Product Scarcity Strategy And Price Promotion To Purchase Intention: An Inverted U-Shaped Relationship

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Abstract: The existing literature suggests that the scarcity signal is crucial to determining consumer purchase intention. However, research inconsistencies regarding the direction of the relationship require more attempts to understand whether there is a possible inverted U-shaped relationship between scarcity and purchase intention. Moreover, this study examines the role of price promotion as a boundary condition. This study aims to shed light on the scarcity signal–online purchase intention relationship in a sample of students in Jakarta. The results show an inverted U-shaped relationship between scarcity and purchase intention. In addition, the interaction of price promotion and scarcity signals is essential for yielding higher purchase intention. The implications of these findings contribute to the literature on online purchase decisions and allow online marketers to evaluate marketing strategies, especially in online markets.
Keywords: Scarcity Signal; Purchase Intention; Inverted U-Shaped Relationship; Price Promotion.

Abstrak: Literatur yang ada menunjukkan bahwa sinyal kelangkaan merupakan faktor penting yang menentukan niat beli konsumen. Namun, inkonsistensi penelitian mengenai arah hubungan membutuhkan lebih banyak upaya untuk memahami apakah ada kemungkinan hubungan berbentuk U terbalik antara kelangkaan dan niat beli. Selain itu, penelitian ini mengkaji peran promosi harga sebagai syarat batas. Penelitian ini bertujuan untuk menjelaskan sinyal kelangkaan hubungan niat beli online pada sampel siswa di Jakarta. Hasilnya menunjukkan hubungan berbentuk U terbalik antara kelangkaan dan niat beli. Selain itu, interaksi promosi harga dan sinyal kelangkaan tampaknya sangat penting untuk menghasilkan niat beli yang lebih tinggi. Implikasi dari temuan ini berkontribusi pada literatur tentang keputusan pembelian online dan memungkinkan pemasar online mengevaluasi strategi pemasaran, khususnya di pasar online.
Kata Kunci: Signal Kelangkaan; Minat Pembelian; Harga Promosi; Inverted U-Shaped Relationship.

INTRODUCTION

Developments in internet technology and the COVID-19 pandemic from 2020 to 2021 have drastically increased online activity in all sectors. Government policies worldwide are to close crowded locations, including malls, offices, schools, and entertainment venues, in anticipation of the virus's rapid spread. This condition makes almost all human activities move to online mode. For example, all schools are moving from face-to-face to online in the education sector. The same happened in the business sector, where shopping centres were closed, causing sellers to switch online to offer products. The various conveniences provided by online sales have kept this business afloat even though, at the end of 2022, the transition phase from pandemic to endemic has taken effect. Through various online sales platforms, marketers and potential consumers can

easily interact and share different information, such as the price, availability, or previous consumer ratings of a particular product (K. Park et al., 2017).

Scarcity signal is a popular strategy marketing professionals use to attract consumers to online businesses (Park et al., 2017). This strategy can be limited edition, limiting the sale of certain groups (e.g., members), using sales service time restrictions, and various forms of restrictions intended to create specific value for the product (Hamilton et al., 2019). However, with intense competition and many substitute products, in many cases, this scarcity strategy reverses direction and causes consumers to switch to using substitute products (Hamilton et al., 2019). In other words, when the marketer cannot convince the consumer about the product's benefits, the scarcity strategy will cause losses. Hence, researchers in the field of consumer behaviour are still trying to understand how this strategy is effective in improving sales performance.

Previously, psychological and marketing research indicates that the status of scarcity can affect people's perceptions (Shi et al., 2020), which opens up business opportunities. A product provider can boost overall demand and ignite customer enthusiasm for a given period by inadvertently or purposefully creating a temporary product scarcity, ultimately improving the market performance. Moreover, a product's value and desirability are typically increased by cues indicating its current or potential availability, increasing purchase intentions (Barton et al., 2022). Especially in online retailers, scarcity is frequently applied as a pressure strategy to boost sales. Marketers and some social scientists claim that scarcity increases desirability, fosters urgency and makes acting quickly seem advantageous (Courtesy and Ozel, 2019). However, previous research has documented scarcity cues' positive and negative effects on consumer purchasing decisions. On the positive side, the researchers found a beneficial effect of the scarcity strategy on consumer purchase intentions (Barton et al., 2022; Y. He and Oppewal, 2018; Nazlan et al., 2018; Teubner and Graul, 2020; Wu and Lee, 2016). On the other hand, the researchers found the scarcity effect to be ineffective, and there were many other factors that consumers might consider to buy a product (Hamilton et al., 2019; Hwang et al., 2020; Li et al., 2021; Nazlan et al., 2018). Despite the mixed results, customers likely think that scarcity signals popularity and quality, so consumers are willing to wait longer to make a purchase decision.

Based on the different results of previous studies, our study offers a new approach to understanding how scarcity signals affect purchase decisions. First, our analysis considers the scarcity level factor in terms of the time that consumers can tolerate for purchase decisions. Based on relevant literature and theory, our study proposes a non-linear relationship between scarcity signals and purchasing decisions. This relationship is tested using a scarcity signal quadratic approach in a curve linear regression model. In contrast to previous studies that explored the relationship between scarcity and purchase decisions using a monotone approach (Barton et al., 2022; He and Oppewal, 2018; Nazlan et al., 2018; Teubner and Graul, 2020; Wu and Lee, 2016), the results of our study provide a better understanding of how consumer purchasing decisions are based on consumer perceptions of time and product scarcity at short, medium, and long distances. In other words, in the short and medium period, consumers will likely decide to buy, but when the delay time is too high, then it is likely that the consumer will cancel the purchase.

Second, following previous studies (Nazlan et al., 2018), we propose price promotion complementing the scarcity signal. Marketers generally use price promotion to

complement the added value, and scarcity appeal applies. However, several studies have found a negative tone of sales promotion on purchase decisions (Hanaysha, 2018), where the discount policy provided by marketers gives a negative signal to consumers. Although most studies find that sales promotion or price promotion positively affects attracting consumers (Agmeka et al., 2019; Sohn and Kim, 2020), paying attention to the different results is also necessary. Our study provides additional insight regarding price promotion as a moderator of purchase intention. Following the survey (Akram et al., 2018), our study examines the interaction between product scarcity and price promotion in influencing consumer purchase intention. Thus, the study's second objective is to investigate the relative effectiveness of scarcity appeals in influencing purchase intentions in online ordering with a proposed price promotion as a boundary condition.

This study aims to identify the effectiveness of the scarcity strategy and the effect of its interaction with price promotion in influencing online purchasing decisions. As the largest Internet market in Southeast Asia, Indonesia is anticipated to have 204.700 billion users by the beginning of 2022. Hence, the present study is helpful for online marketers, brand strategists, advertising managers, and website developers to impact consumers' online purchasing decisions. It is necessary to understand the main behaviours of Indonesian online shoppers. Moreover, this study targets a Generation Z sample with a higher intention to use online purchasing applications than the previous generation (Dabija and Lung, 2019). Exploring Gen Z's consumption characteristics is crucial because recent studies (Dabija and Lung, 2019; Thangavel et al., 2022) showed that this generation has different consumer values, preferences, and ideas than previous ones.

