

# Customer brand engagement and co-production: an examination of key boundary conditions in the sharing economy

Riza Casidy

*Department of Marketing, Macquarie University, Sydney, Australia*

Civilai Leckie

*Department of Management and Marketing, Swinburne University of Technology, Hawthorn, Australia*

Munyaradzi Wellington Nyadzayo

*Department of Business and Management, University of Wollongong – Dubai, Dubai, United Arab Emirates, and*

Lester W. Johnson

*Department of Management and Marketing, Swinburne University of Technology, Hawthorn, Australia*

## Abstract

**Purpose** – Digital platforms have transformed how brands engage with collaborative consumption actors, such as prosumers. This study aims to examine the role of customer innovativeness and perceived economic value as important boundary conditions on the effects of customer brand engagement behavior on co-production, which subsequently influences customer satisfaction.

**Design/methodology/approach** – The authors test the model using survey data from 430 users of a digital platform (i.e. UBER) in Australia. Hypotheses were tested using the bias-corrected bootstrapping method.

**Findings** – The findings suggest that customer innovativeness and perceived economic value positively moderate the effects of customer brand engagement behavior on co-production. Further, the mediating effects of co-production on satisfaction are stronger for highly innovative customers and for those who associate high perceived economic value with the brand.

**Research limitations/implications** – This study provides novel insights on the boundary conditions of the effects of customer brand engagement behavior on co-production. Future research could apply this study's conceptual framework to other digital platforms to extend the generalizability of this framework.

**Practical implications** – This study provides managerial insights into how firms can customize marketing strategies to encourage customers as prosumers in co-production by targeting highly innovative customers and focusing on perceived economic value.

**Originality/value** – This study builds on service-dominant logic and social exchange theory to examine the role of customer innovativeness and perceived economic value as novel boundary conditions in digital platform ecosystems.

**Keywords** Customer brand engagement behavior, Co-production, Customer innovativeness, Prosumers, Digital platforms, Sharing economy, Innovation, Branding, Value, Service dominant logic, Customer satisfaction, Customer behavior

**Paper type** Research paper



## Introduction

The past decade has witnessed significant growth in the sharing economy, fueled by service innovations such as digital platforms. Recent evidence shows that by 2025, the projected revenue from the transportation and accommodation sharing services will exceed \$335bn (Tabcum, 2019). The sharing economy has radically transformed today's business landscape, particularly concerning the traditional marketing views of consumers, firms and processes (Eckhardt *et al.*, 2019; Garud *et al.*, 2022; Gerwe and Silva, 2020). Further, a PWC (2015) report shows that 63% of customers agree that it is more fun to engage with sharing economy companies than their traditional counterparts. This rise of the sharing economy has influenced research in the areas of service innovation, value creation, trust, alternative consumption modes and digital platform business models such as Uber – the focus of this current study. Unlike traditional business models, the nature of platform business models is triadic. Platform brands (e.g. Uber) as service enablers connect customers (e.g. riders) to service providers (e.g. drivers) through digital online platforms. Research shows strong interaction effects between consumer sharing and co-production on market performance (Lang *et al.*, 2015). However, the idiosyncratic trait of the platform models provides a complex and unique setting to study the expanded customer roles, their service perceptions and satisfaction with their service experience (Akhmedova *et al.*, 2021; Payne *et al.*, 2021).

Some scholars in the area of sharing economy often view prosumers as consumers (i.e. Uber drivers) who grant temporary access to their excess tangible and intangible resources to other consumers (i.e. Uber riders/users) in economic transactions through digital platforms (i.e. Uber mobile application) (Dellaert, 2019; Eckhardt *et al.*, 2019). Our research offers an alternate theoretical conceptualization of customers (i.e. Uber riders/users) as prosumers in the context of value co-production since customers undertake expanded roles as providers and users of resources (i.e. prosumers; Eckhardt and Bardhi, 2016; Ritzer and Jurgenson, 2010). Our view of customers (i.e. Uber riders/users) as prosumers is consistent with Xie *et al.* (2008, p. 110) definition of prosumption, that is, the “value creation activities undertaken by the consumer that result in the production of products [services] they eventually consume and that become their consumption experiences”. This is also consistent with recent studies where the term prosumers is used when discussing the expanded role of consumers as necessary participants in the production of goods and services (Dellaert, 2019; Eckhardt *et al.*, 2019; Wang, 2021).

From the review of growing but fragmented literature on customer satisfaction in the sharing economy, a few conclusions relevant to this current study can be drawn. First, customer satisfaction is found to be the critical outcome as it promotes customer loyalty and reuse intentions (Möhlmann, 2015; Su *et al.*, 2021). Second, from the expectation-confirmation theoretical lens, customer expectations and resultant satisfaction become increasingly difficult to predict and manage due to varying customer service quality perceptions and changing customer roles in sharing economy (Cheng *et al.*, 2018; Jia *et al.*, 2020). Third, most antecedents of customer satisfaction investigated by prior studies are either external factors (e.g. environmental impact, internet capability, smartphone capability and trend affinity) or perceived benefits (e.g. benefits of booking application, cost-saving and safety) (Lee *et al.*, 2018; Möhlmann, 2015; Nguyen-Phuoc *et al.*, 2020, 2021). Finally, many studies also confirmed that trust, perceived value, and perceived risks are critical drivers of customer satisfaction (Gu *et al.*, 2021; Kozlenkova *et al.*, 2021; Xu, 2020). Yet, from service-dominant logic (SDL) theoretical lens, customer engagement is concerned with customer resource investment into interactions with the focal brand and other actors (Hollebeek *et al.*, 2019). Conceptually, customer engagement can represent a potential driver of prosumer co-production and satisfaction in the sharing economy context.

Our study focuses on customer brand engagement behavior (CBEB), reflecting several customer brand-related activities, namely, collecting brand information, participating in brand marketing activities and interacting with other customers (Keller *et al.*, 2013). From the SDL perspective, we argue that engaged customers have acquired adequate skills and knowledge to undertake their expanded roles in value co-production in a sharing economy (Hibbert *et al.*, 2012). There is sparse empirical research on how CBEB can lead to co-production and resultant satisfaction through SDL perspective in sharing economy context (Altinay and Taheri, 2019). This lack of research attention is surprising, given that the existing literature has underlined customer engagement and co-production as essential elements in the sharing economy (Dellaert, 2019). Therefore, this study proposes that CBEB underscores customers undertaking brand-related activities that influence their expanded service production and delivery roles. More specifically, we intend to develop a framework that assists firms in developing customer-based marketing strategies that consider the roles of customers as prosumers in the sharing economy.

As with other collaborative consumption choices, the extent to which customers engage with brands and its impact on co-production and satisfaction can vary. SDL signifies customers' integration of their operant resources in a value co-production process (Vargo and Lusch, 2008). We argue that customer innovativeness represents customer-owned operant resources and that the effect of CBEB on co-production is conditional upon this innate customer characteristic. While past studies have underlined the impact of customer innovativeness on product adoption (Goldsmith and Hofacker, 1991; Hur *et al.*, 2012), very few have empirically examined innovativeness as customer-owned resources that potentially shape customer co-production and its outcomes. Moreover, typically, actors in the sharing economy are economically motivated to engage in commercial transactions via digital platforms (Eckhardt and Bardhi, 2016; Zervas *et al.*, 2017). Concerning the reciprocity concept in social exchange theory (SET), customers anticipate the return of benefits from their relationships with brands (Pervan *et al.*, 2009). Hence, our study argues that the extent to which CBEB influences co-production and satisfaction is contingent on the perceived economic value derived from their participation in service delivery.

Against this research backdrop, our study offers three key contributions. First, this study postulates that CBEB underpins customers' enhanced understanding of brand activities, service processes and role clarity (Dong *et al.*, 2008), enabling them to integrate operant (e.g. knowledge and skills) and operand resources (e.g. mobile phone) in the co-production of services. Our findings provide platforms brands with engagement strategies to empower their customers as prosumers. Second, as digital technology advances, a new way of organizing value-creation activities has emerged whereby customers are required to undertake several roles and develop new competencies to co-produce services (Eckhardt *et al.*, 2019). To evaluate whether engaged customers can successfully co-produce in the service delivery process, our study examines the role of co-production in enhancing customer satisfaction. In doing so, we respond to Eckhardt *et al.* (2019) call for research to reexamine customer satisfaction by considering the enhanced role of customers in the sharing economy. Finally, the prevalence of the sharing economy, customer brand engagement and co-production in the service landscape signals the need to better understand the boundary conditions on the relationship between brand engagement and co-production to fully capture the nuances of their interrelationships. We demonstrate the role of innovativeness and perceived economic value as important boundary conditions in the relationship between CBEBs and co-production which ultimately influences satisfaction. In doing so, we address the recent call for research "to expand knowledge of the boundary conditions of consumer engagement" (Claffey and Brady, 2017, p. 368).

