as a guide in identifying the necessary information to be obtained through the questionnaire. Additionally, we consistently considered the statistical techniques to help formulate the questions appropriately for the analysis. A full representation of the entire questionnaire can be found in Appendix B.

When designing and wording the questions, we carefully considered the broad target population, emphasizing the importance of clarity and simplicity (Malhotra, 2020). By using straightforward language, we aimed to ensure that individuals from various educational backgrounds and age groups could easily understand the questions. This approach was crucial as poor understanding often leads to a higher occurrence of uncertain or no-opinion responses (Malhotra, 2020).

Furthermore, we strongly emphasized minimizing respondent effort throughout the survey. To achieve this, we utilized structured questions exclusively, eliminating the need for respondents to type their answers or spend time considering how to express themselves. While this approach may introduce a potential response bias, we assessed it to be negligible in the context of our study. Additionally, we provided aids, such as pictures and descriptions, to enhance clarity and ease of response. By designing the information in a visually appealing and straightforward manner, we aimed to facilitate an easy and comprehensive understanding of the questions (Malhotra, 2020).

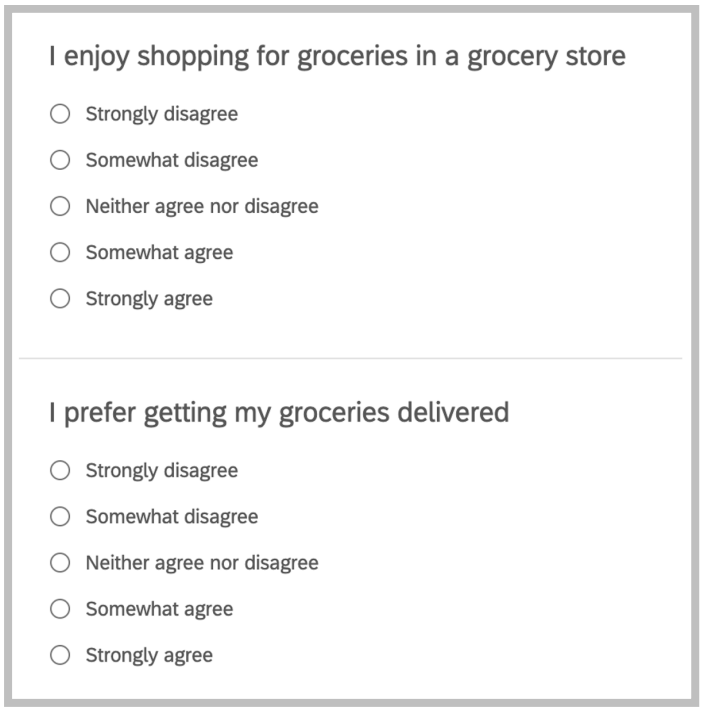
The questions in the survey are structured in a logical and coherent manner, ensuring clarity and a smooth flow of information (Malhotra, 2020). We also incorporated concise transitional phrases to facilitate respondents in transitioning between the different sections of the survey. It is worth noting that we were mindful of avoiding unnecessary information to prevent overwhelming participants with

excessive reading or utilizing more of their time as necessary, which could lead to participant fatigue and dropouts.

Contrary to the suggested sequence by Malhotra (2020) of obtaining basic information first (information related directly to the research), followed by classification (socio-economic and demographic characteristics) and identification information (e.g., name, postal address, email address), we decided to begin with classification information, followed by basic information. We refrained from gathering any identification information. Our intention was to provide participants with an easy and seamless start to the questionnaire. Additionally, we aimed to create an engaging and non-intimidating initial experience, aligning with the goal of making the questionnaire "interesting, simple, and non-threatening" (Malhotra, 2020, p. 333). Furthermore, we included filler questions (Figure 3) that served a dual purpose. Not only did they help conceal the true intent of the study, but they also captured respondents' interest by soliciting their opinions. As expressing opinions is something most people enjoy, this approach served as an effective way to introduce the survey (Malhotra, 2020).

Figure 3

Item: Filler Questions



Note. Own representation.

We opted to administer the questionnaire in English to maintain consistency with the original publication language of the measurement instruments utilized in our study. Although we are dealing with a population where the majority is Norwegian, or at least, doesn't have English as their mother tongue, we decided to conduct the survey in English. Sha & Gabel (2020) suggest that a survey should be available in the first language of the respondents to provide equal chances of a native understanding. We furthermore acknowledge that language can have a substantial influence on how bilingual participants interpret and respond to survey questions (Sha & Gabel, 2020). However, given that a significant segment of the Norwegian population reportedly speaks English as their second language (Simpson, 2022), and considering that the survey is expected to mainly attract younger individuals who have a solid command of English due to education and early exposure to the language, we evaluated the potential language bias to be negligible. We reached this decision based on the fact that our survey was primarily distributed among our social networks, which, in addition, led us to decide against translating the measures into other languages.

3.4.3.3 Pretest and Alterations

As for any survey, conducting a pretest is an essential step before initiating the actual data collection process (Malhotra, 2020). This helps identify and address any issues, such as bugs or misunderstandings. Following the guidelines proposed by Malhotra (2020), we conducted a comprehensive testing phase encompassing various aspects of the questionnaire, including question content and understandability, wording, sequence, form and layout, question difficulty, and instructions. In order to gather relevant feedback, we selected pretest respondents from the same population as intended for the main survey. The pretesting was conducted in three rounds, involving a total of 16 participants. During the initial round (n = 8), participants were asked to complete the survey and provide feedback on any unclear areas or areas in need of improvement.

We adjusted the survey based on the feedback received during the pretest, as long as these changes did not interfere with the information we needed to acquire. We repeated this process two more times, involving four participants each time, until no further recommendations for improvement were received. The adjustments made included adding the currency "NOK" to the income question, specifying "gross annual income" instead of just "annual income," modifying the "Student"

option in the current employment status question to “Student (with or without a part-time job),” and providing clear definitions for terms such as “branded” and “unbranded” products, as well as “discount grocery retailer”.

The pretest provided us with valuable feedback on the flow of the survey and the clarity of the questions. Based on this feedback, necessary adjustments were made to improve the questionnaire. Following the completion of the pretest phase, we proceeded with the official data collection by sharing the survey on social media.

3.4.4 Measurement and Scaling Procedures

We adopted scales from previous studies to measure our constructs and made minor adjustments to ensure they were appropriate for the retail context. Thus, these scales have already been tested and accepted for internal validity and reliability by experienced scholars. A comprehensive summary of the measurements and scales used for each construct is provided in Table 2. The predeveloped scales used in the survey measure brand embarrassment tendency (BET), level of embarrassment, and purchase intention.

Due to the approach of having subjects rate each object individually, we employed noncomparable scales in our study (Malhotra, 2020). Moreover, we aimed to select the scaling technique that maximizes the available information, enabling a wider range of statistical analyses and enhancing data analysis depth. Thus, we utilized exclusively itemized rating scales to assess the constructs of interest, taking into account the suitability for our statistical analysis. Additionally, we employed nominal scales to assess gender, ratio scales to capture age, and gross annual income. Regardless of the scale type, we used multi-item scales whenever possible, as they have been shown to improve measurement accuracy compared to a single-item scale (Malhotra, 2020). Lastly, employing multiple scaling techniques offers a comprehensive assessment and a deeper understanding of the phenomenon being studied (Malhotra, 2020).

Please note, that all Likert scales have the same classification categories ranging from 1 = Strongly disagree, 2 = Somewhat disagree, 3 = Neither agree nor disagree, 4 = Somewhat agree, to 5 = Strongly agree.

Table 2

Measurement Scales for Latent Variables

Variables	Scale	Measurements	Source
Brand embarrassment tendency (BET)	Likert 1-5, 9 items	1. I do not want my friends and acquaintances to see that I buy products from discount retailers. 2. Sometimes, I feel embarrassed because of the brands I buy and consume. 3. Friends and acquaintances sometimes comment on the brands I use, which makes me feel uncomfortable. 4. I avoid using unbranded products in the presence of friends and acquaintances. 5. I find buying unbranded products embarrassing. 6. Shopping at discount retailers makes me feel uncomfortable. 7. I feel embarrassed when I believe that others think the worse of me because of the brands I buy. 8. Using unbranded products in the presence of friends and acquaintances is embarrassing to me. 9. I avoid buying unbranded products if other people can see them.	Walsh et al., 2016
Level of perceived embarrassment	Semantic differential scale 1-7, 3 items	*Please indicate to which degree you would experience the following feelings buying this brand* 1. Not embarrassed at all / Very embarrassed 2. Not uncomfortable at all / Very uncomfortable 3. Not awkward at all / Very awkward	Dahl et al., 2001
Purchase intention	Likert 1-5, 3 items	1. I am likely to purchase products from this brand 2. I would consider buying the product from this brand if I need a product of this kind 3. If the brand is available in the grocery store I usually shop in, I would buy this brand	Chiu et al., 2012

3.4.4.1 Brand Embarrassment Tendency

The BET scale by Walsh et al. (2016) was developed by assessing brand embarrassment tendency in a clothing context. It is particularly suitable for our study since it has satisfactory validity and reliability and allows us to measure the moderator variable brand embarrassment tendency. Specifically, across three samples the scale obtained a Cronbach's alpha of α = .86/.91, α = .93, and α = .96/.91 (Walsh et al., 2016, p. 1142). According to Hair et al. (2022), a coefficient alpha >.60 indicates a satisfactory internal consistency.

The 9 items are rated on a 5-point Likert scale with categories ranging from 1 = Strongly disagree, 2 = Somewhat disagree, 3 = Neither agree nor disagree, 4 = Somewhat agree, to 5 = Strongly agree. To make the statements appropriate for the grocery retail context of our study, the 9 items on the BET Likert scale were modified slightly. Here are four examples of how the items were adjusted (all items can be found in Appendix B): (1) "I do not want my friends and acquaintances to see that I buy products from discount retailers" to "I do not want my friends and acquaintances to see that I buy products from discount *grocery* retailers", (2) "Sometimes I feel embarrassed because of the brands I wear and use" to "Sometimes I feel embarrassed because of the brands I *buy and consume*", (3) "I find buying unbranded clothes embarrassing" to "I find buying unbranded *products* embarrassing", and (4) "I avoid wearing unbranded clothes in public" to "I avoid buying unbranded *products if other people can see them*".

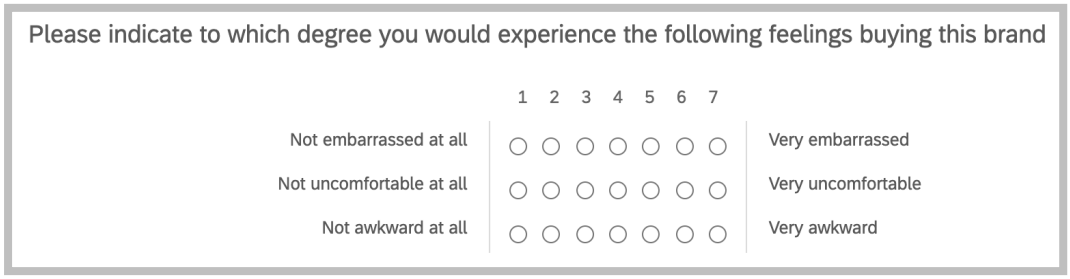
3.4.4.2 Level of Embarrassment

To measure the mediating variable, the level of embarrassment, we adopted the embarrassment scale utilized by Dahl et al. (2001) (see Figure 4). This scale employs a semantic differential format, specifically consisting of three items and a 7-point response scale. Semantic differential scales are widely recognized for their versatility and are commonly employed in marketing research to measure attitudes, emotions, opinions, and perceptions (Malhotra, 2020). Furthermore, the use of semantic differential scales facilitates efficient data collection as they are easy and quick for respondents to complete (Malhotra, 2020). The scale from Dahl et al. (2001) has been used and proven useful in capturing embarrassment in consumer purchases. The scale has satisfactory reliability with a Cronbach's alpha of α = .88

(Dahl et al., 2001). Furthermore, the variable of social presence is considered. Thus, we assessed the scale to be especially well-suited for our study.

Figure 4

Item: Level of Embarrassment



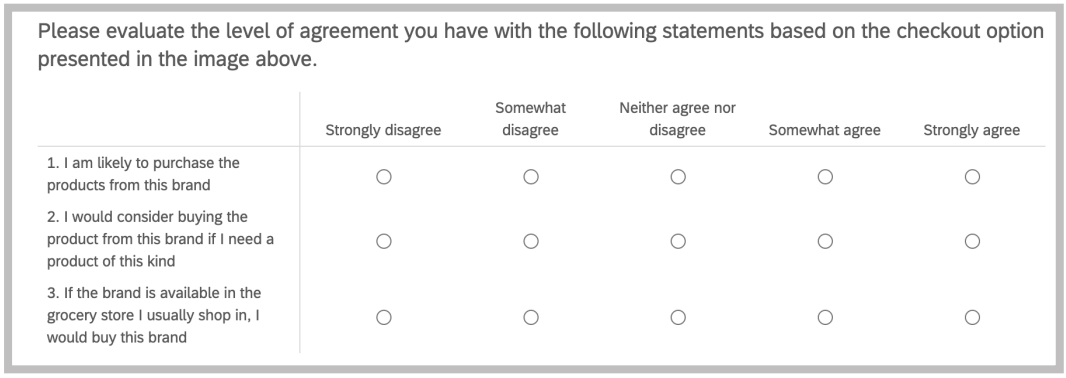
Note. Own representation.

