

# Social Commerce Marketing Experimentation Through Conjoint Analysis: Online Consumer Preferences

Kamaljeet Kaur <sup>1\*</sup>  
Satinder Kumar <sup>1</sup>

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<sup>1</sup> Punjabi University, India

\* Corresponding author, kamaljeetbcom@gmail.com

## ***Abstract***

**Purpose** – *The study analyzed the importance of social commerce stores on consumer purchase situations. It conducted conjoint analysis on consumer decision-making associated with online retailers that used Facebook as part of their promotional and trading system.*

**Method** – *The study compared consumer preference for different marketing attributes by placing them on a comparable pricing scale or pricing out non-monetary stimuli. The research framework adopted was the behavioral perspective model of consumer choice and conjoint analysis technique.*

**Findings** – *The conjoint analysis revealed that price was the main driver in online shopping for consumers, followed by warranty, delivery charges, order channels, photo displays, sizes available, and charity donations. It further identified a reverse relationship of utility with price and delivery charges.*

**Limitations** – *Primarily, as the survey was conducted among students from central universities in India, the outcomes should be interpreted with caution, specifically with respect to the generalizability of study results of social commerce users as a whole.*

**Implications** – *Conjoint analysis is a useful technique for predicting choices made by customers, which supports the determination of actual drivers which might not be visible to the participants. Therefore, by studying various attributes significant to consumers in an online environment, vendors can decrease escape behavior and*

*maximize buyers' time devoted to looking at various attributes to form the opinion systems.*

**Keywords:** social commerce marketing, consumer preferences, utility estimates, conjoint analysis.

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## Introduction

Consumer behavior analysis (CBA) and behavioral economics have been used to commercially and experimentally analyze online consumers' behavior. One commonly used framework in behavioral economics is demand analysis, where demand is viewed as a function of price (e.g., Allison, 1981). In modern marketing, a well-established concept is that the behavior of consumers is measured not only by price and various variables (e.g., product features, publicity, and marketing tools) but also through a grouping of those which affect consumer needs that make up the marketing mix. The CBA is the entitlement of economic behavior analysis in the context of consumer decision-making, especially in the background of advanced marketing economies, which seek to restore balance through the behavioral strategy and its ability to enhance consumer research. It is the only systematic method continued into consumer actions, decision making, and marketing from a detailed behavioral viewpoint (Foxall, 2010).

The recent emergence of social commerce has significantly complicated consumer behaviors. The current study utilizes social commerce sites as the research space in order to discourse the apprehensions regarding the relevance of business behavioral economics and everyday actions, expand theoretical descriptions and ideas, and reveal their importance. One foremost significant reason why we emphasize social commerce is the wealth and enlarged importance in the behavior of modern consumers. The behavioral analysis focuses on the behavior of socially important environmental relationships, but the functional analysis in digital marketing for consumers is lacking. Another problem is the limited impact of functional behavioral economics and experimental behavioral analysis in the field of business and consumer behavior (Kunkel, 1987; Woods *et al.*, 2006).

To examine product choices, including preference scores, utility values, and cluster stage in the context of social commerce, one can apply the conjoint analysis introduced by Green & Rao (1971) to assess non-financial incentives over commercial incentives in financial items. Conjoint analysis is a popular method for determining the

preferences of consumers in marketing. It is utilized to categorize the consumers' preferences and desire to pay for various product contributions (Green *et al.*, 2001). The analysis evaluates each consumer's utility through ranking various product attributes and their equivalent stages/levels (Wittink *et al.*, 1994). This study follows the methodology and literature of conjoint analysis to explore fashion purchases on social commerce platforms and consumers' choices. It has examined the consumers' preferences of various attributes considered significant when making decisions about online shopping. The analysis of each participant's utility evaluations follows the analytical behavioral tradition, which emphasizes individual behavior and spreads this research tradition to analyzing attributes (e.g., pricing and warranty) in social commerce marketing. This analysis can be further utilized to measure individual differences of each level of various attributes. Finally, only a few studies have used a behavioral economics framework to explore online consumer behavior from the behavior analysis viewpoint. Accordingly, the current study developed a research question as follows.

*RQ: Do marketing-mix factors influence customers' choices in social commerce marketing for fashion clothes?*

## **Review of Literature**

### **Online Consumer Behavior Analysis**

The goal of CBA is to associate the business economic behavior with the science of marketing by examining utility and evaluating improvement for chosen functions, deploying features and sections of consumers and individualism as an individual consumer in terms of behavioral analysis. Unlike the basic research on behavioral investigation and economic behavior, the CBA framework provides problems concerning a number of control variables, among which direct testing is challenging (Foxall, 2002). Nevertheless, much progress has been made in recent years in investigating complicated clusters of consumer behavior.

Some of the previous studies have employed a behavioral economic context to examine the behavior of online consumers. Researchers identified the influence of reduced delay on foraging research of simulated online shopping centers (Rajala & Hantula, 2000). This study used foraging concepts and developed the concept to comprise human acquisition and consumption in post-industrial principles. Further, Rajala and Hantula's (2000) study was extended by DiClemente and Hantula (2003), who studied the influence of extraterrestrial indications on consumers' concern to time delay. Smith and Hantula's (2003) behavior analysis measured the impact of price on buyers' preferences through a series of tests in five simulated stores. The results showed consistency between price effects and delays in consumer preferences. Their study also

strongly supported that the price of a product leads to the overall delay in main support. Other authors developed a behavioral account of online consumers' decision making in terms of delivery based on the above studies (Hantula & Bryant, 2005). The outcomes revealed that the delivery cost of the following day was deducted for the interruption to free delivery. These studies, pointing to the disruption in online marketing, acknowledged the familiarization of specific consumer choice with the forecast of ideal foraging concept and the case of decline of delays. Fagerstrom (2010) presented the theory of motivational operations to investigate the motivational influence of previous stimuli on online shopping. The consequences show that the motivational operations theory is relevant to the examination of the motivational influence of previous stimuli on online shopping. In one more research, Fagerstrom *et al.* (2011) examined brand trustworthiness through organizing environmental opportunities in online shopping. The research was focused on simulated online stores where contributors bought goods from two different online stores.

