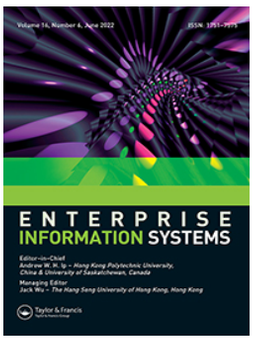

Enterprise Information Systems

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/teis20

Empirical research on the impact of customer integration and information sharing on supply chain performance in community-based homestays in China

Yuk Ming Tang, Ka Yin Chau, Yun Kit Ip & Jiaxin Ji

To cite this article: Yuk Ming Tang, Ka Yin Chau, Yun Kit Ip & Jiaxin Ji (2022): Empirical research on the impact of customer integration and information sharing on supply chain performance in community-based homestays in China, Enterprise Information Systems, DOI: 10.1080/17517575.2022.2037161

To link to this article: https://doi.org/10.1080/17517575.2022.2037161

Published online: 27 Feb 2022.

ENTERPRISE INFORMATION SYSTEMS
https://doi.org/10.1080/17517575.2022.2037161

Taylor & Francis
Taylor & Francis Group

Empirical research on the impact of customer integration and information sharing on supply chain performance in community-based homestays in China

Yuk Ming Tang [a,b], Ka Yin Chau [b], Yun Kit Ip [c] and Jiaxin Ji [a]

[a]Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong; [b]Faculty of Business, City University of Macau, Macau Macao; [c]Faculty of International Tourism and Management, City University of Macau, Macau Macao

ABSTRACT

This study aimed to investigate the relationship between customer integration, information sharing and supply chain performance in China's community-based homestays. A valid questionnaire was constructed to explore the relationship between the three variables and distributed to Chinese homestay owners, customers, practitioners and researchers. A total of 208 questionnaires were collected and analysed using correlation and regression analysis. Customer integration and information sharing directly and indirectly positively affected supply chain performance. This study has strengthened knowledge of supply chain management activities of community-based homestays. It is benefit from practices to improve performance and provide meaningful theoretical and practical insights for practitioners.

ARTICLE HISTORY
Received 15 July 2021
Accepted 30 January 2022

KEYWORDS
Customer integration; supply chain performance; information sharing; China; homestays

1. Introduction

As the research focus of the supply chain shifts to the service industry, as one of the primary industries in the service sector, the tourism supply chain has gradually attracted the attention of scholars (Palang and Tippayawong 2019; Zhang, 2009). However, unpredictable tourist demand and heterogeneous features of tourism products post significant challenges to related activities (Dragan, Kramberger, and Topolšek 2015; Palang et al., 2019; Zhang, Song, and Huang 2009). Thus, to fulfill the tourists' diverse needs and deliver the maximum value at the lowest cost, requiring close ties and joint efforts of all parties in the supply chain and information exchange among members (Barratt and Barratt, 2011; Yilmaz and Bititci 2006). Homestay supply chain is a relational service network consisting of professional tourism enterprises (Ramli et al. 2019). The service integrator as the core effectively integrates the relational service resources including experience, knowledge and capability of service providers, integrators and customers in the chain, constituting a network structure of service supply and demand (Hong et al. 2020). The tourism enterprises in the supply chain belong to the strategic partnership, and jointly create value for the whole process of tourist participation in homestay (food, accommodation,

CONTACT Ka Yin Chau gavinchau@cityu.mo Faculty of Business, City University of Macau, Macau

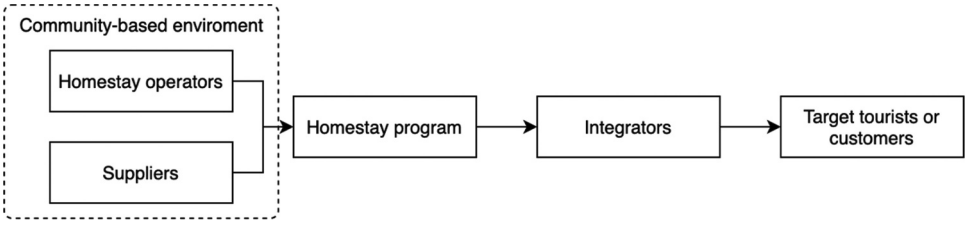

Figure 1. The homestay supply chain was adopted from Ramli et al. 2019.

transportation, travel, shopping and entertainment). Figure 1 illustrates the homestay supply chain. Considering that customers are an indispensable part of the tourism supply chain and can actively participate in the management process (Sigala 2014), this article focuses on the role and value of customers in tourism supply chain management.