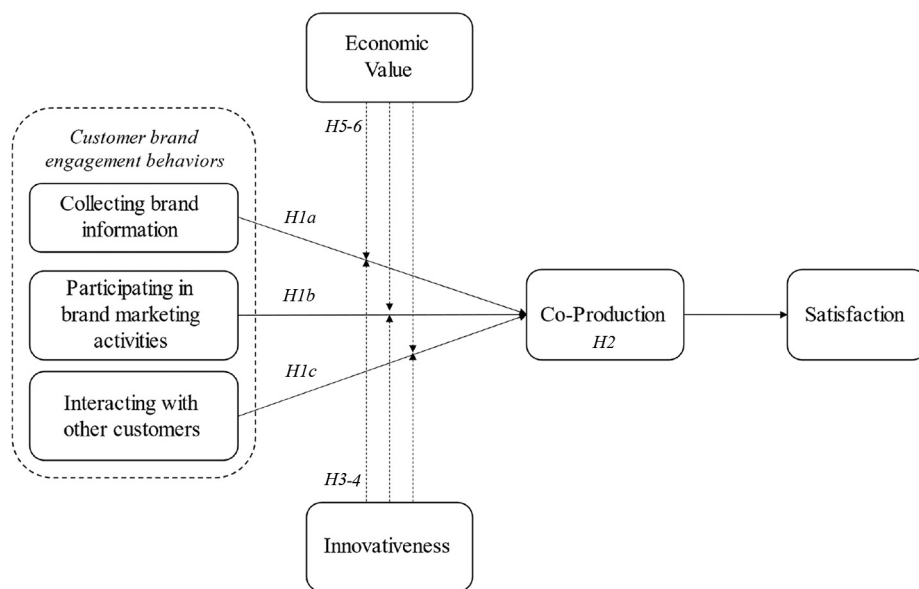
In summary, this study examines the mechanism and boundary conditions of the effects of the CBEB dimensions on customer outcome via co-production. Further, our study proposes that these effects are contingent on two factors, namely customer innovativeness and perceived economic value. The proposed hypotheses were tested via data collected from 430 nationwide Uber customers in Australia. The conceptual model is shown in Figure 1.

## Theoretical framework and hypotheses

### *Customers as prosumers*

The term “presumption” refers to a situation where “consumers take over, or are made to take over, activities traditionally performed by commercial producers” (Hartmann, 2016, p. 5). The terms *co-creation*, *co-production* and *prosumption* are often used interchangeably to describe consumer collaboration with firms to produce a service experience (Beighton, 2017). Some researchers claim that prosumption has always dominated the capitalist economy and has become even more pronounced due to a series of social changes brought about by the Internet and Web 2.0 (Ritzer, 2014).

In the sharing economy, prosumers are often referred to as consumers who provide temporary access to resources (e.g. capital goods) to others in exchange for economic returns and social benefits (Dellaert, 2019; Eckhardt *et al.*, 2019). According to SDL, customers are *always active co-creators of value* in the joint production of services with firms (Vargo and Lusch, 2008). The transition of customers to prosumers is required and facilitated by technology and modern marketing processes. With digital platforms, customers expand their roles in value creation activities to become prosumers (Zhao *et al.*, 2018). For example, in platform business models, such as Uber, customers are required to give personal data and often interact directly with other network actors (e.g. drivers) via digital platforms to co-produce services and customize service solutions.



**Figure 1.**  
Conceptual model

Our study concurs with [Ritzer \(2014\)](#) who posits that prosumers can be seen as integral to the process that occurs within the presumption continuum. We also concur with [Alhashem et al. \(2021, p. 199\)](#) argument that the conceptual differences between prosumers and co-producers remain fluid as “social actors navigate multiple, multifaceted, creative and productive social relations through contemporary digital culture”. The present study uses the term “customers” to refer to prosumers-as-customers who place service orders via the Uber mobile application.

### *Co-production*

Digital service innovation encourages customers to take on more active roles in co-producing service experiences with brands ([Lusch et al., 2016](#)). Many firms have designed their digital service process using mobile platforms to enable real-time interactions for joint experiential co-production of brand value ([Ramaswamy and Ozcan, 2016](#)). In the existing literature, the term “co-production” is often used interchangeably with “customer participation” ([Bendapudi and Leone, 2003](#)). For example, [Vargo \(2013, p. 7\)](#) defined “*co-production*” as “the customer’s participation in the creation of the value-proposition (the firms offering), such as through co-design, customer-assembly, self-service, etc”. [Lusch et al. \(2016, p. 2961\)](#) referred to co-production as “one particular form of co-creation in which what is normally thought of as the customer (e.g. “beneficiary”), is active in performing roles that are involved in another actor’s (e.g. “provider”) market offering”. In this study, co-production reflects active and constructive customer participation in a service provider’s service creation and delivery process ([Auh et al., 2007](#)). That is, when customers engage in co-production, they become motivated to proactively interact and emotionally connect with service employees during service encounters, resulting in enhanced service quality perception ([Dabholkar, 2015; Zhao et al., 2018](#)).

Co-production consists of multi-actor physical and mental activities involving a mutual exchange of operant resources (e.g. effort, time, skills and knowledge) to create products and services ([Sugathan and Ranjan, 2020](#)). As such, co-production involves several stakeholders (customers, drivers and the brand) who integrate their resources and interact through purposefully-designed mobile platforms ([Ramaswamy and Ozcan, 2016](#)). In these platforms, all stakeholders enact behaviors by deploying their operand resources (mobile phones, cars and operating platforms) and operant resources (self-service, knowledge, labor and time) to co-produce service experience and co-create value ([Netter et al., 2019](#)). A customer co-production network such as Uber involves “a system of multiple consumers and firms that actively collaborate to fulfill certain consumer needs, often involving commercial interactions” ([Dellaert, 2019, p. 243](#)). In such networks, co-production typically takes place at the production or “value-in-use” creation stage ([Vargo and Lusch, 2004](#)).

### *Customer brand engagement behavior*

Customer brand engagement behavior (CBEB) has received increasing research attention in recent years ([Bozkurt et al., 2020; Carlson et al., 2019; Pansari and Kumar, 2017](#)). [Jaakkola and Alexander \(2014, p. 248\)](#) stated that CBEB reflects customer behaviors “through which customers make voluntary resource contributions that have a brand or firm focus but go beyond what is fundamental to the transaction”. In conceptualizing CBEB, the present study adheres to [Keller et al. \(2013\)](#) brand engagement framework consisting of three key dimensions: *collecting brand information, participation in brand marketing activities and interacting with other customers*. This study posits that CBEB relates to the customer-controlled learning process whereby customers develop the capacity to be effective resource integrators that promote co-production ([Prebensen and Xie, 2017](#)).

*Collecting brand information* refers to the way that customers consume and process brand-related information (Maslowska *et al.*, 2016). Such behaviors include learning about the brand, reading brand-related information and keeping up to date with new products/services launched by the brand. Our study adopts Prebensen and Xie (2017) view of customers as resource integrators that offer broad-ranging learning resources. When customers engage with brands in a learning environment, they tend to be highly motivated to process brand-related information. According to associative memory theory, collecting brand information can increase memory and familiarity with the focal brands (Althuizen, 2017). For example, in the financial services context, Auh *et al.* (2007) found that timely and meaningful communication between customers and their financial advisors regarding brand-related service information (i.e. investment strategies, portfolio performance and financial concepts) enhances customer knowledge. Such knowledge would then empower customers to extend their roles as prosumers in value co-production for their financial solutions. Based on these prior findings, we hypothesize that the extent to which customers engage in collecting brand information has positive effects on co-production. Formally:

*H1a.* Collecting brand information is positively related to co-production.

