

Understanding customers' purchase behaviour from online group buying websites: a transaction cost approach

Full paper

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Abstract

This study examined customers' purchase behaviour from online group buying (OGB) websites. Based on transaction cost approach, a research model was developed from OGB context. Overall, data from 208 OGB customers support the model and the developed relationships. Although price discount has been considered as the strongest driver for customers to purchase from OGB websites, for the first time, this study empirically established it. Moreover, it is found that information asymmetry negatively impacts purchase behaviour; however, the effect of information asymmetry can be reduced by proper signalling method such as disseminating prior customers' reviews. This study also argued that customization, rather than personalization, is more relevant to transaction costs and OGB. Interestingly, while making a purchase, customers pay less importance to reputation of OGB vendor. The results have been discussed with implications.

Keywords: online group buying, OGB, transaction cost, purchase behaviour

1 INTRODUCTION

One of the latest e-commerce business models is online group buying (OGB) (Hossain et al. 2018). It refers to buying of products/services at significantly reduced price than the regular retail price when 'sufficient' buyers participate in the purchase (Chen et al. 2015). The proposition about OGB outcomes is win-win: customers buy products at lower prices, and sellers sell more products and increase their earnings. Consequently, OGB has become one of the most successful and profitable online businesses to emerge since 2008 (Chiu et al. 2018; Erdoğmus and Çiçek 2011).

Over the last decade, OGB has become a popular shopping model especially in Asia (Ku 2012). For example, at least 17% of people in China purchase from OGB websites (Yoo 2015). In 2016, e-commerce retail sales reached US\$752 billion (Tong 2017) where OGB contributed to at least US\$24 billion (Yoo 2015). Therefore, every year, new OGB websites join the e-marketplace and increase competition. Over the fierce competition, many of them encounter declining traffic and purchases (Che et al. 2015; Liu and Sutanto 2012; Zhang and Tsai 2015) while other cease to operate (Liu and Sutanto 2012). It forces vendors to rethink the way they attract and retain OGB customers (Mena and Bourlakis 2016).

It becomes a serious concern for the OGB vendors to understand the customers who would make purchase. Hence, the objective of this study is to understand customers' purchase behaviour from OGB websites. In order to operationalize our research objective, the research question becomes – why a customer buys from a particular OGB website, not from other available OGB vendors operating in the same market? Information systems (IS) studies suggest that whether a customer would buy a product from an e-commerce website is determined by the transaction cost of the channel; they choose the one which offers the lowest transaction costs, assuming the price is same (Liang and Huang 1998). Accordingly, IS studies developed transaction cost models to understand customer behaviour from e-commerce website (e.g., Chircu and Mahajan 2006; Liang and Huang 1998).

In OGB context, Che et al. (2015) used the perspective of transaction cost economics (TCE) to understand consumers' 'revisit intention'. They contend that customers' OGB continuance intention can be explained by three dimensions: predictability, trust, and personalization specificity. Their model, however, did not capture the fundamental basis of OGB i.e., price discount. Moreover, unlike e-retailers, OGB vendor-websites usually do not hold their own products to offer for sale, but function as an intermediary between merchants and buyers, negotiating a discount for the consumers while taking a portion of the sale's margin from producers/merchants. Therefore, information asymmetry is extremely likely (Hossain et al. 2018). Further, Che et al.'s model has been subject to considerable debate on the use of 'personalization' interchangeably with 'customization'; there are significant differences between these terms, a casual or unconcerned use can mis-specify or mislead a model. Also, Che et al.'s study postulates that OGB customers' behaviour can be explained with 'intention to revisit' assuming that customers "make purchase after repeatedly revisiting an OGB website" (p. 588). This is an optimistic assumption because the increase in website visitors in an e-commerce website still may result declining sales (Polites et al. 2018). As Che et al. encouraged others to replicating and challenging their model, in this study, we extended their work by incorporating OGB context-specific variables to understand actual purchase behaviour of OGB customers. Although TCE models have been developed from the perspective of both business as well as customers, because customers are the epicentre of OGB, we capture TCE variables from customer's standpoint.