3.4.4.3 Purchase Intention

A suitable scale to measure purchase intention was adopted by Chiu et al. (2012). To suit our specific context, as illustrated in Figure 5, we have made adaptations to the 3-item 5-point Likert scale by modifying the statements in the following manner: "I am likely to purchase the products from this company" to "I am likely to purchase the products from this *brand*", "I would consider buying the product from this company if I need a product of this kind" to "I would consider buying the product from this *brand* if I need a product of this kind", and "It's possible for me to buy the product from this company" to "*If the brand is available in the grocery store I usually shop in, I would buy this brand*". The latter statement has undergone significant modifications, considering our knowledge that the selected product is readily available and accessible in Norwegian grocery stores. Therefore, our main focus was on whether the participant would purchase this brand if it were available in their regular store. The scale has strong reliability with a Cronbach's alpha of α = .88 and α = .92 (Chiu et al., 2012).

Figure 5

Item: Purchase Intention



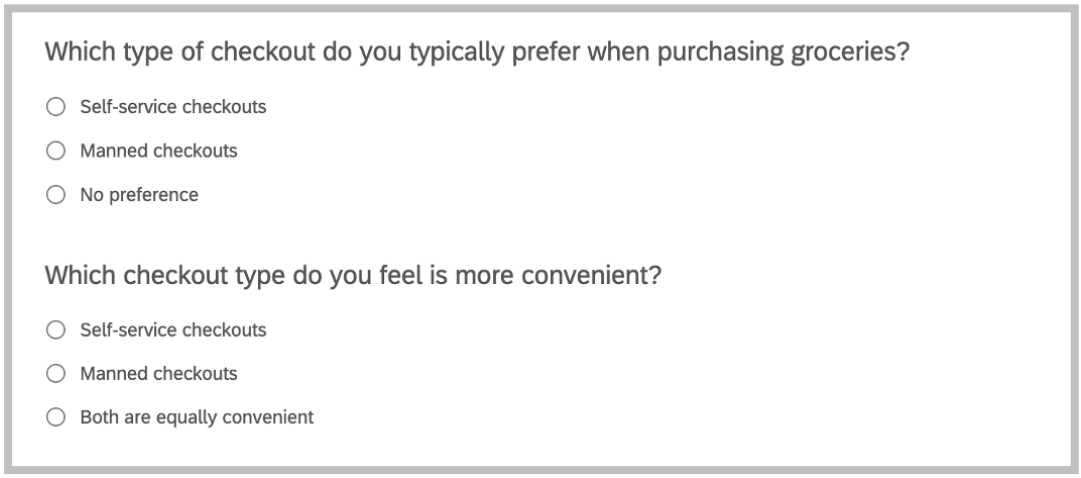
Note. Own representation.

3.4.4.4 Checkout Control

To measure the subjects' preferred checkout type, we asked two questions and applied a nominal scale (see Figure 6). These questions are intended to serve as control variables. We provide the neutral option of "no preference" because a forced response could bias the results (Malhotra, 2020).

Figure 6

Item: Checkout Control



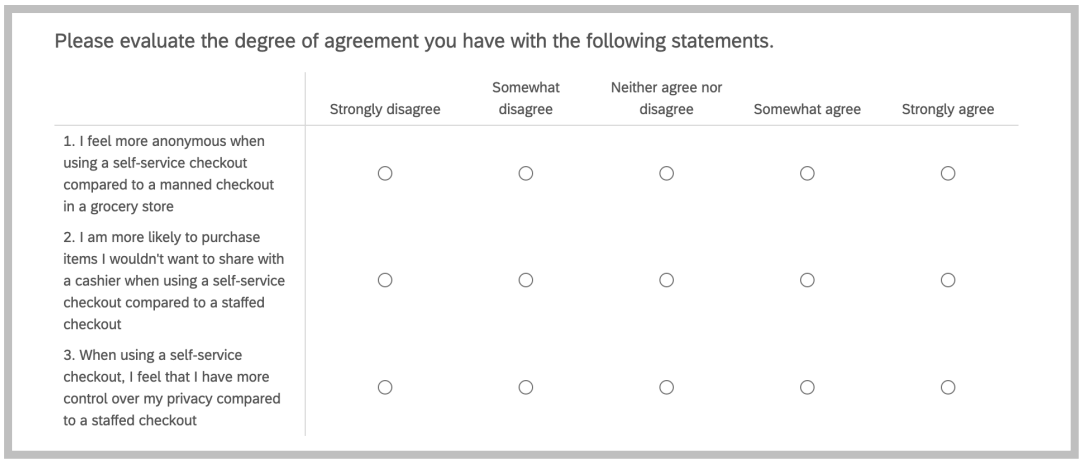
Note: Own representation.

3.4.4.5 Anonymity Check for SSCs

Lastly, we incorporated three items into our study to validate whether individuals indeed perceive SSCs to be more anonymous in comparison to MCs, thereby examining the prevalence of this phenomenon within our sample (see Figure 7).

Figure 7

Item: Anonymity Check for SCCs



Note. Own representation.

3.4.5 Validity and Reliability of Experiment

In this section, we assess theoretically the internal and external validity of the experiment as well as its reliability. Potential threats and how we mitigated the risks of extraneous variables confounding the results of the experiment will be discussed additionally in the subsequent sections.

3.4.5.1 Internal Validity

As in any study, we aimed to ensure as high internal validity as possible to be able to infer confident conclusions about the cause-and-effect relationship of the independent variables in the study group. To prevent extraneous variables from confounding the dependent variable's measures, the goal was to control for, or hold all possible extraneous variables constant and isolate the variables of interest as effectively as possible (Malhotra, 2020). Otherwise, these variables could weaken or even invalidate the results.

To address potential external factors (extraneous variables) that could affect the internal validity, we started to examine the presence of potential history bias, defined as "specific events that are external to the experiment but occur at the same time as the experiment" (Malhotra, 2020, p. 243). Taking a broader perspective, the current economic downturn may contribute to a greater acceptance among individuals to purchase and consume private-label products due to the soaring prices of groceries. Previous studies have demonstrated an increase in the market share of PLs during economic recessions (e.g., Lamey et al., 2007, 2012; Quelch & Harding, 1996), indicating an increased willingness to buy PLs during financially challenging periods. As a result, our findings could potentially be influenced by a reduced sense of embarrassment associated with purchasing private-label products at this time. Nonetheless, as our experiment was conducted over a relatively short duration of a few weeks, the economic conditions related to grocery prices remained relatively stable. Consequently, we anticipate the results to be consistently influenced by a steady economic factor, which does not pose a direct threat to internal validity.

Second, since the data was collected within a rather short time, the likelihood of maturation effects compromising our results is reduced (Malhotra, 2020). Third, to address the potential influence of selection bias as an extraneous variable, we employed the randomization method when assigning subjects to different treatment conditions (Malhotra, 2020). This is, all participants were randomly assigned to one of the four treatment groups without any influences of their specific backgrounds. In addition, the individuals' preference for checkout type might affect the results. We control for that extraneous variable by assessing their preferred checkout type (see Figure 6 above) and subsequently perform a statistical control. As mentioned in section 3.4.2.2 Choice of Brand, we additionally explained how we control for attitudes toward the chosen brands.

Further, given the significance of social interaction in our study, it was necessary to account for the social environment when designing the treatment conditions. Specifically, we consider the queue at a grocery checkout to have an effect on the level of embarrassment. However, as supported by Dahl et al. (2001), we anticipate that if a participant experiences embarrassment when purchasing private-label products, the presence of a single individual (the cashier) is sufficient to elicit that emotion.

Additionally, the queue at SSCs differs in its nature from the one at the MCs, making it challenging to hold this variable constant. Hence, measuring and confidently drawing conclusions about its impact on the level of embarrassment would enhance the complexity. Consequently, we made the decision to deliberately exclude the queue from each scenario in order to control this extraneous variable effectively (see scenario description in Appendix B). While this is likely to reduce the external validity of the experiment, we made this trade-off to ensure the highest possible internal validity (Malhotra, 2020).

Lastly, participant attrition or fatigue can lead to unwanted survey drop-outs. Because a significant drop-out rate can threaten the sample size (Malhotra, 2020), we not only performed a pretest (n = 16) but also ensured that the survey length was limited to approximately 4-6 minutes as the duration constitutes a crucial factor for the survey attrition (Malhotra, 2020). Due to the pretest, we could address potential issues related to misunderstandings and measurement errors which could potentially affect the internal validity (Malhotra, 2020).

3.4.5.2 External Validity

The focus of this experiment is solely on the Norwegian population, limiting the generalizability of the findings to other countries. Furthermore, as we specifically examine PLs within the context of grocery retail, the generalizability of the results to PLs in broader contexts may be constrained.

Additionally, it is important to acknowledge that the use of social media networks for survey distribution, along with a combination of convenience and snowball sampling for data collection, may introduce a certain bias to the sample, deviating from the characteristics of the average population. As argued by Lynch (1982), the findings obtained from such a sample do represent a particular population, but the specific traits of that population cannot be determined. Hence, caution should be exercised when generalizing, as the external validity is diminished when the population characteristics are unknown. Finally, Charness et al. (2012) highlight that a between-subjects design offers a high level of external validity due to the participants being exposed to only one manipulation. This mitigates the likelihood of order effects and potential confounding variables, resulting in a less biased and less influenced sample compared to a within-subjects design.

3.4.5.3 Ecological Validity

As emphasized by Schmuckler (2001), "concerns with ecological validity can be raised in most experimental situation[s]" (p. 419). In our experiment, the nature of the experimental setting is rather artificial, and the stimuli are imaginative. Thus, the absence of a real store setting with actual products may pose a threat to ecological validity. Furthermore, we are excluding the influence of queues in our study which can potentially alter the findings in real-life scenarios.

3.4.5.4 Reliability

Throughout this paper, we provide clear definitions of all measures and procedures, enabling other researchers to replicate and evaluate the study. This contributes to the test-retest reliability of the experiments (Shuttleworth, 2008). However, it should be noted that due to the total anonymity granted to participants and the dynamic nature of human behavior, achieving an exact replication may not be attainable (LeCompte & Goetz, 1982).

Furthermore, it is important to acknowledge that test-retest reliability could be influenced by the current economic state, such as the ongoing recession, or varying consumer trends, i.e., consumers' level of embarrassment when purchasing PLs might vary depending on the popularity of such labels at any given time (Lamey et al., 2012).

3.5 Statistical Analysis

The analysis of the questionnaire consisted of three phases, employing the statistical software IBM SPSS 29 and SmartPLS 4.

During the initial phase, we cleaned the data in SPSS to eliminate unsatisfactory responses and identify outliers. Furthermore, we coded the variables in preparation for the analysis. The second phase involved running descriptive statistics in SPSS before we imported the data into SmartPLS. In the final phase, where the main analysis took place, we utilized SmartPLS to develop a PLS-SEM path model, facilitating the PLS-SEM analysis. Thus, we could obtain relevant coefficients and statistics to test our theoretical hypotheses.

3.6 Ethical Considerations

As with any study, there are ethical considerations that must be taken into consideration. Since we are collecting primary data, the focus for our data collection was primarily to obtain full consent from participants prior to the study, as well as the protection of the participants' privacy, alongside ensuring confidentiality and anonymity (Buchanan & Hvizdak, 2009). Malhotra (2020) argues that it is imperative to provide participants with clear information about the research's objective prior to their participation. In compliance with this recommendation, we disclose the purpose of the study in the disclaimer, stating, "The purpose of this study is to examine consumer behavior in purchase decisions in a grocery retail setting" (see Appendix B). Therefore, while we do not explicitly reveal the true nature of our research, we still provide participants with sufficient information about the genuine research intent. It is important to note that although we incorporated three filler questions to mask the study's purpose, our intention is not to deceive participants entirely. Instead, we pose more general questions within the relevant topic, making it challenging for participants to anticipate the study's true purpose and thus minimize demand artifacts (Malhotra, 2020). Additionally, participants should be informed about the procedures concerning the storage of their data during and after the project (Buchanan & Hvizdak, 2009; Malhotra, 2020). This practice ensures that participants possess adequate knowledge and understanding before voluntarily committing to the study. In order to achieve this, we provided information about the purpose of our research on the first page of our questionnaire (see Appendix B). Moreover, we also added information about the confidentiality and anonymity of responses on the first page of the questionnaire, as well as when the data will be deleted.

To ensure the privacy, confidentiality, and anonymity of participants, we researched the guidelines from the Norwegian Center for Research Data (NSD) (Sikt, n.d.) to determine whether their approval to collect and process data was necessary. Although our questionnaire includes identifiable variables such as gender, age, and annual income, we did not request additional personal information such as name, contact information, or geographic location. Therefore, it was not deemed necessary to go through the registration process for data collection at NSD. In addition, to fully comply with anonymity principles, we have disabled IP address tracking within the Qualtrics platform. It is important to note that participants who

did not consent to the information provided could not continue to participate in the survey.

4. Data Cleaning and Preparation

4.1 Treatment of Unsatisfactory Responses

To prepare our data for the data analysis, we imported the data from Qualtrics into SPSS. To improve data quality, we manually screened the data set for errors and inconsistencies (Rahm & Do, 2000). First, we checked for acceptable responses (Malhotra, 2020) and cleaned the data from not completed responses. From 353 initial responses, we identified and removed 57 invalid responses based on their completion status, ending up with 296 responses. Responses with a progression of 76% or lower were removed. This threshold was set because we saw that participants who had 76% dropped out before they got the scenario which is the crucial part of our study. Furthermore, three participants had a completion level of 88%, which means that they did not complete the anonymity check questions. However, we chose to include these three respondents since they showed to have valid responses for the essential part of the study, and the three missing responses for the anonymity check would not jeopardize the results. In our analysis, those missing values were treated using pairwise deletion.