*Participation in brand marketing activities* refers to the way that customers expend their economic, psychological, and physical resources on various brand marketing activities such as advertisements, sales promotions, contests and digital billboards (Leckie *et al.*, 2018). Uses and gratification theory can help understand customer motivation (e.g. utilitarian, entertainment and social connection) to participate in brand-related marketing activities (Ray *et al.*, 2019). For example, Maslowska *et al.* (2016) examined customer participation in a brand-related social media contest and found that the more the brand rewards were congruent with customers' personal goals, the greater the customers' participation. In our study, we propose that when participating in Uber marketing activities, customers evaluate whether their experiences of the brand meet their goals (Brakus *et al.*, 2009). In turn, they acquire a better understanding of the brand (Uber) and its service process, enabling them to perform their expanded roles as prosumers to co-produce the service experience. Thus, it is hypothesized that:

*H1b.* Participating in brand marketing activities is positively related to co-production.

*Interacting with other customers* refers to the way that customers and networked actors interact with the focal brand Keller *et al.* (2013). Customers who voluntarily promote the brand when interacting with others in effect become pseudo marketers of the brand (i.e. brand evangelists; Harmeling *et al.*, 2017; Nyadzayo *et al.*, 2020). According to SDL, customer learning is a socially constructed process as it is based on learning from peer groups and community members who share their experiences with others (Hibbert *et al.*, 2012). In a digital environment, customer-initiated communication (e.g. posting online reviews, offering recommendations and responding to other customers) becomes increasingly important (Eger and Micik, 2017). Such communications and other extra efforts such as customer-to-customer interactions can influence co-production and the delivery of services that benefit themselves, other customers, and the brand Johnson *et al.* (2019). Hence, we expect that customers acquire more knowledge via their interactions with others, which empowers them to undertake expanded roles as prosumers to co-produce the service experience. Thus, it is hypothesized that:

*H1c.* Interacting with other customers is positively related to co-production.



*Co-production as a mediator*

According to the SDL literature, co-production occurs in the complex and dynamic network within platform service systems (Jaakkola and Alexander, 2014). Value is jointly created through resource exchange and integration by actors within the platform ecosystem (Grönroos and Voima 2013). Customers contribute a broad range of resources (e.g. knowledge, time, physical and mental resources) through CBEs during their interactions with the focal brand (Uber) and other platform actors (e.g. Uber drivers) (Vargo and Lusch 2011).

Prior studies have provided empirical evidence on the direct effects of co-production on customer satisfaction with usage experiences in different settings. For example, Kumar *et al.* (2022) found that customers' collaboration design has positive effects on satisfaction in e-grocery application context. Palumbo (2016) found that patient co-production positively contributes to their satisfaction in health care settings. Finally, more relevant to the present study, Jiang *et al.* (2019) found that customer participation in the sharing economy platform (Airbnb) has positive effects on their satisfaction with the platform. Accordingly, in this study we posit that value co-production has direct effects on customer satisfaction and acts as a mediator between CBE and customer satisfaction.

Platform brands design a learning environment that facilitates different customer groups via information assimilation (e.g. open communication), educational resources and supports (Hibbert *et al.*, 2012). In terms of resource integration, some brands advocate the use of organization-based operant and operand resources that facilitate customers' self-motivated and controlled learning (Huotari and Hamari, 2017), which in turn enhances customer engagement (Mostafa, 2021). Therefore, we postulate that when customers collect brand information, most are motivated to voluntarily contribute their knowledge in collaboration with the brand to customize its offerings (Blazevic and Lievens, 2008; Zhang *et al.*, 2022). For example, when financial services customers identify with their participative roles via relevant brand information, they are more likely to provide input that generates solutions tailored to their specific situations (Dong *et al.*, 2015). Thus, this study posits that highly-engaged Uber customers are prosumers who apply brand knowledge to co-produce services to achieve a better experience. Formally, it is hypothesized that:

*H2a.* Co-production mediates the effects of collecting brand information on satisfaction.

When customers actively participate in brand-related activities, they can regulate their resources and take greater control of their learning to improve outcomes (Hibbert *et al.*, 2012). Prior research shows that the processing of brand-related information and direct experiences often result in perceived knowledge (Hollebeek *et al.*, 2019). For example, when engaged customers participate in a sales promotion and trial of focal brands, they engage in experiential learning about the focal brands (Fernandes and Remelhe, 2016). With repeated direct brand experience, customers develop cognitive lock-in and create mental representation of brand knowledge, resulting in a strong preference for focal brands (Halkias, 2015). In turn, customers experience greater ease of use, heightened self-efficacy, and skill-based habits with focal brands (Ozturk *et al.*, 2016). In this study, it is expected that after participating in brand-related marketing activities (e.g. free Uber ride and promotional discounts), customers have a better understanding of the service process and their roles as prosumers. Thus, it is hypothesized that:

*H2b.* Co-production mediates the effects of participating in brand marketing activities on satisfaction.

According to [Hollebeek et al. \(2019\)](#), customer knowledge-sharing often facilitates customer brand engagement. Accordingly, we posit that when customers interact with others concerning the focal brand, information about the brand and their expanded roles as prosumers are effectively assimilated. Regulatory engagement and self-determination theories explain that customers engage in brand communities to achieve utilitarian and hedonic value ([Niedermeier et al., 2019](#)). Therefore, when they exchange useful information and give brand advice to other community members, they tend to report higher levels of satisfaction ([Niedermeier et al., 2019](#)). For example, [Nangpiire et al. \(2021\)](#) found that positive engagement fosters customer interactions, which lead to value co-creation. Further, customer-to-customer interactions can influence customer satisfaction with the service platform since such interactions can clarify expectations and reduce role ambiguity through customer participation ([Luo et al., 2019](#)). Also, customer-to-customer interactions promote customer learning regarding the way that service features work, the sequencing of services and the understanding of the expected role, all of which influence customer participation, service experience and satisfaction ([Johnson et al., 2019](#)). Thus, it is hypothesized that:

*H2c. Co-production mediates the effects of interacting with other customers on satisfaction.*

#### *Customer innovativeness as a moderator*

Customer innovativeness reflects an individual's propensity to embrace and use new technology ([Hong et al., 2017](#)). [Bartels and Reinders \(2011\)](#) identified three levels of customer innovativeness: innate innovativeness, domain-specific innovativeness and innovative behavior. Innate innovativeness reflects a general personality trait to seek out new information, stimuli or experiences, whereas domain-specific innovativeness reinforces the tendency of an individual to learn and adopt new products from a domain of particular interest ([Ganglmair-Wooliscroft and Wooliscroft, 2016](#)). Innovative behavior reflects the tendency of an individual to adopt an innovation before other customers do so, and includes ownership, usage and purchase of new products as well as novelty-seeking behavior ([Lin et al., 2021](#); [Malecka et al., 2022](#)). These three behaviors have been captured in the current study's conceptualization of customer innovativeness.

Most innovative customers are highly engaged and more concerned about their self-image than are their counterparts ([Leckie et al., 2018](#)). Thus, in this study, we theorize that the impact of CBEB dimensions on co-production is contingent on a customer's level of innovativeness. When customers feel confident and competent, they are likely to put more effort into undertaking their tasks in service delivery ([Dong et al., 2015](#)), thereby carrying out expanded roles as prosumers. Also, we posit that the effects of CBEB on co-production is more prevalent among highly innovative customers as they are willing to interact with and learn more about the brand. Such customers are also more capable of managing changes to brand-oriented processes (e.g. software updates or interface configurations) and navigating through digital platforms, which strengthens their co-production behavior. Thus, it is hypothesized that:

*H3. Innovativeness positively moderates the effects of (a) collecting brand information, (b) participating in brand marketing activities and (c) interacting with other customers on co-production.*

Consequently, this study proposes that the mediating effects of co-production in the relationship between CBEB dimensions and satisfaction are moderated by customer innovativeness. Innovative customers' greater levels of engagement and their ability and willingness to



participate in co-production behaviors result in more positive service outcomes, including satisfaction. These positive service outcomes are often associated with co-created accomplishments by engaged and innovative customers (Mende *et al.*, 2017). Research suggests that when customers are required to carry out various activities with varying levels of difficulty, over time, they tend to shift to those with higher levels of difficulty (Sweeney *et al.*, 2015). It is plausible to suggest, therefore, that customers with high innovativeness tend to co-produce more. Once highly innovative customers feel satisfied with lower levels of co-production, it is expected that they become motivated to increase their co-production efforts to achieve greater intrinsic rewards. The prosumption literature also suggests that customers engage in creative processes when they prefer to have control of outcomes or become designers of their own solutions (Macdonald *et al.*, 2016). Thus, it is hypothesized that:

- H4. The mediating role of co-production on the effects of (a) collecting brand information, (b) participating in brand marketing activities and (c) interacting with other customers on satisfaction is relatively stronger among highly innovative customers.