Our paper delivers three important contributions to IS literature. First, we examine customers' actual purchase behaviour as opposed to their intention. Second, as a dimension of uncertainty of TCE theory, we introduce 'price discount' as a belief-related antecedent of OGB customer behaviour. Finally, we investigate the link between information asymmetry and purchase behaviour positing that such relationship is contingent upon prior customers' review. This relationship provides assistance for OGB businesses in reducing information asymmetry.

The paper is organized as follows. First, it reviews the TCE in the OGB context along with discussing the limitations of the Che et al.'s OGB acceptance model. Then, the research model and a set of hypotheses are developed. Next, the method and results are then presented. Finally, the results are discussed.

2 BACKGROUND

2.1 Transaction cost economics and OGB

The transaction cost economics (TCE), developed by Williamson (1979), identifies the critical dimensions with respect to which transactions differ. Scholars defined *transaction* as an exchange between a customer and a retailer in which these two parties obtain something from each other at a cost to each (Chircu and Mahajan 2006). It suggests that customers choose a vendor with which the transaction costs – the set of costs incurred by the customer in each transaction – are minimum. When other factors remain same, if transaction costs are negligible, customers can select a vendor purely on the basis of the price of the product (Chircu and Mahajan 2006; Liang and Huang 1998). This notion is applicable on online environment including e-commerce. TCE identifies uncertainty, frequency of exchange/transaction, and asset specificity as the principal dimensions describing transactions. Prior studies (e.g., Liang and Huang 1998) infer that, for e-commerce, uncertainty and asset specificity affect customer behaviour.

Recently, Che et al. (2015) conceptualized the OGB acceptance variables in the light of TCE. They postulated that consumer behaviour (e.g., revisit intention) is directly associated with two factors: asset specificity and uncertainty. First, *asset specificity* is the degree to which investments are transaction-specific. In other words, it is the degree to which durable transaction-specific investments are incurred (Williamson 1979). Asset specificity, in the context of OGB, refers to the superiority of one OGB vendor to others. Che et al.'s study considered two variables under *asset specificity*, namely trust, and personalization. On the other hand, *uncertainty* is the factor that influences transaction costs. Cheon et al. (1995) found that the degree of uncertainty in the environment impacts the contract and its fulfilment. In OGB, Che et al. considered 'unpredictability of OGB websites' as the variable of *uncertainty*.

Although Che et al.'s model received a good attention by the IS scholars within the OGB domain, it possesses some imitations. As mentioned in the introduction: (i) it conceptualized and used 'personalization' as synonymous to 'customization; in practice, these are different, (ii) without evidence, it made an optimistic assumption that 'intention' results in actual purchase, and (iii) it did not capture the uncertainty while making a transaction due to information asymmetry, which is important both in TCE as well as in OGB. While the third issue will be discussed in the third section (model development), the first two burning issues are discussed in the following sections.

2.2 Personalization vs. customization

Che et al. considered *personalization* as a dimension of *asset specificity*. Like them, many other IS studies often use *personalization* and *customization* interchangeably, although they have "completely different meanings and implications" (Davis 2018). "While both personalization and customization achieve the same goal—an experience tailored to a user's interests—the paths used to reach this objective are different" (Babich 2017).

Personalization can be defined as "the process of individualized matching to consumer preferences through automated processes in the web environment" (Salonen and Karjaluoto 2016, p. 1090). In e-commerce context, personalization is an automated process through which a website tailors the contents (e.g., products and services, personalized special offer, product suggestion) and structure of the website by matching the preferences of each individual customer. On the contrary, when personalization is done from the customer/user end, it's called *active personalization* or *customization*. *Customization* is the action of configuring/modifying the content or structure of an IS (e.g., website, apps) – done manually from the customer end – to suit an individual customer. Hence, "most researchers distinguish personalization as a company-initiated, automatic process, whereas customization is user initiated" (Salonen and Karjaluoto 2016, p. 1089).