Following the above studies, Sigurdson *et al.* (2013) experimentally tested the effects of utilitarian and informational e-mail stimuli/situations on conversion rate and individual responses of registered consumers interested in children's books. Utilitarian stimulus refers to the reinforcement or punishment that stems from direct usable economic benefits or costs. But if such reinforcement or punishment is mediated by a social network and has a prestige or status value attached, then it is informational. Based on within-subject, direct, and repetitive measures of different versions of e-mail marketing on consumer behavior, the study reported a distinction in the roles of utilitarian and informational utility/reinforcement on consumer behavior. The informational stimuli induced more consumers to open the e-mails, whereas the utilitarian stimuli increased consumers' buying behavior. In addition, the study advanced the earlier in-store experiments in terms of behavioral control. It included data from individual consumers and groups and more measurements of the behavioral sequence leading to direct purchase measurements (e.g., opening, clicking, and buying behavior). The findings for individual consumers also showed the importance of segmentation, as consumers tended to respond only to particular types of emails concerning products that interested them. But many companies tend to send all commercial e-mails to all of their registered consumers, which is an ineffective practice.

When CBA arises in the context of online shopping, the literature is constrained to the above studies. Similar limitations also hold regarding the knowledge about the social effectiveness of online marketing and social commerce in the science of marketing. These are presently not as much accepted, but maybe one of the extremely significant marketing channels (e.g., Precourt, 2014).

Thus, this present study focuses on the online marketing mix through social commerce and conjoint analysis. It observes that the conjoint analysis technique supports

identifying influential attributes quickly and cost-effectively from a behavioral economic viewpoint by pricing out all competing attributes for the firm.

### **Behavioral Economic Analysis of the Online Marketing Mix**

Behavioral economics is a branch of economics that combines elements of economics and psychology to understand how and why people behave the way they do in the real world. It extends the concepts in the initial behavioral studies and consumer studies that influence marketing experts and uses humans as the experimental subjects rather than inferior animals (Hursh, 1984). However, these experiments had restrictions on the entire marketing mix and only explored the impacts of price on buyer decision-making in non-natural atmospheres (Foxall, 2007).

McCarthy (1960) introduced the most powerful marketing model, i.e., the marketing mix, also called the four-P model (price, place, product, and promotion). These four factors are considered to produce and affect the demand of consumers. The model defines what factors the company applies to influence consumer behavior and is significant from a behavioral viewpoint because the customer is not part of the marketing mix (McCarthy, 1960). This makes the marketing mix an appropriate basis for improving and exploring the business behavior economic analysis. From a behavioral point of view, the main task of the organization deliberating of the demand side is to determine the brand's stimulus, which is considered to be different stimuli or sets of stimuli (e.g., price promotion and packaging) and their values (e.g., time period), which raises the probabilities of purchasing the brand or service (e.g., Kotler, 1986; Zeithaml & Bitner, 2003; Jobber, 2004). Moreover, McCarthy and Perreault (1991) stated that there is more order than that signified by the four Ps, but essentially the marketing mix covers "the measured factors that the firm uses to meet target audience" (p. 728). According to Lauterborn (1990), all these factors have become four Cs from the consumer viewpoint. In his words, the product is interpreted as a customer solution, the price becomes a cost to the consumer, the place turns into convenience, and promotion becomes communication.

The present study uses conjoint analysis to determine the marketing mix from a social viewpoint concerning decision-making effectiveness in social commerce marketing. Although the complications of the possibilities involved in the marketing mix and social commerce can be prevented or confounded through experimental analysis, the current study adopts a methodology that can control the joint impact of economic and marketing variables. To explain human activities in an acceptable situation, this study expands the dimensions of behavioral economics. It defines an extension of economic behavior to know how consumers' choices of several sets of attributes are rich in the social commerce market. We are particularly interested in which economic behavior can go further by including the study of complex consumer choices in the natural environment of the economic market. Conjoint analysis has been applied to examine the influence of

price and other factors of the marketing mix, namely, product (available size and item photos), place (channels of orders), and promotion (such as a donation to a good cause).

### **Behavioral Perspective Model**

Over the years, marketing science has de-emphasized the influence of price on demand and focused more on other marketing mix elements, such as promotion. On the other hand, behavioral economics followed the logic and reasoning governing economics and maintained price as the central focus. By using conjoint analysis, one can compare different stimuli, the price, and other non-monetary factors within the marketing mix on a common economic scale. It also stimulates good choices based on many choice criteria, as is most likely the case where social commerce platforms are used for marketing.

Consumer choice is performed within simultaneous reinforcing and punishing consequences. Based on the Behavioral Perspective Model (e.g., Foxall, 1998), the consequences of consumer behavior include utilitarian and informational reinforcement and punishment. It is assumed that virtually all products deliver all these consequences in different combinations. The model is descriptive and inductive, and therefore, it is up to functional analysis to determine if the effects of increased pricing for product X marketed through channel Y and under market condition Z are aversive or reinforcing.

### **Marketing Mix Attributes and Trade-Offs in Social Commerce**

The current research used economic behavior theory to investigate the influences of marketing mix constructs on consumers' decision-making on social commerce sites for fashion products. At this point, this study examines the usefulness of each factor, various combinations of factors, the rating of each factor, and the business concerning groupings or various marketing situations. It is commonly recognized in economics and marketing that price can negatively influence demand. Sigurdsson *et al.* (2010) stated that the price would usually have two different influences on the choice of consumers: utility (e.g., budgetary constraints) and informativeness (e.g., as a quality signal). In addition, the price can negatively influence the behavior of consumers and positively related to the product, and further indicates better quality and increases the knowledge and effectiveness of the brand. This lack of consistency in the effects of price on consumer behavior warrants further empirical studies. Particularly in an online context, price becomes a prominent product attribute because consumers cannot try, feel, and touch on various online products (e.g., clothes and shoes). This current study examines the influences of prices on decision-making and relates them with further marketing mix aspects. If price is considered to provide both utilitarian and informational reinforcement, an attribute like "donation to charity," on the other hand, signals the possibilities for an informational reinforcement. This attribute reminds the consumer of buying the product also contributing indirectly to a social cause, which can evoke conditioned informational feedback, rule-following, or positive feedback from other people on the consumer's

response. This response may lead to the same reactions under similar circumstances in the forthcoming situation.