#### *Perceived economic value as a moderator*

The nature of the sharing economy presents a challenge to value assessment as value is co-created collaboratively by diverse actors. Therefore, it is difficult to determine the value that customers receive from any offering, as it may be highly personal. Viewed through the SDL lens, value is contextual, experiential, idiosyncratic, meaning-laden and “always uniquely and phenomenologically determined by the beneficiary” Vargo and Lusch (2008, p. 7). Moreover, research suggests that value can have several dimensions (e.g. social, economic; Mendoza-Abarca and Mellema, 2016). Social value refers to customers’ perception of how significant others view their behavior (Torres *et al.*, 2022), whereas economic value refers to the anticipated financial rewards that customers can gain from engaging in a particular behavior (Choi *et al.*, 2019). Our study focuses on the latter since actors in a sharing economy are economically rather than socially motivated to conduct transactions through digital platforms (Eckhardt *et al.*, 2019).

Both SDL and the interorganizational relationship literature postulate that reciprocity and mutual dependence among companies, customers and other agents are crucial in the value co-production process (Canhoto *et al.*, 2016). SET explains how exchange parties evaluate relationships in a behavioral context, taking into account their relationship satisfaction and a comparative evaluation of the exchange values expected from alternative options (Bagozzi, 1975). While a fair distribution of perceived economic and social value influences relationship continuity, exchange partners tend to temporarily ignore fairness discrepancies as long as the relationship provides sufficient perceived economic value (Bagozzi, 1975). Both SDL and prosumer literature suggest that highly engaged customers and prosumers make extra cognitive, psychological and behavioral efforts or voluntary investment in value co-production to customize service experiences (Vargo and Lusch, 2008). It is conceivable that as customers move from being passive to active participants (or prosumer) in co-producing their consumption experience, highly engaged customers put voluntary efforts into brand interactions as long as they perceive a fair return of perceived economic value compared to those of other alternatives (Bagozzi, 1975). Thus, it is hypothesized that:

- H5. Perceived economic value positively moderates the effects of (a) collecting brand information, (b) participating in brand marketing activities and (c) interacting with other customers on co-production.

In addition, this study proposes that the mediating effects of co-production in the relationship between CBEB dimensions and satisfaction are moderated by perceived economic value. From the SDL perspective, highly engaged customers proactively co-produce personalized experiences through active, explicit, ongoing dialogue and interactions with the focal brand (Vargo and Lusch, 2008). Also, such customers tend to perform extra roles as facilitators of service provision (Paulssen *et al.*, 2019). Consistent with SET and research on inter-firm relationships, we argue that perceived economic value significantly shapes customers' satisfaction with their consumption experience when they engage with the focal brand and expand their roles in service co-production. Under SET, the concept of reciprocity involves the provision of favors with an expectation of future benefits (Paraskevaidis and Andriotis, 2017). In fact, customer brand-related reciprocity results from an accumulation of perceived brand benefits (Itani *et al.*, 2020). Customers tend to adjust their levels of proactive contributions (relevant cognitive, emotional and physical resources) based on their levels of the perceived value obtained from brand interactions (Alves and Mainardes, 2017). Therefore, our study postulates that upon anticipating greater perceived economic value from co-production, customers increase their proactive contribution, which in turn leads to higher satisfaction. Thus, it is hypothesized that:

- H6.* The mediating role of co-production on the effects of (a) collecting brand information, (b) participating in brand marketing activities and (c) interacting with other customers on satisfaction is relatively stronger among customers who perceive high economic value associated with the service.

## Research methodology

### *Data collection and sample*

Data were collected via an online survey from a panel of Australian Uber customers, based on a random sample that matched the national distribution of age, gender and location. We chose Uber as it is one of the most popular and prominent digital platforms in the sharing economy (Lee *et al.*, 2018; Paik *et al.*, 2019). To qualify the respondents, we used a filter question asking the respondents whether they have used mobile phone applications to book the following services: Uber Ride, Uber Eat, hotel, flight or none at all. This multiple response question was randomly ordered. Only respondents who have selected Uber Ride or Uber Eat were invited to fill out the online survey. Those who did not qualify received a thank you message and did not proceed to fill out the survey. Finally, the respondents who have selected both Uber Ride and Uber Eat were randomly assigned to one of the Uber services and invited to fill out the online survey. The final sample consists of 430 respondents (Female = 238,  $M_{\text{Age}} = 35$ ). Please see Table 1 for our sample characteristics.

### *Measures*

We review the literature to identify existing scale items that suit the ride-sharing context (see Appendix 1). To measure CBEB, we adopted Keller *et al.* (2013) scale items which include collecting brand information (5 items), participating in brand marketing activities (5 items), and interacting with other customers (4 items). We adapted a four-item scale from Auh *et al.* (2007) to measure co-production, which captures the extent to which customers constructively participate in the service delivery process. The outcome measure: satisfaction with service experiences, was adapted from Dong *et al.* (2015) using a three-item scale to capture customer's satisfaction with the purchase process, service and experience of using Uber's mobile phone application. Customer innovativeness was adapted from Parasuraman (2000) to measure the extent to which customers

EJM 56,10	Demographics	(%)
	<i>Gender</i>	
	Male	44.7
	Female	55.3
2604	<i>Age</i>	
	19–24	14.0
	25–34	21.9
	35–44	21.6
	45–54	19.1
	55–64	13.3
	65+	10.1
Table 1. Respondent characteristics	<i>Highest level of education</i>	
	University degree	55.3
	Vocational education	26.3
	High school diploma	18.4

keep up with the latest technologies. Finally, a three-item scale adapted from [Mathwick \*et al.\* \(2001\)](#) was used to measure perceived economic value. Several authors have confirmed the face validity of our selected constructs as appropriate for assessing customer engagement in a variety of settings ([Ang \*et al.\*, 2018](#); [Dwivedi \*et al.\*, 2016](#); [Gallarza \*et al.\*, 2021](#); [Leckie \*et al.\*, 2018](#); [Ratchford and Barnhart, 2012](#); [Wu \*et al.\*, 2015](#)).

### Pretest and preliminary analysis

Before the launch of the online survey, a pretest was performed with 50 respondents. Some preliminary checks, such as sample demographics and Cronbach’s alpha, were conducted, and no significant issues were found. In addition, academic experts scrutinized the measurement items and assessed how they represented the constructs under study, ensuring content validity. In addition, the face validity of the measurement items is established since the scales have been used and validated by prior studies. Once the data collection is finalized, we conducted preliminary checks on outlier detection as well as normality and unidimensionality tests on the final sample. Again, no significant issues were identified, thus indicating data validity.

## Data analysis results

### Measurement model

We conducted confirmatory factor analysis via Mplus 7.4 to evaluate the overall measurement model. The fit indices showed satisfactory fit [ $\chi^2_{(303)} = 806.216$ ; CMIN/DF = 2.66; root mean square error of approximation (RMSEA) = 0.062; comparative fit index (CFI) = 0.948; and Tucker–Lewis index (TLI) = 0.940]. All of the scale items are reliable as the value of composite reliabilities of each construct is above 0.85 ([Table 2](#)). Further, we establish strong evidence of discriminant validity as the square root of each construct’s average variance extracted (AVE) value was greater than its highest correlation with other constructs ([Voorhees \*et al.\*, 2016](#)).

### Common method bias

In this study, we implemented both procedural and statistical control to minimize common method bias (CMB). In terms of procedure, we avoided double-barreled questions and kept

the scale items concise, while related items were dispersed throughout the survey to minimize self-report validity. Statistically, we used two steps to check for common method bias. First, we conducted the Harman one-factor test (Podsakoff *et al.*, 2003) by subjecting all items to a single principal component factor analysis with an unrotated solution. The analysis revealed six factors with eigenvalues  $> 1$ , with the first factor explaining 38.93% of the total variance, suggesting that method bias was minimal. Second, we incorporated a common method factor in both models with all items loaded on their respective constructs with variance set to 1 (Podsakoff *et al.*, 2003). The inclusion of the method factor did not significantly alter the measurement model fit, suggesting that CMB was not a concern in this study.

