

## Exploring the effects of extrinsic motivation on consumer behaviors in social commerce: Revealing consumers' perceptions of social commerce benefits



Xuequn Wang<sup>a</sup>, Xiaolin Lin<sup>b,\*</sup>, Marilyn K. Spencer<sup>c</sup>

<sup>a</sup> School of Engineering and Information Technology, Murdoch University, Perth, WA, 6150, Australia

<sup>b</sup> Department of Computer Information and Decision Management, Paul and Virginia Engler College of Business, West Texas A&M University, Canyon, TX, 79016, United States

<sup>c</sup> Department of Decision Sciences and Economics, College of Business, Texas A&M University-Corpus Christi, Corpus Christi, TX, 78412, United States

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### ABSTRACT

The rise of social media has created a new e-commerce platform called social commerce. In social commerce, e-vendors such as Amazon may integrate social media with their traditional e-commerce sites. Based on self-determination theory and social commerce literature, we develop a model illustrating how social commerce features may impact consumer behaviors and facilitate social commerce benefits from the extrinsic motivation perspective. We identify four types of extrinsic motivation including external motivation, introjected motivation, identified motivation, and integrated motivation; and we examine their influences on consumers' intention to contribute social commerce information, which in turn leads to their subsequent behaviors and increases the perceived benefit of social commerce. We also consider the moderating effect of gender in the formulation of social commerce benefits. Based on longitudinal survey data from Amazon consumers, we find that 1) consumers' external and identified motivation has a positive impact on intention to contribute social commerce information; 2) consumers' intention is positively associated with their future behaviors, which in turn facilitate their perceptions of social commerce benefits; and 3) gender moderates the impact of behavior on social commerce benefits.

### 1. Introduction

The intersection of social media and traditional e-commerce has given the rise of a new world, *social commerce*. As a new form of e-commerce, social commerce facilitates new channels for consumers to improve not only their purchase decisions but also shopping experiences via its primary features, such as user interactions and user-generated content (e.g., Alalwan, Rana, Dwivedi, & Algharabat, 2017; Dwivedi, Kapoor, & Chen, 2015; Hajli, 2015; Kapoor et al., 2018; Kim & Kim, 2018; Liang, Ho, Li, & Turban, 2011; Ng, 2013; Zhang, Guo, Hu, & Liu, 2017). Social commerce offers an innovative channel for enterprises to build brand loyalty and promote sales through customer engagement in social networking sites (SNSs) such as Facebook (Lee, Lee, & Oh, 2015; Zheng, Cheung, Lee, & Liang, 2015). Social commerce thus provides a social media-based approach for business practices and has gained increasing attention from researchers. Therefore, capturing the essence of consumer behaviors in social commerce is essential for both researchers and practitioners to gain insights into the implementation of social commerce (Zhang & Benyoucef, 2016).

Consumer behaviors may vary depending on specific social

commerce scenarios, including adding commercial features into social media and/or adding social media features into traditional e-commerce (Huang & Benyoucef, 2013; Liang et al., 2011; Lin, Li, & Wang, 2017; Zhang & Benyoucef, 2016). Prior studies have mainly focused on the first scenario and explicated how consumers behave in responding to commerce activities in the context of SNSs (e.g., Hajli, 2015; Hajli & Sims, 2015; Liang et al., 2011; Zhang, Lu, Gupta, & Zhao, 2014; Zheng et al., 2015). However, there is relatively little literature that focuses on explaining consumer behaviors in the second scenario - adding social media features in e-commerce. Consumers may behave differently across various scenarios and these differences have important implications for theoretical development and informing practitioners guidelines. In the first scenario of adding commercial features into social media, consumers tend to build relationships with each other through social interactions and the exchange of social support, which affects their purchase decision behaviors (Liang et al., 2011; Ng, 2013). In the second scenario of adding social media features into traditional e-commerce, consumers' real identities are often inaccessible and they may not be able to maintain their social circles on e-commerce sites. Therefore, the social interactions between consumers in the second scenario may be

\* Corresponding author.

E-mail addresses: [xuequnwang1600@gmail.com](mailto:xuequnwang1600@gmail.com) (X. Wang), [xlin@wtamu.edu](mailto:xlin@wtamu.edu) (X. Lin), [Marilyn.Spencer@tamucc.edu](mailto:Marilyn.Spencer@tamucc.edu) (M.K. Spencer).

weaker than those in the first scenario, and there may be other mechanisms to support their information contributing. Because consumers have been actively seeking online customer reviews, searching peer advices, and following peer recommendations when they shop at traditional e-commerce sites (Zheng, Zhu, & Lin, 2013), it is important to understand how consumers engage in information contributing in such a scenario, to provide insights for business practices.

Social commerce behaviors have offered consumers various advantages, such as acquiring valuable product-related information for purchase decisions making (Ng, 2013, Liang et al., 2011). Social commerce has thus been beneficial to consumers for online shopping outcomes. However, such benefits have not yet been clearly identified. Consumer impacts of Information Systems (IS) evolve as technology advances, and the measures then change accordingly (Petter, DeLone, & McLean, 2012). To gain insights into consumer impacts of social commerce behaviors and the motivation behind them, we bring the social commerce benefit concept from the consumer perspective, based on the net benefit proposed in the DeLone and McLean success model (DeLone & McLean, 2003, 2004). To summarize, *our first research objective is to conceptualize consumers' social commerce behaviors and empirically test the impacts of these behaviors on consumers' social commerce benefits in this special social commerce research context - adding social media features into e-commerce, aiming to filling in the research gap.* In terms of consumers' social commerce behaviors, our study focuses on social commerce information contributing because it is vital in the context of social commerce and generates relevant product-related information for other consumers.

As consumers' behaviors are voluntary and there are no centralized control mechanisms, researchers and practitioners are interested in how consumers are motivated to engage in social commerce information contributing. Since the main purposes of consumers' social interactions, e.g., product information exchange, are to learn more about products and make purchase decisions, their extrinsic motivation, coming from outside individuals (Porter & Lawler, 1968) is often examined. Previous studies have investigated how various factors, including relationship quality, social support, web quality, sense of belonging, can motivate consumers to engage in social commerce behaviors (Cheung & Lee, 2012; Liang et al., 2011; Zhang et al., 2014). The underlying assumption is that consumers' extrinsic motivation is treated as a unitary concept only differing in amount. In other words, the total extrinsic motivation consumers have is treated as a single variable which in turn influences social commerce information contributing.

However, according to self-determination theory (SDT), individuals' extrinsic motivations differs not only in magnitude but also in type (Deci & Ryan, 2000; Ryan & Deci, 2000). Depending on the level of self-determination, extrinsic motivation is a spectrum including external, introjected, identified, and integrated motivation. The continuum proposed by SDT can provide deeper understanding of extrinsic motivation (Ke & Zhang, 2010; Wang, Clay, & Forsgren, 2015). For example, Ke and Zhang (2010) argue that this continuum allows researchers to better categorize different motivating factors and to examine how different types of extrinsic motivation affect open source software (OSS) participation. Wang et al. (2015) also suggest that this expanded view provided by SDT can help explain inconsistent findings in previous literature regarding the effects of motivation on knowledge contribution. *Therefore, our second research objective is to examine how different types of extrinsic motivation influence consumers' social commerce information contributing.*

Our study brings a new research theme into the e-commerce environment, where social media and consumer behaviors meet and create new value from the consumer perspective. Our study focuses on explicating how consumers may use social commerce features and thereby acquire benefits when shopping online. Our study makes three important contributions to previous literature. First, social commerce behavior has been mainly operationalized into the exchange of shopping experience and product recommendation in SNS-based social commerce environment in prior studies (e.g., Chen & Shen, 2015; Ko, 2018). Distinguishing from the previous literature, our study provides an enhanced understanding of consumer social

commerce behaviors by involving rating and customer reviews and extending it to the under-represented social commerce context – adding social media features into e-commerce. Therefore, our work can fill in the research gap by conceptualizing social commerce behaviors in the under-presented social commerce scenario. Also, following the recommendation of Sharma, Yetton, and Crawford, (2009), our study conducts two rounds of the survey to reduce the effect of common method variance (CMV) and demonstrates the longitudinal effect of intention on social commerce behaviors.