Simultaneously, increased community-based tourism, together with the development of the 'sharing economy' has brought a relatively new form of tourist accommodation, so-called community-based homestays. These homestays provide tourists with alternative accommodation options with reasonable prices and more flexibility (Pusiran and Xiao 2013) than hotels or other accommodations. Various forms of homestay culture have sprung up in many Asian countries. From 2015 to 2018, the number of homestays registered and transaction volume in China has shown strong growth. Data from the China Information Centre showed that there were 3.5 million homestays in 2018, and the online homestay transaction volume reached 22.5 billion RMB in 2019, with a year-on-year growth of 36.4%. The number of participants and service providers in the homestay sector in 2019 exceeded 200 million. Indeed, the community-based homestays involvement increased collaboration and communication with tourists. This means that customer integration and information sharing activities are gradually increasing in community-based homestays (Qin, Hu, and Zhu 2018; Xiong 2016). These two elements are important in supply chain management and focus on considerable research attention in the past two decades (Alfalla-Luque, Marin-Garcia, and Medina-Lopez 2015; Chavez et al. 2015; Mofokeng and Chinomona 2019; Sundram, Chhetri, and Bahrin 2020). Their application to the tourism supply chain is gradually increasing (Dragan, Kramberger, and Topolšek 2015; Palang and Tippayawong 2019; Yilmaz and Bititci 2006). Many studies have also explored the contribution of these two factors to supply chain performance. Some scholars have acknowledged their value in improving supply chain performance. For instance, Koçoğlu et al. (2011) and Asamoah et al. (2016) regarded them as individual aspects and antecedents combined to influence supply chain performance. Busagara et al. (2020) studied the contribution of tourism information to new service development performance. However, other scholars have viewed these contributions as debatable and questionable (Alfalla-Luque, Marin-Garcia, and Medina-Lopez 2015; Şahin and Topal 2019; Shou et al. 2018).

Nevertheless, studies on the links between customer integration, information sharing, and supply chain performance have produced mixed and contradictory results in different supply chains. Most research has focused on the manufacturing industry, and few studies have examined tourism. There are few performance measurement systems in the service sector because services tend to be intangible and heterogeneous, resulting in difficulties

in measuring service supply chain performance (Cho et al. 2012). Considering the accelerated development path, intensified competition and challenges in the homestay industry, this article addresses the key research gaps of the impacts and roles of information integration and customer integration for homestay supply chain and their performance.

This paper aimed to explore current customer integration and information sharing activities in community-based homestays and the relationship between these factors and service supply chain performance better to understand the customer need and supply schedules in this sector. The paper has four main research objectives:

(1) To explore the impact of customer integration on information sharing for the homestay supply chain;
(2) To explore the impact of information sharing on service supply chain performance for the homestay supply chain;
(3) To explore the impact of customer integration on service supply chain performance for the homestay supply chain; and
(4) To explore the role of information sharing in the relationship between customer integration and supply chain performance for the homestay supply chain.

The research findings of this study have key contributions both theoretically and practically to the supply chain field:

(1) The study supplements the literature in tourism supply chain management particularly in the community-based homestay;
(2) The research extends knowledge of the link between the three constructs including customer integration, information sharing, and service supply chain performance through empirical research;
(3) The article provides meaningful insights and suggestions to help homestay practitioners improve their supply chain management practically.

2. Literature review

In order to explore the impacts and roles of customer integration and information sharing for the homestay supply chain, the definition and current researches are reviewed in this section. In the beginning, the definition and development of community-based homestays are illustrated. Customer integration and information sharing are illustrated in the next sub-sections to illustrate how information integration and sharing are contributed to the homestay supply chain. Lastly, the measures for the supply chain performance are reviewed.

2.1 Community-based homestays

Homestays are also known as family hotels, homestay inns, bed and breakfasts (B&B), guesthouses, commercial homes, and *minshuku*. They emerged in the United Kingdom in the 1960s and are now widespread throughout the world. However, there is no single authoritative global definition of homestay. The Ministry of Culture and Tourism of China defines them as small-scale accommodation facilities operated by residents, which

provide tourists with an experience of the local culture and lifestyle. The facilities are generally otherwise unused, and most do not exceed four floors. Homestays can also be urban or rural. This definition covers the size, type and mode of homestays' operations in mainland China. It emphasises the role of interactive communication in a family atmosphere and the participatory experience of local culture. This is similar to the definitions used in other countries (Ismail et al. 2016; Jamaludin, Othman, and Awang 2012; Lynch 2005; Pusiran and Xiao 2013).

There is increasing competition and cooperation between tourism firms. There is also cross-industry interaction with other tourism-related services such as dining, transportation, sightseeing, shopping and entertainment. Community-based homestays are considered part of community-based tourism. They often work closely and establish strategic collaborations with other tourism-related organisations, committing to the tourism community's long-term development (Ismail et al. 2016; Jamaludin, Othman, and Awang 2012; Zhang, Song, and Huang 2009). Scholars agree that homestays' economic and cultural benefits have been agreed by scholars (Kunjuraman and Hussin 2017; Ismail et al. 2016; Long et al. 2018; Pusiran and Xiao 2013). However, some researchers have also identified challenges and issues in developing community-based homestays (Qin, Hu, and Zhu 2018; Xiong 2016). Studies have suggested insufficient cooperation and information shared with customers, resulting in unsatisfactory service performance, waste of resources, as well as sustainability reduction (Sigala 2014). The accelerated development and intensified competition in community-based homestays mean that it is important for homestay owners to understand how to enhance overall performance and efficiency in the sector through integration and close connection with customers.