#### *Test of direct and indirect effects*

We used SPSS PROCESS Macro (Model 4 with 5,000 bootstrap samples; Hayes, 2018) to test our hypotheses. For the analysis, each CBEB dimension (i.e. collecting brand information, participating in brand marketing activities, and interacting with other customers) was entered separately as the independent variable, co-production as the mediating variable and satisfaction as the dependent variable. In addition, we included age as a covariate in the model because prior studies suggest that younger consumers tend to have a higher level of co-production on online platforms (Gelbrich *et al.*, 2021)[1].

As shown in Table 3, the results reveal that collecting brand information ( $\beta = 0.306, p < 0.001$ ), participating in brand marketing activities ( $\beta = 0.335, p < 0.001$ ) and interacting with other customers ( $\beta = 0.287, p < 0.001$ ) have positive effects on co-production, which in turn has a positive effect on satisfaction ( $\beta = 0.378, p < 0.001$ ). Thus, support was found for *H1a*, *H1b* and *H1c*, respectively. Importantly, the analysis reveals significant indirect effects of collecting brand information ( $\beta_{indirect} = 0.115$ , 95% CI [0.080, 0.155]), participating in brand marketing activities ( $\beta_{indirect} = 0.119$ , 95% CI [0.084, 0.158]) and interacting with other customers ( $\beta_{indirect} = 0.109$ , 95% CI [0.075, 0.147]) on satisfaction via co-production. Thus, support was found for *H2a*, *H2b* and *H2c*, respectively.

Next, we used SPSS PROCESS Macro (Model 7 with 5,000 bootstrap samples; Hayes, 2018) to test the moderation (*H3* and *H5*) and moderated-mediation hypotheses (*H4* and *H6*). In the analysis, each CBEB dimension was entered separately as the independent variable, co-production as the mediating variable, satisfaction as the dependent variable, age as covariate and customer innovativeness and perceived economic value, respectively, as the moderating variables.

Construct	Mean	SD	CR	AVE	1	2	3	4	5	6	7
1. Collecting brand information	4.43	1.27	0.89	0.63	<i>0.79</i>						
2. Participating in brand marketing activities	4.71	1.28	0.92	0.74	0.75	<i>0.86</i>					
3. Interacting with other customers	4.48	1.28	0.93	0.76	0.63	0.58	<i>0.87</i>				
4. Co-production	5.16	1.12	0.85	0.59	0.39	0.41	0.38	<i>0.77</i>			
5. Satisfaction	5.72	0.95	0.92	0.80	0.31	0.35	0.32	0.51	<i>0.89</i>		
6. Innovativeness	4.78	1.42	0.94	0.80	0.52	0.51	0.36	0.28	0.25	<i>0.89</i>	
7. Economic value	5.67	1.03	0.93	0.82	0.34	0.33	0.40	0.37	0.74	0.19	<i>0.90</i>

**Notes:** Figures in italics indicate the square root of average variance extracted; CR = Composite reliability; AVE = Average variance extracted; SD = Standard deviations

**Table 2.**  
Descriptive statistics,  
inter-construct  
correlations and  
discriminant validity

**Table 3.**  
Test of main and  
mediation effects

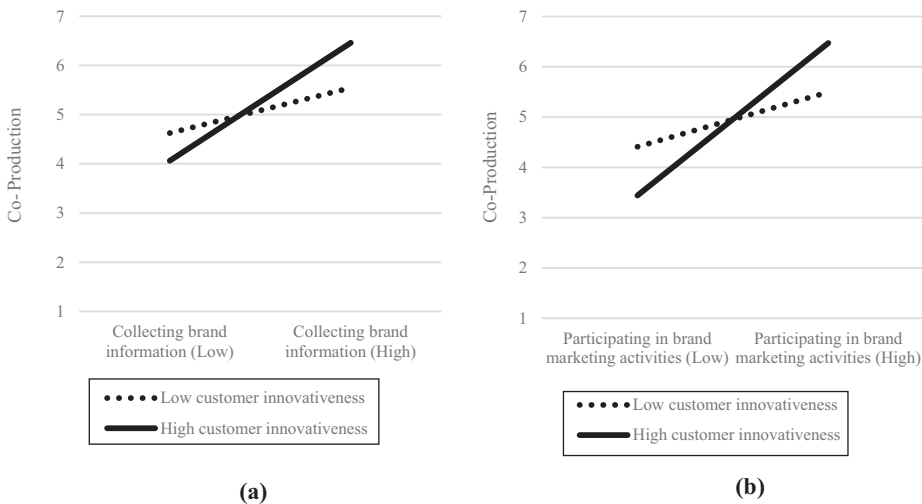
Panel A: Direct effects	Estimates		S.E.	t	<i>p</i>	
	Std	Unstd				
<i>H1a</i> : Collecting brand information → Co-production	0.348	0.306	0.040	7.728	<0.001	
<i>H1b</i> : Participating in brand marketing activities → Co-production	0.384	0.335	0.039	8.596	<0.001	
<i>H1c</i> : Interacting with other customers → Co-production	0.328	0.287	0.040	7.168	<0.001	
Co-production → Satisfaction	0.446	0.378	0.038	9.976	<0.001	
Collecting brand information → Satisfaction	0.134	0.100	0.033	3.000	<0.01	
Participating in brand marketing activities → Satisfaction	0.184	0.136	0.034	4.059	<0.001	
Interacting with other customers → Satisfaction	0.130	0.097	0.033	2.916	<0.01	
Panel B: Indirect effects	Estimates		S.E.	LLCI	ULCI	<i>p</i>
	Std	Unstd				
<i>H2a</i> : Collecting brand information → Co-production → Satisfaction	0.154	0.115	0.019	0.080	0.155	<0.05
<i>H2b</i> : Participating in brand marketing activities → Co-production → Satisfaction	0.161	0.119	0.019	0.084	0.158	<0.05
<i>H2c</i> : Interacting with other customers → Co-production → Satisfaction	0.146	0.109	0.018	0.075	0.147	<0.05
<b>Notes:</b> Std. = Standardized coefficient, Unstd = Unstandardized coefficient, S.E. = Standard error; LLCI = lower-limit confidence interval (95%); ULCI = upper-limit confidence interval (95%)						

*The moderating effect of customer innovativeness*

Our analysis reveals that customer innovativeness positively moderates the relationship between collecting brand information and co-production ( $\beta_{interaction} = 0.090, p < 0.001$ ), thereby supporting *H3a*. A spotlight analysis reveals that the effect of collecting brand information on co-production is weaker when customer innovativeness is low ( $\beta = 0.153, p < 0.01$ ) and increases in strength when customer innovativeness is high ( $\beta = 0.400, p < 0.001$  (see [Figure 2](#) Panel A). Also, consistent with our theorized mechanism, the indirect effect of collecting brand information on satisfaction via co-production is weaker when customer innovativeness is low ( $\beta_{indirect} = 0.057, 95\% \text{ CI } [0.014, 0.107]$ ) and increases in strength when customer innovativeness is high ( $\beta_{indirect} = 0.150, 95\% \text{ CI } [0.100, 0.203]$ ; see [Table 4](#)), thereby supporting *H4a*.

Similarly, we found that customer innovativeness positively moderates the relationship between participating in brand marketing activities and co-production ( $\beta_{interaction} = 0.118, p < 0.001$ ), thereby supporting *H3b*. As shown in [Figure 2](#) Panel B, the effect of participating in brand marketing activities on co-production is weaker when customer innovativeness is low ( $\beta = 0.181, p < 0.001$ ) and increases in strength when customer innovativeness is high ( $\beta = 0.505, p < 0.001$ ). Further, the indirect effect of participating in brand marketing activities on satisfaction via co-production is weaker when customer innovativeness is low ( $\beta_{indirect} = 0.064, 95\% \text{ CI } [0.026, 0.105]$ ) and increases in strength when customer innovativeness is high ( $\beta_{indirect} = 0.179, 95\% \text{ CI } [0.127, 0.238]$ ; see [Table 4](#)), thereby supporting *H4b*.