OGB websites offer hundreds of products – sometimes too many to follow. Hence, OGB vendor websites may send notifications about their special offers of some selected items where the selection of items is based on an automatic analysis using customer data (personalization). On the contrary, customers may choose what they want to see on the dashboard when they log in (customization). In this study, we capture the customization feature of the OGB websites for two reasons. First, this is the most commonly-practiced mechanism in e-commerce (Cho and Fiorito 2009). Second, on the light of TCE, *customization* is a better construct than *personalization* because customization imposes interaction cost (the sum of efforts that the users must deploy in interacting with an OGB website in order to make a transaction) (Budiu 2013). It also requires regular investment from the customer (e.g., for updating preferences) – such idiosyncratic investments would serve to increase the costs of any

transactional relationship with a vendor. Furthermore, customization is based on natural intelligence of the users (Babich 2017) whereas personalization is done by the system and do not involve any investment or interaction cost from the users end. Interestingly, two out of three items Che et al. used to measure *personalization* directly denote rather *customization*: *I have put some effort into adapting the OGB website to meet my needs, I have chosen features offered by the OGB website to meet my needs* (emphasize added). Therefore, in this study, from the perspective of OGB, *customization* (than *personalization*) is considered as a variable of *asset specificity*.

1.1 Intention versus actual behaviour

Marketing theories consider that customers' intention to revisit a shop or intention to repurchase is critical for any business because it reduces losing customer as well as increase possibility of future sale. IS domain is alike; in e-commerce, customers' revisit intention to a particular website¹ is considered as an active and self-starting approach for recurrent visit of the website. IS theories suggest that *actual use* of an IS information technology/system is influenced by users' *intention to use* of the system. The effort to understand customers' *revisit intention* is reasonably reported in OGB literature (e.g., Chen and Lu 2015; Hsu et al. 2014). They believe that understanding customers' revisit intention is important. For example, Che et al. (2015) demonstrated that, unlike traditional e-commerce websites, OGB websites provide a very limited range of products for a relatively short period of time; therefore, "a customer is only able to obtain his or her optimal choice and make a purchase after repeatedly revisiting an OGB website" (p. 588). Moreover, it has been observed in last couple of years that hundreds of OGB websites join the e-marketplace in every month while those OGB businesses share only the few customers who know the existence of OGB websites and how they work – as a result the websites are increasingly losing visitors. In order to survive, OGB websites need to ensure a relatively steady flow of online visitors.

However, contrary to prediction, although the e-commerce websites are having consistent (or even sometimes increasing) flow of visitors, the actual number of purchase declining (Ciciora 2012). With the same tone, IS scholars suggest that rather than examining user/customer attitude and intention, ascertaining actual usage criteria is more important because usage is considered 'as a surrogate measure for information systems success' (Taylor and Todd 1995, p. 144). Therefore, to study *actual purchase behaviour* of the customers, not merely their *intention*, is more important to investigate.

3 RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

The research model is divided into two parts. Using TCE perspectives, the first part discusses the antecedents of purchase behavior of OGB customers while the second part introduces a moderating effect. Based on TCE, it is postulated that *information asymmetry* and *price discount* are two variables of *uncertainty*. Next, opportunism is a central concept of TCE where few firms may take advantage of information asymmetry for making transaction-specific investments (Williamson 1979). Unlike e-commerce business model where customers, in most cases, purchase direct from an e-retailer, OGB involves multiple supply-side partners (e.g., producer, merchant, OGB vendor) in one side and a group of customers in another side – all involved in a single transaction. That makes this business model complex where information asymmetry is more likely to occur and grow. Similarly, the price discounts OGB websites offer involves uncertainty. Generally, offers (i.e., size of discount) increase with time and number of people participating in the transaction. OGB customers cannot predict price discounts precisely and therefore sometimes miss the purchase opportunity.

As the variables of *asset specificity*, *perceived reputation* about OGB vendor and *customizability* of OGB website comprise transaction costs – both represent the investments a customer makes to purchase from an OGB vendor. Prior studies (e.g., Gregg and Scott 2006; Pan 2011) suggest that vendor reputation eliminates online frauds and builds consumer confidence. To improve image and gain customer confidence, many online stores invest in advertisements, employ celebrity endorsement, and collaborate with well-known companies (e.g., eBay auction, PayPal). Furthermore, OGB customers prefer to customize their OGB websites in order to avoid information overload but not to miss a discounted offer for his/her preferred products.