## Conjoint Analysis

Conjoint analysis has been used in consumer research for many years (Green & Sprinivasan, 1978). Hair *et al.* (1998) note that the application of conjoint analysis in the United States has been paralleled in Europe and other parts of the world. Constructing consumer typologies is an enduring challenge of retailing research and frequently centers on economic and demographic characteristics. Such research highlights the relatively poor understanding of real-life consumer behavior. The word *conjoint* has to do with the notion that the relative values of things considered jointly can be measured when they might not be measurable if taken one at a time (Churchill and Iacobucci, 2006). Kotler (2000) defines conjoint analysis as a method for deriving the utility values that consumers attach to varying levels of a product's attributes. Using conjoint analysis, researchers could better understand the value consumers assign to certain attributes when making purchasing decisions in a retail situation.

In conjoint analysis, customer's preference-estimations towards a set of experimental product concepts are used as the input. Hypothetical product concepts are presented in the form of a bundle of particular product attributes. Concepts are shown on *concept cards* (Dahan & Hauser, 2002). Based on data gathered from conjoint analysis, it is possible to find the utility of the examined product attributes assigned to a particular customer to calculate the relative importance of different product attributes (Green & Krieger, 1991). Regression can be used to analyze data and determine the part-worth utilities for different product attributes (more precisely, to certain attribute levels). Part-worth utilities are used to determine the relative importance of different product attributes to the customer (Green & Krieger, 1991). As customers' needs and preferences usually vary substantially, the conjoint analysis is applied at the individual customer level. Every subject's needs are modeled by an individual utility function. While the functional form of the model is the same for all subjects, the parameters of the function (betas) differ. An aggregate model (using one model for all subjects) is also possible but likely to mask differences in preferences for different market segments. Therefore, the models for individuals or separate market segments are likely to have greater predictive validity than aggregate models (Green, Srinivasan, 1990).

Specifically, the conjoint analysis relies on the ability of respondents to make judgments about stimuli. These stimuli represent some predetermined combinations of attributes, and during a laboratory experiment, respondents are asked to make judgments about their preferences for various attribute combinations. The basic aim, therefore, is to determine the features they most prefer. Therefore, a conjoint study centers around certain attributes of products or services and various levels within each attribute. In a real-life situation, respondents may find it difficult to indicate which

attributes they prefer and how they combined them to form their overall opinion. The value of conjoint analysis is that it estimates how much each of these attributes is valued. For example, given a pair of utility-price functions,  $f(x_1, y_1)$  and  $f(x_2, y_2)$ , a researcher can use linear interpolation equation (Rao, 2014, p. 15) to find the new price of  $Y$  given the utility value increment of  $x$  and the price increment of  $y$ . The formulas are illustrated below.

$$y = \left(\frac{x-x_1}{x_2-x_1}\right) (y_2 - y_1) \quad (1)$$

$$Y = y_1 + y = y_1 + \left(\frac{x-x_1}{x_2-x_1}\right) (y_2 - y_1) \quad (2)$$

where  $Y$  = new price

$y$  = price increment

$x$  = utility value increment

$x_1$  = utility value for the price of  $y_1$ .

$x_2$  = utility value for the price of  $y_2$ .

## Research Methods

### Respondents and Selection of Product

The present study was directed to the three most important fashion stores with the strongest presence and largest audience on Facebook in India, i.e., *Lifestyle*, *Pantaloons*, and *Reliance* (see Appendix B for their total fans). All three online stores provided the pictures used in this study (see Appendix C for website screens). The respondents were randomly chosen from the student population because they are the main consumers of online vendors and the products (fashion products such as dresses). The study sample included 103 students (35 male and 68 female) from central universities in India. Based on their age, the respondents were categorized into four groups (<25, 25-30, 31-35, and >35), of which 69 were in the 25-30 age group. The demographic data consist of gender, age, and stream. In addition, online behavior information questions (e.g., How many hours do you spend visiting social commerce accounts? How often do you check your social commerce account every week? Do you purchase a product on Facebook within six months?) were also included. The target product of the present research was fashion clothing (i.e., dresses) presented on the Facebook pages of *Lifestyle*, *Pantaloons*, and *Reliance*.

### Research Plan

A vital step of conjoint analysis is the choice of product attributes. If the attributes selected do not project the actual attributes that are important to consumers, the findings from conjoint analysis will not be valid. Therefore, prior to planning the research, a

discussion with online buyers was directed to recognize the key attributes of online shopping. After the interview, seven attributes and their associated levels were identified. Table 1 shows that the price, order channels, delivery charges, and photo displays have three levels; the available sizes, the charity of donation, and the warranty have two levels. It is assumed that the different attribute levels have a varying influence on consumer buying behavior. The total number of product profiles was 648 ( $3 \times 3 \times 3 \times 3 \times 2 \times 2 \times 2 = 648$ ) with seven attributes and the corresponding levels. As it was a challenge for 103 respondents to rate the 648 product profiles, an orthogonal method was applied to decrease the unique set of 648 to 18 product profiles (Green & Srinivasan, 1978). Another 15 product profiles formed for simulation determinations were not accessible to the respondents (see Table 2). The study presumes that the respondents were buying a dress via a Facebook page.

The main effect model was used in designing and implementing the conjoint analysis. In this model, by totaling the value of every stimulus, the respondent obtains a total value for the grouping. Based on this technique, the respondents were required to estimate a series of stimuli used by this study. This method provides practicality and decreases the chance of judgment on using the fractional factorial design. The design is a method that uses only a subset of the possible stimuli to estimate the results according to the assumed composition rule (Hair *et al.*, 1998).

Table 1: Attributes and Levels of Stimulation Cards

Attributes	Levels
Price*	1. Rs. 1000 2. Rs. 1500 3. Rs. 2500
Order channels	1. via e-mail 2. via the online website 3. via phone
Delivery charges*	1. Free delivery 2. Pick up from the store 3. 100-200 Rs
Photo displays	1. Front image 2. Front and back image 3. 360-degree view
Sizes available	1. Available 2. Not available
Donations to charity	1. Yes 2. No
Warranty	1. With it 2. Without it

\* Amount in Indian Rupees (Rs.).

## Process

The present study showed 18 online shopping conditions (stimulus cards) to the participants for evaluation, and these cards were presented with visual pictures. Then, the participants were asked to rate them based on the product they would buy on the Facebook page. In this study, visual stimuli were presented instead of a traditional oral explanation of the products and their attributes, so 18 stimulus cards were developed with the levels of the fractional factorial design. Each card corresponds to a product's profile of attributes. In addition, the actions such as comments, likes, and shares were considered among all the cards. Finally, the dependent variable was definite through determining the respondent's probability of buying over Facebook. The current study used a 5-point Likert scale ("1"=very unlikely to "5"= very likely).