Moreover, we assessed the duration of the responses to eliminate response errors. In our examination, we determined that individuals who completed the survey in under 2 minutes likely did not thoroughly read the questions and, thus, were unsatisfactory. As a result, we made the decision to exclude these responses. In addition, we also eliminated responses that surpassed the 10-minute mark. Our rationale behind this action stems from the assumption that respondents did not complete the survey in a single, uninterrupted session. Thus, the possibility of interruptions could increase the likelihood of them forgetting the scenario or context of the study, thereby potentially introducing bias to the results. Furthermore, during our examination of response durations, we observed an anomalous pattern with the "quick" responses. Although four of these responses were marked as completed with a 100% completion rate, it appeared that the participants had not provided answers beyond the demographic section. This observation is noteworthy considering that the subsequent questions were mandatory. Together, we removed eight more invalid responses, leaving us with 288 valid responses.

While we initially examined the distribution patterns in Qualtrics during data collection to ensure correct treatment distribution, we verified the effectiveness of the treatment condition distribution during our data cleaning process. This was done by confirming that each respondent was properly assigned to a treatment condition and ensuring that no missing or empty entries were encountered.

4.2 Preparing the Data File

After cleaning the data for unsatisfactory responses, we removed variables that we did not use in our analysis. These included: Start and end-dates, Status, Progression, Duration, Finished, Recorded Date, Response ID, Distribution Channel, User Language, and Q24: Filler question about favorite grocery stores. In addition, variable names and labels were renamed to enhance their clarity and facilitate easy identification during our analyses.

Variable respecification was necessary for our independent variables which are dichotomous (Malhotra, 2020). Therefore, we created dummy variables that represent checkout type, 0 = MC, 1 = SSC, and brand type, 0 = NB, and 1 = PL. Thus, we were able to incorporate categorical information into the statistical model. Finally, we organized the data pertaining to each treatment group to establish separate variables for our measurements of embarrassment and purchase intention. Given that our assessment of embarrassment and purchase intention relied on the specific scenario presented to the participants, it was necessary to consolidate these measurements into individual variables. For the embarrassment measurement, we consolidated the responses into a newly created variable and repeated the procedure for purchase intention.

5. Data Analysis

In the following chapter, we first present the specification model, followed by a comprehensive evaluation of the model in two stages: (1) the measurement model and (2) the structural model. This assessment of the model serves the purpose of appraising the quality of our data, thereby ensuring the reliability and validity of the obtained results.

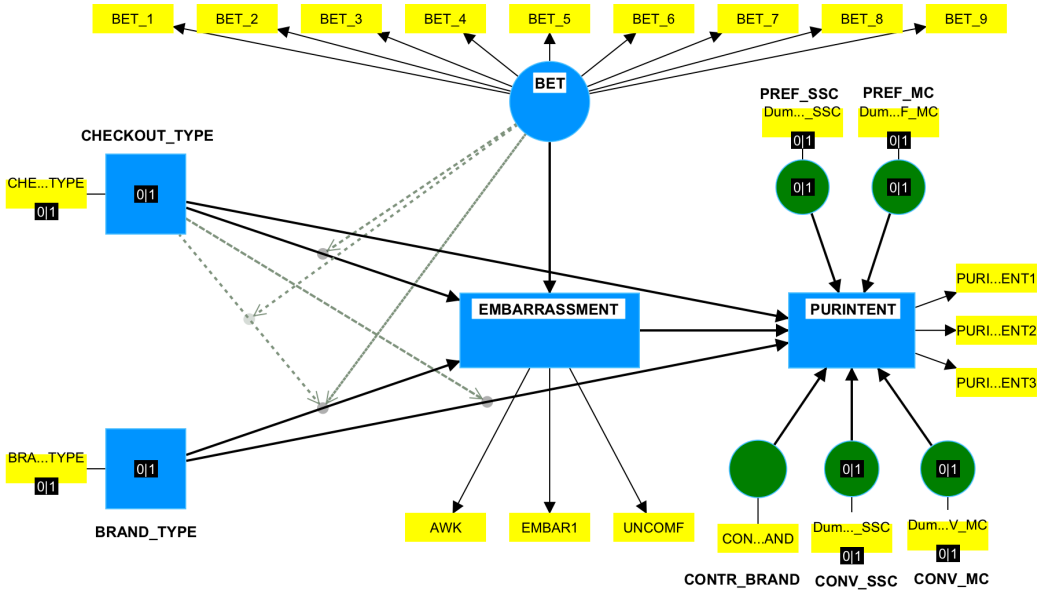
5.1 Specifying the Measurement Model and the Structural Model

The first step was to develop the model in SmartPLS. With our conceptual framework as the theoretical base, we created a path model in order to run the analysis. After we developed the model, we first specified the outer model, also referred to as the measurement model, which describes the relationship between the latent variables and their corresponding indicators (Hair et al., 2022). The model has two exogenous latent constructs (brand type and checkout type) and two endogenous latent constructs (embarrassment and purchase intention). Brand embarrassment tendency (*BET*) constitutes the moderator variable, and embarrassment the mediator variable. Furthermore, to account for the specified extraneous variables, the three control variables, checkout preference (*PREF_SSC and PREF_MC*), convenience (*CONV_SSC and CONV_MC*), and brand attitude (*CONTR_BRAND*) were included in the model. Each of the constructs is measured by means of multiple indicators, as elaborated on in the Methodology Chapter. Given that our measures reflect the impacts of the underlying constructs, implying that causality flows from the construct to its measures, we use reflective measurement models (Diamantopoulos & Winklhofer, 2001).

After specifying the outer model, we specify the inner model, also referred to as the structural model (Hair et al., 2022). The structural model describes the relationships between the latent variables (Hair et al., 2022). We created the inner model based on our theoretical hypotheses. When modeling the inner model in SmartPLS, we considered the sequence and relationships between the constructs. The paths are shown in Figure 8.

Figure 8

Path Model



Note. Own representation of path model in the software SmartPLS.

5.2 Evaluation of Reflective Measurement Models

After developing the model, we ran the PLS-SEM algorithm to estimate the measurement model. These estimates allow us to assess the reliability and validity of the measurements as well as determine if the model effectively explains and predicts the target constructs (Hair et al., 2022). There are three constructs of interest to be assessed in our model, BET, embarrassment, and purchase intention. To facilitate a more valid comparison and interpretation of the relationships between variables, we employed standardized parameter estimates, which effectively mitigate the impact of varying measurement scales or units.

5.2.1 Indicator Reliability

In assessing the reliability of indicators, attention is given to the outer loadings, which indicate the strength of association between the indicators (items) and their corresponding construct. An indicator is deemed suitable for inclusion in the constructs when its loading surpasses the threshold of .708 (Hair et al., 2022). The squared value of the outer loading signifies the proportion of item variance that is accounted for by the construct, serving as an indicator of the extracted variance.

It is recommended that the construct explains a minimum of 50% of the item's variance (Hair et al., 2022).

Firstly, the BET construct consists of items with loading values ranging from .847 to .957 (see Table 3). Secondly, embarrassment has values ranging from .976 to .987. Lastly, purchase intention has values from .916 to .954. Thus, all indicators surpass the threshold of .708, and indicator reliability is achieved.

Table 3

Indicator Reliability

	BET	EMBAR	PURINTENT
BET_1	0.892		
BET_2	0.852		
BET_3	0.847		
BET_4	0.895		
BET_5	0.925		
BET_6	0.915		
BET_7	0.922		
BET_8	0.940		
BET_9	0.957		
UNCOMF		0.976	
AWK		0.987	
EMBAR		0.985	
PURINTENT1			0.954
PURINTENT2			0.917
PURINTENT3			0.940

Note. Value of outer loadings (communality). Abbreviations: EMBAR = Embarrassment, PURINTENT = Purchase Intention, UNCOMF = Uncomfortable, AWK = Awkward.

5.2.2 Internal Consistency Reliability

To determine the internal consistency of our constructs, Cronbach's alpha (CA) is primarily utilized. However, since this measure assumes that all indicators have equal outer loading values, it tends to underestimate internal consistency and is sensitive to the number of indicators. Therefore, internal consistency is complemented with composite reliability (rho_C and rho_A) to account for these limitations (Hair et al., 2022).

BET demonstrates very high internal consistency with a CA coefficient of .972, rho_A of 0.980, and rho_C .976, while the construct of embarrassment exhibits even higher internal consistency with CA of .982, rho_A of .982, and rho_C of .988. Purchase intention, on the other hand, exhibits a slightly lower internal consistency with CA, rho_A, and rho_C of .930, .941, and .955, respectively (see Table 4). Given that a Cronbach's alpha and composite reliability value >.60 is recommended for satisfactory internal consistency (Hair et al., 2022), all constructs in our study meet this criterion. However, it is worth noting that the BET and embarrassment constructs surpass the threshold of .950, which may raise concerns regarding potential redundancy among the indicators and an elevation of error term correlations (Hair et al., 2022). By removing indicators, we can achieve greater construct validity, however, the deletion of indicators will affect our content validity (Hair et al., 2022). Since the scales are well-established (e.g., Chiu et al., 2012; Dahl et al., 2001; Walsh et al., 2016), we choose not to delete any indicators. Consequently, it is imperative to carefully consider the content and construct validity of these constructs within our analysis (Hair et al., 2021; Hair et al., 2022).

Table 4

Internal Consistency Measures

	Cronbach's alpha	Composite reliability (rho_A)	Composite reliability (rho_C)
BET	0.972	0.980	0.976
EMBAR	0.982	0.982	0.988
PURINTENT	0.930	0.933	0.956

Note. Values of Cronbach's alpha, rho_A, and rho_C .600 < Value < .950 are desirable. Single-item constructs are not included as measures are not meaningful.

5.2.3 Convergent Validity

In assessing the convergent validity of a measure, we employ the average variance extracted (AVE) as a means to evaluate the correlation between the measure and other alternative measures of the same construct (Malhotra, 2020). The conceptual underpinning of assessing convergent validity shares similarities with indicator reliability. Specifically, an AVE value of .50 or greater indicates that, on average, the construct explains over half of the variance observed in its indicators (Hair et al., 2022). In our analysis, we found AVE values for BET to be .820,

embarrassment capturing a value of .966, and lastly, purchase intention with .878 (see Table 5). Thus, we have compelling evidence that convergent validity has been achieved.

Table 5

Convergent Validity Measure

	Average variance extracted (AVE)
BET	0.820
EMBAR	0.966
PURINTENT	0.878

Note. Value of the grand mean of loadings (communality).

5.2.4 Discriminant Validity

To assess the distinctiveness of our constructs and to establish discriminant validity, we employ two methods: the Fornell-Larcker criterion and the heterotrait-monotrait ratio (HTMT). Since the Fornell-Larcker criterion is insensitive to the correlation of indicators between constructs, it is prone to biases (Hair et al., 2022). If loadings of the indicators in our constructs slightly differ, the method can perform poorly, and with stronger loading differences, performance only improves marginally. Complementing HTMT, however, contributes to reducing this bias limitation. By applying these criteria together, we aim to ensure that our constructs are distinct entities, measuring phenomena that are not captured by other constructs in our model (Hair et al., 2022).

The Fornell-Larcker criterion suggests that discriminant validity is achieved when the value of the construct (square root of average variance extracted) obtains a value greater than its highest correlation with any other construct as it shares more variance with its associated indicators (Hair et al., 2022). In other words, the value of a construct is the highest in its respective column and row as presented in Table 6. BET, embarrassment, and purchase intention, obtain values of .906, .983, and .937, respectively, and thus, achieve the highest correlations with their constructs.

Table 6

Measures of Fornell-Larcker Criterion

	BET	EMBAR	PURINTENT
BET	**0.906**		
EMBAR	0.361	**0.983**	
PURINTENT	0.076	-0.669	**0.937**

Note. This table only includes multi-item constructs. See Appendix C for the full matrix.

HTMT, on the other hand, is a ratio of which between-trait correlations and within-trait correlations are considered. This ratio is the mean value of correlations for all indicators across constructs that measure unique constructs relative to mean value of the average correlations among indicators measuring the particular construct (Hair et al., 2022). This serves as an approximation of the disattenuated correlation (i.e., the true correlation) that would exist between two constructs under the assumption of perfect measurement (Hair et al., 2022).

The recommended value to achieve discriminant validity using HTMT are values <.850 if constructs are conceptually distinct such as in our case, while for higher values, or values closer to 1, discriminant validity is not established (Hair et al., 2022). The ratio of the relationship between our constructs BET → embarrassment (.363), BET → purchase intention (.099), and embarrassment → purchase intention (.698), are clearly less than .850, and discriminant validity is established (see Table 7).

Table 7

Measures of Heterotrait-Monotrait Ratio

	BET	EMBAR	PURINTENT
BET			
EMBAR	0.363		
PURINTENT	0.099	0.698	

Note. This table only includes multi-item constructs. See Appendix D for full matrix.

Our control variable for brand (*CONTR_BRAND,* in Appendix D), obtained an insufficient HTMT ratio of .982, which is far above the threshold even for

conceptually similar constructs. After carefully examining the content of this measurement, it became apparent that it is very similar and heavily correlates to one item of purchase intention (*PURINTENT1*). Therefore, we exclude this control variable in our model.

As an addition to the HTMT ratio and determining discriminant validity, we tested if our obtained ratios are significantly different from the threshold of .850 (Hair et al., 2022). To run the test of all pairs of constructs, we utilized a one-sided bootstrapping test with .05 significance level, and 10,000 bootstrap samples. All pairs of constructs obtained values, ranging from .203 to .759, which are lower than the threshold. We can thus be confident that our ratios from the original sample (.363, .099, .698) indeed are significantly lower than the threshold and that discriminant validity is achieved (see Table 8).

Table 8

Significance of HTMT Ratios

	Original Sample	5.0%	95.0%
EMBAR → BET	0.363	0.279	**0.443**
PURINTENT → BET	0.099	0.079	**0.203**
PURINTENT → EMBAR	0.698	0.627	**0.759**

Note. The values in the 5.0% and 95.0% columns represent the lower and upper bound of our 95% one-sided bootstrap confidence interval. See Appendix E for the full table with all constructs.