Second, our study introduces the social commerce benefit construct and empirically tests how it is formulated through social commerce information contributing. Net benefits have not been well tested in IS due to their complexity with multiple stakeholders (DeLone & McLean, 2003, 2004). Therefore, from the consumer perspective, our work advances the literature by empirically testing the influences of consumers' social commerce information contributing intention/behavior on their perceptions of social commerce benefits. In the meanwhile, it advances the IS success model to the emerging social commerce context, thus providing further insights to developing a contextual model by leveraging new technology features (Hong, Chan, Thong, Chasalow, & Dhillon, 2013). It thus illustrates how new information technology (IT) may generate consumer impacts and demonstrates how net benefit could be empirically measured, which is considered a challenge in IS literature (DeLone & Mclean, 2004; Petter et al., 2012).

Further, our study uncovers how male and female consumers develop their perceptions of social commerce benefits differently. We find that the importance of social commerce information contribution differs between men and women. These research findings provide further insights and help e-vendors more effectively encourage individual consumer social commerce behaviors and improve consumer perceptions of social commerce benefits. It is among the very first studies demonstrating that IT use could generate different gender impacts in a particular scenario.

Third, our study contributes to social commerce literature by clarifying the effects of different types of extrinsic motivation on social commerce information contributing. Although the continuum of extrinsic motivation proposed by SDT is important and useful, few studies have examined all four types of extrinsic motivation. One exception is from Ke and Zhang (2010), who examine the effect of four types of extrinsic motivation on OSS task effort. By conceptualizing different types of extrinsic motivation, our study can provide deeper understanding of consumers' extrinsic motivation in social commerce. Our results can then be compared to those from Ke and Zhang (2010) to better understand the effects of extrinsic motivation across different contexts. Our study can also provide useful guidelines for e-vendors operating social commerce sites. Since the resources of e-vendors are limited, the results of our study can inform e-vendors concerning which type(s) of extrinsic motivation to focus on.

The rest of the paper is organized as follows. First, we review previous literature on social commerce, explicate social commerce behaviors, and conceptualize social commerce benefit in our study. Second, we introduce our theoretical foundation and then identify different types of extrinsic motivation, from which we then develop our hypotheses. Next, we state our data collection procedures, measurement, data analysis and results. Finally, implications, limitations, as well as opportunities for future studies are discussed.

## 2. Literature review

In this section, we start with the relevant literature on social commerce and delineate social commerce behaviors in term of social commerce information contribution; and second, we explain the foundation provided by literature on social commerce benefits from the consumer perspective. Then, we discuss the theoretical foundation and identify four types of extrinsic motivations of social commerce - including external motivation, introjected motivation, identified motivation, and integrated motivations.

## 2.1. Social commerce and consumer behavior

Social commerce provides an innovative approach for building interactive beneficial consumer-to-consumer communications. Consumers, as volunteers, contribute product-related information and their personal shopping experiences on SNSs (Liang et al., 2011; Zhang et al., 2014). Consumers have been actively engaged in such social commerce behaviors, which spread commercial-related information and create various profitable business values (Hajli, 2015; Stephen & Toubia, 2010). For example, in social media brand communities, companies can achieve some important competitive advantages such as branding co-creation, brand loyalty and social capital through users' SNS participation (e.g., Kamboj, Sarmah, Gupta, & Dwivedi, 2018; Shiau, Dwivedi, & Yang, 2017). Social commerce thus provides a social media-based approach for changing business practices and services. Companies can present their products and engage their customers in social media platforms with the aims of promoting products, branding, sales, and other business values. Adding commercial features to SNSs has framed one type of social commerce and gained a lot of attentions from both researchers and practitioners (Liang et al., 2011; Ng, 2013; Shareef, Mukerji, Dwivedi, Rana, & Islam, 2017; Shareef, Mukerji, Alryalat, Wright, & Dwivedi, 2018; Zhang et al., 2014; Zheng et al., 2015). These studies have uncovered the core of social commerce behaviors, that is, consumer-generated content. The exchange of consumer-generated content is beneficial in providing useful information for consumers to make more-informed purchase decisions. It also provides useful marketing information for companies to achieve their business goals.

Social media has been integrated into traditional e-commerce websites, which framed another type of social commerce. The integrated social media features enable consumers to create and exchange product-related information with other consumers on e-commerce sites as well as on SNSs. Social commerce is defined as “any commercial activities facilitated by or conducted through the broad social media and Web 2.0 tools in consumers' online shopping processes or business' interactions with their customers” (Lin, Li, & Wang, 2017, p. 191). According to this definition, adding social media features into e-commerce have facilitated social commerce behaviors that reflect the impacts of social media features on consumer purchase behaviors in the e-commerce environment. For example, online reviews and instant messenger, two primary social media features, have been found to be positively related to repurchase intentions by indirectly increasing consumer trust in sellers in Taobao, a popular Chinese e-marketplace (Chong, Lacka, Boying, & Chan, 2018). For another example, in Taobao, consumer learning behaviors from forums and communities, ratings and reviews can increase their purchase intentions through both cognitive appraisal and appraisal based on social learning theory (Chen, Lu, & Wang, 2017). As such, ratings, reviews, consume comments, recommendations, referrals, and commercial-related sharing have been identified as the core features of social commerce behaviors (Hajli & Sims, 2015; Hajli, 2015; Ng, 2013).

Social commerce features allow consumers to acquire useful information in multiple ways and assist with their purchase decisions. For example, customer ratings and reviews provide independent evaluation of products from other customers. Consumers may use these social commerce features for exchanging product-related information to assist with product evaluations and purchase decision making (Amblee & Bui, 2011; Hajli, 2015). Consumers may also share product links, their personal consumption information and shopping experiences on SNSs such as Facebook and Twitter. Via information contributing on SNSs, consumers may develop good social relationships with each other and thus advise each other and provide recommendations in the purchase process (Liang et al., 2011; Ng, 2013). In summary, consumers may contribute valuable and reliable information about products when they are shopping through social commerce features in the e-commerce setting. Simultaneously, social commerce features have facilitated

consumers' social experiences and social interactions via the exchange of personal shopping-related information, and thus have provided social support for each other, to improve purchase decisions when shopping in e-commerce (Hu, Dai, & Salam, 2018; Liang et al., 2011; Liu, Cheung, & Lee, 2016; Zhang et al., 2014).

Information contributing is the foundation of information exchange between consumers, (i.e. Chen & Shen, 2015; Phang, Kankanhalli, & Sabherwal, 2009), and previous studies have examined various social commerce contributing behaviors (i.e., Hajli, 2015; Hajli & Sims, 2015; Liang et al., 2011; Zhang et al., 2014). Information contributing is commercial-oriented, and consumers have clear commercial purposes when engaging in the exchange of social commerce information. Social commerce features have enhanced people's social experiences in online shopping due to the nature of the relationships and social interactions (Liang et al., 2011). This study defines *social commerce information contributing* as using social media features to contribute commercial-related information in e-commerce sites.

## 2.2. Social commerce benefits

In the updated Delone & McLean Success model, Delone and McLean (2003) proposed to combine “individual impact” and “organizational impact” into a single impact called “Net Benefits”. Net Benefits are the most important success measures, addressing complex impacts of IS systems (Delone & McLean, 2003). However, this new construct has not been broadly explicated, conceptualized, and empirically tested in the IS discipline due to its complexity with multiple stakeholders (Delone & McLean, 2003, 2004). For example, in a more recent study, Wang (2008) proposed an e-commerce success model for measuring measures the success variables from a consumer perspective using the six IS success dimensions including: information quality, service quality, perceived quality, perceived usefulness, User satisfaction and IS use/intention to use. However, the construct net benefits were not integrated in the e-commerce success model. Further, some prior studies posited that different stakeholders may have different opinions as to what constitutes a benefit to them (Delone & Mclean, 2004; Petter et al., 2012; Seddon, 1997). The measures of Net Benefits should be contingent on the context of objectives and context of the empirical study. Therefore, from the consumer perspective, our work aims to advance the literature by conceptualizing net benefits and empirically testing it in the context of social commerce from an individual consumer perspective.

In social commerce, consumers experience two types of outcomes from using social commerce features in e-commerce: improved purchase decisions and pleasure. Consumers may improve product evaluations and make more informed and accurate purchase decisions by participating in the exchange of product-related information. Consumers may also feel pleasure when they use social commerce features to interact with peer consumers. Both types of outcomes are related to online shopping benefits to consumers, confirmed through the measurement of net benefits in the e-commerce context. For example, Delone and Mclean (2004) summarized individual benefits into improved customer experiences, entertainment, reduced shopping cost, and real-time marketing offered in the traditional e-commerce environment.