Table 2: Factorial Plan Applied to Make Stimulus Cards

Attributes and Profiles of Cards							
Stimulus card	Price	Order channels	Delivery charge	Image displays	Size available	Charity	Warranty
1	1	1	1	1	2	2	1
2	1	3	1	2	2	1	2
3	1	1	2	1	2	1	2
4	2	3	3	2	2	2	2
5	1	1	3	1	1	2	2
6	3	3	2	1	2	2	1
7	2	1	2	2	1	2	2
8	2	2	1	1	2	1	2
9	1	2	3	2	2	2	1
10	2	1	1	3	2	2	1
11	3	1	1	2	1	1	1
12	1	1	2	3	1	1	1
13	3	1	3	3	2	1	2
14	1	3	1	3	1	2	2
15	1	1	1	1	1	1	1
16	3	2	1	1	1	2	2
17	3	3	1	3	2	2	2
18	3	1	2	3	2	1	1

## Analysis

The main model of conjoint analysis used for the  $r_i$  response of  $i^{\text{th}}$  card from a subject is

$$r_i = \beta_0 + \sum_{j=1}^p U_j K_{ji} \quad (3)$$

where  $U_j K_{ji}$  = utility (part-worth)

$K_{ji}$  = measure of the  $j^{\text{th}}$  factor on the  $i^{\text{th}}$  card

Preferences of consumers were shown utilizing the part-worth utility value (Green & Srinivasan, 1978). It states that

$$s_k = \sum_{p=1}^t f_p (y_{kp}) \quad (4)$$

where  $s_k$  = preference for a stimulus card at  $k^{\text{th}}$  level

$f_p$  = part-worth function of  $k$  different levels of the stimulus card  $y_{kp}$  of  $p^{\text{th}}$  attribute.

In preparation,  $f_p (y_{kp})$  is assessed at two or three levels for  $y_{kp}$ , by the part-worth of intermediate  $y_{kp}$  achieved by linear interpolation.

The rank of a product attribute related to the others can be estimated based on the utility associated with the single performance level of this particular attribute, using the following equation (Green & Srinivasan, 1978).

$$Op = \frac{(u_p - u_p)}{\sum_{p=1}^t (\max u_p - \min u_p)} \quad (5)$$

where  $op$  = relative importance of the product attribute

$\max u_p$  = utility of the most preferred level of attribute

$\min u_p$  = utility of the least preferred level of attribute

## Results

A discrete model shows that no assumption is for the association among the attributes and their consistent utility. Table 3 demonstrates the utility estimate and importance score of the attributes. It also shows a reverse relationship between utility and price – a higher price leads to lower utility. This reverse utility association applies to other attributes, such as delivery charges, sizes available, photo displays, charity, and warranty. Consistency is the basic influence, and the values of the other attributes contrast with that value (4.147) in a positive or negative sense. This study reveals that prices acquired the maximum impact on general choice by importance score of 18.583 followed by delivery charges (18.161), photo displays (17.929), order channels (17.481), size available (10.223), and warranty (9.596), as shown in Table 3. Charity (8.027) has the

minimum impact on overall preferences. Table 4 shows the correlation values among estimated and observed preferences (Pearson's  $r = 0.849$ ), and Figure 1 shows partial estimates of the utility of all customers for the seven attributes and the corresponding levels. This depicts that the seven attributes and their corresponding levels have a varying influence on the buying decision of participants. Table 3 shows that the price of Rs. 1000 generates more value for a consumer. Utility estimates were considered to find the importance of attributes at each level.

Table 3: Conjoint impact estimate and relative importance of attributes

Attributes	Levels	Utility Estimated	Std. Error	Importance Score <sup>a</sup>
Price	1000 Rs.	0.102	0.055	18.583
	1500 Rs.	0.056	0.055	
	2500 Rs.	-0.046	0.055	
Order channels	Via e-mail	0.030	0.055	17.481
	Via online website	-0.020	0.055	
	Via phone	-0.010	0.055	
Delivery charges	Free delivery	0.070	0.055	18.161
	Pick up from the store	0.060	0.055	
	100-200 Rs.	-0.131	0.055	
Size	Available	0.089	0.041	10.223
	Not available	-0.089	0.041	
Photo displays	Front view	-0.062	0.055	17.929
	Front and back view	0.030	0.055	
	360-degree view	0.032	0.055	
Donations to charity	Yes	0.003	0.041	8.027
	No	-0.003	0.041	
Warranty	With it	0.002	0.041	9.596
	Without it	-0.002	0.041	
Constant		4.147	0.045	

<sup>a</sup> Averaged importance score.

Table 4: Correlations between observed and estimated preferences

Correlations <sup>a</sup>		
	Value	Sig. ( $p$ )
Pearson's $r$	.849	.000
Kendall's tau	.616	.000
Kendall's tau for holdouts	.271	.082

<sup>a</sup> Correlations between observed and estimated

Besides the 18 combinations of product attributes that the respondents ranked, the other 15 product attributes combinations were formed for purchase simulation. Table 5 shows the preference probabilities for each of the 15 simulation profiles, and the most important profile was forecasted. This study used the *maximum utility model* for the preference probabilities of stimulus cards. The probability is computed with the proportion of the forecasted number of participants selecting a card to the total number of participants. For individual participants, the forecasted preference is the card with the maximum utility value. The Bradley-Terry-Luce (Bradley & Terry, 1952; Luce, 2005) and logit models identify the stimulus cards' utility values. *Bradley-Terry-Luce model* calculated the preference probability of a participant as a proportion of the utility value of a card to that for all stimulus cards and averaged over each respondent (Green & Rao, 1971; Green & Srinivasan, 1971; Nagle *et al.*, 2010). *The logit model* uses natural log as an alternative to the utility to calculate probability values. These three models showed that the first stimulus card would be most important and preferred across the 103 respondents in this research (for a complete list of cards, see Appendix A)

Table 5: Preference Probabilities for Simulation Purposes

Card Number	Maximum Utility <sup>a</sup>	Bradley-Terry-Luce	Logit
1	49.0%	10.1%	23.4%
2	20.4%	9.1%	13.1%
3	5.2%	9.0%	10.2%
4	2.3%	6.2%	6.3%
5	2.8%	6.3%	5.5%
6	0.2%	4.8%	3.1%
7	4.3 %	7.1%	7.3%
8	3.5 %	6.3 %	5.2%
9	0.2%	5.0%	2.7%
10	1.7%	4.6%	3.2 %
11	0.1%	4.0%	1.8%
12	0.2%	2.5%	1.9%
13	0.5%	3.8%	1.8%
14	0.0%	3.1%	1.0%
15	0.0%	1.7%	1.3%

<sup>a</sup> Includes tied simulations.