5.3 Evaluation of the Structural Model

After examining and confirming the quality of our measurement models, we assess our structural models' explanatory and predictive power, as well as potential collinearity. The structural model is examined in four stages: (1) assessment of collinearity issues, (2) assessment of relevance and significance of relationships, (3) assessment of its explanatory and (4) predictive power. In the evaluation of structural models, model comparisons are commonly employed as a fifth step (Hair et al., 2022). However, in the case of our model, this stage is not relevant and therefore not included in the assessment.

5.3.1 Collinearity Issues

Collinearity can result in unstable estimates, inflated standard errors, and complications in interpreting the statistical significance of individual predictors (Hair et al., 2022; Malhotra, 2020). To avoid such issues in our analysis, we assess the structural model for collinearity by examining all combinations of endogenous constructs with their respective predictors (exogenous constructs).

The variance inflation factor (VIF) should preferably be lower than 3, but not exceed the value of 5 (Hair et al., 2022). As shown in Table 9, approximately half of our obtained VIF values are lower than 3, while the remaining values fall below 4. Although these values slightly exceed our desired threshold, they do not raise critical concerns regarding collinearity issues among our constructs.

Table 9

Measures of Collinearity

	EMBAR	PURINTENT
BET	3.948	
BT	2.002	2.700
CT	2.056	2.069
CONV_MC		2.458
CONV_SSC		2.711
EMBAR		1.661
PREF_MC		3.403
PREF_SSC		3.702
PURINTENT		
BET x CT	3.793	
BET x CT x BT	3.588	
BET x BT	3.750	
CT x BT	3.029	3.205

Note. The table present VIF values for all predictors on our endogenous constructs. Abbreviations: BT = Brand Type, CT = Checkout Type.

The VIF values of our reflective measurement models (outer model) exceed the threshold of 5 (see Appendix F). However, it is important to note that in reflective models, high VIF values are not necessarily considered problematic due to the inherent high correlation among indicators within these models. In fact, strong correlation between indicators is considered as an inherent characteristic of reflective models (Hair et al., 2022). Moreover, we have successfully established robust convergent validity (all AVE values >.50) and discriminant validity

(fulfilling the Fornell-Larcker criterion and significant HTMT ratios <.85). Together, these findings indicate that our constructs consist of indicators measuring the same underlying construct, displaying substantial correlations while maintaining conceptual distinctiveness. Therefore, the higher VIF values observed in our study do not pose concerning collinearity issues.

5.3.2 Relevance and Significance of Relationships

In our assessment of relevance and relationship significance, we utilized two-tailed complete bootstrapping with a .05 significance level and 10,000 bootstrap samples to obtain path coefficients (beta coefficients) and p-values. It is found that embarrassment is indeed affected by its predictors, checkout type (SSC) and brand type (PL). The path coefficients reveal a significant negative relationship between checkout type (1 = SSC, 0 = MC) and embarrassment ($\beta = -.249$, $p < .001$), indicating that SSC reduces levels of embarrassment. Conversely, brand type has a stronger significant positive relationship with embarrassment ($\beta = 1.405$, $p < .000$), implying that PL increases the experience of embarrassment. Moreover, we observed a significant positive effect of the personal trait BET on embarrassment ($\beta = .183$, $p < .000$). Acting as a moderator, BET significantly influences the relationship between checkout type and brand type, on embarrassment. Specifically, an increase in BET negatively affects the relationship between checkout type and embarrassment ($\beta = -.206$, $p < .000$), while positively influencing the relationship with brand type ($\beta = .966$, $p < .000$). This suggests that PL becomes even more embarrassing for individuals who are prone to experiencing embarrassment. Checkout type has no significant effect on purchase intention ($\beta = .135$, $p = .205$). However, brand type has a significantly strong negative effect on purchase intention ($\beta = -.659$, $p < .000$). In addition, embarrassment has a strong significant negative effect on purchase intention ($\beta = -.506$, $p < .000$) such that increasing levels of embarrassment reduce an individuals' purchase intention. Lastly, the control variables for convenience (*CONV_SSC* and *CONV_MC*) are not significantly impacting purchase intention, while for the control variables of preference (*PREF_SSC* and *PREF_MC*), only preference for SSC is significant ($\beta = .370$, $p = .008$). As "both are equally convenient" is serving as the reference category, this result indicates that preferring SSC compared to finding the checkout options equally convenient is influencing purchase intention by $\beta = .370$.

By examining the total effects, we evaluated the relationships of our predictors, checkout type, and brand type via the mediating construct embarrassment on our key target, purchase intention (Hair et al., 2022). The total effects reveal that brand type exerts the most substantial significant negative impact on purchase intention ($\beta = -1.371$, $p < .000$), with checkout type having a relatively smaller positive effect ($\beta = .261$, $p = .018$). This finding aligns with the expectation that embarrassment, which negatively influences purchase intention, is strongly influenced by brand type. Specifically, PL has a strong negative effect on purchase intention, while SSC has a positive effect, mediated through its impact on embarrassment. PL increases levels of embarrassment, which subsequently reduces purchase intention, whereas SSC decreases embarrassment, leading to higher purchase intention. See Appendix G for the structural model's path coefficients and corresponding p-values.

5.3.3 Explanatory Power

The structural model's explanatory power has been determined by examination of the R^2 (i.e., explained variance) of our endogenous variables, embarrassment, and purchase intention (Hair et al., 2022; Malhotra, 2020). Additionally, complementing f^2 effect size, we examined the change in R^2 when omitting a predecessor construct from the model to evidently showcase the unique construct's influence on the explained variance (Hair et al., 2022).

The thresholds for appropriate R^2 values often differ in research studies based on the model in question and its complexity. However, the rule of thumb suggests that values $.50 < R^2 < .75$ are considered moderate, and $> .75$ are substantial (Hair et al., 2022). We observed an explained variance for embarrassment of $R^2 = .712$ (71.2%), followed by purchase intention with $R^2 = .537$ (53.7%). Thus, our obtained values for explained variance are to be considered moderate, and sufficient.

The f^2 effect sizes can be classified as small, medium, and large when they exceed the thresholds of .02, .15, and .35, respectively. In our model, we find that the effect size of all exogenous variables contribute to the explained variance in embarrassment, except for the interaction effect of BET and checkout type (.020). The brand type makes the most significant contribution, displaying a substantial effect size (.854), as anticipated since it is the intentional manipulation designed to

evoke feelings of embarrassment. However, the variable only exhibits a small effect size in explaining the variance of purchase intention. The second most notable effect on embarrassment stems from the interaction effect of BET and brand type (.395), followed by the interaction effect of checkout type and brand type (.176). Not surprisingly, embarrassment emerges as the primary factor in accounting for the variation in purchase intention (.333), as it was intentionally incorporated as a determinant of purchase intention in our conceptual framework (see Table 10).

Table 10

Explanatory Power: f^2 effect sizes

	EMBAR	PURINTENT
BET	0.029	
BT	0.854	0.087
CT	0.026	0.005
CONV_MC		0.007
CONV_SSC		0.000
EMBAR		0.333
PREF_MC		0.002
PREF_SSC		0.018
PURINTENT		
BET x CT	0.020	
BET x CT x BT	0.062	
BET x BT	0.395	
CT x BT	0.176	0.009

Note. The table presents the obtained f^2 effect size measurements.

5.3.4 Predictive Power

For the assessment of the model's out-of-sample predictive power and to assure generalizability such that the model would hold for other samples, we utilized the $PLS_{Predict}$ procedure with 10 folds and 10 repetitions. This function allows for separating our data set into both training and holdout samples (Hair et al., 2022). We use the training data to estimate model parameters and the holdout sample to apply the parameter estimates and generate predictions for our key target construct, purchase intention. A minimal disparity between the actual values and the predicted values indicates that the model possesses a strong predictive power, while a larger disparity suggests a lower level of predictive power (Hair et al., 2022). To determine the divergence between the actual and predicted values, the Q^2

statistic is obtained by using the sample reuse technique, namely blindfolding. Our findings reveal that the indicators *PURINTENT1*, *PURINTENT2*, and *PURINTENT3* exhibit positive Q^2 values, albeit at a moderate magnitude in the range of $.15 < Q^2 < .35$. Furthermore, the overall Q^2 value of purchase intention (0.319) demonstrates positive moderate predictive power as well. These findings imply that the model is moderately effective in explaining and estimating purchase intention.

Moreover, we conducted an assessment of the MAE (Mean Absolute Error) in PLS-SEM and compared it to the MAE in a linear regression model (LM). We utilize MAE instead of RMSE (Root Mean Square Error) because our prediction errors are non-symmetric (Hair et al., 2022) (see Appendix H). It is expected that the PLS-SEM MAE values are lower than those of the LM for indicating predictive power. The larger number of indicators obtaining lower PLS-SEM MAE values, the greater the predictive power of the model. Our findings indicate that only *PURINTENT1* and *PURINTENT2* exhibit lower PLS-SEM MAE values, suggesting a moderate predictive power of the model. It is important to acknowledge that although evaluating the predictive power of the model holds significance, the primary objective of this thesis is to examine the causal effects of the experimental manipulations. The measurements of predictive power are illustrated in Table 11.

Table 11

Predictive Power Measurements

	Q^2 predict	PLS-SEM_MAE	LM_MAE	Difference
PURINTENT1	0.283	0.915	0.936	-0.021
PURINTENT2	0.317	0.976	0.981	-0.005
PURINTENT3	0.227	0.988	0.936	0.052
PURINTENT	0.319	0.830	.	.

Note. Overview of predictive power measurement results, including overall Q^2 for purchase intention (PURINTENT).

6. Results

6.1 Descriptive Statistics

A frequency table was generated to summarize the sociodemographic characteristics of our sample (see Appendix I1). Since the scales we used are nominal and interval scales, we reported frequencies and proportions. A total of 288 participants were distributed among the groups as follows: SSC PL n = 72, SSC NB n = 71, MC PL n = 74, and MC NB n = 71. Thus, the groups obtained approximately equal sizes. The gender distribution in the total sample was almost equal with slightly more females (n = 148, 51.4 %), whereas 140 participants were male (48.6%). The largest age group was 25-34 years (n = 143, 49,7%), followed by 18-24 years (n = 67, 23.3%), 45-55 years (n = 34, 11.8%), and 35-44 (n = 33, 11.5%). The smallest group was older than 55 years (n = 11, 3.8%). Comparing these results to the actual Norwegian population as shown in Appendix I2 and I3 (Statistics Norway, 2023a,b), we can see, that the gender distribution represents the population almost accurately. However, due to the sampling technique, roughly half of our sample is in the age group of 25-34 and thus not representative of the Norwegian population.

6.2 Anonymity Check for SSCs

Olden (2018) suggested that embarrassment stemming from social interactions in a purchase setting is reduced in SSCs due its anonymity characteristic. As covered in Chapter 2, we addressed the findings of reduction in social interaction, and how it yields different outcomes. For our anonymity check, our goal is to test whether our sample, experience SSCs as more anonymous compared to MCs. Since the anonymity check is not a construct in our structural model, but rather a test to confirm a phenomenon, we separated the construct's measures from Data Analysis (Chapter 5) and the subsequent Hypothesis Testing.

Firstly, the three items (*ANO_1, ANO_2*, and *ANO_3*) exhibited satisfactory outer loadings, ranging from .800 to .959, indicating strong indicator reliability for the construct. Secondly, we assessed internal consistency reliability and found that the construct displayed favorable values of Cronbach's alpha, exceeding the threshold of .60, thus demonstrating strong internal consistency. Lastly, we

examined convergent validity, and the average variance extracted (AVE) exceeded .50, indicating successful attainment of convergent validity (see Table 12).

To assess whether our sample perceived a greater sense of anonymity in SSCs compared to MCs, we conducted a one-sided t-test. The test value was set at 3 (representing the neutral option, "Neither agree nor disagree") to examine if the mean value significantly deviates from 3. The results provided supporting evidence that the mean value is significantly larger than 3, indicating that the experience of anonymity in SSCs is significantly higher compared to MCs (see Table 12).

Table 12

Results of Anonymity Check

	IR ANONYMITY	CA	AVE	t-value	df	P-value
ANONYMITY	.	.879	.770	14.157	284	<.001
ANO_1	.842	.	.	.	.	.
ANO_2	.920	.	.	.	.	.
ANO_3	.924	.	.	.	.	.

Note. Results of validity, reliability (IR = Indicator Reliability), and significance of anonymity check. Significance tested test with test value = 3.

6.3 Hypotheses Testing

To test our hypotheses, we utilized two-tailed complete bootstrapping procedure with .05 significance level and 10,000 bootstrap samples to obtain path coefficients and p-values.

6.3.1 Main effects of Experimental Conditions

Hypotheses 1 and 2 propose that the predictor variables in the model, namely checkout type and brand type, have significant main effects on the level of embarrassment. Specifically, checkout type is expected to have a negative effect, while brand type is hypothesized to have a positive effect on embarrassment.

> **H1:** The use of self-service checkouts has a negative effect on the level of embarrassment.

Hypothesis 1 received empirical support, indicating a significant negative main effect of the predictor, checkout type, on embarrassment (β = -.249, t = 3.556

$p < .000$) (see Table 13). In our data set, checkout type was coded to represent SSC, and MC serves as a reference category. Therefore, our results suggest that making a purchase in a SSC reduces the level of embarrassment compared to a MC.

> **H2:** Purchasing private labels has a positive effect on the level of embarrassment.

Hypothesis 2 was supported by our analysis, revealing a substantial and statistically significant positive effect of brand type on the experience of embarrassment ($\beta = 1.405$, $t = 12.322$, $p < .000$) (see Table 13). In our study, brand type was coded to represent PLs, while NBs served as the reference category. Consequently, our findings suggest that PLs have a pronounced positive influence on the level of embarrassment compared to NBs.