In the context of this study, social commerce features enable customers to interact with a large number of peer customers, thereby fostering benefits to customers' online shopping, such as improved shopping experiences and better-informed purchase decisions (Cecere & Owyang, 2010; Zhang et al., 2014). Therefore, we use the term, *social commerce benefits*, to capture consumer impacts of using social media features when they purchase at e-commerce sites. Please note that our study only covers the social commerce positive impacts (not net impacts) and does not consider the negative impacts in social commerce. This can be a limitation, and future studies can examine the negative impacts in social commerce.

### 2.3. Extrinsic motivation in social commerce

Motivation is a valuable concept because it can produce important consequences (Wang & Clay, 2012). In the context of social commerce, we argue that motivation can enhance consumers' intention to interact with others (i.e., social commerce information contributing), which ultimately leads to social commerce behaviors.

Due to its importance, motivation theories have been developed to explain individuals' motivation (Kanfer, 1991; Pinder, 1998; Ryan & Deci, 2000). While making important contributions to our understanding of motivation, many of those motivation theories treat motivation as a unitary concept that differs in level rather than orientation (Meyer, Becker, & Vandenberghe, 2004). In other words, those theories conceptualize individuals' motivation as a single variable and focus only on its level, with this single variable of motivation providing the basis for predicting subsequent outcomes. Thus, previous studies have mainly treated motivation as a unitary concept. For example, Shih, Lai, and Cheng, (2013) tried to examine the effect of motivation on word-of-mouth though they do not find any significant effect. More recently, Liang and Yang (2018) found that utilitarian motivation (i.e., extrinsic motivation) is positively related to consumers' contributing commercial information on social media. One exception is from Cho, Park, and Kim, (2015), who examined the effects of three types of extrinsic motivation (i.e., tangible rewards, reciprocal relationships and belongingness) on information contributing on social media. However, their different types of extrinsic motivation deal with benefits (tangible and intangible) associated information contributing and more studies are needed to systematically examine consumers' extrinsic motivation.

However, consumers may engage in social commerce behaviors for different reasons. Those reasons make consumers' motivations vary not only quantitatively (i.e., level of motivation) but also qualitatively (i.e., orientation of motivation) (Ryan & Deci, 2000). For example, consumers may post reviews on Amazon to obtain a higher ranking, or because they want to help other consumers to make better purchase decisions. In these two different scenarios, consumers may have the same level but a different orientation of motivation. Therefore, consumers' motivations need to be differentiated.

To understand consumers' different types of motivation in the context of social commerce, our study draws upon SDT (Ryan & Deci, 2000). SDT explains individuals' self-motivation as well as how social contexts support their self-motivation. SDT thus examines how individuals' motivations are supported or disrupted rather than how their motivations are initiated (Wang & Clay, 2012). Unlike many other motivation theories, SDT adopts a differentiated approach to understand individuals' motivations (Ryan & Deci, 2000). According to SDT,

these different types of motivation reflect the degree to which the value of certain behaviors have been internalized and integrated (Ryan & Deci, 2000). Here internalization refers to the process of taking external regulations into internal regulations (Deci, Eghrari, Patrick, & Leone, 1994). Integration refers to optimal internalization of regulations, which results in further transforming the regulations into individuals' own values (Ryan & Deci, 2000). In such a context, individuals accept the value of these behaviors. On the other hand, integration may not always be achieved. When regulation internalization is only partial or suboptimal, introjection occurs and results in internally controlling regulations (Ryan & Deci, 2000). In such a context, individuals do not fully accept the value of these behaviors.

Therefore, based on the degree of regulation internalization (i.e., the extent to which the regulation is perceived to be autonomous or self-determined), individuals' extrinsic motivation<sup>1</sup> can be external, introjected, identified, or integrated (Fig. 1) (Deci & Ryan, 2000; Ryan & Deci, 2000). With external motivation<sup>2</sup>, individuals are motivated to obtain certain desired consequences or avoiding undesired outcomes. With introjected motivation, individuals are motivated to engage in certain behaviors to avoid anxiety or to attain ego enhancements such as image. With identified motivation, individuals accept the rationale of engaging in certain behaviors, and those behaviors become more congruent with their personal identities. Lastly, with integrated motivation, individuals integrate certain behaviors into their own value and those behaviors are fully assimilated to themselves. Table 1 examples to illustrate different types of motivations in the context of social commerce and OSS<sup>3</sup>. Please note that examples here are simply for illustration. We do not mean that examples provided are the only motivator for each motivation type.

To summarize, consumers are motivated to engage in social commerce information contributing with different types of extrinsic motivations. Drawn upon SDT, our study tries to examine the effects of different motivation types on consumers' information using and contributing activities.

<sup>1</sup> Our study focuses on extrinsic motivation rather than intrinsic motivation. Intrinsic motivation is based on individuals' inherent enjoyment derived from certain activities, not on environmental reinforcements, because those activities themselves are rewarding (Deci, 1975). Extrinsic motivation is based on environmental reinforcements and is not self-sustainable. By focusing on extrinsic motivation, our study can provide e-vendors important guidelines to enhance consumers' different types of extrinsic motivations and support their subsequent social commerce behaviors. This approach is consistent with Ke and Zhang (2010). SDT has two subtheories: cognitive evaluation theory (focusing on intrinsic motivation) and organismic integration theory (dealing with extrinsic motivation) (Ryan & Deci, 2000). By focusing on extrinsic motivation, our study only covers organismic integration theory. Nevertheless, intrinsic motivation can also be relevant in social commerce, and we suggest future studies examine intrinsic motivation as well as how intrinsic motivation and extrinsic motivation can differ in their antecedents/outcomes in social commerce.

<sup>2</sup> Ryan and Deci (2000) use external, introjected, identified, and integrated regulation to refer to different types of extrinsic motivation. Later Ke and Zhang (2010) apply SDT to the context of OSS and use external, introjected, identified, and integrated motivation. Our study follows the terminologies from Ke and Zhang (2010).

<sup>3</sup> Since e-commerce sites such as Amazon do not provide monetary rewards, our study uses reviewer ranking to operationalize external motivation. Although relatively highly correlated, external motivation is still distinct from introjected motivation in the context of social commerce. Specifically, external motivation focuses on external rewards. In such a scenario, individuals value high reviewer ranking per se, and do not focus on enhancing recognition from other consumers. On the other hand, introjected motivation focuses on ego enhancement. In such a scenario, individuals focus on enhancing recognition from other consumers, and high reviewer ranking is just one of possible approaches among others (e.g., highly rated reviews) through which to enhance recognition.

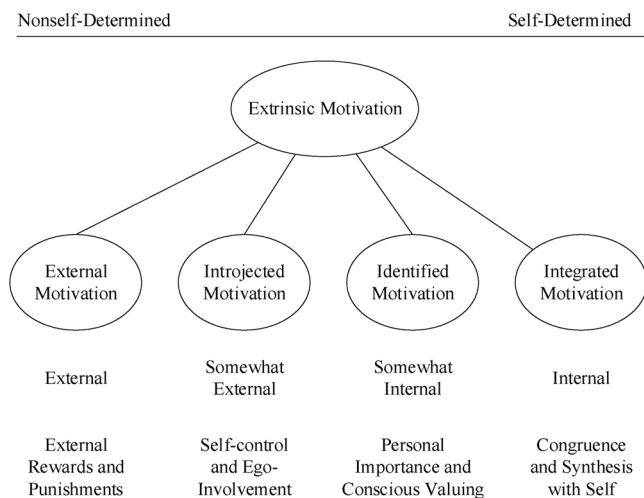


Fig. 1. Different Types of Extrinsic Motivation (Ryan & Deci, 2000).