¹ Mobile applications (i.e., apps) are merely different platform of websites that offer almost same features offered in a website

3.1 Antecedents of Purchase Behaviour

3.1.1 Information Asymmetry

Christozov et al. (2009) claim that *information asymmetry* is a natural property in *e-commerce*; OGB is not an exception. The lemon market theory (Akerlof 1970) suggests that low-quality sellers (i.e., lemons) may drive high-quality sellers (oranges) out of the business and the quality-sensitive consumers may leave a market if the prospective buyers do not have access to the relevant information to accurately assess the value of a product before a sale is made – *information asymmetry* (Ghose 2009).

Unlike online direct marketing and e-retailers, as mentioned earlier, OGB (vendor) websites function as an intermediary between merchants and customers. For OGB vendors, it can be complex to provide accurate product information from merchants to customers, or consumer feedback to merchants. When such multi-way communication is poorly-managed, information asymmetry is a consequence. For instance, when customers struggles to find about the legitimacy of the online transaction or information about refund policy, either they do not commit the purchase or may wrongly choose low-quality vendor (adverse selection) (Dewan and Hsu 2004). It may result in the deterioration of consumer perceptions about the overall quality of the market as well towards the individual sellers and deter them from making any purchase (Wells et al. 2011). Thus:

H₁. Customers' perceived information asymmetry about an OGB website will have a negative influence on their purchase behavior.

3.1.2 Price Discount

Following the most effective traditional marketing strategy i.e., price promotions (Palazon and Delgado-Ballester 2009), the main strategy of OGB businesses is providing consumers high discounts to inspire bulk-selling. In OGB context, Zhang et al. (2013) empirically showed that 'discount rate' improves buyer number and customer satisfaction. Moreover, Erdoğan and Çiçek (2011) found that OGB customers mostly based their decisions on price advantage and discount amount; more specifically, discount is the primary motivator for engaging in OGB.

Since purchasing from an OGB website is purely a choice of the customers, it is reasonable to assume that the customers will go with one that offers higher discounts, assuming other costs remain same. However, given that a fundamental basis of OGB business model is price discount, it is remarkable that the relationship between price discount and purchase intention is rather assumed or taken for granted than empirically validated. Although prior studies prove that higher price discount results higher buying intention in offline stores (Alford and Biswas 2002), still such relationship in OGB is rather anecdotal in nature. Therefore:

H₂. Customers' perceived price discount will have a positive influence on their purchase behavior.

3.1.3 Perceived Reputation

Reputation is "a perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals" (Fombrun 1996, p. 72). In an online environment, consumers have limited cognitive resources available and thus seek to reduce uncertainty by applying mental shortcuts such as perceived reputation (Ku 2012). As online customers experiences cybercrimes, particularly those related to transaction and non-delivery, they feel comfortable making purchases when are signaled that an e-vendor is sincere about its reputation. Prior studies identified perceived reputation as an important antecedent of consumers' shopping behavior in OGB sites (e.g., Hsu et al. 2014; Liu et al. 2013; Zhang and Gu 2015). Therefore:

H₃. Customers' perceived reputation about an OGB website will have a positive influence on their purchase behavior.

3.1.4 Perceived Customizability

Retailers can increase customer value by lowering transaction costs. In this regard, technologies support (e.g., customization) customer activities in product lifecycle that in turn enhance customer service. *Perceived customizability* refers to the extent to which the users of an information system believe that the system can be modified and customized according to their preferences. It is the feature of a system where users are given the ability to customize processing for their particular need while using the system (Rangel 1968). Customizability service is provided to input, store, access, and modify

user-specified options. An OGB website offers hundreds of products/services while the promotions do not usually valid for more than a day. Therefore, an OGB website may enable users to customize or make changes to meet their specific needs by configuring layout, content, or functionality; they would receive notifications when the programmed products are on sale. Given that customer preference is in the epicentre of e-commerce, IS studies consider customizability to be an effective tool for achieving success in online business (Salonen and Karjaluoto 2016). Specifically, customizability increases customers' adherence to the website and positively affects their purchase intention. Therefore:

H₄. Customers' perceived customizability of OGB website will have a positive influence on purchase behavior.