<sup>b</sup> Bradley-Terry-Luce and Logit models used 47 out of 103 respondents as all of these have non-negative scores.

## **Application of the Study**

The main benefit of conjoint analysis is to assist managers in pricing (Rao, 2014). The utility attributes can improve the value proposition of Lifestyle, Pantaloons, and Reliance stores, where modifying the various attributes can produce the greatest or poorest outcomes for the business. Therefore, to find how much consumers prefer one attribute over the others, this study used trade-off analysis with part-worth utilities. The utility table clearly shows that the main attribute is the price, followed by delivery charges and photo displays. Green and Rao (1971) recognized that the best price of a product is the key purpose of market research tools, such as conjoint tasks and pricing surveys. In the next section, two cases are stated. The first case represents the trade-off estimate between price and delivery charges. This case discusses how much customers pay when free delivery is provided; to put it another way, if free delivery is provided, how much the price can be raised. The second case shows the trade-offs between prices and photos. This study identifies how much the buyer can pay or how much the price can be increased when a 360-degree image is displayed.

### **Case 1**

In this case, we explore two conditions:

Condition 1: Price at Rs.1000 (utility=0.102), order via e-mail (0.030), delivery charges from Rs 100 to 200 (-0.131), size available (0.089), a 360-degree view (0.032), a donation to charity (0.003), and with a warranty (0.002).

$$\text{Total utility} = 0.102 + 0.030 - 0.131 + 0.089 + 0.032 + 0.003 + 0.002 = 0.127$$

Condition 2: Price at Rs.1000, order via email, free delivery, sizes available, a 360-degree view, a donation to charity, and with a warranty.

$$\text{Total utility} = 0.102 + 0.030 + 0.070 + 0.089 + 0.032 + 0.003 + 0.002 = 0.328$$

This denotes an increase in utility of 0.201 (=0.328-0.127) over an identical product by 100 to 200 Rs. delivery charges. This indicates that the utility of the price decreases by 0.201, and the customer would purchase the product before the free delivery is provided. The product price in both conditions is 1000 Rs, and its utility is 0.102. The price utility has decreased by -0.099 (0.102-0.201). In Table 3, this 0.102 utility indicates a price between 1500 Rs. and 2500 Rs. (-0.046 < -0.099 < 0.056). Implementing a linear association between utility and price, between 1500 Rs. and 2500 Rs., the specific price of this series can be estimated by applying the linear interpolation formula (2) explained earlier.

$$Y = y_1 + \left( \frac{x-x_1}{x_2-x_1} \right) (y_2 - y_1) \quad (2)$$

Where  $Y$  = new price

$y$  = price increment

$x$  = utility value increment

$x_1$  = utility value for the price of 1500 Rs.

$x_2$  = utility value for the price of 2500 Rs.

$y_1$  = 1500 Rs.

$y_2$  = 2500 Rs.

$$\text{New price} = 1500 + \left( \frac{-0.099 - 0.056}{-0.046 - 0.056} \right) (2500 - 1500) = 3019.608 \text{ Rs.} \approx 3020 \text{ Rs.}$$

This indicated that the price of the product could be increased from Rs. 1000 to Rs. 3020 if free delivery is offered

## Case 2

Like case 1, in this case, we explore two conditions:

Condition 1: Price at Rs 1000, order via email, free delivery, sizes available, 360-degree view, a donation to charity, and with a warranty

$$\text{Total utility} = 0.102 + 0.030 + 0.070 + 0.089 + 0.032 + 0.003 + 0.002 = 0.325$$

Condition 2: Price at 1000 Rs., order via email, free delivery, sizes available, a front view, a donation to charity, with a warranty, and with a warranty

$$\text{Total utility} = 0.102 + 0.030 + 0.070 + 0.089 - 0.062 + 0.003 + 0.002 = 0.234$$

This indicates an increase in utility of 0.091 (=0.325-0.234) over an identical product with a front view. This represents that the utility of the price can decrease by 0.091. The product price in both conditions is 1000 Rs, and its utility is 0.091. The price utility is decreased by 0.011 (0.102-0.091). Table 3 shows that this 0.011 utility is located between the prices of 1500 Rs. and 2500 Rs. (-0.046 < -0.011 < 0.056). Thus, the new price can be calculated using the previous equation:

$$\text{New price} = 1500 + \left( \frac{-0.011 - 0.056}{-0.046 - 0.056} \right) (2500 - 1500) = 2156.863 \text{ Rs.} \approx 2157 \text{ Rs.}$$

Therefore, if a 360-degree view of a product photo is displayed, the price can be raised from 1000 to 2157 Rs. Thus, these two cases demonstrate that free delivery and 360-degree view are significant attributes to customers.

## **Discussion**

Social commerce has changed the mode of customer service and purchase. It provides a facility for sharing knowledge and experience with others. However, social commerce consists of complex contingencies and behavior that are not all amenable directly to experimental analysis. In addition, it is still the least understood platform of marketing in terms of decision-making and management. Concerning the social commerce environment and its influence on the behavior and performance of customers, experimental control is needed from a behavioral analytical perspective. Therefore, this study revealed the opportunities that conjoint analysis could suggest for behavioral economic study. In this study, we applied conjoint analysis on customer preferences for a fashion vendor using Facebook as a tool of its promotion and trading structure. It evaluated consumer choices for various marketing attributes by engaging them on a comparable price scale and evaluating non-monetary stimuli such as delivery charges, order channels, sizes available, photo displays, charity, and warranty.