We found marginal support for *H4c* relating to the moderating effects of customer innovativeness on the relationship between interacting with other customers and co-production ( $\beta_{interaction} = 0.043, p = 0.085$ ). We found that the effect of interacting with other customers is weaker when customer innovativeness is low ( $\beta = 0.188, p < 0.001$ ) and slightly increases when customer innovativeness is high ( $\beta = 0.307, p < 0.001$ ). Similarly, the indirect effect of interacting with other customers on satisfaction via co-production is weaker when customer innovativeness is low ( $\beta_{indirect} = 0.071, 95\% \text{ CI } [0.026, 0.118]$ ) and slightly increases when customer innovativeness is high ( $\beta_{indirect} = 0.116, 95\% \text{ CI } [0.072, 0.163]$ ; see [Table 4](#)).



Customer  
brand  
engagement

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**Figure 2.**  
The moderating  
effect of customer  
innovativeness on  
CBEB – co-  
production

Indirect paths	$\beta$	S.E.	LLCI	ULCI	$p$
<i>H4a: Collecting brand information → Co-production → Satisfaction</i>					
Low innovativeness	0.057	0.024	0.014	0.107	<0.05
High innovativeness	0.150	0.026	0.100	0.203	<0.05
<i>H4b: Participating in brand marketing activities → Co-production → Satisfaction</i>					
Low innovativeness	0.064	0.020	0.026	0.105	<0.05
High innovativeness	0.179	0.029	0.127	0.238	<0.05
<i>H4c: Interacting with other customers → Co-production → Satisfaction</i>					
Low innovativeness	0.071	0.024	0.026	0.118	<0.05
High innovativeness	0.116	0.024	0.072	0.163	<0.05
<i>H6a: Collecting brand information → Co-production → Satisfaction</i>					
Low economic value	0.035	0.023	−0.006	0.084	>0.05
High economic value	0.136	0.025	0.087	0.185	<0.05
<i>H6b: Participating in brand marketing activities → Co-production → Satisfaction</i>					
Low economic value	0.063	0.023	0.022	0.113	<0.05
High economic value	0.126	0.025	0.079	0.175	<0.05
<i>H6c: Interacting with other customers → Co-production → Satisfaction</i>					
Low economic value	0.031	0.024	−0.016	0.077	>0.05
High economic value	0.115	0.024	0.068	0.162	<0.05

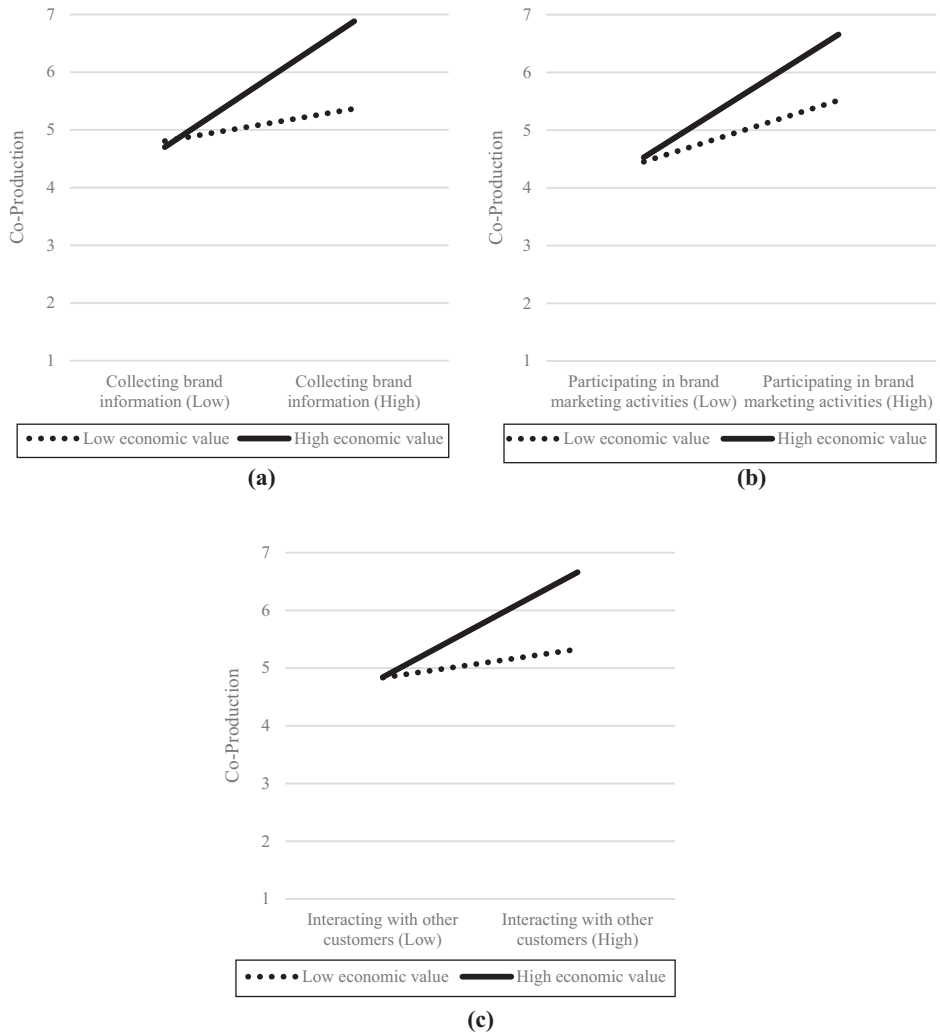
**Notes:** All reported coefficients are unstandardized; S.E. = Standard error; LLCI = lower-limit confidence interval (95%); ULCI = upper-limit confidence interval (95%)

**Table 4.**  
Results for  
moderated-mediation  
analysis

#### *The moderating effect of perceived economic value*

Our analysis reveals that perceived economic value positively moderates the relationship between collecting brand information and co-production ( $\beta_{interaction} = 0.116$ ,  $p < 0.001$ ), thereby supporting *H5a*. We found that the effect of collecting brand information on co-production is not significant when perceived economic value is low ( $\beta = 0.093$ ,  $p = 0.09$ ), but





**Figure 3.**  
The moderating  
effect of economic  
value on CBEB – co-  
production

is significant when perceived economic value is high ( $\beta = 0.363, p < 0.001$ ; see Figure 3 Panel A). Further, the indirect effect of collecting brand information on satisfaction via co-production is not significant when perceived economic value is low ( $\beta_{indirect} = 0.035, 95\% \text{ CI } [-0.006, 0.084]$ ), but is significant when perceived economic value is high ( $\beta_{indirect} = 0.136, 95\% \text{ CI } [0.087, 0.185]$ ; see Table 4), thus supporting *H6a*.

We found that perceived economic value positively moderates the relationship between participating in brand marketing activities and co-production ( $\beta_{interaction} = 0.076, p < 0.05$ ), thereby supporting *H5b*. The effect of participating in brand marketing activities on co-production is weaker when perceived economic value is low ( $\beta = 0.177, p < 0.001$ ) and increases in strength when perceived economic value is high ( $\beta = 0.355, p < 0.001$ ; see Figure 3 Panel B). Importantly, the indirect effect of participating in brand marketing

activities on satisfaction via co-production is weaker when perceived economic value is low ( $\beta_{indirect} = 0.063$ , 95% CI [0.022, 0.113]) and increases in strength when perceived economic value is high ( $\beta_{indirect} = 0.126$ , 95% CI [0.079, 0.175]; see Table 4), thus supporting H6b.

Similarly, perceived economic value was found to positively moderate the relationship between interaction with other customers and co-production ( $\beta_{interaction} = 0.095$ ,  $p < 0.01$ ), thereby supporting H5c. The effect of interacting with other customers on co-production is not significant when perceived economic value is low ( $\beta = 0.082$ ,  $p > 0.10$ ), but is significant when perceived economic value is high ( $\beta = 0.303$ ,  $p < 0.001$ ; see Figure 3 Panel C). Importantly, the indirect effect of interacting with other customers on satisfaction via co-production is not significant when perceived economic value is low ( $\beta_{indirect} = 0.031$ , 95% CI [-0.016, 0.077]), but is significant when perceived economic value is high ( $\beta_{indirect} = 0.115$ , 95% CI [0.068, 0.162]; see Table 4), thereby supporting H6c.