The present study addresses the apparent gaps between scarcity signals and purchase intention by gaining insight into an inverted U-shaped relationship. Further, this study identifies price promotion as an antecedent of purchase intentional and novel moderators that shape consumer responses to scarcity signals. The present study demonstrates that the scarcity strategy is more effective when applied simultaneously with price promotion in boosting purchase intention. Therefore, our research extends the online business and marketing strategy literature. In particular, this study attempts to identify: (1) the main impact of the scarcity signal on purchase intentions. Moreover, this study offers a different perspective than previous studies, where the relationship between scarcity signal and purchase intention is evaluated with an inverted U-shaped theory. (2) determine whether price promotion is an antecedent of purchase intention, and (3) examine the interaction effects of scarcity signal and price promotion are examined and compared to determine whether price promotion acts as a boundary condition.

THEORETICAL REVIEW

Commodity theory. Scarcity is one of the tactics and strategies used by marketers over the last four decades. For example, as is often done by marketers by displaying products that are sold in a limited period. In other situations, scarcity also occurs due to unintentional circumstances, such as in the early days of the COVID-19 pandemic, which caused masks, vitamins, and sanitation products to become unavailable due to high demand. From these two examples, scarcity can occur because it intentionally attracts consumer interest and because of high market demand.

The scarcity strategy in its application aims to create product value by influencing consumer emotions. Scarcity was initially developed based on commodity theory. There are three essential points regarding commodities: first, they must have value and provide a use for those with them. Second, commodities must be transferable or transferable. Third, anyone must own commodities (Barton et al., 2022). In marketing, a product to be called a commodity must have benefits and uses. Furthermore, commodity components must be transferable and owned to be traded. Thus, products such as clothing, aeroplane tickets, and electronic devices can be called commodities because they can transfer ownership from one person to another.

The second core concept for commodity theory, as used by Lynn (Barton et al., 2022), is the value of a commodity. A commodity's value is its ability to influence consumer attitudes and behaviour. Based on the assumption that a commodity has specific benefits and uses, people will be interested in owning it. This value is significant for marketers because it is closely related to purchase intentions and consumer loyalty (Dedeo lu, 2019; Ebrahimi et al., 2020; Molinillo et al., 2021). The third concept, commodity unavailability, refers to restrictions due to the reduced ability to obtain a product.

Meanwhile, the source of unavailability can be caused by various factors, including restrictions from the producer due to raw material difficulties, too high market demand, limited production lines, etc. An example of this limitation can be seen in the scarcity of aeroplane tickets at specific periods (e.g., during national holidays). In addition, scarcity can also be caused by unintentional factors, such as a shortage of electricity supply due to natural disasters or the cessation of production of a product due to regulatory pressure.

Scarcity strategy in marketing. Scarcity is a phenomenon where the opportunity to obtain a product decreases because its availability is limited. The framework underlying scarcity and its effect on consumers is based on the commodity theory, which states that the value of a commodity will change due to difficulties in obtaining it (Kim et al., 2020). In other words, reduced availability can strengthen the thing's value because consumers fear losing the opportunity to get the product. Consequently, consumers who experience psychological pressure can encourage impulsive behaviour (Kim et al., 2020). Scarcity can occur for two reasons: due to limited supply and due to high demand (Huang et al., 2020; Kim et al., 2020). Scarcity due to limited supply is caused on the producer side, where the products and services offered are limited intentionally or unintentionally.

Intentional supply-based scarcity is caused by companies manipulating scarcity by limiting quantity or time. Scarcity like this usually occurs for products with a short shelf life and easily damaged, such as food with a short expiration date. However, supply-based scarcity is also a marketing strategy to increase product value. Such scarcity messages usually take the form of "limited edition," where companies only offer consumers a limited number of products. Meanwhile, scarcity due to demand occurs when very high demand causes producers to be unable to meet the increased demand. The high demand indicates the product's popularity, causing consumers' curiosity. Demand-based scarcity can usually be seen in reports on the number of past and future buyers that manufacturers deliberately display. However, the message of scarcity conveyed by marketers sometimes causes consumers to reconsider purchasing or diverting to substitute products. Messages of scarcity due to high demand must be based on credibility and transparency from marketers

(Kim et al., 2020). In other words, a notice of scarcity not based on transparency will reduce credibility, so consumers tend to divert purchases to other substitute products.

The inverted U-shaped relationship. The psychologists Yerkes and Dodson created the Inverted-U Theory in 1908 to explain how stressors affect worker performance. In this theory, up to a moderate point, the stressor positively affects employee performance. However, if the stressor has exceeded a moderate level, the effect will be detrimental to employee performance (decreased performance), thus forming an inverted u-curve (see Figure 1). Both models (inverted U-shaped and U-shaped) have been widely used in marketing research. For example, the inverted U-shaped model has been used by (Jia et al., 2018) to study the impact of coupon face value on consumer spending. Other researchers (Wu and Zhao, 2021) explore consumer behaviour factors in buying counterfeit luxury products. Next, (Park et al., 2019) tested the relationship between travel distance and hotel service satisfaction using an inverted U-shape. An inverted U-shaped relationship exists if the dependent variable increases with the increase of the independent variable to reach a maximum, after which the dependent variable decreases when the independent variable continues to increase. In other words, purchase intentions will increase along with the increase in scarcity signal, but at some point, an increase in scarcity will cause a decrease in purchase intentions (see **Figure 1**).
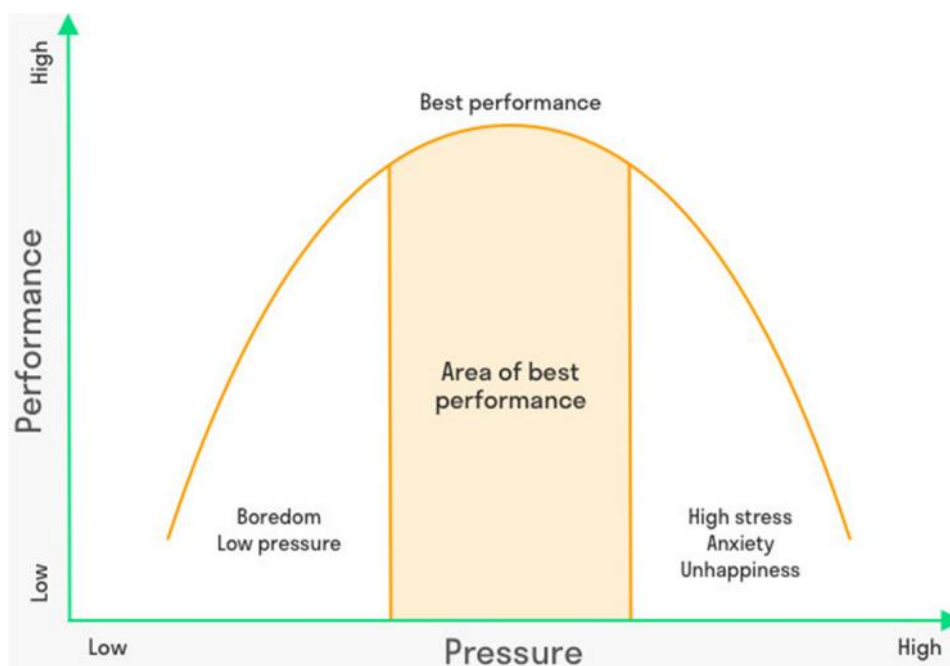

Figure 1. Yerkes and Dodson Model
Source: Primary data processed

In marketing research, the U-shape relationship has been applied in various contexts. For example, (Sun et al., 2019) investigated the relationship between CSR and shareholder value in an inverted-U-shaped framework. They found that the relationship between these two variables is non-linear, where CSR can increase shareholder value within certain

limits. When companies are excessively involved in CSR, the effect becomes negative (Sun et al., 2019).