Table 13

Results: Main Effects of Experimental Conditions on Embarrassment

	Beta Coefficient	Standard deviation	T statistics	P values
H1: CT→EMBAR	-.249	.070	3.556	.000
H2: BT→EMBAR	1.405	.114	12.322	.000

Note. Results of hypotheses 1 and 2. CT = Checkout type, and BT = Brand type.

6.3.2 Interaction Effects of Checkout Type and Brand Type on Embarrassment

The main effects of checkout type and brand type were found to be statistically significant, indicating their individual influence on embarrassment. However, these predictors exhibit opposing forces on the level of embarrassment, thus prompting interesting investigation of their interaction effects as formulated in hypothesis 3.

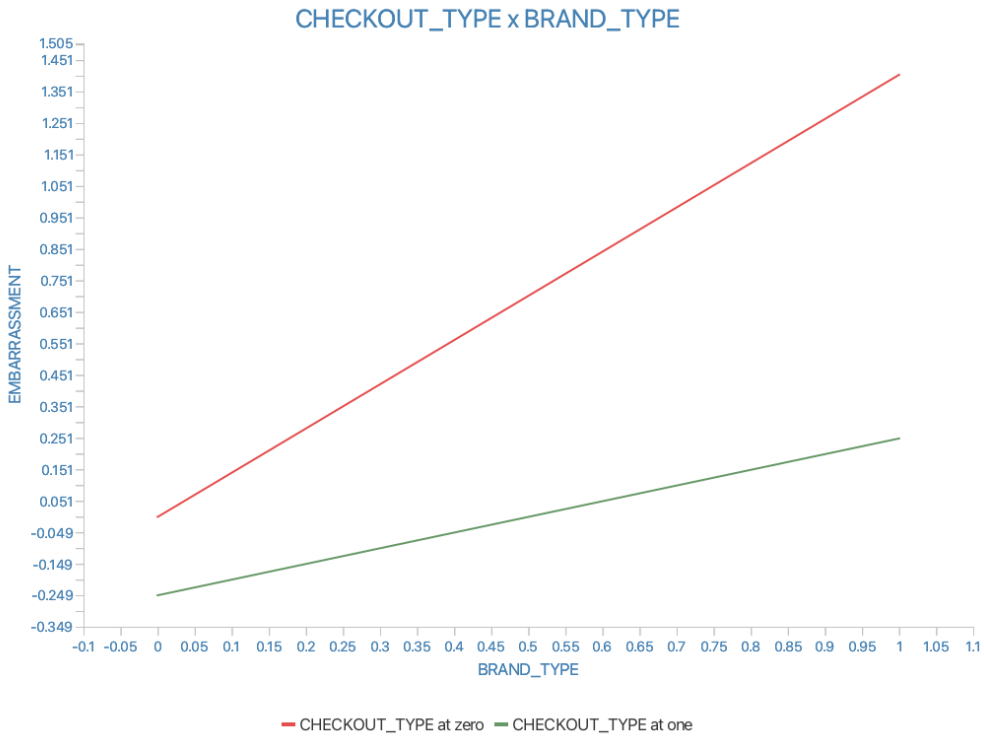
> **H3:** The effect of private labels on embarrassment is negatively influenced by self-service checkouts, such that the level of embarrassment decreases when the private label is purchased in a self-service checkout.

Hypothesis 3 was confirmed as our analysis uncovered a significant negative moderation effect of checkout type on the relationship between brand type and embarrassment ($\beta = -.906$, $t = 6.893$, $p < .000$). This interaction implies that the level of embarrassment when purchasing PLs is lower in SSCs compared to MCs.

Figure 9 illustrates the difference in embarrassment levels between the conditions of brand types and checkout types. As shown in the figure, negative values for both checkout options indicate that NBs are not associated with embarrassment,. However, when it comes to purchasing PLs, the experience of embarrassment is significantly amplified in MCs, whereas in SSCs, the impact of PLs on embarrassment is substantially damped.

Figure 9

Simple Slope Analysis Plot



Note. Checkout type at zero = MC; checkout type at one = SSC; brand type at 0 = NB; brand type at 1 = PL.

6.3.3 The Moderating Role of Brand Embarrassment Tendency

We have established the relationships between checkout type, brand type, embarrassment, and purchase intention. Next, we explore the moderating role of brand embarrassment tendency to gain insights into how individuals' varying levels of susceptibility to embarrassment influence these relationships as formulated in hypothesis H4a/b/c.

> **H4a/b/c:** The effects of H1 (H4a), H2 (H4b), and H3 (H4c) are moderated by brand embarrassment tendency, indicating that individuals with high (low) susceptibility will exhibit higher (lower) levels of embarrassment.

In our moderation analysis, we observed a significant negative moderation effect of BET on the relationship between checkout type and embarrassment (β = -.206, t = 3.270, p < .001), thereby providing strong support for hypothesis H4a. These findings indicate that SSCs (compared to MCs) effectively decrease the level of embarrassment, and as individuals' BET increases, the mitigating effect of SSCs on embarrassment becomes more pronounced. Additionally, using simple slope analysis, we found that people with BET -1 SD, experience no difference in embarrassment between the checkout options (see Appendix L1).

Our analysis also revealed a significant positive moderation effect of BET on the relationship between brand type and embarrassment (β = .966, t = 8.698, p < .000), providing strong support for hypothesis H4b. These findings suggest that PLs (compared to NBs) elicit embarrassment in purchase settings and as BET increases, the level of embarrassment is heightened (see Appendix L2).

Moreover, we found that the relationship between the interaction of checkout type and brand type on embarrassment is negatively moderated by BET (β = -.539, t = 4.117, p < .000), providing strong support for hypothesis H4c. The results indicate that individuals with higher levels of BET experience a weaker interaction effect between checkout type and brand type on embarrassment. This suggests that the moderating effect of BET on the relationship between checkout type, brand type, and embarrassment is less pronounced for individuals with higher levels of BET.

Lastly, in addition to the moderating role of BET on the relationships within and between the exogenous variables, and the endogenous variable embarrassment, we believe that BET is directly influencing embarrassment. Therefore, the following hypothesis was formed:

> **H5:** The individuals' susceptibility to being embarrassed has a positive direct effect on the level of embarrassment.

The findings provide empirical support for hypothesis H5, indicating a significant positive direct effect of BET on the level of embarrassment (β = 0.183, t = 3.275, p < .001). This implies that individuals' susceptibility to being embarrassed positively influences the extent of embarrassment they encounter in a purchase context. Specifically, as the level of brand embarrassment tendency

increases, individuals are more prone to experiencing elevated levels of embarrassment during their purchase interactions.

6.3.4 Moderated Mediation

In section 6.3.2 we examined the moderating effect of checkout type on the relationship between brand type and embarrassment. In this section, we examine the mediating role of embarrassment on the relationship between brand type and purchase intention. Note that we account for the moderating role (interaction effect) of checkout type on the relationship between brand type and embarrassment. Hence, we have a moderated mediation relationship, often referred to as conditional mediation (Hair et al., 2022).

> **H6:** The relationship of brand type on purchase intention is mediated by embarrassment and dependent on the checkout type and BET. That is, higher levels of embarrassment lead to lower purchase intention, while lower levels of embarrassment lead to higher purchase intention.

In our mediation analysis, we observed a significant negative direct effect of brand type on purchase intention ($\beta = -.659$, $t = 5.022$, $p < .000$). Moreover, we found a significant negative indirect effect of brand type on purchase intention ($\beta = -.711$, $t = 8.035$, $p < .000$). These results indicate that embarrassment partially mediates the relationship between brand type and purchase intention, as both the direct and indirect effects are significant. Specifically, we observed a positive direct effect of brand type on embarrassment (H2: $\beta = 1.405$, $t = 12.322$, $p < .000$), and a significant negative direct effect of embarrassment on purchase intention ($\beta = -.506$, $t = 9.370$, $p < .000$). The opposing directions of these direct effects suggest that embarrassment plays a competitive partial mediating role in our model.

Additionally, as competitive partial mediation was established, we investigated the interaction of checkout type and brand type on purchase intention via embarrassment. We found that checkout type has a significant positive effect on the indirect relationship of brand type to purchase intention through embarrassment ($\beta = .459$, $t = 5.953$, $p < .000$), as well as a significant and negative direct effect of checkout type on the relationship of brand type to embarrassment ($\beta = -.906$, $t = 6.893$, $p < .000$) (see Appendix J for all effects). Thus, we obtained empirical evidence to support hypothesis 6.

To further explore the conditional moderation effects based on the condition of checkout type (0 = MC, and 1 = SSCs), we included BET to test its impact. We use the SmartPLS PROCESS function that allows for advanced analysis in more complex mediation and moderation relationships. Our results indicate that the indirect effect of brand type on purchase intention via embarrassment, is dependent on checkout type and BET. When PLs are purchased in MCs, purchase intention is lower, compared to purchase intention in SSC that increases drastically, even though still negative. Furthermore, we discern a consistent pattern in which the magnitude of the effect on purchase intention becomes progressively more negative as the BET increases. This pattern is evident for both checkout options, as outlined in Table 14.

It is important to note that PLS-SEM and PROCESS employ distinct statistical methodologies, leading to differences in parameter estimation. Given that PLS-SEM is advantageous due to its consideration of the entire model and its interrelationships, rather than isolating specific portions of the model (Hair et al., 2022), the coefficients and magnitudes obtained from PROCESS are not directly compared to those derived from PLS-SEM (see Appendix K for illustration of PROCESS model). Nonetheless, this analysis offers valuable insights into the varying outcomes of purchase intention, contingent upon the chosen checkout option and the level of BET.

Table 14

Conditional Indirect Effects: Beta Coefficients and Significance including BET

	Beta Coefficient	Standard deviation	T statistics	P values
Manned checkout (CT=0)				
BT → EMBAR → PURINTENT, Condition: CT=0 and BET at -1 SD	-0.201	0.070	2.873	0.004
BT → EMBAR → PURINTENT, Condition: CT=0 and BET at Mean	-0.702	0.090	7.819	0.000
BT → EMBAR → PURINTENT, Condition: CT=0 and BET at +1 SD	-1.202	0.144	8.329	0.000
Self-service checkout (CT=1)				
BT → EMBAR → PURINTENT, Condition: CT=1 and BET at -1 SD	-0.047	0.047	1.007	0.314
BT → EMBAR → PURINTENT, Condition: CT=1 and BET at Mean	-0.260	0.048	5.450	0.000
BT → EMBAR → PURINTENT, Condition: CT=1 and BET at +1 SD	-0.474	0.079	5.976	0.000

Note. Results from SmartPLS PROCESS.

7. Discussion

Our study aimed to explore whether consumers feel embarrassed when purchasing PLs and whether the type of checkout influences this phenomenon. Prior research extensively examined brand-related embarrassment. However, this study is the first to investigate the influence of brand type and checkout type on embarrassment in the context of grocery store purchases. We specifically compared PLs with NBs and SSCs with MCs, examining their effects on purchase intention mediated by embarrassment. Furthermore, we assessed the moderating effect of BET. The study yielded several significant findings, which will be elaborated upon in the following discussion.

First, as expected, our predictor variables had significant main effects on embarrassment. These findings are consistent with the research conducted by Goldfarb et al. (2015), Olden (2018), and Sun et al. (2022), which revealed that reduced social interaction in SSCs compared to MCs resulted in decreased levels of embarrassment. To substantiate the empirical basis associating SSCs with a higher

degree of anonymity, the conducted anonymity check was performed, and the statistically significant outcome confirms the perspective put forth by Olden (2018). Conversely, PLs, compared to NBs, positively impact embarrassment to a much larger degree than the negative effect of SSCs. Given the extensive body of literature examining the impact of brands on evoking strong emotional responses (Grant & Walsh, 2009; Hegner et al., 2017; Malär et al., 2011; Romani et al., 2012; Walsh et al., 2016), it was expected that PLs would exert a significant positive influence on embarrassment. Furthermore, the results for the main effect of the predictor variables, clearly demonstrate that the interaction effect (particularly when checkout type moderates the relationship between brand type and embarrassment) reduces the level of embarrassment. This observation is of particular interest, as it suggests that the embarrassment PLs elicit is reduced when the purchase is made in a self-service checkout compared to manned checkout, thus supporting the hypotheses of Goldfarb et al. (2015) and Olden (2018).

Second, as we derived from the results, BET plays an important role in the relationship between checkout type, brand type, and their interaction, on the level of embarrassment. That is, the change in BET influences in fact the strength of the negative effect of SSCs, such that individuals with low BET (-1 SD) experience no difference in embarrassment between the checkout types, while for individuals with increased BET (BET at mean), experience a reduction using SSCs. Moreover, highly embarrassment-prone individuals (+1 SD) experience an even greater reduction. Consequently, our results provide evidence that the positive effect of PLs on embarrassment is positively affected by BET. On the other hand, individuals with low proneness to embarrassment only experience a marginal increase in embarrassment between the brand types. However, as for individuals with higher susceptibility to embarrassment, the effect of PLs becomes increasingly embarrassing. Furthermore, the results of the interaction effect of SSC and PL indicate that BET weakens the effect on embarrassment. Thus, this finding suggests that individuals who are more prone to embarrassment may not be as affected by the specific combination of using SSCs and purchasing PLs when it comes to feeling embarrassed. Not surprisingly, BET also has a positive main effect on embarrassment, however, relatively moderate. Thus, individuals with higher susceptibility to embarrassment exhibited higher embarrassment levels. These findings were expected and are in consistent with the findings of Nichols et al. (2015), who found that the individuals' use of shopping-basket-masking as a coping

strategy to hide embarrassing products, was moderated by their proneness to be embarrassed.