### Alternative model

Prior studies have found that economic value has positive effects on satisfaction (Sánchez-Fernández and Iniesta-Bonillo, 2009). Hence, to further test the robustness of our model, we ran an alternative model whereby economic value is posited to have direct effects on satisfaction while also moderating the effects of CBEB on co-production. We employed SPSS PROCESS Macro (Model 58 with 5,000 bootstrap samples; Hayes, 2018) whereby each CBEB dimension was entered separately as the independent variable, co-production as the mediating variable, satisfaction as the dependent variable, age as covariate and perceived economic value as moderator between CBEB – co-production as well as co-production – satisfaction.

Our analysis reveals that perceived economic value has direct positive effects on satisfaction ( $\beta = 0.572$ ,  $p = 0.001$ ), but does not significantly moderate the effect of co-production on satisfaction ( $\beta_{interaction} = 0.007$ ,  $p = 0.812$ ). Further, the moderating effects of economic value on the link between collecting brand information – co-production ( $\beta_{interaction} = 0.116$ ,  $p < 0.001$ ), participating in brand marketing activities – co-production ( $\beta_{interaction} = 0.076$ ,  $p < 0.05$ ) and interacting with other customers – co-production ( $\beta_{interaction} = 0.095$ ,  $p < 0.01$ ) remain significant while controlling for the direct effects of economic value on satisfaction. The mediating effects of co-production on the link between CBEB – satisfaction was also found to be stronger when economic value is high, consistent with the results reported in our original model. In conclusion, estimating direct effects of economic value on satisfaction does not significantly alter the inter-construct relationships reported in our original model, thus providing further evidence of robustness for our model.

### Discussion

The current study sought to address the call for the development of a much-improved and deeper understanding of customer co-production in the sharing economy (Dellaert, 2019). Grounded in SDL, this study postulated that the three main CBEB dimensions empower customers to undertake an expanded role as prosumers to co-produce their service experience in the ride-sharing context. Our findings suggest that each dimension of CBEB has significant effects on customer co-production. Our findings support the notion that higher levels of CBEB lead to higher motivation to co-produce the service experience (Hollebeek *et al.*, 2019), which in turns influence customer satisfaction.

Consistent with our theorized boundary conditions based on SDL, the effects of collecting brand information and participating in brand marketing activities on co-production are stronger among highly innovative customers. Moreover, the mediating effects of co-production on the relationship between these two CBEB dimensions and satisfaction are

also stronger among highly-innovative customers. For less-innovative customers, co-production does appear to play a lesser (i.e. weaker) role in bridging the relationship between these two CBEB dimensions and satisfaction. However, the moderating effect of customer innovativeness on the relationship between interacting with other customers and co-production is only marginal, implying that co-production plays a relatively similar role in bridging the relationship between interacting with other customers and satisfaction among highly innovative and less innovative customers.

Most importantly, we found that collecting brand information and interacting with other customers have no significant effects on co-production if customers do not perceive a high economic value associated with the brand. This confirms our theorized boundary condition in that the effects of CBEB on co-production is highly conditional upon perceived economic value. Moreover, we found that in terms of customer satisfaction, the indirect effects of collecting brand information and interacting with other customers via co-production are significant only when customers perceive high economic value associated with the brand. The findings related to participating in brand marketing activities indicate that customer innovativeness and perceived economic value moderate the relationship between participating in brand marketing activities and co-production behavior. In particular, the mediating effects of co-production on the relationship between participating in brand marketing activities and satisfaction are also stronger among highly innovative customers and among those who perceive higher economic value.

Overall, this study's findings suggest that less-innovative customers and those who do not perceive high economic value associated with the brand are reluctant to be involved in co-production. Perhaps, these customers do not believe they can contribute something meaningful to the co-production process because of their low level of innovativeness. For example, while these customers may provide basic information (e.g. pick-up and drop-off addresses) via the Uber application, they might not be able to contribute much during the service experience (e.g. giving directions to the driver). In contrast, highly innovative customers are more interested in being involved in co-production because of their confidence and knowledge. As a result, they are likely to be more willing to expend resources by, for example, waiting at a convenient location, sharing directions, and exchanging information. Similarly, customers who perceive high economic value are more likely to engage in co-production during the service experience, as they believe that the brand provides good value for money. Thus, they are more willing to expend resources to help the service provider deliver the service experience. Below, we discuss the relevant theoretical and managerial implications derived from our findings.

#### *Theoretical contributions*

Despite the important role of consumer participation in the digital platforms, an examination of the role of consumers as prosumers in the sharing economy is still in its infancy. This study makes at least three theoretical contributions to the body of literature. First, our research proposes and tests an SDL-based model of customers as prosumers, who are active participants at the center of the dynamic exchange process where service provision is maximized through the iterative learning process of both customers and organizations (Vargo and Lusch, 2004). Our research responds to Hibbert *et al.* (2012) call for further research on customer learning from an interactive, process-based perspective, leading to customers playing a more effective role as resource integrators in co-production. Similar calls have been made to address the multiplicity of actors in the value co-production processes (Vargo and Lusch, 2016; Zadeh *et al.*, 2019). Our research offers insights into how engaged customers are motivated to co-produce via digital platforms rather than passive

recipients of firm-generated, one-way communications. The focus of learning shifts to the customers and their brand engagement behaviors that impact the joint co-production sphere where collaborative actors can enhance service outcomes. Thus, our study helps to address the limited research on customer participation behavior in digital platforms in the sharing economy.

Second, this study contributes to the customer engagement literature by examining the effects of CBEB and co-production on satisfaction. As the sharing economy increasingly requires customers to engage with brands via digital platforms and take on the extra roles of prosumers, marketing scholars (Eckhardt *et al.*, 2019) have called for a re-examination of customer satisfaction in the sharing economy context. Our findings support the critical role of co-production in mediating the effects of CBEB on satisfaction. As the results revealed, customers become actively engaged with the brand and other networked actors via digital platforms rather than being passive actors. In line with past research (Pansari and Kumar, 2017), our results suggest that brands shift from being service providers to encouraging personalized interactions among actors, entities and institutions via digital platforms to enhance customer outcomes.

Lastly, our study offers two novel boundary conditions: customer innovativeness and perceived economic value, to add to the body of customer engagement and prosumer literature. In alignment with Etgar (2008, p. 100) argument that co-production “requires accesses to several [customer] psychological skills”, our results suggest that customer innovativeness is a relevant operant resource. The role of customer creativity in promoting customized experiences via co-production has also been recognized as a means of increasing personal satisfaction (Etgar, 2008). This is consistent with our findings, based on the extent to which brands encourage customers to actively participate in and contribute their own resources to the marketing functions and service processes (Harmeling *et al.*, 2017). The perceived economic value represents customers’ expectation of reciprocity resulting from their participation in service production and delivery. In line with SET, customers intend to continue their relationship with brands as long as they perceive that they obtain greater value from this relationship compared to that received from other alternatives.

### *Managerial implications*

Contemporary service innovation increasingly requires customers to actively participate as prosumers in the service production and delivery process. In the sharing economy context, Dellaert (2019, p. 246) argued that “the key role of marketing is to find and activate expert and engaged consumers to become co-producers”. Our findings suggest that companies should promote such engagement behaviors to facilitate co-production that increases customer satisfaction. Listening to customer dialogues and noting unfulfilled needs expressed in customer feedback on their service experience could provide brands with opportunities to encourage customer engagement behaviors that enhance co-production. Thus, it is recommended that an interactive system environment be designed with a focus not only on functionality but also on the generation of meaningful brand experience via customer engagement activities. Moreover, service companies can leverage on the advances in new technology (e.g. artificial intelligence) to help anticipate users’ behavior based on historical data, thereby enabling customization, that in turn, engenders positive customer engagement behaviors and enhanced value co-production. Further, as the sharing economy demands that customers undertake additional roles as prosumers of their service experiences, digital platforms must be designed to obtain customer data and facilitate interactions with other collaborative actors (e.g. Uber drivers).