**Table 1**  
Examples of Different Motivation Types.

Motivation Type	Social Commerce	Open Source Software (Summarized in Ke and Zhang (2010))
External Motivation	To achieve high reviewer ranking	To gain financial benefits
Introjected Motivation	To gain recognition among consumers and friends	To gain recognition from peers
Identified Motivation	To provide useful reviews and help other consumers make informed purchase decisions	To develop code needed for work and/or non-work
Integrated Motivation	Believe that shopping experiences should be publicly shared and distributed	Believe that source code should be open

### 3. Theoretical model and hypotheses development

Our research model is shown in Fig. 2. We propose that consumers' extrinsic motivation influences their intention to contribute social commerce information, which in turn leads to their social commerce information contributing behaviors. Social commerce information contributing behaviors ultimately foster social commerce benefits, and this relationship is moderated by gender. Below we describe our hypotheses in detail. Following Delone and Mclean (2004), we include information quality as the control variable for social commerce benefit.

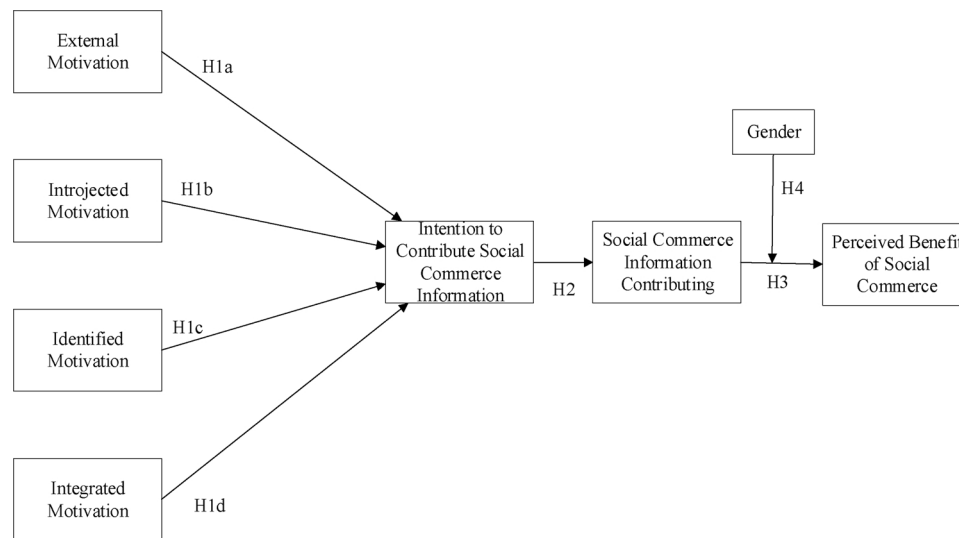


Fig. 2. Research Model.

#### 3.1. Extrinsic motivation and intention to contribute social commerce information

In the context of social commerce, we propose that four types of extrinsic motivation may all lead to consumers' information contributing. With external motivation, individuals are motivated to engage in certain activities to satisfy an external demand or reward contingency (Deci & Ryan, 2000). For example, system administrators with external motivations may contribute knowledge to receive monetary rewards (Wang et al., 2015). Programmers with external motivation may work hard to receive external rewards (e.g., money, promotion) from OSS projects (Ke & Zhang, 2010). In these scenarios, individuals are motivated to engage in these behaviors to obtain external rewards and may not integrate these behaviors into their own value. Therefore, they do not accept the rationale of these behaviors and perceive these behaviors as controlled or alienated (Deci & Ryan, 2000). In the context of social commerce, many e-vendors rank consumers' participatory behaviors. For example, Amazon uses reviewer ranking to rank consumers based on the overall helpfulness of their reviews. To obtain higher rankings (i.e., external motivation), consumers are motivated to interact with other consumers and write more reviews. They can then earn badges (e.g., top 50 reviewers) which is presented next to their account names. Hence, we have the following hypothesis:

**H1a.** External motivation is positively related to intention to contribute social commerce information.

Compared to external motivation, introjected motivation is internally driven but controlled, as individuals still do not actually integrate the associated behaviors into their own (Ryan & Deci, 2000). With introjected motivation, individuals are motivated to perform certain behaviors to avoid anxiety or to attain recognition among peers (deCharms, 1968). In other words, when individuals are under introjected motivation, they perform certain behaviors not because they understand and accept their rationales, but because they try to demonstrate their abilities (or avoid anxiety) and

achieve ego enhancement. For example, programmers with introjected motivation may participate in OSS projects to showcase their programming abilities and attain recognition in the projects (Ke & Zhang, 2010). In the context of social commerce, consumers may be motivated to gain recognition from other consumers and show their knowledge about products (i.e., introjected motivation). In such scenarios, consumers with introjected motivation most likely spend significant time contributing product information and writing product reviews, to be recognized by other consumers as well as their friends on social media. Therefore, we propose the following hypothesis:

**H1b.** Introjected motivation is positively related to intention to contribute social commerce information.

With identified motivation, individuals understand the rationale of certain behaviors and accept their value (Ryan & Deci, 2000). Thus, individuals with identified motivation probably develop a sense of emotional involvement with others (Allen & Meyer, 1996; Ellemers, Kortekaas, & Ouwerkerk, 1999). For example, programmers with identified motivation may work hard to solve problems and help others in the project, referred as an affective commitment (Bergami & Bagozzi, 2000). In the context of social commerce, consumers with identified motivation develop a sense of emotional involvement with other consumers, especially their friends on social media. They understand that

interactions among consumers and sharing product information are important to help others, especially their friends, to make purchase decisions. In such scenarios, they probably spend much time interacting with others and sharing product information. As such, we have following hypothesis:

**H1c.** Identified motivation is positively related to intention to contribute social commerce information.

With integrated motivation, individuals integrate certain behaviors into their own values, and those behaviors are fully assimilated to themselves (Ryan & Deci, 2000). In such a scenario, individuals evaluate these behaviors which become congruent with their other values and needs. For example, programmers with integrated motivation fully endorse the ideology of OSS movement (Stewart & Gosain, 2006). In the context of social commerce, consumers with integrated motivation endorse the ideology of interactions among consumers (i.e., shopping experiences should be publicly shared and distributed) and thus perceive their sharing of product information are meaningful and important. These consumers thus integrate social commerce behaviors into their value. In such scenarios, they probably devote substantial effort to interact with other consumers and to contribute product information. Therefore, we hypothesize the following:

**H1d.** Integrated motivation is positively related to intention to contribute social commerce information.

To summarize, we propose that four types of extrinsic motivation are positively related to intention to contribute social commerce information. Based upon SDT, individuals' motivations may differ not only quantitatively but also qualitatively (Ryan & Deci, 2000). In the context of social commerce, consumers may be motivated to contribute product information to obtain higher ranking (i.e., external motivation), to achieve recognition from others (i.e., introjected motivation), because they have a sense of emotional involvement with others (i.e., identified motivation), or because they accept the ideology of interactions among consumers (i.e., integrated motivation). These different types of extrinsic motivation may have similar levels, but they certainly have different orientations. In other words, these different types of extrinsic motivation may have similar effects on information contributing but follow different mechanisms. The results can thus show which orientation is more prominent during the process of information contributing and inform practitioners' important guidelines regarding how to better motivate consumers' information contributing.

### 3.2. Social commerce information contributing intention and behavior

Behavioral intention represents the degree to which individuals intend to perform specific behaviors (Ajzen & Fishbein, 1975). Sheppard, Hartwick, and Warshaw, (1988) did a meta-analysis of 86 studies of the theory of reasoned action; their results indicated a 0.53 correlation between intention and behavior. In the IS discipline, the effect of intention on behavior (e.g., technology usage) is significant and has been well examined in the previous literature (Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh, Thong, & Xu, 2012). Consistent with the literature on technology acceptance and the underlying theories for many intention model (Sheppard et al., 1988), we argue that behavioral intention to contribute social commerce information will have a positive effect on subsequent behaviors. Therefore, we hypothesize that:

**H2.** Intention to contribute social commerce information is positively related to social commerce information contributing behavior.