3.2 Moderating Role of Prior Customers' Review

In OGB, customers often need to make purchase decisions with incomplete or asymmetric information (Hossain et al. 2018). Information asymmetry may result high uncertainty in OGB markets, which can be mitigated through proper signaling mechanisms. Accordingly, in e-marketplaces, before making a purchase decision, in order to reduce uncertainties, (prospective) customers generally access to product reviews (e.g., star rating and open-ended customer-authored comments). Customer review is related to TCE. For any purchase, the total cost of a product includes both the product cost and search cost. In online environment, customers can use prior customers' review to improve the purchase decision process and reduce search costs. In general, the availability prior customer reviews on a website has been shown to increase "stickiness" and sales volume (Ghose and Ipeiotis 2006). In OGB, prior customers' review can moderate the relationship between information asymmetry and purchase behavioural. For example, a potential customer who intends to purchase from an OGB website may not commit the purchase if s/he finds that the previous customers' review about that particular website/product is unfavourable. Therefore, although information asymmetry may reduce the motivational drive to exhibit customer behavior (i.e., purchase), prior customers' reviews reduce such effect. Thus:

H₅. The relationship between customers' perceived information asymmetry and their purchase behavior will be moderated by prior customers' reviews.

4 METHOD

All of the measurement items have been adapted from existing literature (see appendix). The items used a five-item Likert type scale ranging from 'strongly agree' to 'strongly disagree'. The primary version of the questionnaire was developed in English and then translated into Mandarin, which was then used to conduct the survey. We conducted a pre-test with 12 convenient samples to ensure that the question instructions, content, wording, sequence, format, layout, and question difficulty were appropriate. Upon responses from the pre-test, we made context-specific adjustments to refine the final version of the questionnaire.

A survey questionnaire was employed to collect data from a professional online survey website in China. A total of 237 potential respondents attempted to participate in the online survey, but 29 responses had more than 10% missing values. Hence, 208 effective responses were collected. The majority (52%) of the respondents are less than 22 years old (where 17% between 23-35, 13% between 36-40, and 12% between 41-50 years). Around 60% completed bachelor and have at least five years of Internet use experience. A Mann-Whitney U Test rejected any significant non-response bias. Then, to evaluate common method bias, we applied marker variable technique (by introducing a marker variable that is theoretically unrelated with at least one variable). To test the research model, this study used partial least squares (PLS) method, specifically SmartPLS software (Hair Jr et al. 2017).

5 DATA ANALYSIS AND RESULTS

To assess the measurement properties of the research model, we checked internal consistency reliability, convergent validity and discriminant validity. First, the individual items are reliable because all standardized loadings are greater than 0.6 (Igarria et al. 1995). Second, all constructs meet the requirement of construct reliability, since their composite reliabilities are greater than 0.7 (Hair Jr et al. 2017). Third, the latent variables achieve convergent validity because their average variance extracted (AVE) surpasses 0.5 level (see appendix). Finally, confirmation of discriminant validity comes from Fornell and Larcker criteria. We additionally checked the cross-loading matrix and found that each item loads highest on the construct it is linked to.

Next, to assess the hypotheses, the direction of the path coefficients, magnitude of the *t*-statistics, and significance of *p* values were checked (presented in Table 1).

Hypotheses	<i>Path coefficient</i>	SE	<i>t</i> value	Hypotheses	<i>Path coefficient</i>	SE	<i>t</i> value
Info. Asymm. to PB	-0.136	0.051	2.688**	Reputation to PB	0.017	0.070	0.261 ^{ns}
Customizability to PB	0.255	0.072	3.634***	Price Discount to PB	0.422	0.064	6.615***

Table 1. The hypotheses testing

Note. SE – standard error, ns – not significant; * $p < 0.05$, ** $p < 0.005$, *** $p < 0.001$