Our findings highlight the need for managers to optimize the co-production of value by proactively providing co-production opportunities. In addition to fostering interactions between the brand and customers (i.e. brand engagement) via multifaceted approaches, such as event marketing, systematic customer co-production processes would be beneficial (Zadeh *et al.*, 2022). For example, digital platform companies could consider profiling customers to understand their levels of innovativeness so as to anticipate better potential collaborations, including a willingness to co-produce service experiences. Brands can also encourage customers to be prosumers by reducing customer co-production efforts or increasing their co-production skills via training and free trials. Moreover, brands can empower prosumers by using advanced analytics and sharing market-level insights with them via online brand communities (Chung *et al.*, 2016). Such activities can help promote transparency and engender customer trust when engaging with brands via digital platforms.

The moderating role of customer innovativeness established in this study suggests that brands need to recognize customers' innate characteristics to optimize their range of products and services. It is also essential that brands understand the customer learning process, including their available resources (i.e. innovativeness), to make them more capable of obtaining strategic advantages. A tailored segmentation strategy validated by market research or data mining could provide further insights to identify and encourage innovative customers to co-produce their service experience.

Finally, our findings suggest that perceived economic value is crucial to strengthening the mediating effects of co-production on the relationship between CBEB and satisfaction. Thus, brands must attempt to ensure high economic value by providing exceptional services or customized service solutions to customers, more so than other available alternatives. Perhaps, it would be beneficial to reframe brand messaging to accentuate perceived economic return in other forms. For example, digital platform brands can emphasize on how co-production activities would alleviate negative environmental impacts (e.g. using an Uber carpool). In addition, digital platform brands can strengthen customer connections with their brands by expressing their appreciation of customer knowledge, skills and efforts as prosumers (Dellaert, 2019).

#### *Limitations and future research directions*

This study has several limitations that can be addressed in future research. First, we used cross-sectional data focusing on the Uber mobile phone application because it is one of the most widely-used applications across the globe. Future research could apply this study's conceptual framework to other digital platforms (e.g. Airbnb), to help control for brand-related or other contextual effects that may influence the relationship between CBEB and co-production found in this study. Future studies could also use a longitudinal study design to better capture the extent of CBEB and co-production over time across various platforms.

Second, we recognize other factors beyond CBEB that might influence customer co-production in the sharing economy. Thus, we call for future research to investigate specific personal factors that drive co-production, such as intrinsic motivations (Ryan and Deci, 2000) or specific interpersonal operant resources (e.g. coordinative skills and dialogical capabilities) (Etgar, 2008; Hollebeek *et al.*, 2019). Third, we have conceptualized and operationalized the co-production construct by selecting the measurement scales that focus on customer participation in a service provider's service creation and delivery process (Auh *et al.*, 2007). However, the conceptualization and operationalization of co-production can include customers contributing their own resources to a service organization's work, such as

marketing functions. Future studies could take such customer contribution into account in conceptualizing co-production.

Finally, this study has focused only on customer innovativeness and perceived economic value as key boundary conditions in the conceptual framework. Thus, we call for future research to examine other types of innovations and values as boundary conditions on the relationship between CBEB and co-production. For example, it would be interesting to examine the dynamic interactions between customer innovativeness, firm innovativeness and product innovativeness in influencing co-production. Further, research has suggested that prosumers are motivated by non-monetary rewards such as perceived control and time (Bateson, 1985). Thus, future research could focus on the role of non-economic values, such as social values, in influencing co-production behavior across various digital platform contexts. In particular, some studies suggest that market exchange mechanisms might not fully account for prosumers' labor and transformative roles in value creation (Stanfill and Condis, 2014). Thus, future studies could investigate non-economic returns for prosumers, such as the self-enhancing benefits derived from prosumption.

## Note

1. Our analysis found that age has negative effects on co-production ( $\beta = -0.102$ ,  $p = 0.002$ ) and positive effects on satisfaction ( $\beta = 0.060$ ,  $p = 0.023$ ). The results presented in this study remain consistent when age is excluded from the analysis.

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**Table A1.**  
Measurement items

Measurement items	Estimates		t-value
	Std	Unstd	
<i>Collecting brand information</i>			
I like learning about Uber	0.784	1.000	36.469
If Uber has any new products or services, I tend to notice it	0.746	0.901	30.747
If I see a newspaper or magazine article about Uber, I tend to read it	0.838	1.147	47.314
If I see a news story online about Uber, I tend to open and read it	0.844	1.124	48.884
I like to read online blogs about Uber	0.745	1.080	30.830
<i>Participating in brand marketing activities</i>			
If I see an advertisement for Uber, I tend to process it	0.911	1.000	80.142
If I see a sales promotion from Uber, I tend to participate in it	0.842	0.929	50.991
If I see a billboard or any outdoor type of Uber advertisement, I tend to pay attention to it	0.888	0.996	69.374
If I get to sample one of Uber's new services, I tend to try it	0.792	0.912	38.764
<i>Interacting with other customers</i>			
I like to talk with other people about Uber	0.941	1.000	106.254
I like to talk to people at work about Uber	0.847	0.949	54.433
I like to talk to my friends and family about Uber	0.897	0.953	76.976
I like to seek out others who use Uber	0.804	0.886	42.785
<i>Co-production</i>			
I prepare myself (e.g. waiting at a prominent location) for Uber services	0.704	1.000	23.219
I do things to make travelling with Uber services easier	0.841	1.302	39.018
I perform tasks (e.g., sharing directions) to help Uber serve me better	0.816	1.368	35.743
I fully cooperate with Uber services	0.691	0.941	21.634
<i>Satisfaction with usage experience</i>			
I am satisfied with the services of the Uber mobile phone application	0.892	1.000	69.031
I am satisfied with the experience of using the Uber mobile phone application	0.899	1.035	72.804
I am satisfied with the purchase process using the Uber mobile phone application	0.892	1.044	69.274
<i>Innovativeness</i>			
Other people come to me for advice on new technologies	0.894	1.000	72.127
I know more about the newest technologies than those around me	0.915	0.973	84.625
I am among those people who want to know when a new technology appears	0.901	0.941	75.835
I keep up with the latest technological developments on products I am interested in	0.869	0.861	60.381
<i>Economic value</i>			
Uber services have good economic value	0.902	1.000	76.432
Overall, I am happy with the fares of the Uber services	0.910	1.046	80.591
The prices of the Uber services are good given the quality of the services received	0.901	1.031	76.057
<b>Notes:</b> Std. = Standardized coefficient; Unstd = Unstandardized coefficient			

**About the authors**

Professor Riza Casidy is a Professor of Marketing at Macquarie Business School, Macquarie University, Australia. His main research interests are in the area of industrial buyer behavior and consumer behavior. Riza's research work has been published in high-impact journals including *Journal of Marketing Research*, *Journal of Service Research*, *Industrial Marketing Management*,

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*European Journal of Marketing* and *Tourism Management*, among others. Riza Casidy is the corresponding author and can be contacted at: [riza.casidy@mq.edu.au](mailto:riza.casidy@mq.edu.au)

Dr Civilai Leckie is an Associate Professor of Marketing at Swinburne Business School, Swinburne University of Technology, Australia. Her research interests include business-to-business (B2B) marketing, customer brand engagement, consumer behavior, services marketing and sports marketing. Civilai has published in marketing journals such as *Journal of Business Research*, *European Journal of Marketing*, *Journal of Marketing Management*, *Journal of Business and Industrial Marketing*, *Journal of Services Marketing* and *Journal of Strategic Marketing*, among others.

Dr Lester W. Johnson is a Professor of Marketing at Swinburne University of Technology, Australia. He holds a PhD in econometrics from the University of Connecticut. He was elected as one of three inaugural Fellows of the Australia New Zealand Marketing Academy in 2004, and in 2008 was also elected as a Fellow of the Australian Market and Social Research Society. His research interests lie broadly in the area of marketing modeling. Recent work includes models investigating consumer brand equity, consumer brand engagement, celebrity endorsement and luxury consumption.

Dr Munyaradzi Wellington Nyadzayo is an Associate Professor in Marketing at the University of Wollongong in Dubai, UAE. His research interests include business-to-business (B2B) marketing, brand management, luxury branding, retailing, franchising, services marketing and entrepreneurial marketing in emerging markets. Munyar's research work has been published in leading marketing journals such as *Industrial Marketing Management*, *Journal of Business Research*, *Journal of Marketing Management*, *Journal of Services Marketing* and *Journal of Strategic Marketing*, among others.