### 3.3. Social commerce information contributing behavior and perceived benefits

According to the DeLone and McLean's IS success model, IT use is

associated with net benefits (Delone & McLean, 2003, 2004). Consumer impact of IT is a continuum metric that results from relevant IT activities. In the context of social commerce, contributing product information requires consumers to scrutinize and think critically about the products and then organize product information in a meaningful way (Kankanhalli, Tan, & Wei, 2005). Thus, after the process of contributing information, consumers probably gain better understanding of these products. Based upon the perspective of learning transfer, such understanding will be transferred and help consumers' purchase decisions in the future (Ellis, 1965). In other words, consumers can make better decisions because they transfer their previous understanding about products to future purchases (Schilling, Vidal, Ployhart, & Marangoni, 2003). Accordingly, consumers' perceptions of social commerce benefits are formulated from their social commerce information contributing. This argument is consistent with the work of Pan and Rickard (2018), who showed that testing can also facilitate learning based upon learning transfer theory. Therefore, our hypothesis is:

**H3.** Social commerce information contributing is positively related to perceived benefits of social commerce.

### 3.4. The moderating role of gender in the formulation of social commerce benefits

Social role theory posits that women and men behave differently due to their distributions into different social roles in a specific environment (Eagly & Wood, 1991; Eagly, Wood, & Diekmann, 2000; Eagly, 2013). These behavioral differences follow from "the typical characteristics of roles commonly held by women versus men" (Eagly et al., 2000, p. 126). As such, behavioral differences between men and women originate from the social roles that humans play. Men are believed to be more self-assertive and motivated to master their environment, while women are believed to be more selfless and concerned with others (Carte, Schwarzkopf, & Wang, 2010, p. 3). These two extreme dimensions suggest that women favor a social- or people-oriented environment with a focus on friendship development and relationship management, whereas men favor a task-oriented environment with a focus on self-oriented behaviors.

In the IS discipline, social role theory has been employed to explain gender differences in IT behaviors in the context of social media (Chai, Das, & Rao, 2011; Lin, Featherman, & Sarker, 2017; Lin, Zhang, & Li, 2016). It is suggested that women tend to focus on social and people-oriented factors when evaluating perceptions of social media use, favoring communicative and friendly behaviors. On the other side, men favor a pattern of assertive and independent behaviors, which indicate that their behaviors tend to focus on technology-oriented factors. Consistently, in the context of social commerce, gender differences occurring in social commerce behaviors can mainly result from social roles they play in the social commerce environment.

Specifically, in line with their social roles, men consistently view social commerce as a task-oriented platform where they can acquire useful customer-generated content for evaluating products and assisting with their decisions, thus achieving their online shopping goals (Eagly & Wood, 1991). As such, men are more likely to be more attentive to acquiring the information and content to benefit their online shopping than to sharing their own information and knowledge. In contrast, women consistently view social commerce as a people-oriented platform where they can interact with others and help each other's purchase decisions (Eagly & Wood, 1991; Eagly & Wood, 2011). In this respect, women are more likely to be more attentive to sharing their product assessment and shopping experiences with other consumers, thus facilitating their perceptions of social commerce benefits. For women, social commerce empowers them to share their knowledge about products and shopping experiences with others, thus creating social relationships in social commerce. Social commerce information

contributing focuses more on interacting with peer consumers more than on technology, leading it to be a social- and people- oriented behavior in the social commerce environment. We argue that these differences will contribute to gender differences in the evaluations of social commerce benefits. Our hypothesis is:

**H4.** In the formulation of social commerce benefits, women will give greater importance to social commerce information contributing compared to men.

#### 4. Methodology

Our study collected longitudinal data, using two rounds of online surveys taken by Amazon customers in the U.S. Below we describe our data collection procedures, measurements, data analysis and results.

##### 4.1. Data collection procedures and participants

To reduce the effect of CMV and examine the longitudinal impact of intention on social commerce behaviors, we collected two rounds of data. Following O'Neill and Palmer (2001), an interval of one month between two rounds of survey was adopted to ensure a reasonable level of response rate in the second round of survey. A survey company was employed to recruit participants. The survey company maintains various channels to recruit a variety of samples. Several approaches, such as Survey Hub and Relevant ID with quality assurance questions, were used to detect fraudulent or duplicate answers. Each participant was assigned a unique ID so the survey company could keep track of who participated in the survey. These IDs were also used to match those participating in both rounds of the survey.

For the first-round survey, an invitation was sent to different samples to collect individuals' extrinsic motivation and intention to engage in social commerce behaviors in Amazon. Participants would only qualify for the survey if they had 1) shopped at least three times on Amazon in the past three months; 2) used Facebook, Twitter or Pinterest many times a week; and 3) engaged in social commerce behaviors in the past three months. For the first criteria, since an interval of one month between two rounds of survey was adopted, participants who made a purchase in between were more desired so that they could share their shopping experiences and product information. To ensure that participants shopped at least once on average, we used the criteria of shopping at least three times on Amazon in the past three months. For the third criteria, we began with the following introductory statement: "On Amazon, social commerce features include customer rating & review and 'Share' on social media (Facebook, Twitter and/or Pinterest)." We then asked participants if they used any social commerce features during the last three months (if yes, which features were used). Only those who answered yes were included in the survey. In total, we received 903 responses.

Then in about one month, the second-round survey was conducted to collect participants' social commerce behaviors in the last month and perceived benefit of social commerce. In total, 408 participants responded to the second-round survey, resulting in a response rate of 45.18%. Only those who took both rounds of the survey were included for the following analysis. The demographic data of participants is shown in Table 2. Mann-Whitney tests showed that education, age, and gender presented no significant differences between respondents and non-respondents for the second-round survey. According to Sharma et al. (2009), the temporal separation between measurements can reduce the effect of CMV. As we measured social commerce information using and information contributing behaviors about one month after collecting data for motivation and intention, the overall effect of CMV was reduced.

**Table 2**  
Sample Demographic Information.

Category	Sample (N = 408)
<b>Ethnicity</b>	
White	85.78%
Black or African American	5.39%
American Indian or Alaska Native	.49%
Asian	1.96%
Native Hawaiian or Pacific Islander	.98%
Hispanic	5.39%
<b>Education</b>	
Less than high school	1.23%
High school graduate	14.46%
Some college	26.23%
2 year degree	14.71%
4 year degree	29.17%
Professional degree	12.75%
Doctorate	1.47%
<b>Age</b>	
18–19	.49%
20–29	9.07%
30–39	16.18%
40–49	16.42%
50–59	28.92%
60 or older	28.92%
<b>Gender (% of Female)</b>	
52.21%	
<b>Times of Shopping on Amazon during last three months</b>	
3–6 times	40.93%
7–9 times	20.83%
10–12 times	16.67%
More than 13 times	21.32%
<b>Years shopping on Amazon</b>	
6.99 (SD 4.10)	
<b>Years using social media</b>	
6.45 (SD 3.22)	

##### 4.2. Measurement

Our measures are adapted from previous literature (see Table A1 in Appendix A for complete measurement). Specifically, measures of the four types of extrinsic motivation were adapted from Ke and Zhang (2010) and Wang (2014); measures of perceived benefits of social commerce were adapted from existing measures of prior literature (Delone & McLean, 2003, 2004) and then modified to fit the social commerce context of this study; measures of intention to contribute social commerce information were developed based on Venkatesh et al. (2012)'s technology use behaviors. Measures of information quality were adapted from (Wixom & Todd, 2005). They were rated on 7-point Likert scale from "Strongly Disagree" to "Strongly Agree." Measures of social commerce contributing behavior were developed based on Venkatesh et al. (2012)'s technology use behaviors; they were rated on a 7-point Likert scale from "Not at all" to "To a Great Extent." Here items for behaviors and perceived benefits were rated in the second-round survey, while the rest were collected in the first-round survey.

##### 4.3. Data analysis and results

Our model was tested with partial least squares (PLS). SmartPLS (Ringle, Wende, & Will, 2005) was used with the bootstrap re-sampling method (using 1000 samples) to determine the significance of the paths. Shapiro-Wilk tests were significant, showing that the measurements were not normally distributed. According to Hair, Hult, Ringle, and Sarstedt, (2016), PLS is more appropriate with non-normally distributed data.