Third, prior literature covering the influence of social interaction and its resulting changes in purchase behavior, often infer embarrassment as the most plausible explanation for the change in sales of products that are considered embarrassing (e.g., Goldfarb et al., 2015; Olden, 2018). That is, sales of embarrassing products have been proven to increase sales volume in stores that offer SSCs compared to those without SSCs. Our results test and thus support that embarrassment is a determinator of purchase intention, and thus, aligns with the findings from the aforementioned authors. More specifically, we discovered that embarrassment plays a competitive partial mediating role in the effect of PLs on purchase intention. This means that PLs negatively impact purchase intention directly, but also increase the level of embarrassment which in turn, leads to even lower purchase intention. However, when considering the interaction effect of SSC and PL, embarrassment is mitigated which leads to an increase in purchase intention to the extent that it even turns positive. We attribute the negative effects of PLs on purchase intention to the negative social image associated with PLs. As a result, our findings contradict the conclusions of Beneke et al. (2012), Ramulu and Sapna (1999), and Richardson et al. (1996), who did not observe significant evidence supporting the notion that social risk negatively impacts purchase intention for PLs. In this context, an interesting observation is, that Beneke et al. (2012) studied the perceived risk on purchase intention with premium PLs, which could indicate that differences in perceived risk (both social, functional, and financial) might occur for different PL tiers.

8. Implications

8.1 Theoretical Implications

Our research contributes to the extant literature in several ways. First, although previous research has attributed changes in purchase behavior between checkout types to embarrassment (Goldfarb et al., 2015; Olden, 2018, Sun et al., 2022), it has not been studied whether embarrassment in fact is the underlying mechanism. Building on those studies, we tested for embarrassment across checkout types in a purchase situation. Second, our findings complement the literature on brand embarrassment (Nichols et al., 2015; Walsh & Grant, 2009;

Walsh et al., 2016) in three ways. First, we shed light on embarrassment associated with PLs and thus introduce the term Private Label Embarrassment. We find evidence that PLs are perceived as more embarrassing than NBs. Next, we contribute to the brand embarrassment tendency research by Nichols et al. (2015) and Walsh et al. (2016), by providing insights about the moderating effects of BET on both embarrassment and the interaction effects between brand type and checkout type.

8.2 Managerial Implications

For marketing practitioners, this information serves as a valuable resource in developing targeted marketing strategies that effectively address consumer perceptions and emotions related to embarrassment. Particularly, the perception of PLs as embarrassing compared to NBs highlights the need for marketing practitioners to carefully manage and shape the image of their PL products.

Understanding how PLs are perceived in terms of social status, image, and self-identity provides practitioners with the tools to shape brand strategies and cultivate brand loyalty. Leveraging this knowledge as a competitive advantage empowers marketers to strategically position their brands, creating a more positive shopping experience and establishing a stronger foothold in the market. Thus, it is crucial for practitioners to invest efforts in enhancing the perceived quality, value, and desirability of PL brands to diminish the associated embarrassment and improve overall brand perception.

Furthermore, the identification of embarrassment as a mediating factor in the relationship between brand types and purchase intention underscores the significance of addressing consumers' emotional experiences during the purchasing process. By acknowledging and addressing the emotions, particularly embarrassment, that consumers may feel when considering PL products, marketers can develop strategies that alleviate these negative emotions and enhance purchase intention.

Lastly, the recognition of brand embarrassment tendency as a moderating factor suggests that marketing practitioners should tailor their strategies to different consumer segments based on their susceptibility to feeling embarrassed. By understanding and catering to the specific emotional needs and sensitivities of

different consumer groups, marketers can craft more effective marketing campaigns and experiences that resonate with their target audience.

Our findings are, additionally, of special interest to retailers, as PLs not only yield higher profit margins but also foster greater store loyalty (Ailawadi & Harlam, 2004). Therefore, retailers are advised to actively address and reduce PL-related embarrassment. Apart from the aforementioned marketing and branding measures, embarrassment could also be reduced by adjusting the store layout. For example, the preference for SSCs over MCs as a means of mitigating embarrassment implies that retailers should consider prioritizing and investing in self-service technologies. By providing convenient and discreet checkout options, retailers can alleviate consumer concerns about being judged or feeling embarrassed when purchasing PL products. This, in turn, has the potential to drive up sales and enhance customer satisfaction.

9. Limitations and Future Research Directions

Our study has notable limitations concerning the brands and product type included in our experimental conditions. Firstly, participants may have pre-existing attitudes towards the brands First Price and Dove, potentially introducing bias in their evaluation of embarrassment and purchase intention towards these specific brands. Secondly, the chosen product type, body wash, is not representative of a wide range of grocery store categories. While we selected this product because of its relevance in people's lives and its lack of inherent embarrassment, this choice has some shortcomings. Apart from the limited generalizability, another limitation is that it belongs to the category of privately consumed items. Although our main interest lies in examining the embarrassment experienced during the purchase phase, which takes place in a public setting, it is worth considering that products consumed publicly may elicit distinct effects (Krishna et al., 2019). However, due to practical constraints, we did not include multiple products covering various categories. This decision was driven by the need to maintain a manageable sample size and avoid survey attrition risks associated with increased completion time. To improve the generalizability of our findings to PLs in general, it would be advisable to test the effects for different product types including both PLs and NBs. Additionally, in grocery stores, PLs are typically categorized into three tiers: economic, standard, and premium (Keller et al., 2022). Since they employ different

branding strategies, their perceptions of price and quality varies (Keller et al., 2022). Hence, an interesting research area would be to investigate whether private label tiers that closely resemble national brands in terms of price and quality yield similar findings.

Moreover, given the limited understanding of embarrassment towards PLs, incorporating qualitative methods (e.g., in-depth interviews) could prove valuable in obtaining deeper insights into consumers' perceptions of embarrassment associated with PLs. For example, understanding why PLs are perceived as embarrassing could additionally yield marketing strategies. Furthermore, by supplementing the quantitative data with qualitative findings, it becomes possible to enhance the validity of the study through a more comprehensive understanding of the causal relationships.

Another limitation is the utilized sampling technique. While we chose convenience and snowball sampling due to constrained resources, those techniques are subject to selection bias, arbitrary, and not representative of any specific population (Malhotra, 2020). As we could derive from the descriptive statistics (Appendix I1), our sample is relatively homogenous in terms of age groups, hence not representative. Due to the non-representative sample, we did not analyze age and gender differences in PL embarrassment. However, further research could explore these variations for segmentation purposes. The inability to determine the probability of selecting specific members for inclusion in the sample, the obtained estimates lack statistical projectability to the population (Malhotra, 2020). Consequently, generalizing findings to any population based on convenience and snowball samples is not theoretically meaningful. To address this limitation, the utilization of a probability sampling technique, such as simple random sampling, would enable the statistical projection of results to a target population.

In addition, the prevailing inflationary conditions may influence the favorability of PLs in a broader sense (Lamey et al., 2007, 2012). Therefore, it would be of interest to investigate whether our observations hold true and whether they differ during periods of economic prosperity.

Other caveats of the research worth mentioning are related to the measurement validity and reliability. The presence of high Cronbach's alpha values for the constructs BET, embarrassment, and purchase intention (all above 0.90, see Table 7) suggests potential item redundancy, wherein multiple items within a scale measure similar dimensions (Hair et al., 2022). While this approach aims to enhance

reliability, it can lead to reduced internal consistency reliability. To address this issue, it would be necessary to consider either removing certain items or formulating more distinct items that capture different dimensions while maintaining reliability (Hair et al., 2022). By taking such steps, the issue of scale redundancy can be mitigated, resulting in improved internal consistency reliability. However, removing one of the three items of the embarrassment or purchase intention scale could impact the construct validity (positively) and content validity (negatively) (Hair et al., 2022). Moreover, employing a 7-point Likert scale instead of a 5-point scale would allow for a more detailed and nuanced capturing of responses.

An interesting future research area would be to conduct our study in form of a field experiment in a real-world setting. While we tried our best to create realistic conditions for the treatments, a survey-based experiment has its limitations when it comes to capturing emotions and behavior (McDermott, 2005). Despite the visualization of the checkout types and products, we believe that a survey is not able not to fully trigger the feelings of embarrassment that might occur in a real purchase situation. To obtain an authentic experimental setting, we would suggest conducting the experiment in a grocery store and capture the feelings of consumers after buying PLs. Additionally, in the context of our study, it would be particularly interesting to investigate the influence of queues on the level of embarrassment. While it is typically challenging to control the environment and account for all potential extraneous variables, employing this approach can be highly beneficial in enhancing the external validity of the study and thereby increasing the generalizability of the results (McDermott, 2005).

10. Conclusion

In this study we explored the under-researched area of private label embarrassment. The low price/low quality image of PLs initially was ruling the private label image (Batra & Sinha, 2000; Cuneo et al., 2015; DelVecchio, 2001). Although, over the years the quality gap between private labels and national brands was significantly reduced, resulting in minimal or non-significant differences in various product categories (Quelch & Harding, 1996), the perception of functional and quality risk associated with PLs remains prevalent (e.g., Erdem et al., 2004; Ramulu & Sapna, 2015). Furthermore, the fact that researchers have found evidence

for brand embarrassment and product-related embarrassment to occur in purchase situations (Goldfarb et al., 2015; Olden, 2018; Sun et al., 2022; Grant & Walsh, 2009), sparked our interest in building our study around the lacking understanding of PL embarrassment. In addition, consumers employ a range of coping strategies during social interactions when purchasing embarrassing items, such as opting for SSCs whenever possible to minimize potentially embarrassing encounters (e.g., Dahl et al., 2001; Olden, 2018; Sun et al., 2022).

Hence, we aimed to answer the research question:

Do consumers feel less embarrassed when buying private labels at self-service checkouts compared to manned checkouts, and does it affect purchase intention?

The survey data obtained from our experiment was analyzed using the quantitative method of Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS. Based on our analyses, we conclude, that consumers indeed perceive embarrassment when purchasing PLs and that they feel less embarrassed when buying PLs in SSCs compared to MCs. Furthermore, our findings reveal that purchasing PLs negatively affects purchase intention. Moreover, we found that embarrassment partially mediates the relationship between brand type and purchase intention. Additionally, the interaction of SSCs and PLs mitigates embarrassment, which in turn leads to higher purchase intention. Finally, we included the individuals' susceptibility to being embarrassed and found that this trait contributes in predicting the level of embarrassment in the way that people with high BET experience higher embarrassment and vice versa. In conclusion, we provide empirical support for embarrassment as a key mechanism that influences purchase behavior in the context of purchasing embarrassing items, which previously was only hypothesized by scholars but not empirically tested.

Although our study has some considerable limitations, the findings successfully address crucial gaps in the literature and contribute valuable insights on PL embarrassment. Furthermore, practitioners in the marketing and retail sectors gain valuable insights into consumer behavior and psychology concerning private labels, which prompts actions on their part. While private labels are not a new concept, our research illuminates unexplored areas, thus paving the way for diverse future research avenues.

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Appendices

Appendix A

Experimental Stimuli

Appendix B

Questionnaire

Norwegian Business School

Dear respondent,

Thank you for taking the time to participate in our research study. Your contribution is greatly appreciated.

This study is part of our Master's Thesis in Strategic Marketing Management at BI Norwegian Business School. The purpose of this study is to examine consumer behavior in purchase decisions in a grocery retail setting.

The survey will take approximately 4 minutes to complete, and you can withdraw from the questionnaire at any time. We guarantee complete anonymity and will not collect any personally identifiable information. Once the project is completed, all responses will be deleted. Please review the following statements and indicate your consent:

- I have read and understood the general purpose of this project
- I voluntarily take part in this study
- I understand that I can withdraw from the study at any time
- I understand that my responses are anonymous

If you have any questions regarding this survey or the data we collect, please contact Anders Bergerud at s1616041@bi.no or Luisa Habild at s2012497@bi.no.

I give my consent to participate in the online survey for this project.

Yes	No
○	○

How old are you?

- ◯ Younger than 18
- ◯ 18-24
- ◯ 25-34
- ◯ 35-44
- ◯ 45-55
- ◯ Older than 55

What gender do you identify as?

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

What is your gross annual income (NOK)?

- ◯ 0 - 100.000
- ◯ 100.001 - 300.000
- ◯ 300.001 - 500.000
- ◯ 500.001 - 700.000
- ◯ 700.001 - 1.000.000
- ◯ More than 1.000.000

Are you currently living in Norway?

- ◯ Yes
- ◯ No

What is your current employment status?

- ◯ Full-time job
- ◯ Part-time job
- ◯ Self-employed
- ◯ Student (with or without a part-time job)
- ◯ Retired
- ◯ Unemployed

The statements below refer to grocery products.
Please read each statement carefully and rate how much you disagree or agree with the statements.

Definitions:
- Branded products: Brands that are sold across different store chains which often are more expensive than unbranded products (For example Toro, Define, Zalo, Freia).
- Unbranded products: A retailer's own store brands (For example First Price, Prima, Xtra).
- Discount grocery retailer: Low-price supermarkets.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I do not want my friends and acquaintances to see that I buy products from discount grocery retailers.	○	○	○	○	○
2. Sometimes, I feel embarrassed because of the brands I buy and consume.	○	○	○	○	○
3. Friends and acquaintances sometimes comment on the brands I use, which makes me feel uncomfortable.	○	○	○	○	○
4. I avoid using unbranded products in the presence of friends and acquaintances.	○	○	○	○	○
5. I find buying unbranded products embarrassing.	○	○	○	○	○
7. I feel embarrassed when I believe that others think the worse of me because of the brands I buy.	○	○	○	○	○
8. Using unbranded products in the presence of friends and acquaintances is embarrassing to me.	○	○	○	○	○
9. I avoid buying unbranded products if other people can see them.	○	○	○	○	○

I enjoy shopping for groceries in a grocery store

- ○ Strongly disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Strongly agree

I prefer getting my groceries delivered

- ◯ Strongly disagree
- ◯ Somewhat disagree
- ◯ Neither agree nor disagree
- ◯ Somewhat agree
- ◯ Strongly agree

Which is/are your favorite grocery store/stores?