Finally, we performed the moderation test. Before running the moderation test, first we confirmed that the moderator's measurement properties (item loadings, composite reliability, and AVE) are above the threshold limit. Further, Table 1 indicates that the inter-correlations among the moderator and the other variables are satisfactory. To examine the moderating effects, we used the two-stage approach because it 'is versatile and should generally be given preference for creating the interaction term' (Hair Jr et al. 2017, p.263). We used the 'moderating effect' function in SmartPLS and chose the 'standardised' product term generation method and 'automatic' weighing mode. The results ($\beta = -0.101$, SE = 0.059, $t = 1.717$, $p < 0.05^2$) confirm the significance of the moderator because the path-coefficient of the interaction variable (Review*Information Asymmetry–Purchase Behaviour) is significant. The inclusion of the moderator in the main model increased R^2 value ($\Delta R^2 = R^2_{\text{interaction}} - R^2_{\text{main}} = 0.464 - 0.447 = 0.017$). Thus, the results provide support for H_5 .

6 DISCUSSION

Overall, the data analyses suggest that customers' decision to make purchase from an OGB website (than the others) is dependent on three factors: information asymmetry, price discounts, and customizability of the website. In addition, the effect of information asymmetry on purchase behavior is affected by signaling prior customers' review to new customers. We now discuss the results and implications.

Prior studies (e.g., Hossain et al. 2018) confirm that information asymmetry reduces customers' intention to purchase from an OGB website. Our study reiterates and adds that information asymmetry also negatively impacts the actual purchase behavior. This is supported by TCE where customers reject to perform a transaction that involves high uncertainty. As e-commerce proceeds and becoming a part of modern lifestyle, customers expect all relevant information accessible with little or no effort. For example, when customers are not sure about the security of the website (i.e., to transact), to avoid uncertainty, they may look for related information including refund policy. If that information is not clearly available, customers are less likely to purchase – even though the website can have strong SSL security features. Similarly, customers are getting more concerned and want to know more about products including the source and the raw materials used, the manufacturing process and the manufacturer, and value-added information throughout the supply chain etc. The provision of providing all relevant information may reduce information asymmetry in OGB marketplace.

The effect of information asymmetry, however, can be reduced by disseminating previous customers' review. In offline environment, upon visiting a retail store, customers can touch and feel a product and possibly check the quality too. In online environment, however, customers have limited cognitive resources available and thus seek to reduce uncertainty by applying mental shortcuts, such as prior customers' feedback, service rating, and electronic word of mouth (eWOM). It is plausible that, in the presence of information asymmetry, prior customers' review can assist the customers to take a purchase decision (in both ways – positively or negatively). Therefore, customer review is a factor that OGB (website) managers needs to consider with due importance. As we did not find a direct relationship between customers' review and purchase behavior, our study posits that customers value the prior customers' review only when they do not find sufficient information from the website. In other words, in the absence of information asymmetry (i.e., the ideal world where all information is available), customers do not value the prior customers' review; rather, they take a purchase decision based on their first-hand judgement, which is based on the available information and personal cognition.

² One-tail test

Without an empirical evidence, prior studies suggest that high price discount is the main motivation for buying products and services from OGB website – our study validates such proposition. In OGB, it involves uncertainty about the timing and the amount of the 'best' deal. Generally, the discount increases with the number of people join the purchase process (and thus time); however, someone may miss the discount if the deal is over (although sometimes the deadline of the offer is mentioned explicitly). As because price discount is essentially driving a large number of customers into the OGB marketplace, the OGB vendors may reduce the uncertainty involved with the discounts by disseminating the duration and mechanism of the size of the discounts (e.g., dynamic discounting).

In terms of asset specificity, we did not find support for reputation but perceived customizability on purchase behavior. First, rejecting the previous research studies (e.g., Hossain et al. 2018; Shiau and Luo 2012), it is strange not to find the influence of reputation. Based on the findings of previous studies and the current study, it is observed that perceived reputation is an antecedent of purchase intention, not of the actual purchase behavior. It means, to form the initial evaluation about an OGB vendor, reputation may play a role; but for the actual purchase, customers value other factors (e.g., price discount) than the reputation. Moreover, the prior customers' review might have ruled out the importance of perceived reputation where customers may get an overall idea about the performance of the respective OGB vendor, which plays as a proxy of reputation. In addition, the non-obligatory refund and refund policy of the OGB websites may have reduced the influence of reputation on actual purchase decision. However, by any means, we do not suggest stopping reputation-enhancing mechanisms.