(Park et al., 2019) tested the distance-satisfaction relationship with hotel visitors in several major cities in America. Their research generally found that the relationship between distance–satisfaction is inverted U-shaped, where the effect of the relationship is positive at an early stage and then becomes negative as distance increases. In other words, if the distance is low to moderate, it will lead to high (positive) satisfaction. At a certain level, an increase in travel distance that is further away will reduce consumer satisfaction (Park et al., 2019).

(Kwak and Kim, 2020) focus on the relationship between customer concentration and profit earned by suppliers. Data was collected from 169 semiconductor equipment suppliers in Korea. Their research found that customer concentration and profitability had a U-shaped relationship weakened by internal ownership. This relationship model shows that bargaining power decreases when customer concentration is high. Conversely, when the concentration of customers decreases, the company will tend to use an efficiency perspective (Kwak and Kim, 2020).

(He et al., 2020) examine the debate on the relationship between price and marketing time in home sales. Their study took a large home sales sample in a significant city in the United States from 2004 to 2011. This study provides a better solution for understanding the long-term relationship between the price and timing of housing sales in the housing sector by displaying an inverted U-shaped relationship. Based on this model, the selling price of the property will increase with the time of sale in the same direction, but to a certain extent, after the price drops, the time will also decrease. Their findings differ from previous studies, which always postulate that the relationship between price and time is singular, unidirectional (positive), or negative.

Scarcity signal and purchase intentions- Theoretically, the scarcity signal is a message marketers give to attract customers (Barton et al., 2022; Nazlan et al., 2018; Teubner and Graul, 2020). Scarcity signals are messages that the products offered are limited, high demand, and product exclusivity that cause emotional responses from consumers (Li et al., 2021). In a psychological context, scarcity can encourage a sense of urgency among buyers, encouraging more purchases, brief considerations, and consumer satisfaction with the products (Zhang et al., 2022).
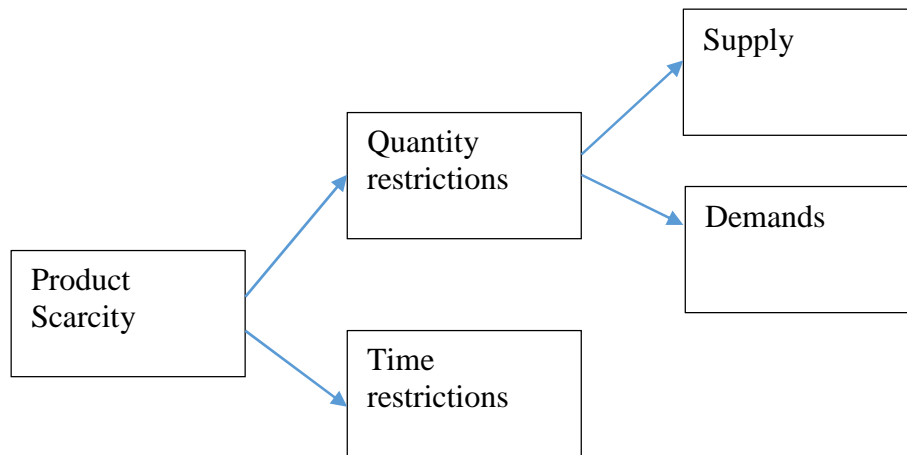
Figure 2. Type of product scarcity
Source: Primary data processed

Various works of literature state that the source of product scarcity is classified into two sources: quantity and time restrictions. Scarcity due to quantity restrictions is further grouped based on two causes: high demand or restrictions deliberately made by producers. Meanwhile, scarcity in terms of time is generally caused by limited supply. Marketers usually use various narratives to explain time constraints, for example, "the product is only available until .... date..." or "the offer is only valid until .... date."

Regarding quantity limitation, supply-based scarcity signals are interpreted as limiting supply in distribution or production channels. This restriction can occur for various products, for example, food only sold at certain times or hours, such as seafood products only sold at night. Limited production can also occur in other food products, such as a birthday or year-end packages—cars, for example, certain types that are only produced in a limited or limited edition. Scarcity signals like these usually convey messages about the quality and status of the product, often increasing consumers' desire to own one.

A theory that is also relevant to explaining why scarcity can lead to increased consumer wants is the uniqueness theory. This theory argues that consumers generally pursue rare products or commodities because of their inherent exclusivity or because these products serve as a tool that differentiates them from others. This need to be different can increase self-worth, so when other people can easily have this product, the product's exclusivity will decrease. On this basis, many manufacturers offer unique products (limited edition) to increase product exclusivity. From the consumer side, getting this particular edition product is an exceptional satisfaction because not everyone can have the same thing. For example, manufacturers producing limited edition cars are a sign of uniqueness, and not everyone can own these products (Barton et al., 2022).

Suppose the limitation on the supply side is due to marketers deliberately providing certain limitations in the production process. In that case, the quantity scarcity on the supply side is caused by market demand. In this case, marketers need help meeting the high consumer demands that are difficult to fulfil by producers. This high demand causes the products available in the market to become scarce and triggers price increases following the law of demand-supply. In addition, scarcity due to high demand is also a

symbol of quality and popularity, which can further encourage consumers to compete to obtain these products. Such scarcity can be seen in the incident at the beginning of the COVID-19 pandemic, where the stocks of tissue products, hand sanitizer, vitamins, masks, and other health products became empty on supermarket shelves.

In conditions of time-based scarcity, a product's offering or offers are limited by a particular time, often encountered during sales of seasonal products or specific promotions. Apart from seasonality, producers and marketers can limit the number of products sold due to expiration dates, as is often the case with food products. Another example is the offer of holiday packages by travel agents that apply in certain seasons. Time-based scarcity has no relation to market demand and is wholly based on the programs or strategies implemented by the producers. In other words, this product is not a commodity but a special offer to encourage consumers to feel the urgency to buy because of the limited time. For example, a company issued a 2022 unique edition product, so when the product is sold in 2023, it will have no more value. While similar to demand-based scarcity, time-based scarcity is more geared towards the uniqueness of the offering rather than popularity and quality. However, targeted consumers will experience regret if they miss the offer time, as with one online buying and selling platform in Indonesia, which offers discounts on special dates (for example, 10/10, 11/11, and 12/12).

From the company side, product scarcity can be caused by various factors, such as production planning that does not adjust to demand forecasts, supply difficulties, or intended marketing strategies by limiting supply to trigger increased consumer demand and market enthusiasm (John et al., 2018). However, the strategy to limit inventory can lead to unmet demand and reduced sales; as a result, it is often seen as a mismanagement that should be avoided or at least reduced.

On the other hand, product scarcity can significantly impact things like price. Businesses can often use such circumstances to maximize product performance in the marketplace. For example, companies often pursue limited edition and temporary discount strategies. In contrast to product scarcity, which originates from the supply side, product scarcity caused by high demand stimulates consumers more because of competition between buyers. This condition causes buyers to make quick decisions to acquire products due to competitive enthusiasm (Hamilton et al., 2019).