We first evaluated the measurement model. As shown in Table 3, each item loaded significantly on its respective construct, with none of the loadings below 0.50 (Hulland, 1999). The composite reliabilities (CRs) were over 0.70, and the average variance extracted (AVE) was over 0.50 (Table 3). Therefore, convergent validity was supported (Gefen & Straub, 2005). Discriminant validity was also confirmed by ensuring that the correlations between constructs were below 0.85

**Table 3**  
Item descriptive statistics.

Items	Mean	SD	Loading	CR	AVE
EXTM1	4.01	1.99	.89	.95	.87
EXTM2	3.81	1.89	.96		
EXTM3	3.78	1.90	.95		
INTRM1	3.73	1.91	.95	.96	.88
INTRM2	3.78	1.89	.96		
INTRM3	3.67	1.91	.91		
IDEM1	4.02	1.64	.79	.91	.77
IDEM2	4.18	1.71	.93		
IDEM3	4.71	1.53	.91		
INTEM1	4.29	1.50	.83	.93	.81
INTEM2	4.36	1.68	.93		
INTEM3	4.39	1.64	.94		
INTCON1	5.99	1.14	.67	.95	.74
INTCON2	5.61	1.33	.76		
INTCON3	5.09	1.65	.91		
INTCON4	5.18	1.61	.93		
INTCON5	5.13	1.67	.93		
INTCON6	5.08	1.68	.93		
INTCON7	5.43	1.57	.87		
BCON1	3.22	1.25	.82	.95	.79
BCON2	3.00	1.29	.84		
BCON3	2.27	1.29	.93		
BCON4	2.26	1.30	.93		
BCON5	2.28	1.34	.92		
PB1	5.18	1.36	.90	.95	.82
PB2	5.51	1.30	.90		
PB3	4.98	1.51	.89		
PB4	5.18	1.40	.92		
IQ1	5.07	1.26	.95	.95	.90
IQ2	5.11	1.34	.95		

**Table 4**  
Correlation between Constructs and Square-root of AVEs (on-diagonal).

	1	2	3	4	5	6	7	8
1 External Motivation	.93							
2 Introjected Motivation	.79	.94						
3 Identified Motivation	.68	.73	.88					
4 Integrated Motivation	.69	.68	.81	.90				
5 Intention to Contribute Social Commerce Information	.50	.49	.58	.52	.86			
6 Social Commerce Information Contributing Behavior	.47	.49	.50	.53	.50	.89		
7 Perceived Benefits of Social Commerce	.39	.37	.49	.45	.43	.45	.91	
8 Information Quality	.39	.33	.53	.49	.51	.33	.41	.95

**Table 5**  
Multicollinearity Test.

	VIF
External Motivation	3.55
Introjected Motivation	3.79
Identified Motivation	3.46
Integrated Motivation	3.12

(Brown, 2014); and for each construct, the square root of its AVE exceeded all correlations between that factor and any other construct (Table 4). Our multicollinearity test results showed that the variance inflation factors (VIFs) for four types of extrinsic motivation were below 4.00 (Table 5), indicating that multicollinearity was probably not a serious issue (Hair, Black, Babin, & Anderson, 2009). Therefore, our measures demonstrated good psychometric properties.

In the second stage assessing the structural model (Hulland, 1999), path coefficient and R<sup>2</sup> measures were examined. H1a argues that external motivation is positively associated with intention to contribute social commerce information. This hypothesis was supported ( $\beta = .16$ ,

$p < .05$ ). H1c states that identified motivation is positively associated with intention to contribute social commerce information. This hypothesis was supported ( $\beta = .40, p < .001$ ). H2 posits that intention to contribute social commerce information is positively related to social commerce information contributing behaviors. This hypothesis was supported ( $\beta = 0.50, p < .05$ ). H3 argues that social commerce information contributing is positively related to perceived benefits of social commerce. This hypothesis was supported ( $\beta = .36, p < .001$ ). The control variable information quality was also positively related to perceived benefits ( $\beta = .29, p < .001$ ). H1b and H1d were not supported.

Four types of motivation explained a large portion of variance from intention to contribute social commerce information (i.e., more than 30%). Intention to contribute social commerce information also explained a significant portion of variance from information contributing behaviors (i.e., more than 20%). Those results provided good support for our model. Our post-hoc power analysis showed that our study had sufficient power (above 0.80). These results are presented in Fig. 3.

To test H4, following the well-established data-analysis procedures in the multi-group PLS (Qureshi & Compeau, 2009), we first tested the model separately using PLS for male and female groups and then calculated the t-values and evaluated the significance levels of the path coefficients across gender groups using the following formula (Keil et al., 2000). Table 6 shows that H4 was supported. Further, we analyzed whether gender moderates the relationship between the four types of extrinsic motivation and information sharing intention, comparing the path coefficients of H1a, H1b, H1c, and H1d across genders. We found no significant results.

$$S_{pooled} = \sqrt{\frac{N_1 - 1}{N_1 + N_2 - 2} \times SE_1^2 + \frac{N_2 - 1}{N_1 + N_2 - 2} \times SE_2^2}$$

$$t = \frac{PC_1 - PC_2}{S_{pooled} \times \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}}$$

Where  $S_{pooled}$  = pooled estimator for the variance

$t$  = t-statistic with  $N_1 + N_2 - 2$  degrees of freedom

$SE_i$  = standard error of path in structural model of gender  $i$

$PC_i$  = path coefficient in structural model of gender  $i$

Finally, we assessed the predictive quality of our model using the Stone–Geisser ( $Q^2$ ) test (Geisser, 1975; Stone, 1974). The model has estimation relevance when  $Q^2$  is above 0; otherwise, the model lacks estimation relevance, resulting in a doubtful determination of the latent variable. The  $Q^2$  for external motivation was 0.70; the  $Q^2$  for introjected motivation was 0.88; the  $Q^2$  for identified motivation was 0.77; the  $Q^2$  for integrated motivation was 0.81; the  $Q^2$  for intention to contribute social commerce information was 0.74; the  $Q^2$  for social commerce information contributing behavior was 0.79; the  $Q^2$  for perceived benefits was 0.82; the  $Q^2$  for information quality was 0.90. Therefore, our model had good predictive relevance overall.

## 5. Discussion

Our study examines how different types of extrinsic motivation influence consumers' social commerce behaviors, and afterwards, generates social commerce benefits. Results from two rounds of our survey with Amazon consumers show that external and identified motivation are positively related to consumers' intention to contribute social commerce information. Consumers' intention to contribute social commerce information is positively related to their subsequent social commerce information contributing behaviors, leading to consumer's perceptions of social commerce benefits. Further, gender significantly moderates the relationship between social commerce information contributing behavior and social commerce benefits. Our results have important implications for theory and practice.



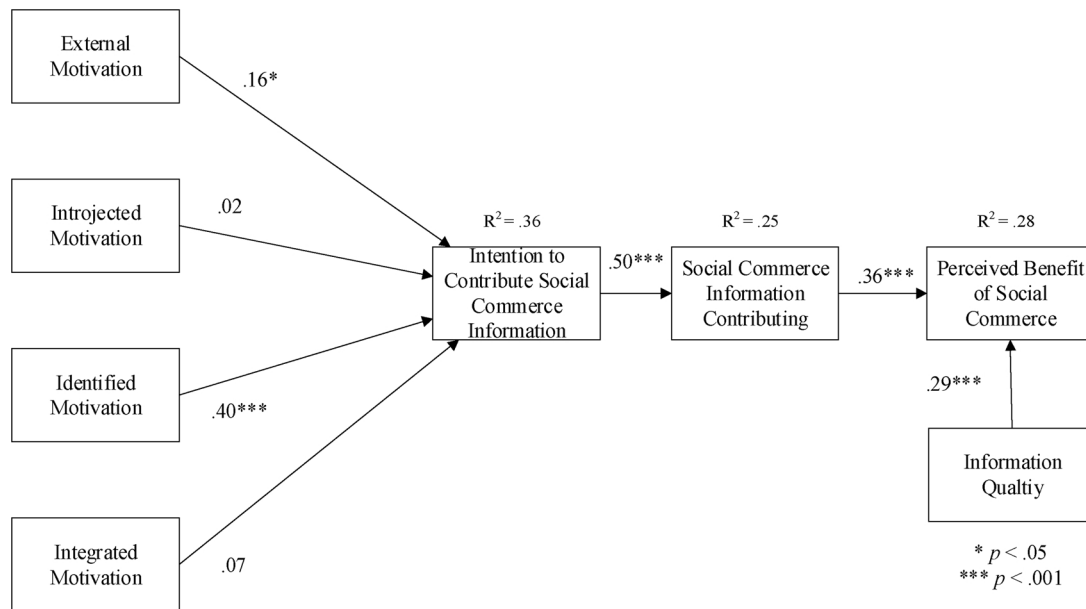


Fig. 3. Results of Model Testing.