Now we need 2 minutes of your strongest focus!

For the following questions, we want you to imagine that you are shopping for groceries and the store has only self-service checkouts (1). You are presented with a product you will buy (2).

Imagine you are approaching the self-service checkout. There is no queue, and you can directly go to the self-service checkout desk with your product to scan and pay for it.

1

2

Please indicate to which degree you would experience the following feelings buying this brand

	1	2	3	4	5	6	7	
Not embarrassed at all	○	○	○	○	○	○	○	Very embarrassed
Not uncomfortable at all	○	○	○	○	○	○	○	Very uncomfortable
Not awkward at all	○	○	○	○	○	○	○	Very awkward

Please evaluate the level of agreement you have with the following statements based on the checkout option presented in the image above.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I am likely to purchase the products from this brand	○	○	○	○	○
2. I would consider buying the product from this brand if I need a product of this kind	○	○	○	○	○
3. If the brand is available in the grocery store I usually shop in, I would buy this brand	○	○	○	○	○

You're almost done!

Please evaluate the degree of agreement you have with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I feel more anonymous when using a self-service checkout compared to a manned checkout in a grocery store	○	○	○	○	○
2. I am more likely to purchase items I wouldn't want to share with a cashier when using a self-service checkout compared to a staffed checkout	○	○	○	○	○
3. When using a self-service checkout, I feel that I have more control over my privacy compared to a staffed checkout	○	○	○	○	○

Which type of checkout do you typically prefer when purchasing groceries?

- ○ Self-service checkouts
- ○ Manned checkouts
- ○ No preference

Which checkout type do you feel is more convenient?

- ○ Self-service checkouts
- ○ Manned checkouts
- ○ Both are equally convenient

We thank you for your time spent taking this survey.
Your response has been recorded.

APPENDIX C

Full table of Fornell-Larcker criterion

	BET	BT	CT	CONV MC	CONV SSC	EMBAR	PREF MC	PREF SSC	PURINTENT
BET	**0.906**								
BT	-0.035	**1.000**							
CT	0.088	-0.007	**1.000**						
CONV_MC	-0.130	-0.062	0.076	**1.000**					
CONV_SSC	0.346	0.022	-0.045	-0.576	**1.000**				
EMBAR	0.361	0.460	-0.325	-0.153	0.211	**0.983**			
PREF_MC	-0.229	-0.001	0.048	0.678	-0.497	-0.156	**1.000**		
PREF_SSC	0.385	0.035	0.014	-0.474	0.713	0.209	-0.723	**1.000**	
PURINTENT	0.079	-0.498	0.312	0.145	-0.069	-0.669	0.071	-0.016	**0.937**

Note. Abbreviations in table: BET = Brand Embarrassment Tendency, BT = Brand Type, CT = Checkout Type, EMBAR = Embarrassment, PURINT = Purchase Intention

Appendix D

Full Table of Heterotrait-Monotrait Ratios

	BET	BT	CT	CONV MC	CONV SSC	EMBAR	PREF MC	PREF SSC	PURINTENT	BET x CT	BET x CT x BT	BET x BT
BET												
BT	0.040											
CT	0.093	0.007										
CONV_MC	0.129	0.062	0.076									
CONV_SSC	0.351	0.022	0.045	0.576								
EMBAR	0.363	0.464	0.328	0.155	0.212							
PREF_MC	0.230	0.001	0.048	0.678	0.497	0.157						
PREF_SSC	0.389	0.035	0.014	0.474	0.713	0.211	0.723					
PURINTENT	0.099	0.516	0.323	0.150	0.070	0.698	0.073	0.052				
BET x CT	0.723	0.046	0.063	0.123	0.246	0.084	0.218	0.317	0.236			
BET x CT x BT	0.474	0.013	0.013	0.092	0.150	0.190	0.179	0.200	0.083	0.660		
BET x BT	0.684	0.026	0.043	0.170	0.270	0.502	0.255	0.299	0.146	0.460	0.694	
CT x BT	0.038	0.569	0.581	0.001	0.030	0.043	0.016	0.028	0.009	0.017	0.022	0.035

APPENDIX E

Full Table of Significance for Heterotrait-Monotrait Ratios

	Original sample	Sample mean	5.0%	95.0%
BT <-> BET	0.040	0.068	0.031	0.139
CT <-> BET	0.093	0.101	0.038	0.188
CT <-> BT	0.007	0.048	0.004	0.118
EMBAR <-> BET	0.363	0.363	0.278	0.444
EMBAR <-> BT	0.464	0.464	0.403	0.523
EMBAR <-> CT	0.328	0.328	0.251	0.400
PURINTENT <-> BET	0.099	0.123	0.079	0.203
PURINTENT <-> BT	0.516	0.515	0.444	0.585
PURINTENT <-> CT	0.323	0.323	0.233	0.410
PURINTENT <-> EMBAR	0.698	0.697	0.628	0.760

Note. All values are significantly lower than the threshold of .85.

Appendix F

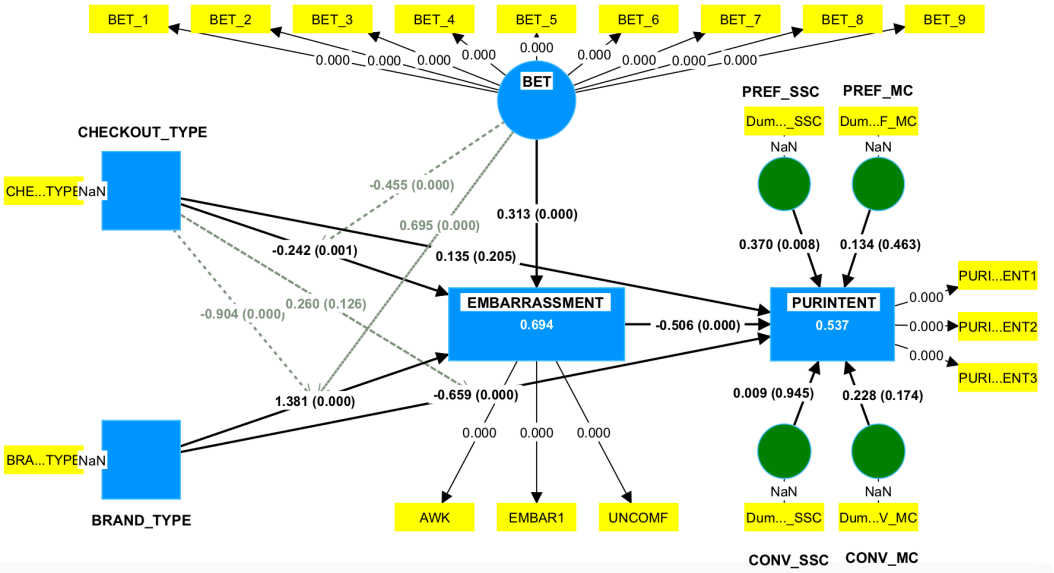
Measure of Collinearity (Outer Model)

INDICATOR	VIF
AWK	18.512
BET_1	4.806
BET_2	3.437
BET_3	3.212
BET_4	4.264
BET_5	5.397
BET_6	5.554
BET_7	5.377
BET_8	7.624
BET_9	10.055
BRAND_TYPE	1.000
CHECKOUT_TYPE	1.000
CONTR_BRAND	1.000
CONTR_CONV	1.000
CONTR_PREF	1.000
EMBAR1	17.155
PURINTENT1	4.501
PURINTENT2	3.176
PURINTENT3	4.165
UNCOMF	9.778
CHECKOUT_TYPE x BRAND_TYPE	1.000
BET x CHECKOUT_TYPE	1.000
BET x BRAND_TYPE	1.000

Note. High correlations among indicators of reflective measurement models are assumed.

Appendix G

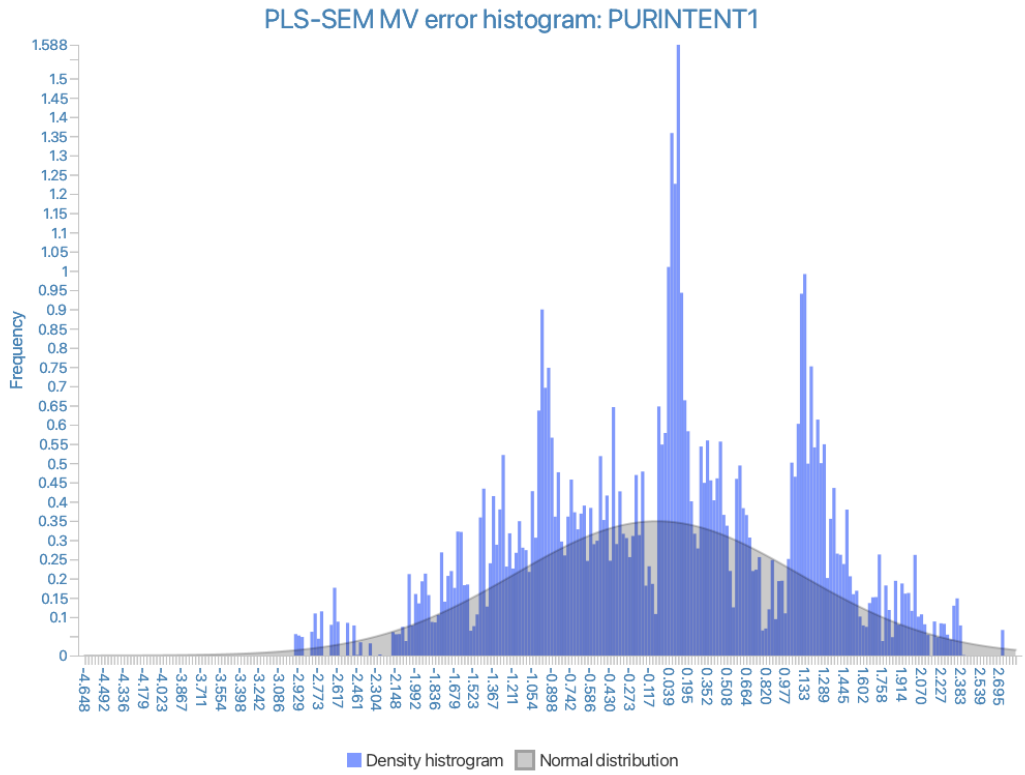
Beta Coefficients and Significance of the Structural Model