Customers can encounter product scarcity in the marketplace in several ways, including when the desired product is sold out, stores with small product selections, and in places with limited access to products. Previous researchers have documented that scarcity strategies can increase consumer interest. Consumers may perceive the product's scarcity as exclusivity and may increase the sacrifice of costs to obtain it (Hamilton et al., 2019). Moreover, empirical studies have documented the positive effects of scarcity on consumer purchasing decisions (Barton et al., 2022; Y. He and Oppewal, 2018; Nazlan et al., 2018; Teubner and Graul, 2020; L. Wu and Lee, 2016). Conversely, the researchers found the scarcity effect ineffective (Hamilton et al., 2019; Hwang et al., 2020; Li et al., 2021; Nazlan et al., 2018).

Customers may postpone consumption or select a substitute when faced with unavailability. For instance, when a particular brand is unavailable, consumers may choose an alternative within the same product category. Hence, consumers may react negatively to the scarcity strategy if they are committed to an option (Hamilton et al., 2019). This study proposes that the relationship between consumers' scarcity signals can have positive

and negative effects. We offer an inverted-u-shaped relationship as an alternative to explain the extent to which levels of scarcity can have positive effects and how these conditions will reverse.
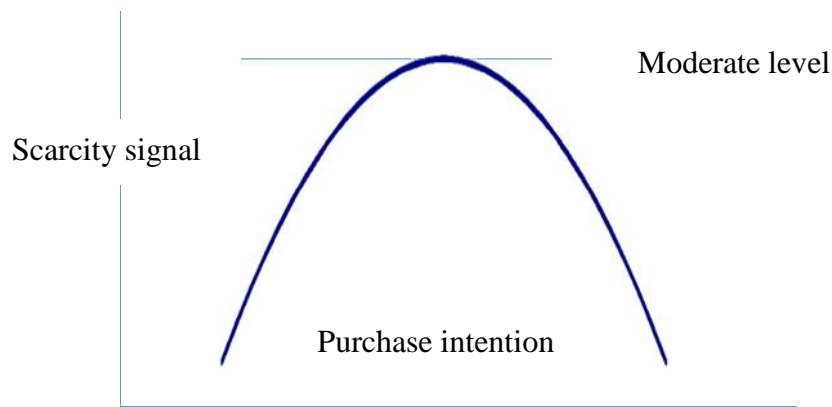

Figure 3. Inverted U-Curve relationship model of scarcity signal and purchase intention
Source: Primary data processed

The role of price promotion. Promotion is regarded in the theoretical literature as a crucial marketing mix component that aims to educate, motivate, and remind the target market about a product or service offered to influence the consumers' feelings, perceptions, or purchasing decisions (Hanaysha, 2018). Sales promotion is frequently acknowledged as a crucial element of marketing campaigns that motivates and stimulates a more rapid and effective response (including purchase quantity and speed) to the sales of specific goods or services. Sales promotions are a significant focus for many businesses to expand into new markets, build substantial brand equity, spread awareness, increase sales, add value to their goods and services, and set themselves apart from rivals. From the consumer side, sales promotion can be helpful for hedonic and utilitarian benefits; these benefits have implications for consumer impulse buying behaviour (Akram et al., 2018). Several researchers have examined the relationship between customer-brand loyalty, purchase decision and sales promotions, highlighting that existing studies find that customers respond favourably to sales promotions (Hanaysha, 2018; Joseph et al., 2020; Pelet et al., 2018; Peng et al., 2019).

In previous studies, promotional price is an essential factor in marketing strategy. Marketers generally offer various forms, such as shopping coupons, special discounts on repeat orders, extra packages, and other variations commonly used by marketers. The first objective of this price promotion is to provide attractive offers to consumers through incentive price cuts. For consumers who have a high level of awareness of prices, offers in the form of price cuts are sometimes their first reason to buy a product. (Agmeka et al., 2019; Büyükda et al., 2020; Castro et al., 2018; Hanaysha, 2018; Sohn and Kim, 2020).

Besides being proposed to affect purchase intention directly, the present study suggests price promotion as a boundary condition related to scarcity signal to purchase intention. The relationship is based on several previous studies that place price promotion as a complement to the scarcity strategy. For example, (Kim et al., 2020) explained that

price promotion could strengthen the effectiveness of the scarcity strategy to attract consumer interest. In other words, the message of scarcity may fail to increase sales opportunities if a price promotion in the form of a discount does not accompany it. Hence, in the present study, we focus not only on the effect of price promotion as an antecedent of purchase intention but also as a moderator of the relationship between scarcity signal and purchase intention.
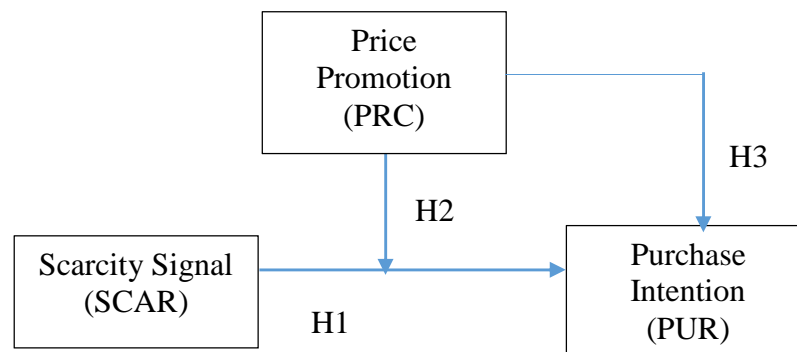

Figure 4. Research model
Source: Primary data processed

METHODS

Sample and data collection procedure. This research involved two groups of students in Jakarta: undergraduate and master's degree students. The sample was determined purposively by considering several approaches: first, the respondents were students familiar with the online shopping site "A." Second, the respondents have made online purchases through online shopping sites at least three times. Third, the respondent had created an online purchase transaction in the past month.

Two hundred sixty-five respondents were collected from two private universities voluntarily involved in the data collection process. The sample size used is adequate for regression analysis, where the recommended adequate sample size is 20 times the number of variables studied (Hair et al., 2019). The respondents comprised 65.700 per cent of women and 34.300 per cent of men. Respondents' ages ranged from 22 to 49 years, with an average age of 28. As many as 69.800 per cent of respondents are undergraduate students, and another 30.200 per cent are master's program students.

Measurement. The scarcity signal is measured based on a list of questions adapted from previous research (Kim et al., 2020; Nazlan et al., 2018) by classifying scarcity signals into two forms based on supply and demand. Respondents were asked to give a frequency rating of how often they made scarcity based on supply (i.e., a particular time, limited edition) and scarcity based on demands (best seller, highly recommended) before deciding to buy a product. Rating answers ranging from 1 is never to 5 is always. Sales promotion is measured by four items developed by Villarejo-Ramos and Sánchez-Franco (Hanaysha, 2018). Respondents were asked to answer five choices: 1 (very bad) to 5 (very interesting). Finally, four items measure purchase interest (Hanaysha, 2018). Respondents were asked to answer five choices: 1 (strongly disagree) to 5 (strongly agree).

Furthermore, validity and reliability were assessed using factor analysis and Cronbach's alpha coefficients. **Table 1** shows that all factor loading values are more significant than 0.500 according to recommendations (Hair et al., 2019). While the internal consistency involving Cronbach's alpha coefficient is more significant than 0.700, it can be stated that all constructs already have good reliability.