The results indicated that customizability of the OGB website had strong positive influence on customers' purchase behavior. OGB customers value the investment (effort and time) for customizing their OGB website – better customization means customers do not miss the products/services they are looking for and once they are available (i.e., on sale), customers buy them. With the busy urban, people do not have time to browse every day and look for the products from thousands of products, consisting both necessary and unnecessary for a specific customer. Hence, updating the customers about their preferred products' arrival is a good way to keep them engaged with the OGB website – the customers do not miss an offer for his/her preferred product and the OGB vendor enjoying customer loyalty. However, OGB websites cannot sit relax and fully rely on the customization because (although by customization each customer can get exactly what they want because they are in control) many customers may not know how to customize or how to best customize the website or even are not sure what they actually need. For the common customers, the generic site should cover the need of most customers. Also, the OGB website needs to make sure that the customers know the availability of customization feature with a step-by-step guideline to setup the preference.

7 CONCLUSION

This study investigated purchase behavior of OGB customers by applying transaction cost theory. From a survey data, the results posit that the purchase decision of OGB customers is determined by three factors: higher price discounts and customizability of OGB website enhance the possibility of a purchase transaction whereas information asymmetry reduces it. Furthermore, information asymmetry can be reduced by proper signaling mechanism such as disseminating reviews from prior customers (reviews can be manipulated to some extent but such debate can be addressed in future). Although our study has several implications, it is appropriate to acknowledge its limitations too. First, to assess customers' actual purchase behavior, we relied on a survey-based self-reported approach and did not collect actual purchase data. This means our measures of 'actual purchase behavior' are subjective and susceptible to potential recall bias (Park et al. 2016). However, to minimize the risk of recall bias, we asked participants to recall their purchase behavior from an OGB website they had made shopping within the last month. Second, the perceptions and decision-making process may change over time and with the number of purchase made where some of the factors we examined may not be relevant. A longitudinal study may reduce such limitations. And finally, our research and research model has been validated with data from China, which should be generalized in future.

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Appendix. Measures and properties

Construct	Items	Source
Information Asymmetry (CR=0.856; AVE=0.666)	It is difficult to have a good idea about the quality of the products offered at this OGB website	Wells et al. (2011)
	It is difficult to have sufficient information about the products offered at OGB site to evaluate them effectively	
	I possess adequate information about the products offered at this OGB website (reverse coded)	
Perceived Price Discount (CR=0.822; AVE=0.537)	I believe I get price discount on every purchase I make from this OGB website	Kauffman et al. (2010)
	The discount offers in the OGB website are attractive	
	The discounts offered in this OGB website are usually higher than those from other channels The discounts of this OGB website are reasonable	
Perceived Reputation (CR=0.843; AVE=0.575)	I can see lot of advertising of the OGB vendor	Fombrun et al. (2000)
	The OGB vendor has non-negative media coverage	
	People around to me talk positively about the OGB vendor People important to me discuss positively about the OGB vendor	
Customizability (CR=0.816; AVE=0.531)	This OGB website is customizable to meet my needs	Srinivasan et al. (2002) and Che et al. (2015)
	In this OGB website, I can choose the features offered by the OGB website that meet my needs	
	The promotions of this OGB website can be customized to meet my need In this OGB website, I can select my needs based on which purchase recommendations are made	
Prior customers' review (CR=0.827; AVE=0.616)	Generally, I pay attention to prior customers' rating regarding products for group buying	Chen and Lu (2015)
	I find prior customers rating of this OGB website as reliable	
	Prior customers' ratings regarding products for group buying is well intended Products with good customer ratings attract my attention	
Purchase behaviour (CR=0.892; AVE=0.734)	In past one month, I made purchase(s) from this OGB site	Bhattacharjee et al. (2008)
	A percentage of my shopping was made from this OGB site in last one month	
	Purchasing from this OGB site is worthy	

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