This current research aimed to examine the influence of key attributes and their impacts on online customer preferences in a social commerce environment. The outcomes of the conjoint analysis revealed that price was the main driver in online shopping for consumers, followed by warranty, delivery charges, order channels, photo displays, and sizes available. Surprisingly, charity donation was the least important attribute. Further, this study revealed a reverse relationship of utility with price and delivery charges. That is, the higher the price and delivery charges, the lower the utility.

According to the behavioral perspective model, the price was regarded as a useful stimulus because it indicates an economic benefit: the lower the price, the higher the utility. The current research confirms this association. Furthermore, attributes like delivery charges, photo displays, sizes available, the channel of order, and warranty are also beneficial stimuli observed in this study, which supports the behavior economic analysis for decision making in marketing.

## **Theoretical Implications**

From a theoretical perspective, the current research addressed conjoint analysis techniques on Facebook users' choice making in online shopping. It included consumer preferences for various marketing characteristics and engaged consumers in a similar price share and non-monetary incentives (i.e., order channels, photo displays, delivery charges, sizes available, warranty, and charity). The outcomes of the conjoint analysis revealed that price was the main driver in the online shopping zone for consumers, followed by warranty, delivery charges, order channels, photo displays, and sizes

available. Further, a reverse relationship was found between price and utility. A higher price leads to lower utility. Based on these findings, this study offers suggestions for social commerce practitioners, trainers, and educators in developing social commerce sites. The researchers are optimistic that these findings can help the developers and designers of social commerce sites, pages, and applications generate value that benefits users and accomplish certain goals of establishing social commerce sites. After these advantages are gained, revisiting these sites in the future can be converted into an optimistic behavior. To achieve effective external communication on social commerce sites, managers should confirm that a regular user's efficacy is high while he or she is on the social commerce sites. Also, managers should be careful with the valuable and significant information for a continuing relationship as a positive intention developed by the user.

### **Practical Implications**

Consistent with the systematic emphasis of behavior on individualization and the growing importance of marketing, we have demonstrated partial utility scores from individual customers created on varied involvements for choices with testing conditions. The study discoursed the role of conjoint analysis in effective pre-testing of direct measures on online behavior through multivariate examination and suggestions as a decision-making tool in managerial economics. One of the conclusions from the study is that it is possible and useful to perform conjoint analysis in behavioral economics to filter out interesting marketing contingencies that need to be explored further with more direct experimentation. Conjoint analysis is a fast, relatively inexpensive method to measure individual consumer preferences. It helps uncover real or hidden drivers, which may not be apparent to respondents themselves. Through the experiment, we explored conjoint analysis to understand consumer preferences from a behavior standpoint, which can then be used for multivariate analysis on a real-world scenario. Therefore, by studying various attributes significant to consumers in an online environment, retailers could reduce escape behavior and try to maximize or shape observational patterns and the time the consumer spent viewing the different attributes. This research stream is critical in establishing additional methodological grounds for explicating operant behavioral economics, social media marketing, and consumer analysis.

### **Limitations and Suggestions for Future Research**

However, this study has a few limitations. Primarily, as the survey was conducted among students from central universities in India, the outcomes should be carefully interpreted, particularly the generalizability of social commerce users as a whole. Next,

social commerce sites are well-liked and admired when it comes to marketing products and services. Hence, the data collected from social commerce users may be biased. Future studies can examine data from other social commerce sites outside India, such as Facebook, Google, YouTube, or Twitter. The results can be compared with those from this study to identify significant differences.

## References

- Allison, J. (1981). Economics and operant conditioning. *Advances in Analysis of Behaviour*, 2, 321-353.
- Bradley, R., & Terry, M. (1952). Rank analysis of incomplete block designs: I. The method of paired comparisons. *Biometrika*, 39 (3/4), 324-345. doi: 10.2307/2334029
- Churchill, G. A., & Iacobucci, D. (2006). *Marketing Research: Methodological Foundations*. New York: Dryden Press.
- Dahan, E. & Hauser, J. (2002). The virtual customer. *The Journal of Product Innovation Management*, 19, 332-353.
- DiClemente, D.F., & Hantula, D. A. (2003). Optimal foraging online: Increasing sensitivity to delay. *Psychology & Marketing*, 20(9), 785-809.
- Fagerstrøm, A. (2010). The motivating effect of antecedent stimuli on the web shop: A conjoint analysis of the impact of antecedent stimuli at the point of online purchase. *Journal of Organizational Behavior Management*, 30(2), 199-220.
- Fagerstrøm, A., Arntzen, E., & Foxall, G. R. (2011). A study of preferences in a simulated online shopping experiment. *The Service Industries Journal*, 31(15), 2603-2615.
- Foxall, G.R. (1998). Radical behaviorist interpretation: Generating and evaluating an account of consumer behavior. *The Behavior Analyst*, 21(2), 321-354.
- Foxall, G.R. (Ed.). (2002). *Consumer Behaviour Analysis: Critical Perspectives on Business and Management*. New York: Routledge.
- Foxall, G.R. (2007). *Explaining Consumer Choice*. New York: Palgrave Macmillan.
- Foxall, G.R. (2010). *Interpreting Consumer Choice: The Behavioral Perspective Model*. New York: Routledge.

- Green, P.E., & Krieger, A.M. (1991). Segmenting markets with conjoint analysis. *Journal of Marketing*, 55(4), 20-31.
- Green, P.E., Krieger, A.M., & Wind, Y. (2001). Thirty years of conjoint analysis: Reflections and prospects. *Interfaces*, 31(3\_supplement), S56-S73.
- Green, P.E., & Rao, V.R. (1971). Conjoint measurement for quantifying judgmental data. *Journal of Marketing Research*, 8(3), 355-363.
- Green, P.E., & Srinivasan, V. (1978). Conjoint analysis in consumer research: Issues and outlook. *Journal of consumer research*, 5(2), 103-123.
- Green, P.E., & Srinivasan, V. (1990). Conjoint analysis in marketing: New developments with implications for research and practice. *Journal of Marketing*, 54(4), 3-19.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analysis*. 5<sup>th</sup> Ed. Upper Saddle River, NJ: Prentice-Hall International.
- Hantula, D.A., & Bryant, K. (2005). Delay discounting determines delivery fees in an e-commerce simulation: A behavioral economic perspective. *Psychology & Marketing*, 22(2), 153-161.
- Hursh, S.R. (1984). Behavioral economics. *Journal of the Experimental Analysis of Behavior*, 42(3), 435-452.
- Jobber, D. (2004). *Principles and Practice of Marketing*. Berkshire, UK: McGraw-Hill Higher Education.
- Kotler, P. (1986). *Principles of Marketing* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.
- Kotler, P. (2000). *Marketing Management Millennium Edition*. 10<sup>th</sup> Ed. Upper Saddle River, NJ: Prentice-Hall.
- Kunkel, J.H. (1987). The future of JABA: A comment. *Journal of Applied Behavior Analysis*, 20(4), 329-333.
- Lauterborn, B. (1990). New marketing litany: four Ps passé passe: C-words take over. *Advertising Age*, 61(41), 1-26.
- Luce, R. (2005). *Individual Choice Behavior: A Theoretical Analysis*. Mineola, NY: Dover Publications.
- McCarthy, E.J. (1960). *Basic Marketing - A Managerial Approach*. Homewood, IL: Irwin.