Table 1. Validity and reliability

		Factor Loading	Mean	Standard Deviation	VIF	Cronbach's Alpha
PRC1	Price deals, in general, are very good	0.729	3.232	0.926	1.722	0.726
PRC2	I like price deals for this brand	0.732	3.369	0.887	1.734	
PRC2	Price deals for this brand seem reasonable	0.728	3.310	0.921	1.994	
PRC2	Price deals for this brand are attractive	0.764	3.081	0.991	1.929	
SCAR 1	Particular time	0.851	3.539	0.762	2.057	0.851
SCAR 2	Limited edition	0.846	3.410	0.841	2.131	
SCAR 3	Bestseller	0.845	3.528	0.777	2.068	
SCAR 4	High recommended	0.777	3.454	1.109	1.839	
PUR1	I will purchase from this brand	0.714	3.303	0.936	2.704	0.822
PUR2	I will positively recommend this brand	0.770	3.214	0.990	2.402	
PUR3	I intend to purchase it soon	0.772	3.557	1.000	2.655	
PUR4	I will be a customer of this brand P	0.824	3.649	1.093	1.189	

Source: Primary data processed

Analysis procedure. This study follows the guidelines of previous researchers (Haans et al., 2016) to apply the inverted U-shaved relationship model. The first stage is to provide evidence for a U-shaped relationship. At this stage, regress the dependent variable on the independent variable and its square, as shown in the following equation:

$$PUR = {}_0 + {}_1SCAR + {}_2SCAR^2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{(1)}$$

As a guideline, a significant and negative quadratic scarcity signal ($_2$) indicates an inverted U-shaped relationship and vice versa; if a significant and positive quadratic scarcity signal is found, it indicates a U-shaped relationship. Support for the first stage of this procedure is also carried out using curve estimation to display graphs on the dependent and independent relationships.

Stage 2, moderation of U-shaped relationships. Moderation occurs if a third variable affects the relationship between dependent and independent such that it changes for

varying moderator values. This test uses a hierarchical moderation regression with the equation:

$$PUR = \beta_0 + \beta_1\, SCAR + \beta_2\, SCAR^2 + \beta_3\, SCAR*PRC + \beta_4\, SCAR^2PRC + \beta_5 PRC \dots\dots (2)$$

PUR is purchase intention; SCAR is scarcity signal, $SCAR^2$ is the square of scarcity signal, SCAR*PRC is an interaction between scarcity signal with price promotion, PRC is price promotion, β_0 is constant, β_1 is the coefficient of scarcity signal, β_2 is the squared coefficient of scarcity signal, β_3 is the coefficient of interaction between scarcity signal with price promotion, β_4 is the coefficient of interaction between the squared coefficient of scarcity signal with price promotion, β_5 is the coefficient of price promotion. At this stage, flattening or steepening will be tested on the model if β_4 is significant. As a general reference: an inverted U-shaped relationship is supported if β_4 is negative; Meanwhile, U-shaped relationships are supported if β_4 is positive (Haans et al., 2016).

RESULTS

Descriptive statistics. Descriptive analysis shows the average score of the variables studied. As shown in **Table 2**, the mean score of purchase intention is 3.010, scarcity signal (Mean of 3.792), and price promotion (Mean of 2.908). All mean scores are above the median score of 2.500, indicating that respondents gave a high enough rating for all items used in this study.

Table 2. Descriptive statistics and correlation

No		Mean	Std. Deviation	PUR	SCAR	PRC
1	PUR	3.010	1.035	1		
2	SCAR	3.792	0.896	-0.238**	1	
3	PRC	2.908	0.974	0.255**	-.025*	1

Source: Primary data processed

Furthermore, the correlation between purchase intention and the scarcity signal is negative (correlation is -0.238) and positive with price promotion (correlation is 0.255). Meanwhile, the correlation between price promotion and the scarcity signal is negative (correlation – 0.025). This correlation figure provides an initial picture of the direction of the relationship that will be explained in this study. **First**, the scarcity signal and purchase intention are negatively correlated, indicating that the direction of the relationship is inversely proportional. When the scarcity signal increases, the consumer's intention to purchase will move in the opposite direction. Likewise, the intention to buy will increase if the perceived scarcity signal decreases. Second, the scarcity signal and price promotion are positively correlated, where when the scarcity signal goes up, the price promotion will also tend to go up. This situation shows that the price promotion policy and the scarcity signal run simultaneously. Finally, price promotion and purchase intention are negatively correlated. In other words, the relationship between these two variables is moving in the opposite direction but at a significance of 5 per cent.

Hypothesis testing. Testing the inverted U-shaped relationship can be seen in Model 2 (**Table 3**). Analysis to answer the hypothesis was carried out in two ways, namely first, by using the quadratic regression approach to obtain results that can provide evidence regarding the relationship model. In addition, the proof of the non-linear relationship is used to strengthen the notion that the regression equation formed is of a non-linear type. The second analysis applies the curve estimation technique to provide a graphical display regarding the relationship between scarcity signals and purchase intention.

The results show that the coefficient value $\beta2$ SCAR^2 is -0.162 and significant at level 1 per cent, indicating an inverted U-shaped relationship (Haans et al., 2016). Furthermore, the slope points at the lowest and highest points are examined to detect an inverted U relationship in the second stage. The analysis is applied to facilitate the curve estimation, as shown in **Figure 2**.

A deviation from the linearity test was performed to test linear or non-linear patterns. As shown in Table 3, deviation from linearity has sig 0.016 (less than 0.050), indicating that the relationship between scarcity signal and purchase intention is non-linear and in line with the inverted U-shaped assumption.

Table 3. Summary of regression results

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	0	2.893	0.205	14.087	0.000
	Gender	0.099	0.165	0.600	0.549
2	0	1.950	0.950	2.051	0.041
	β_1 SCAR	0.895	0.541	1.654	0.099
	β_2 SCAR^2	-0.162	0.074	-2.186	0.030
	Deviation from Linearity				0.019
3	0	2.740	1.153	2.377	0.018
	β_3 SCAR*PRC	-0.199	0.073	-2.713	0.007
	β_4 SCAR^{2}PRC	0.027	0.011	2.599	0.010
	β_5PRC	0.265	0.065	4.056	0.000