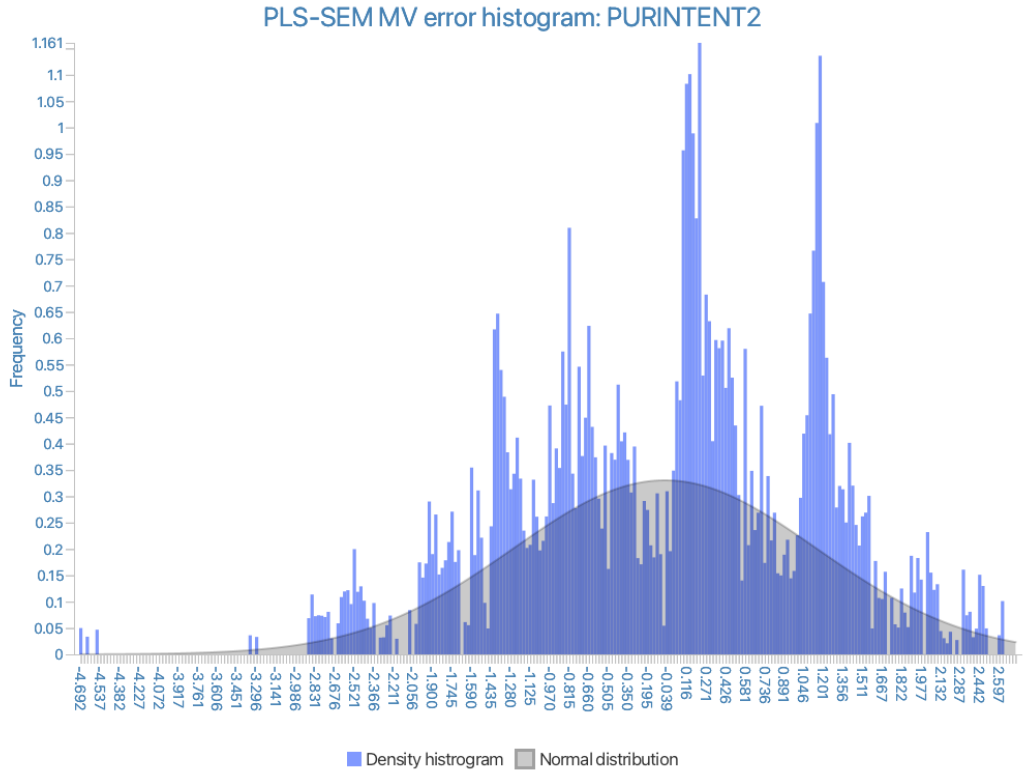


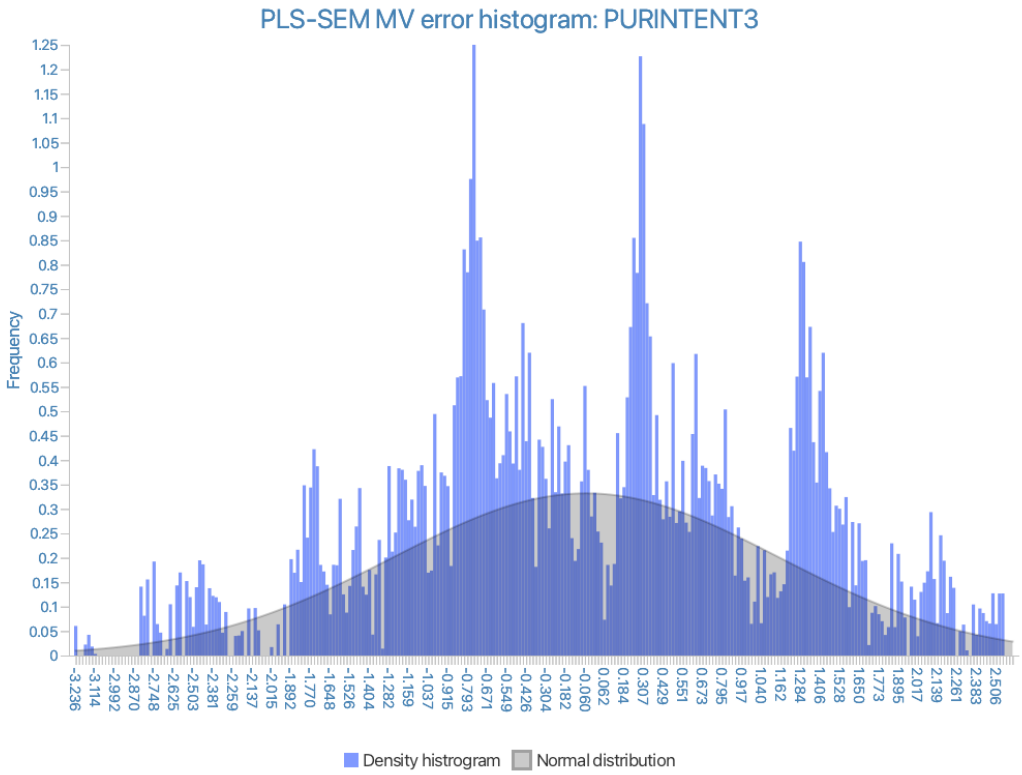
Note. Values in parentheses represent the p-values and the corresponding relationship's path coefficients outside of the parentheses. The presented model is adjusted as *CONTR_BRAND* has been excluded.

Appendix H

Mean Absolute Error Distribution of Manifest Variables






PLS-SEM MV error histogram: PURINTENT3
Frequency
1.25
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-3.236
-3.114
-2.992
-2.870
-2.748
-2.625
-2.503
-2.381
-2.259
-2.137
-2.015
-1.892
-1.770
-1.648
-1.526
-1.404
-1.282
-1.159
-1.037
-0.915
-0.793
-0.671
-0.549
-0.426
-0.304
-0.182
-0.060
0.062
0.184
0.307
0.429
0.551
0.673
0.795
0.917
1.040
1.162
1.284
1.406
1.528
1.650
1.773
1.895
2.017
2.139
2.261
2.383
2.506
Density histrogram
Normal distribution

Appendix I1

Descriptive Statistics:

Sociodemographic Characteristics of Participants in Total

Characteristic		SSC PL n = 72		SSC NB n = 71		MC PL n = 74		MC NB n = 71		Full sample N = 288	
		n	%	n	%	n	%	n	%	n	%
Gender											
	Female	35	48.6	32	45.1	45	60.8	36	50.7	148	51.4
	Male	37	51.4	39	54.9	29	39.2	35	49.3	140	48.6
Age											
	18-24	15	20.8	16	22.5	17	23.0	19	26.8	67	23.3
	25-34	40	55.6	34	47.9	39	52.7	30	42.3	143	49.7
	35-44	6	8.3	6	8.5	8	10.8	13	18.3	33	11.5
	45-55	9	12.5	11	15.5	7	9.5	7	9.9	34	11.8
	Older than 55	2	2.8	4	5.6	3	4.1	2	2.8	11	3.8
Gross Annual Income											
	0-100.000	7	9.7	8	11.3	5	6.8	7	9.9	27	9.4
	100.001-300.000	17	23.6	23	32.4	25	33.8	22	31.0	87	30.2
	300.001-500.000	11	15.3	10	14.1	11	14.9	15	21.1	47	16.3
	500.001-700.000	23	31.9	18	25.4	17	23.0	18	25.4	76	26.4
	700.001-1.000.000	9	12.5	6	8.5	13	17.6	8	11.3	36	12.5
	More than 1.000.000	5	6.9	6	8.5	3	4.1	1	1.4	15	5.2
Employment											
	Full-time job	41	56.9	33	46.5	36	48.6	34	47.9	144	50.0
	Part-time job	2	2.8	1	1.4	3	4.1	2	2.8	8	2.8
	Self-employed	0	0.0	2	2.8	2	2.7	0	0.0	4	1.4
	Student (with or without part-time job)	27	37.5	34	47.9	33	44.6	34	47.9	128	44.4
	Retired	1	1.4	0	0.0	0	0.0	0	0.0	1	.3
	Unemployed	1	1.4	1	1.4	0	0	1	1.4	3	1.0

Note. N=288 (n= number of participants in each treatment group).

Appendix I2

The Norwegian Population 2023, by unit variable and sex

	Males	**Females**
#	2 128 125	2 119 432
%	50.18	49.82

Note. Own representation based on data from Statistics Norway (2023a).

Individuals below the age of 20 were excluded, even though our study included participants aged 18 and older. This decision was made to align with the next age cluster defined by Statistics Norway, which encompasses individuals aged 16-19.

Appendix I3
The Norwegian Population 2023, by unit variable, sex, and age

		20-29 years	30-39 years	40-49 years	50-66 years	>67 years
Males	#	360 711	390 755	365 881	595 447	415 331
	%	16.95	18.36	17.19	27.98	19.52
Females	#	341 453	374 563	349 948	576 956	476 512
	%	16.11	17.67	16.51	27.22	22.48

Note. Own representation based on data from Statistics Norway (2023b).

The data excludes the population from ages 0-19.

Appendix J

Direct Effects: Beta Coefficients and Significance

	Beta Coefficient	Standard deviation	T statistics	P values
BET → EMBAR	0.183	0.056	3.275	0.001
BT → EMBAR	1.405	0.114	12.322	0.000
BT → PURINTENT	-0.659	0.131	5.022	0.000
CT → EMBAR	-0.249	0.070	3.556	0.000
CT → PURINTENT	0.135	0.107	1.268	0.205
CONV_MC → PURINTENT	0.228	0.168	1.360	0.174
CONV_SSC → PURINTENT	0.009	0.126	0.069	0.945
EMBAR → PURINTENT	-0.506	0.054	9.370	0.000
PREF_MC → PURINTENT	0.134	0.182	0.733	0.463
PREF_SSC → PURINTENT	0.370	0.140	2.645	0.008
BET x CT → EMBAR	-0.206	0.063	3.270	0.001
BET x CT x BT → EMBAR	-0.539	0.131	4.117	0.000
BET x BT → EMBAR	0.966	0.111	8.698	0.000
CT x BT → EMBAR	-0.906	0.131	6.893	0.000
CT x BT → PURINTENT	0.260	0.170	1.531	0.126

Indirect Effects: Beta Coefficients and Significance

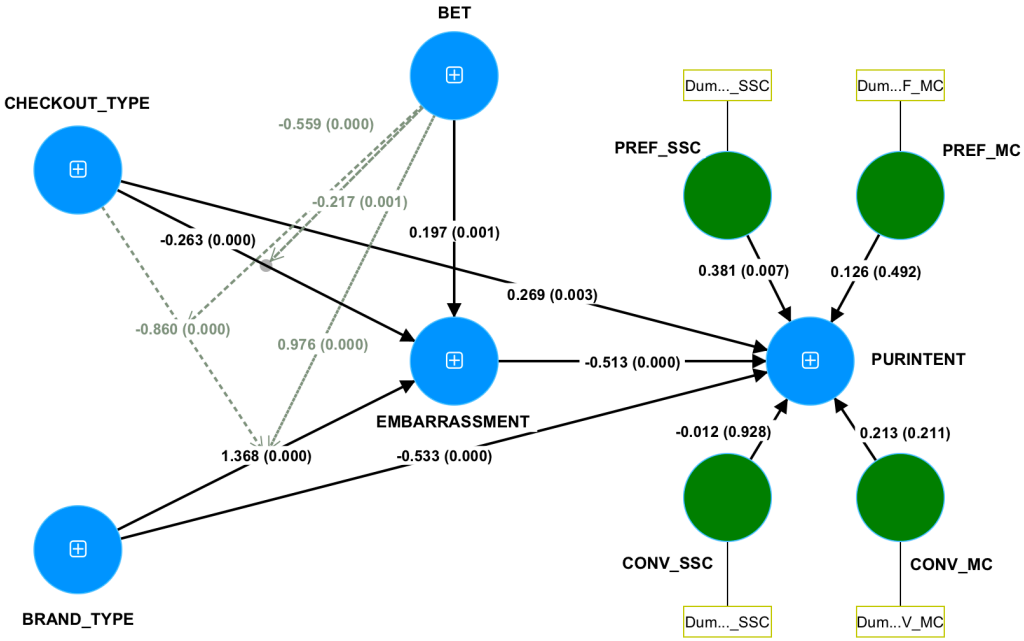
	Beta Coefficient	Standard deviation	T statistics	P values
BET → PURINTENT	-0.093	0.029	3.224	0.001
BT → PURINTENT	-0.711	0.089	8.035	0.000
CT → PURINTENT	0.126	0.037	3.417	0.001
BET x CT → PURINTENT	0.104	0.033	3.212	0.001
BET x CT x BT → PURINTENT	0.273	0.070	3.916	0.000
BET x BT → PURINTENT	-0.489	0.070	7.014	0.000
CT x BT → PURINTENT	0.459	0.077	5.953	0.000

Total Effects: Beta Coefficients and Significance

	Beta coefficient	Standard deviation	T statistics	P values
BET → EMBAR	0.183	0.056	3.275	0.001
BET → PURINTENT	-0.093	0.029	3.224	0.001
BT → EMBAR	1.405	0.114	12.322	0.000
BT → PURINTENT	-1.371	0.110	12.480	0.000
CT → EMBAR	-0.249	0.070	3.556	0.000
CT → PURINTENT	0.261	0.111	2.362	0.018
CONV_MC → PURINTENT	0.228	0.168	1.360	0.174
CONV_SSC → PURINTENT	0.009	0.126	0.069	0.945
EMBAR → PURINTENT	-0.506	0.054	9.370	0.000
PREF_MC → PURINTENT	0.134	0.182	0.733	0.463
PREF_SSC → PURINTENT	0.370	0.140	2.645	0.008
BET x CT → EMBAR	-0.206	0.063	3.270	0.001
BET x CT → PURINTENT	0.104	0.033	3.212	0.001
BET x CT x BT → EMBAR	-0.539	0.131	4.117	0.000
BET x CT x BT → PURINTENT	0.273	0.070	3.916	0.000
BET x BT → EMBAR	0.966	0.111	8.698	0.000
BET x BT → PURINTENT	-0.489	0.070	7.014	0.000
CT x BT → EMBAR	-0.906	0.131	6.893	0.000
CT x BT → PURINTENT	0.719	0.178	4.031	0.000

Appendix K

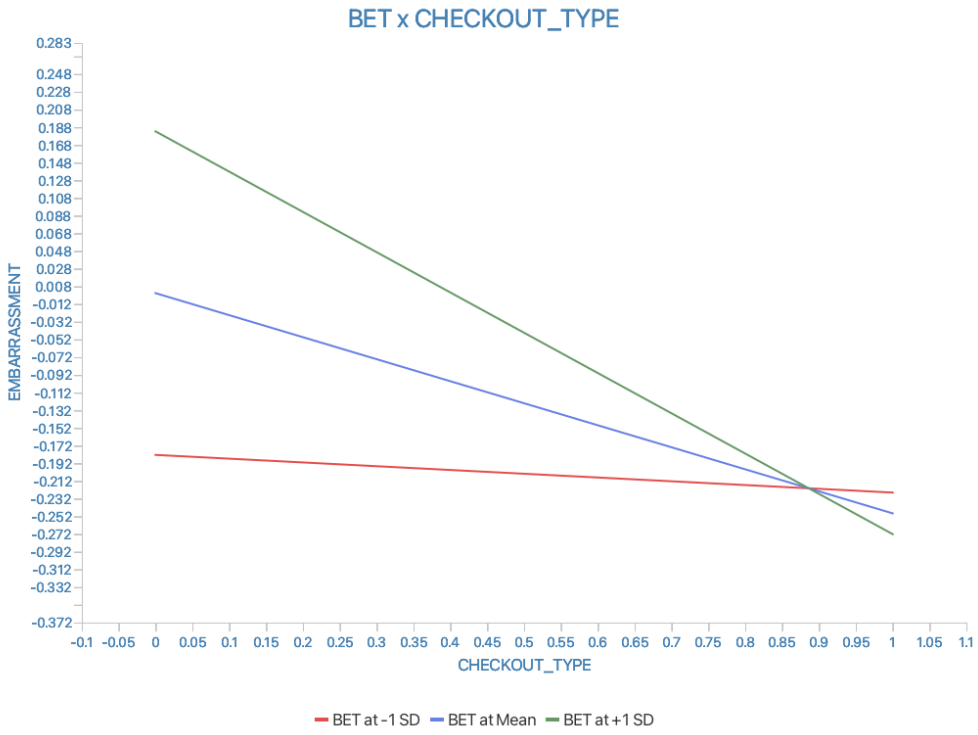
PROCESS Model: Beta Coefficients and Significance



Note. The latent constructs used in the analysis correspond to those specified in Appendix G. The specific items included in the model are not disclosed but have been incorporated as indicators of the respective constructs.

Appendix L1

Simple Slope Analysis Plot



Appendix L2

Simple Slope Analysis Plot