5.1. Implications for theory

5.1.1. Social media features added into traditional e-commerce

Our study’s results further examine an emerging theme of social commerce regarding how using social media features can affect online consumer behaviors in the traditional e-commerce environment. It closes the research gap in the recently emerging social commerce research by specifically studying online consumer behaviors in an important but relatively underrepresented scenario - adding social media features into the traditional e-commerce site (Liang et al., 2011). Although recent studies have begun to pay more attention to this important scenario (Chen et al., 2017; Chong et al., 2018; Liu et al., 2016; Shen, Li, Sun, Chen, & Wang, 2018), more studies are needed to further examine consumer behaviors. Our study focuses on social commerce information contributing, demonstrating the longitudinal effect of consumers’ intention on social commerce information contributing behaviors. With survey data collected longitudinally from Amazon consumers, our study shows that consumers’ intention to contribute social commerce information indeed leads to their subsequent social commerce information contributing behavior. One important difference exists between Amazon and other contexts examined in the literature (e.g., Taobao): consumers can contribute information not only within Amazon’s forums but also on other social media (e.g., Facebook) integrated with Amazon. Thus, our study demonstrates how evolved web technology could be applied to facilitate consumer impacts and generate new value. It could stimulate future work in the application of social media and other advanced web technologies into traditional e-commerce.

Our study is one of the first studies in IS to conceptualize social

commerce benefits from the consumer perspective and empirically test how social commerce benefits are fostered from social commerce use. Net benefits have not been well tested in IS due to their complexity with multiple stakeholders (Delone & McLean, 2003, 2004). Therefore, our work contributes to the literature on net benefit by extending to a new research context, social commerce. Further, previous literature has mainly treated perceived benefits as the antecedent of information sharing (e.g., Z. Liu & Wang, 2018; Sun, Wang, Shen, & Zhang, 2015; Wang, Yan, Lin, & Cui, 2017). Based upon learning transfer theory, we argue that perceived benefits can also be the outcome of information sharing. Therefore, our study provides valuable insights regarding the critical role of information sharing in social commerce. Our results are particularly valuable in today’s rapidly changing information era, as the impacts of IT on consumers continue to evolve, perhaps leading to new business models.

5.1.2. Extending the extrinsic motivation – social commerce perspective

Our study clarifies the effect of different types of extrinsic motivation on consumers’ social commerce information contributing. Few prior studies have examined the spectrum of extrinsic motivations. According to SDT, individuals’ motivation differs not only in the magnitude but also in the type (Ryan & Deci, 2000). Based on SDT, our study investigates how consumers’ different types of extrinsic motivation influence their social commerce information contributing.

Our results show that *external motivation* can enhance consumers’ intention to contribute social commerce information, which shows that consumers with external motivation try to enhance their reviewer rankings. *Introjected motivation* has no effects on intention to contribute social commerce information. According to SDT, individuals under

Table 6  
Standardized comparisons of paths between female and male group.

Hypothesis	Female (N = 213)		Male (N = 195)		Comparisons of coefficients
	Coefficient (SE)	t-value	Coefficient (SE)	t-value	
H4 Information Contributing → Perceived Benefit	.43 (.05) ***	8.27	.27 (.07) ***	3.96	28.69 ***

Notes: bns: both paths are not significant. \*\* 0.01 significance, \*\*\* 0.001 significance.

introjected motivation try to attain ego enhancement (Ryan & Deci, 2000). Since consumers do not maintain their social circles on e-commerce sites such as Amazon, social connections between consumers may not be strong enough. Therefore, it is difficult for consumers to gain recognition among peers. *Identified motivation* is positively related to intention to contribute social commerce information. In other words, consumers with identified motivation accept the rationale of interacting with other consumers and spend substantial effort in helping others' purchase decisions. In such scenarios, they probably engage in both social commerce information using and contributing. Those results are consistent with those of X. Wang (2016), who finds that more autonomous motivation is positively related to browsing and sharing content on social media after crises. Lastly, *integrated motivation* does not have any effect on intention to contribute social commerce information. Since sites such as Amazon are sponsored by e-vendors, it may not be possible for consumers to fully accept the ideology of e-commerce sites and integrate them into their own. Future studies are needed to further examine the scenario of adding social media features into e-commerce and to understand why the effects of introjected and integrated motivation are not significant.

The research results indicate that identified motivation plays the primary role in consumer social commerce behaviors. It reveals that the primary consumer need is social identity in the social commerce environment. Consumers with identified motivation have a strong commitment to their social commerce communities and have an emotional attachment to its wellbeing. Consumers tend to base their behaviors on relationships with other consumers and their commitment to the community when they are making decisions about engagement in social commerce activities. This is somewhat consistent with the previous research finding that social commerce becomes a relational market, and at its core the benefits arise from social interaction and networking (T.-P. Liang et al., 2011; Ng, 2013; Shiau, Dwivedi, & Lai, 2018). Therefore, the type of extrinsic motivation works only when consumer needs are met in the social commerce context. It is important to reexamine the types of extrinsic motivation in other research contexts based on user needs.

To summarize, our results show that consumers' various types of extrinsic motivations have differential effects on their intention to contribute social commerce information. Those results confirm that extrinsic motivation should not be treated as a unitary construct. In our results, the correlation between external and introjected motivation and that between identified and integrated motivation are somewhat high (.79 and .81, respectively). One possible reason is that external and introjected motivation are more control-oriented, while identified and integrated motivation are more autonomous-oriented (Ryan & Deci, 2000). Indeed, the previous literature has operationalized controlled motivation by combining external and introjected motivation, and operationalized autonomous motivation by combining identified and integrated motivation (Wang, 2014, 2016).

We also compare our results with those from Ke and Zhang (2010) in the context of OSS (Table 7). Our comparisons highlight the inconsistent effects of different types of extrinsic motivation across various contexts, and the results from previous literature in other contexts (e.g., OSS) cannot be directly applied to the context of social commerce.

While the proposed model may also be applied in other contexts,

our model provides unique insights regarding consumers' behaviors in the scenario of adding social media features into the traditional e-commerce sites for two main reasons. First, our variables are operationalized based upon the focal scenario. For example, although consumers can engage in information contributing in different contexts, their actual behaviors vary. In the context of social media, consumers can add comments to commercial posts and like certain posts. In the context of e-commerce sites, consumers can write product reviews, responses to others' reviews, and rate products. Therefore, when future studies test and extend our model in other contexts, the operationalization of variables may need to change accordingly. Further, the results of our study may not hold in other scenarios. For example, introjected motivation does not have a significant effect on intention to contribute information and it may be because social connections between consumers are not strong enough on e-commerce sites and consumers cannot earn recognition from others. When our model is tested in social media, it is possible that the effect of introjected motivation becomes significant.

### 5.1.3. Applying gender differences to social commerce research

Our study uncovers the behavioral differences across gender groups when evaluating social commerce benefits. The research results suggest social commerce information contributing behaviors have different impacts on consumer's perceptions of social commerce benefits across gender groups. Social commerce contribution plays a more important role in the formulation of social commerce benefits for the female group than for the male group. Our study thus provides an initial examination of how men and women behave differently in the social commerce environment, resulting in different perceptions of social commerce benefits. It sheds the light on the role that gender plays in the impacts of IT behaviors when formulating users' perceptions, as gender is traditionally a moderator in the decision-making process (e.g., Krasnova, Veltri, Eling, & Buxmann, 2017; Lin, Featherman, Brooks, & Hajli, 2018; Lin, Li, Califf, & Featherman, 2013). This research finding is valuable for academicians and practitioners to understand the role of gender in consumers' behavior and perceptions in the digital environment, thus informs our thinking about the impact of IT usage on net benefits as moderated by gender. Gender difference is traditionally underrepresented in the IS discipline (Lin, Califf, & Featherman, 2012; Trauth, 2013). This study paves the way for integrating gender into the traditional IT behavioral research and advances the gender differences literature by extending gender difference research to online consumer behavior and social commerce context.