Source: Primary data processed

The graph of the quadratic model presented in **Figure 2** (a) shows that the line is inverted u-shaped, where the data pattern leads to a positive relationship up to a mean score of 3.200 on the scarcity signal (SCAR). Then the relationship becomes negative, as indicated by a descending until the end of the line. To verify this relationship, curve estimation was applied by swapping the independent to dependent variables as a re-testing strategy. The assumption is that PUR also acts to reduce SCAR and that this reverse causation strengthens when PUR increases. **Figure 2** (b) shows a consistent view where the relationship model formed is an inverted U-shaped relationship. Hence, **Hypothesis 1** is supported.
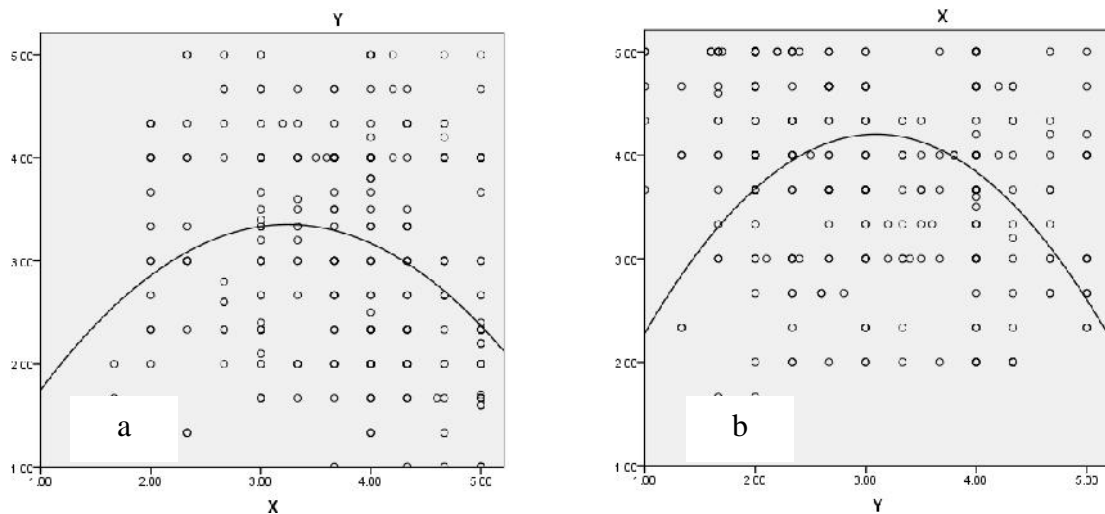
Figure 5. Curve estimation results
Source: Primary data processed

Hypothesis 2 is related to the effect of price promotion on purchase intention. **Table 3** (model 3) shows a positive β_5PRC coefficient of 0.265 (significant at the 1 per cent level), indicating that price promotion can positively predict purchase intention. Thus, hypothesis 2 is successfully supported.

Hypothesis 3 is a price promotion test that moderates the scarcity signal related to the purchase decision. The interaction effect β_4SCAR^{2}PRC was found to be 0.027 (significant at the 5 per cent level), indicating that price promotion moderates the relationship between scarcity signal and purchase decision. Furthermore, an inverted U-shaped relationship is supported based on a positive value of β_4 (Haans et al., 2016).

DISCUSSION

Online platforms for buying and selling (e.g., shopee and Tokopedia) have significantly changed how consumers purchase a product or service. Online platforms offer product information that consumers can use to make decisions from the various available options. Given the importance of business transactions through online media, researchers have attempted to understand the factors that drive online buying behaviour. This research primarily aims to provide empirical evidence regarding the inverted U-shaped relationship between scarcity signal and purchase intention and price promotion as a complement and moderator of the relationship. The study's results involving 265 respondents showed that the scarcity signal positively affects purchase intention, but the relationship is inverted U-shaped. Price promotion is proven to positively predict purchase intention, acting as a boundary condition of scarcity signal-purchase intention relationship. The theoretical and practical implications of the results of this study are then explained sequentially as follows:

Theoretical implications. This study uses a commodity theory framework to help provide an overview of the role of scarcity in marketing and its relationship to purchasing intention. In addition, this study also expands the research model by including the price promotion effect as a complement to the scarcity strategy implemented by marketers.

First, the results of this study reveal that the relationship model between scarcity cues and purchase intention formed is an inverted U-shaped, indicating that the scarcity signal can be interpreted positively by respondents; however, marketers' excessive use of this strategy causes consumers to reduce their interest in buying. This condition is due to the difficulty in obtaining the product because it is limited by quantity and time, causing consumers to think about diverting their choices to substitute products. The results of this study provide a theoretical contribution to the issue of marketing strategies that utilize scarcity signals to attract customers. The scarcity tactic has, in practice, been considered an essential tool for modern marketers. The logic behind how these scarcity cues can increase buyer curiosity can be understood in two approaches.

The customer cues signal that the currently available products are limited, best sellers, and highly recommended, which can increase the value and image of these products; this situation can increase purchase intentions. Furthermore, from the perspective of commodity theory, a psychologically scarce product will encourage stronger buyer motivation. The scarcity principle can be expressed as an effective strategy to make consumers make decisions quickly. However, quick decisions made by consumers sometimes lead to post-purchase regrets for not carefully finding products that offer better offers (Gabler et al., 2017; Huang et al., 2020; Kim et al., 2020). Thus, this scarcity signal is more often associated with impulsive decisions from consumers.

Previously, most studies supported theoretical predictions around the monotonic relationship between fear and purchase intention. For example, researchers have documented the positive effects of scarcity on consumer purchasing decisions. On the other side, the researchers found the scarcity effect ineffective. The results of this study provide an alternative explanation regarding the relationship between consumers' scarcity signals can have positive and negative effects. The study results show that the relationship between scarcity signal and purchase intention is U-shaped to accommodate the results of previous studies positive and negative directions.

The research results of this study provide an explanation that supports the two-way relationship between scarcity signals and consumer behaviour, which previously sparked debate. For example, researchers found a positive effect of scarcity signal on consumer purchase intentions (Barton et al., 2022; He and Oppewal, 2018; Nazlan et al., 2018; Teubner and Graul, 2020; Wu and Lee, 2016); instead, it also been shown to have a negative effect (Hamilton et al., 2019; Hwang et al., 2020; Li et al., 2021; Nazlan et al., 2018). Despite the mixed results, this study's results clarify the differences in previous studies' results by proving that the relationship between scarcity signal and purchase intention is inverted U-shaped, which means it simultaneously leads to positive and negative. Thus, a positive relationship was established between scarcity signal and purchase intention in a positive direction when scarcity is low to moderate. Then a higher scarcity signal leads to a decrease in purchase intention (becoming a negative effect). This situation can be explained because marketers who apply the scarcity strategy will initially get consumers' attention. However, if this strategy is carried out continuously, it will reduce consumer buying interest.

Second, following previous studies (Nazlan et al., 2018), the current study proved that price promotion complements the scarcity signal. The results of this study show the dual function of price promotion: as an antecedent of purchase intention and moderating the scarcity signal to purchase decision relationship. The results of this study provide

additional insight regarding price promotion as an antecedent (Agmeka et al., 2019; Büyükda et al., 2020; Castro et al., 2018; Hanaysha, 2018; Sohn and Kim, 2020) and its role as a moderator of purchase intention (Akram et al., 2018). In other words, it can be stated that price promotion could strengthen the effectiveness of the scarcity strategy to attract consumer interest. Hence, the message of scarcity may fail to increase sales opportunities if a price promotion in the form of a discount does not accompany it.

Undeniably, in today's intense competition, customers are susceptible to the prices offered by marketers. Through online buying and selling platforms, it is straightforward for consumers to compare prices for the same product. Therefore, retailers need to improve their ability to detect prices offered by other marketers. Price promotion in this study has an essential role as a predictor of purchase intention. In other words, consumers will likely have purchase intentions if marketers provide specific discounts on the products sold. For example, several online buying and selling platforms apply specific dates in the price promotion implementation cycle.

Third, the results of this study also show that the moderating effect of price promotion has a positive tone, indicating that price promotion could strengthen the effectiveness of the scarcity strategy to attract consumer interest. In the same vein, the negative effect of the scarcity signal can also be neutralized by price promotion so that consumers will continue to make purchases by considering discounts or other forms of promotional prices offered by marketers, even for a limited time. The results of this study provide new insights into the supporting factors of the applied scarcity strategy, thereby guiding future studies regarding the broader role of price promotion on purchase intention.