- McCarthy, E.J., & Perreault, W.D. Jr. (1991). *Application in Basic Marketing: Clippings from the Popular Business Press*. Homewood, IL: Irwin.
- Nagle, T.T., Hogan, J.E., & Zale, J. (2010). *The Strategy and Tactics of Pricing: A Guide to Growing More Profitably*. Upper Saddle River, NJ: Pearson Education Inc.
- Precourt, G. (2014). What do we know about social media? *Journal of Advertising Research*, 54(1), 4-5.
- Rajala, A.K., & Hantula, D.A. (2000). Towards a behavioral ecology of consumption: Delay-reduction effects on foraging in a simulated Internet mall. *Managerial and Decision Economics*, 21(3-4), 145-158.
- Rao, V.R. (2014). *Applied Conjoint Analysis*. Berlin: Springer-Verlag.
- Sigurdsson, V., Foxall, G., & Saevarsson, H. (2010). In-store experimental approach to pricing and consumer behavior. *Journal of Organizational Behavior Management*, 30(3), 234-246.
- Sigurdsson, V., Menon, R.V., Sigurdarson, J.P., Kristjansson, J.S., & Foxall, G.R. (2013). A test of the behavioral perspective model in the context of an e-mail marketing experiment. *The Psychological Record*, 63(2), 295-308.
- Smith, C., & Hantula, D.A. (2003). Price discounting in online shopping: An extension of the foraging model. *Journal of Economic Psychology*, 24, 653-674.
- Wittink, D.R., Vriens, M., & Burhenne, W. (1994). Commercial use of conjoint analysis in Europe: Results and critical reflections. *International Journal of Research in Marketing*, 11(1), 41-52.
- Woods, D.W., Miltenberger, R.G., & Carr, J.E. (2006). Introduction to the special section on clinical behavior analysis. *Journal of Applied Behavior Analysis*, 39(4), 407-411.
- Zeithaml, V.A., & Bitner, M.J. (2003). *Services Marketing: Integrating Customer Focus across the Firm*. Berkshire, UK: McGraw-Hill Higher Education.

## Appendix A

Table A1: The 33 stimulus cards used in the study.

Card ID	Price	Order channels	Delivery charges	Photo displays	Size available	Donation to Charity	Warranty
1	500-1500Rs.	Via e-mail	Free delivery	Front view	Not available	No	With it
2	500-1500Rs.	Via phone	Free delivery	Front and back view	Not available	Yes	Without it
3	500-1500Rs.	Via e-mail	Pick up from the store	Front view	Not available	Yes	Without it
4	1500-2500Rs.	Via phone	100-200 Rs.	Front view	Available	Yes	With it
5	500-1500Rs.	Via e-mail	100-200 Rs.	Front view	Available	No	Without it
6	Above2500 Rs.	Via phone	Pick up from the store	Front view	Not available	No	With it
7	1500-2500 Rs.	Via e-mail	Pick up from the store	Front and back view	Available	No	Without it
8	1500-2500 Rs.	Via online website	Free delivery	Front view	Not available	Yes	Without it
9	500-1500Rs.	Via online website	100-200 Rs.	Front and back view	Not available	No	With it
10	1500-2500 Rs.	Via e-mail	Free delivery	360-degree view	Not available	No	With it
11	Above2500 Rs.	Via e-mail	Free delivery	Front and back view	Available	Yes	With it
12	500-1500Rs.	Via online website	Pick up from the store	360-degree view	Available	Yes	With it
13	Above2500 Rs.	Via e-mail	100-200 Rs.	360-degree view	Not available	Yes	Without it
14	500-1500Rs.	Via phone	Free delivery	360-degree view	Available	No	Without it
15	500-1500Rs.	Via e-mail	Free delivery	Front view	Available	Yes	With it
16	Above2500 Rs.	Via online website	Free delivery	Front view	Available	No	Without it
17	Above2500 Rs.	Via phone	Free delivery	360-degree view	Not available	No	Without it
18	Above2500 Rs.	Via e-mail	Pick up from the store	360-degree view	Not available	Yes	With it
19	500-1500Rs.	Via online website	Free delivery	360-degree view	Available	Yes	With it

20	1500-2500 Rs.	Via online website	Free delivery	360-degree view	Available	Yes	With it
21	17000 Rs.	Via online website	Free delivery	360-degree view	Available	Yes	With it
22	500-1500Rs.	Via online website	100-200 Rs.	Front and back view	Available	No	With it
23	1500-2500 Rs.	Via online website	100-200 Rs.	Front and back view	Available	No	With it
24	Above2500 Rs.	Via online website	100-200 Rs.	Front and back view	Available	No	With it
25	500-1500Rs.	Via e-mail	Pick up from the store	Front view	Available	Yes	Without it
26	1500-2500 Rs.	Via e-mail	Pick up from the store	Front view	Available	Yes	Without it
27	Above2500 Rs.	Via e-mail	Pick up from the store	Front view	Available	Yes	Without it
28	500-1500Rs.	Via phone	Pick up from the store	Front and back view	Not available	No	Without it
29	1500-2500 Rs.	Via phone	Pick up from the store	Front and back view	Not available	No	Without it
30	Above2500 Rs.	Via phone	Pick up from the store	Front and back view	Not available	No	Without it
31	500-1500Rs.	Via phone	100-200 Rs.	Front view	Not available	No	Without it
32	1500-2500 Rs.	Via phone	100-200 Rs.	Front view	Not available	No	Without it
33	Above2500 Rs.	Via phone	100-200 Rs.	Front view	Not available	No	Without it