### 5.2. Implications for practice

Given the popularity of social commerce and the need to apply new features for e-commerce, our study has important implications for practice. By understanding how consumers may use social commerce in online shopping and how they perceive its benefits, e-vendors would be able to manage consumers' perceptions more effectively to promote their purchase behaviors, thus leading to increased sales and revenue, by increasing consumer satisfaction and loyalty, as individuals and as a community of shoppers. That is, they would increase consumers' marginal utility from shopping at that particular site. This allows e-vendors

**Table 7**  
Results Comparison.

Motivation Type	Current Study	OSS (Ke & Zhang, 2010)
External Motivation	Intention to Contribute Social Commerce Information (+)	Task Effort (n.s.)
Introjected Motivation	Intention to Contribute Social Commerce Information (n.s.)	Task Effort (+)
Identified Motivation	Intention to Contribute Social Commerce Information (+)	Task Effort (+)
Integrated Motivation	Intention to Contribute Social Commerce Information (n.s.)	Task Effort (-)

Note: n.s. = not significant, + = positive effect, - = negative effect.

to better integrate specific social commerce features into their traditional e-commerce web designs to improve their impacts on consumers. To enhance consumers' perceptions of social commerce, our research results suggest that e-vendors may achieve this by creating an effective environment where consumers are encouraged to contribute social commerce information. For example, e-vendors may provide some rewards to encourage consumers to contribute social commerce information, and thus improve their perceived benefits of participating in social commerce activities. It is also important to create a supportive environment that triggers consumers' social commerce behavior, aiming to achieve sales benefits.

Given that consumers' intention to contribute social commerce information leads to their subsequent social commerce information contributing behavior, e-vendors such as Amazon should support consumers' intention to interact with other consumers more actively. By observing how extrinsic motivations affect consumers' intentions to use or contribute social commerce information, e-vendors could better balance the different types of extrinsic motivation in their websites. Our research results showing differential effects of extrinsic motivation can provide useful suggestions to guide e-vendors regarding how to support consumers' intentions. For example, external motivation can increase consumers' intention to contribute social commerce information. E-vendors can provide various external rewards to motivate consumers with external motivation. Besides reviewer ranking, e-vendors such as Amazon can also provide other rewards. For example, e-vendors may integrate with social media such that consumers can show their rankings from e-vendors in social media and let their friends know their achievements. E-vendors could also provide periodical rankings (e.g., top reviewers this month, top reviews this month) and distribute gift cards to motivate their social commerce information contributing. Further, identified motivation can also lead to social commerce information contributing. Since identified motivation is more autonomous and can motivate consumers without external rewards, this type of extrinsic motivation should be more encouraged in the long run. To support consumers' identified motivation, e-vendors need to create an appropriate community atmosphere within sites to motivate consumers to interact with other consumers and develop a sense of emotional involvement with the community. To summarize, a better understanding of the effects of different types of extrinsic motivation can help e-vendors to better use their limited resources to engage their customers with one another.

Finally, our study shows that women perceive social commerce information contributing to be more important in their formulation of social commerce benefits. Therefore, e-vendors may facilitate consumers' perceptions of social commerce benefits more effectively based on gender. This promotes the sustainability of information contributing depending on gender, to maximize social commerce benefits. For female consumers, e-vendors may provide more rewards for their contributing behaviors, especially when they are externally motivated. Being aware of gender differences, e-vendors would be able to effectively engage their customers in the social commerce environment.

### 5.3. Limitations and opportunities for future studies

Our study has several limitations. First, our study only collected data from consumers of a single e-vendor (i.e., Amazon). It is possible

## Appendix A

that consumers from other e-vendors behave differently and the effects of extrinsic motivation are not fully consistent with those from our study. Second, we only recruited participants with experiences in using social media features on Amazon. Therefore, our sample may be biased and the results may not be generalized to all consumers on Amazon. Third, to ensure that participants may shop at least once and have an opportunity to contribute information between two rounds of survey, we select those participants who shopped at least three times during the last three months. While it is appropriate for our study, our criteria can cause sample bias and our study may only select those who visit Amazon relatively frequently. Future studies are needed to examine consumer information contributing behaviors for those who visit e-commerce sites less frequently. Further, we focus on consumers from the U.S. Extrinsic motivation may have inconsistent effects for consumers from other countries with different cultures. Lastly, we operationalize four types of extrinsic motivation based on Amazon, and such operationalization offers valuable insights concerning the addition of social media features into traditional e-commerce sites. However, this can also be another limitation of our study, because our model is somewhat general, not fully addressing the unique features of social commerce. Future studies that examine other unique features of social commerce are warranted.

Future studies can extend our study in several ways. First, future studies could examine how various factors can support consumers' extrinsic motivation. Studies could also be conducted to investigate the effect of social commerce information contributing on other outcomes such as customer loyalty. Second, our study focuses on social commerce information contributing. Future studies can examine social commerce information usage and how their antecedents can differ. Lastly, future studies could also extend our study by examining how various factors can moderate the relationship between extrinsic motivation and intention to contribute social commerce information, as well as how various factors can moderate the relationship between intention and social commerce information contributing behaviors.

## 6. Conclusion

Nowadays e-vendors such as Amazon increasingly integrate social media into their sites. In those sites, consumers engage in social commerce information contributing activities to facilitate others' purchase decisions. Based on longitudinal data collected from Amazon consumers, our study shows that consumers' various types of extrinsic motivation have differential effects on their intention to contribute social commerce information. Further, consumers' intention to contribute social commerce information has significant effects on their subsequent social commerce information contributing behaviors. We also find that gender moderates the impact of behavior on social commerce benefits. Future studies can extend our study by examining how consumers' various extrinsic motivations can be supported, as well as investigating the effect of social commerce information contributing on other outcomes such as customer loyalty.

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**Table A1**  
Measurement.

<b>External Motivation:</b> adapted from Ke and Zhang (2010) and Wang (2014)	
EXTM1	I am strongly motivated by rewards (e.g., higher ranking) I can earn through using social media features in Amazon.
EXTM2	I am keenly aware of the possible benefits (e.g., higher ranking) that may be brought by using social media features in Amazon.
EXTM3	I am keenly aware of the reward goals (e.g., higher ranking) I have for myself if I use social media features in Amazon.
<b>Introjected Motivation:</b> adapted from Ke and Zhang (2010) and Wang (2014)	
INTRM1	I am strongly motivated by the recognition I can earn from other consumers on Amazon.
INTRM2	I want other consumers from Amazon to find out how good I really can be.
INTRM3	To me, participation on Amazon means doing better than other consumers.
<b>Identified Motivation:</b> adapted from Ke and Zhang (2010) and Wang (2014)	
IDEM1	I really feel as if the issues on Amazon are my own.
IDEM2	The community on Amazon has a great deal of personal meaning for me.
IDEM3	I have a strong positive feeling toward the community on Amazon.
<b>Integrated Motivation:</b> adapted from Ke and Zhang (2010) and Wang (2014)	
INTEM1	If the values of the community on Amazon were different, I would not be as attached to it.
INTEM2	The reason I use social media features on Amazon is because of what it stands for, that is, its values.
INTEM3	My attachment to the community on Amazon is primarily based on similarity of my values and those represented by the community.
<b>Intention to Contribute Social Commerce Information:</b> developed based on Venkatesh et al. (2012)	
INTCON1	I am willing to rate and review after purchasing on Amazon.
INTCON2	I am willing to respond to other reviews after purchasing on Amazon.
INTCON3	I am willing to share product information on SNSs after purchasing on Amazon.
INTCON4	I am willing to recommend products I bought on Amazon to my SNS contacts.
INTCON5	I am willing to share my shopping experiences with my SNS contacts after shopping from Amazon.
INTCON6	I am willing to provide my experiences and suggestions when my SNS contacts are shopping.
INTCON7	I am willing to recommend Amazon when my SNS contacts need advice.
<b>Social Commerce Information Contributing Behavior:</b> developed based on Venkatesh et al. (2012)	
Please choose your usage frequency for each of the following when you visit Amazon in the last month:	
BCON1	Rate
BCON2	Review
BCON3	Share product information on SNSs
BCON4	Recommend products to SNS contacts
BCON5	Share shopping experiences with SNS contacts
<b>Perceived Benefits of Social Commerce:</b> adapted from Delone and McLean (2003) and Delone and Mclean (2004) and then modified to fit our research context	
PB1	Social media features make my Amazon purchase experience more enjoyable.
PB2	Social media features enable me to make more informed and accurate purchase decisions on Amazon.
PB3	Using social media features enable me to accomplish my purchasing more quickly.
PB4	Using social media features improves my experience on Amazon.
<b>Information Quality:</b> adapted from Wixom and Todd (2005)	
IQ1	Overall, I would give the information from other consumers on Amazon high marks.
IQ2	Overall, I would give the information provided by other consumers on Amazon a high rating in terms of quality.

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