Practical implications. The findings from this research can be helpful for marketers who carry out their activities through online media to evaluate the marketing strategies used. The success of the scarcity strategy can be demonstrated by increasing purchases, but using the strategy in the long term will reduce consumer buying interest. Thus, this study provides actionable suggestions for online business marketers: First, marketers must realize that not all scarcity messages benefit the company. The scarcity of signals can be interpreted positively or negatively by consumers, so its application needs to be done carefully.

Second, marketers are advised to combine scarcity cues with price promotions to attract consumer buying interest to a higher level. Price promotion is a marketing tool that aims to attract new customers and effectively retain existing ones (Büyükda et al., 2020). The results of this study proved that consumers had positive reactions to price promotions offered by marketers. In other words, consumers respond well to promotional prices shown by marketers through special discounts that apply to new and existing customers. Like scarcity signals, marketers must also carefully implement price promotion strategies. When the price offered is too low, it is likely to reduce the product's value in the eyes of consumers. For example, price is often seen as a communication about the quality and value of a product, so giving a discount that is too big will reduce the value of the product itself from the consumer's perspective.

On the other hand, offering prices that are too high will also reduce consumer purchase intentions, especially when compared to similar products. Based on these considerations, the company periodically needs to evaluate price promotion, where the forms of promotion offered are compared to the number of sales. Price promotion can be used as a cushion to reduce the detrimental effects of scarcity signals on purchase intention.

Thus, scarcity signals that create uncertainty for consumers can be balanced with the benefits of applying special prices. The absence of price promotion causes the scarcity effect to be ineffective in influencing purchase intention. Hence, combining scarcity signals and price promotion is ideal for marketers to withstand the adverse effects of scarcity signals. This study also found that price promotions magnify the scarcity signal effect so that respondents' preferences can be increased by providing discounts or special prices.

Third, even though the scarcity strategy in the short term can attract consumers' attention because it is considered a popular product, marketers need to consider the transparency of the information provided. For example, when a company says that "only three products are available," that information must be completely reliable. Efforts to increase the popularity of the products offered through non-transparent information will reduce the credibility of marketers. In addition, ambiguous information about scarcity also causes consumers to reduce their intention to buy the product. For example, the repeated "tomorrow prices go up" promotional tag causes consumers to question the credibility of a message of scarcity like this.

CONCLUSION

This study answers essential questions about how the scarcity strategy influences consumer behaviour, especially online sales. An inverted U-shaped relationship between scarcity signal and purchase intention provides positive and negative directions indicating that this strategy needs to be carried out carefully by marketers. The results of this study highlight that scarcity signals as marketing strategies implemented by companies in the short term will attract consumer interest, but, instead, it will reduce consumer interest if applied over a long period. In addition, this study concludes that the implementation of the scarcity strategy needs to be combined with the price promotion strategy as a complement to increase its effectiveness.

Apart from our theoretical and practical contributions, several limitations need attention for future researchers. **First,** this study investigates the effect of scarcity signals and price promotions on pre-purchase purchase intention. Future research should evaluate the relationship between the scarcity signal and the purchase decision in the post-purchase context. **Second**, this study is limited to a sample group of students residing in a city in Indonesia, so generalizations about different regions and groups must be made cautiously. As an initial study, we suggest future researchers re-test this research model using samples and regions with different cultural characteristics.

Third, the results of this study provide an overview that the theory used to examine the relationship between scarcity signal and purchase intention is not a single theory, so the framework used combines various existing theories. The empirical results in this study provide strong support for an inverted U-shaped relationship between scarcity and purchase intention. Hence, future studies need to consider factors beyond scarcity and price.

REFERENCES

Agmeka, F., Wathoni, R. N., and Santoso, A. S. (2019). The Influence Of Discount Framing Towards Brand Reputation And Brand Image On Purchase Intention And Actual Behaviour In E-Commerce. *Procedia Computer Science*, *161*, 851–858. https://doi.org/10.1016/j.procs.2019.11.192.

Akram, U., Hui, P., Kaleem Khan, M., Tanveer, Y., Mehmood, K., and Ahmad, W. (2018). How Website Quality Affects Online Impulse Buying. *Asia Pacific Journal of Marketing and Logistics*, *30*(1), 235–256. https://doi.org/10.1108/APJML-04-2017-0073.

Barton, B., Zlatevska, N., and Oppewal, H. (2022). Scarcity Tactics In Marketing: A Meta-Analysis Of Product Scarcity Effects On Consumer Purchase Intentions. *Journal of Retailing*. https://doi.org/10.1016/j.jretai.2022.06.003.

Büyükda , N., Soysal, A. N., and Kıtapci, O. (2020). The Effect Of Specific Discount Pattern In Terms Of Price Promotions On Perceived Price Attractiveness And Purchase Intention: An Experimental Research. *Journal of Retailing and Consumer Services*, *55*, 102112. https://doi.org/10.1016/j.jretconser.2020.102112.

Castro, I., Majmundar, A., Williams, C., and Baquero, B. (2018). Customer Purchase Intentions And Choice In Food Retail Environments: A Scoping Review. *International Journal of Environmental Research and Public Health*, *15*(11), 2493. https://doi.org/10.3390/ijerph15112493.

Courty, P., and Ozel, S. (2019). The Value Of Online Scarcity Signals. *Information Economics and Policy*, *46*, 23–40. https://doi.org/10.1016/j.infoecopol.2018.12.003.

Dabija, D.-C., and Lung, L. (2019). *Millennials Versus Gen Z: Online Shopping Behaviour in an Emerging Market* (pp. 1–18). https://doi.org/10.1007/978-3-030-17215-2_1.

Dedeo lu, B. B. (2019). Shaping Tourists' Destination Quality Perception And Loyalty Through Destination Country Image: The Importance Of Involvement And Perceived Value. *Tourism Management Perspectives*, *29*, 105–117. https://doi.org/10.1016/j.tmp.2018.11.006.

Ebrahimi, P., Hajmohammadi, A., and Khajeheian, D. (2020). Place Branding And Moderating Role Of Social Media. *Current Issues in Tourism*, *23*(14), 1723–1731. https://doi.org/10.1080/13683500.2019.1658725.

Gabler, C. B., and Reynolds, K. E. (2013). Buy Now Or Buy Later: The Effects Of Scarcity And Discounts On Purchase Decisions. *Journal of Marketing Theory and Practice*, *21*(4), 441–456. https://doi.org/10.2753/MTP1069-6679210407.

Haans, R. F. J., Pieters, C., and He, Z.-L. (2016). Thinking About U: Theorizing And Testing U- And Inverted U-Shaped Relationships In Strategy Research. *Strategic Management Journal*, *37*(7), 1177–1195. https://doi.org/10.1002/smj.2399.

Hair, J., Black, W., Babin, B., and Anderson, R. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning.

Hamilton, R., Thompson, D., Bone, S., Chaplin, L. N., Griskevicius, V., Goldsmith, K., Hill, R., John, D. R., Mittal, C., O'Guinn, T., Piff, P., Roux, C., Shah, A., and Zhu, M. (2019). The Effects Of Scarcity On Consumer Decision Journeys. *Journal of the Academy of Marketing Science*, *47*(3), 532–550. https://doi.org/10.1007/s11747-018-0604-7.