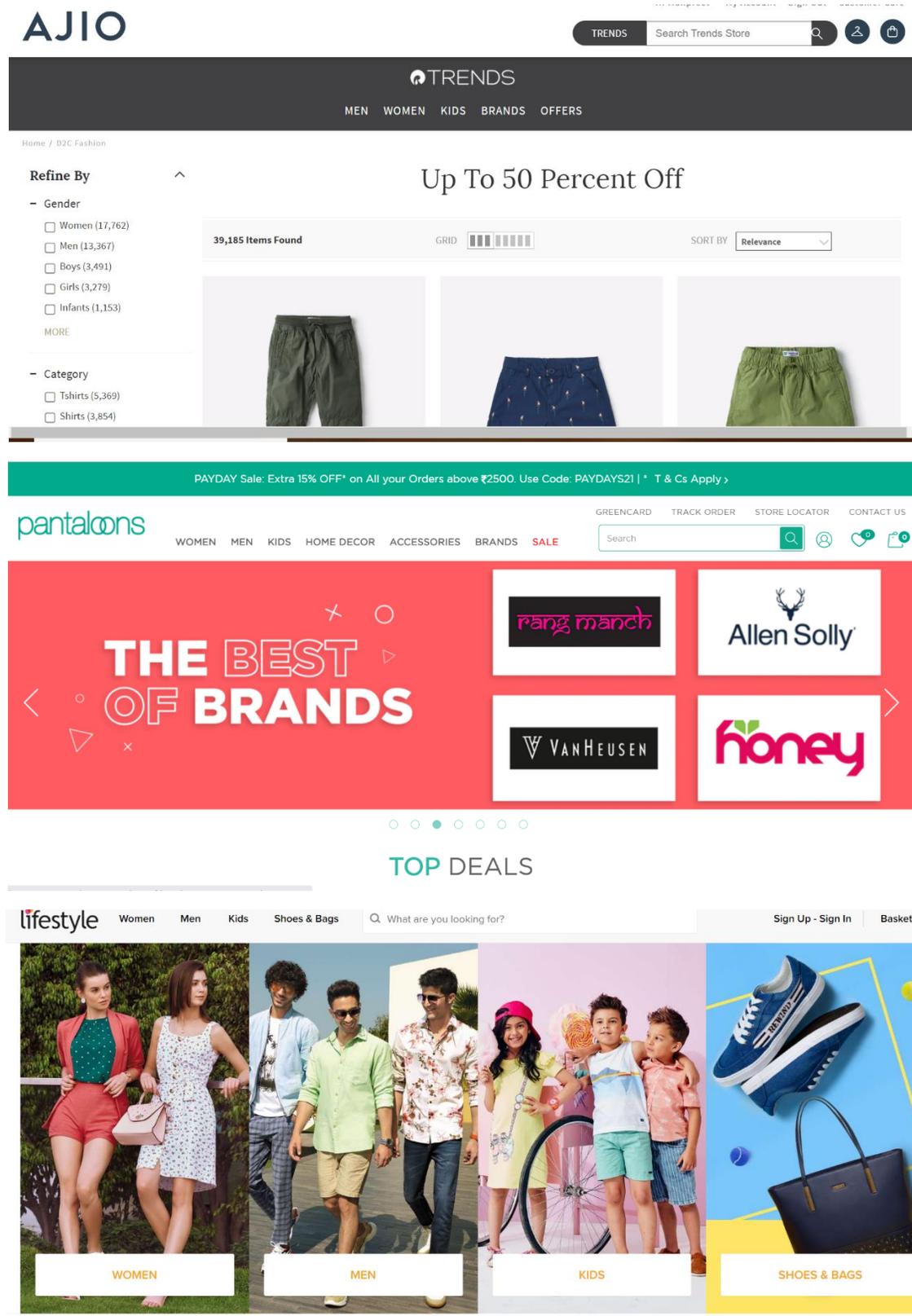
Note: Numbers 1 to 18 cards were utilized in the experimental design, and numbers 19 to 33 were utilized in purchase simulation.

## Appendix B

The screenshot shows the SocialBakers website interface. At the top, there is a navigation bar with the SocialBakers logo and links for Solutions, Platform, Pricing, Resources, and Company. On the right side of the navigation bar, there are buttons for Login, Start a Trial, and Contact Us. The main content area is titled 'Largest Audience' and features three columns of data:

Category	Total fans
Lifestyle Stores	4 745 613
Pantaloons	2 353 915
Reliance Trends - Off...	1 788 560

## Appendix C



## **About the Author**

**Kamaljeet Kaur**

*School of Management Studies*

*Punjabi University, Patiala*

*India*

*E-mail: kamaljeetbcom@gmail.com*

**Satinder Kumar, Ph.D.**

*School of Management Studies*

*Punjabi University, Patiala*

*India*

*E-mail: kumarsatinder1981@gmail.com*

**Kamaljeet Kaur** is a Ph.D. candidate in the School of Management Studies at Punjabi University, Patiala. She received her degree of Master of Philosophy and Master in commerce from Punjabi University Patiala. Her research interest includes electronic commerce, social commerce. She is pursuing a Ph.D. in the area of social commerce. She has published two research papers in UGC CARE journals, Journal of Business and Globalization (ABDC classified, C category) and Academy of Marketing Studies Journal (ABDC classified, B category). In addition, she has presented papers at national and international conferences/seminars, including IIM Indore and IIT Delhi.

**Dr. Satinder Kumar** is best known for his work on digital marketing and holds a PhD. in Ethical Issues in E-Marketing. He has been an Assistant Professor of Marketing (Digital Marketing) at SMS since 2009. Dr. Kumar has published more than 35 articles/research papers in a wide range of leading management journals, including the Tourism Management journal (ABDC classified, A\* category), IIMS, FORE School of Management, IMT Ghaziabad, and IIT. Also, he received the Best Paper Award in IIM Indore, NASMEI Summer Marketing Conference 2019. He has presented papers at National and International conferences/Seminars, including IIM Indore, IIM Tiruchirappalli, IIM Kashipur, IIT Delhi, AGBA at Indonesia, and Narsee Monjee Institute of Management Studies (Hyderabad). He serves for Scopus and ABDC indexed journals as a reviewer, research advisor, and editor.