Hanaysha, J. R. (2018). An Examination Of The Factors Affecting Consumer's Purchase

Decision In The Malaysian Retail Market. *PSU Research Review*, *2*(1), 7–23. https://doi.org/10.1108/PRR-08-2017-0034.

He, X., Lin, Z., Liu, Y., and Seiler, M. J. (2020). Search Benefit In Housing Markets: An Inverted U-Shaped Price And TOM Relation. *Real Estate Economics*, *48*(3), 772–807. https://doi.org/10.1111/1540-6229.12221.

He, Y., and Oppewal, H. (2018). See How Much We've Sold Already! Effects Of Displaying Sales And Stock Level Information On Consumers' Online Product Choices. *Journal of Retailing*, *94*(1), 45–57. https://doi.org/10.1016/j.jretai.2017.10.002.

Huang, H., Liu, S. Q., Kandampully, J., and Bujisic, M. (2020). Consumer Responses To Scarcity Appeals In Online Booking. *Annals of Tourism Research*, *80*, 102800. https://doi.org/10.1016/j.annals.2019.102800.

Hwang, Y., Su, N., and Mattila, A. (2020). The Interplay Between Social Crowding And Power On Solo Diners' Attitudes Toward Menus With Popularity And Scarcity Cues. *International Journal of Contemporary Hospitality Management*, *32*(3), 1227–1246. https://doi.org/10.1108/IJCHM-05-2019-0422.

Jia, H. (Michael), Yang, S., Lu, X., and Park, C. W. (2018). Do Consumers Always Spend More When Coupon Face Value Is Larger? The Inverted U-Shaped Effect Of Coupon Face Value On Consumer Spending Level. *Journal of Marketing*, *82*(4), 70–85. https://doi.org/10.1509/jm.14.0510.

John, M., Melis, A. P., Read, D., Rossano, F., and Tomasello, M. (2018). The Preference For Scarcity: A Developmental And Comparative Perspective. *Psychology and Marketing*, *35*(8), 603–615. https://doi.org/10.1002/mar.21109.

Joseph, J., Sivakumaran, B., and Mathew, S. (2020). Does Loyalty Matter? Impact Of Brand Loyalty And Sales Promotion On Brand Equity. *Journal of Promotion Management*, *26*(4), 524–543. https://doi.org/10.1080/10496491.2020.1719953.

Kim, E. J., Choi, C., and Tanford, S. (2020). Influence Of Scarcity On Travel Decisions And Cognitive Dissonance. *Asia Pacific Journal of Tourism Research*, *25*(7), 721–735. https://doi.org/10.1080/10941665.2020.1720258.

Kwak, K., and Kim, N. (2020). Concentrate Or Disperse? The Relationship Between Major Customer Concentration And Supplier Profitability And The Moderating Role Of Insider Ownership. *Journal of Business Research*, *109*, 648–658. https://doi.org/10.1016/j.jbusres.2019.09.033.

Li, Y., Yao, J., and Chen, J. (2021). The Negative Effect Of Scarcity Cues On Consumer Purchase Decisions In The Hospitality Industry During The COVID-19 Pandemic. *International Journal of Hospitality Management*, *94*, 102815. https://doi.org/10.1016/j.ijhm.2020.102815.

Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., and Liébana-Cabanillas, F. (2021). Social Commerce Website Design, Perceived Value And Loyalty Behavior Intentions: The Moderating Roles Of Gender, Age And Frequency Of Use. *Journal of Retailing and Consumer Services*, *63*, 102404. https://doi.org/10.1016/j.jretconser.2020.102404.

Nazlan, N. H., Tanford, S., Raab, C., and Choi, C. (CB). (2018). The Influence Of Scarcity Cues And Price Bundling On Menu Item Selection. *Journal of Foodservice Business Research*, *21*(4), 420–439. https://doi.org/10.1080/15378020.2018.1440129.

Park, K., Ha, J., and Park, J.-Y. (2017). An Experimental Investigation On The

Determinants Of Online Hotel Booking Intention. *Journal of Hospitality Marketing and Management*, *26*(6), 627–643. https://doi.org/10.1080/19368623.2017.1284631.

Park, S., Yang, Y., and Wang, M. (2019). Travel Distance And Hotel Service Satisfaction: An Inverted U-Shaped Relationship. *International Journal of Hospitality Management*, *76*, 261–270. https://doi.org/10.1016/j.ijhm.2018.05.015.

Pelet, J.-E., Lecat, B., Khan, J., Rundle-Thiele, S., Lee, L. W., Ellis, D., Wolf, M. M., Kavoura, A., Katsoni, V., and Wegmann, A. L. (2018). Winery Website Loyalty: The Role Of Sales Promotion And Service Attributes. *International Journal of Wine. Business Research*, *30*(2), 138–152. https://doi.org/10.1108/IJWBR-01-2017-0003.

Peng, L., Zhang, W., Wang, X., and Liang, S. (2019). Moderating Effects Of Time Pressure On The Relationship Between Perceived Value And Purchase Intention In Social E-Commerce Sales Promotion: Considering The Impact Of Product Involvement. *Information and Management*, *56*(2), 317–328. https://doi.org/10.1016/j.im.2018.11.007.

Shi, X., Li, F., and Chumnumpan, P. (2020). The Use Of Product Scarcity In Marketing. *European Journal of Marketing*, *54*(2), 380–418. https://doi.org/10.1108/EJM-04-2018-0285.

Sohn, J. W., and Kim, J. K. (2020). Factors That Influence Purchase Intentions In Social Commerce. *Technology in Society*, *63*, 101365. https://doi.org/10.1016/j.techsoc.2020.101365.

Sun, W., Yao, S., and Govind, R. (2019). Reexamining Corporate Social Responsibility And Shareholder Value: The Inverted-U-Shaped Relationship And The Moderation Of Marketing Capability. *Journal of Business Ethics*, *160*(4), 1001–1017. https://doi.org/10.1007/s10551-018-3854-x.

Teubner, T., and Graul, A. (2020). Only One Room Left! How Scarcity Cues Affect Booking Intentions On Hospitality Platforms. *Electronic Commerce Research and Applications*, *39*, 100910. https://doi.org/10.1016/j.elerap.2019.100910.

Thangavel, P., Pathak, P., and Chandra, B. (2022). Consumer Decision-Making Style Of Gen Z: A Generational Cohort Analysis. *Global Business Review*, *23*(3), 710–728. https://doi.org/10.1177/0972150919880128.

Wu, L., and Lee, C. (2016). Limited Edition For Me And Best Seller For You: The Impact Of Scarcity Versus Popularity Cues On Self Versus Other-Purchase Behavior. *Journal of Retailing*, *92*(4), 486–499. https://doi.org/10.1016/j.jretai.2016.08.001.

Wu, Q., and Zhao, S. (2021). Determinants Of Consumers' Willingness To Buy Counterfeit Luxury Products: An Empirical Test Of Linear And Inverted U-Shaped Relationship. *Sustainability*, *13*(3), 1194. https://doi.org/10.3390/su13031194.

Zhang, J., Jiang, N., Turner, J. J., and Pahlevan-Sharif, S. (2022). The Impact Of Scarcity On Consumers' Impulse Buying Based On The S-O-R Theory. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.792419.