2.2 Customer integration

Customer integration is one of the critical dimensions of supply chain integration and the basis of successful integration (Chavez et al. 2015; DeWitt, Giunipero, and Melton 2006; Kannan and Tan 2010). The enablers of supply chain integration in the technology and organisational environment are studied in Tian et al. (2021). Customer integration involves collaboration and knowledge sharing with clients and establishing long-term strategic relationships to acquire customer needs, expectations, and preferences. This enables businesses to be responsive to customer needs and improves their core competitiveness (Chavez et al. 2015; Swink, Narasimhan, and Wang 2007). Ismail et al. (2016) noted that customer participation is essential for good service delivery in community-based homestays. Qin, Hu, and Zhu (2018) also emphasised the importance of customer integration to the homestay community's dynamic capabilities. Therefore, it is important to understand the role of customer integration in other activities important to community-based homestays.

Many previous intellectual papers examined the measurement of customer integration (Devaraj, Krajewski, and Wei 2007; Flynn, Huo, and Zhao 2010). Devaraj, Krajewski, and Wei (2007) identify customer integration as demand-oriented information sharing, the component of production information integration. And it is measured by 'Sales forecast, MPS, inventory, collaboration on net requirements, and supplier automatically replenishes inventory'. Moreover, Flynn, Huo, and Zhao (2010) investigated the relationship between supply chain integration – which includes customer integration, supplier integration and internal integration – with performance. And the Authors identified 11 different items to measure customer integration.

2.3 Information sharing

As a collaboration between customers and firms develops from arm's length to close collaboration, more information sharing behaviours are seen (Chavez et al. 2015; Koçoğlu et al. 2011). Information sharing is essential in the process of supply chain integration and management (Chan 2003; Chavez et al. 2015; Huo, Zhao, and Zhou 2013; Raweewan and Ferrell 2018; Şahin and Topal 2019; Swink, Narasimhan, and Wang 2007; Zhang and Li 2006). It is widely adopted not only in the high-end industries such as spacecraft and aviation (Zheng et al. 2021; Yung et al., 2021a), product manufacturing (Yung et al., 2021b; Zhuo et al. 2020), but especially in highly information-intensive industries like tourism (Zhang, Song, and Huang 2009). Tourism services are intangible and non-storable, and demand in the sector is uncertain, so both service description and demand management are based on information flow. This makes effective information sharing essential (Dragan, Kramberger, and Topolšek 2015). Information sharing means exchanging crucial and exclusive information with supply chain partners (including customers and suppliers), and internally within the company (Huo, Zhao, and Zhou 2013; Li and Lin 2006). Information sharing with customers is vital for companies to obtain external information and improve service quality, tourist satisfaction, and innovation capabilities (Busagara et al. 2020). It, therefore, follows that information sharing is also essential in developing the homestay sector.

Several academic studies have analysed the measurement of information sharing both in the manufacture and service industries (Busagara et al. 2020). Asamoah et al. (2016) examined the impact mechanism among supply chain integration, information sharing and supply chain performance. In this paper, the authors adopted items of 'information sharing with suppliers, information sharing with customers, inter-functional information sharing, and intra-organizational information sharing' to test the factor of information sharing. In addition, Busagara et al. (2020) investigated the link between information sharing and new service development in the service industry context. It stated that information sharing is consists of pre-service information, post-service information and integration bechavior, and each of the dimensions can be measured by 4 to 7 disctict items.

2.4 Supply chain performance

The supply chain performance mentioned in this study refers to the service supply chain process which is distinctive from the common supply chain performance in other industries (Chau et al. 2021). As (Cho et al. 2012) indicated, the service supply chain should consider the financial and non-financial measures which are relevant to strategic, operational levels of decision making and control in the context of service activities. Moreover, the measurement of supply chain performance is required to quantify and evaluate operational management (Chan 2003). Chan (2003) defined performance measurement as a response to or information about activities that meet customer expectations and strategic objectives. It is useful for driving improvement in poorly performing activities. The supply chain performance and logistics are usually related to customer perceptions and measured through various service quality aspects (Tang et al. 2021). On the other hand, the supply chain information integration is also linked to its performance in several aspects including reactive flexibility, financial and operation performances (Tsai and Lasminar 2021).

However, few studies have examined the effective measurement of tourism supply chain performance. Existing measures include financial performance, operational performance and overall supply chain performance (Palang and Tippayawong 2019; Zhang, Song, and Huang 2009). For instance, Chan (2003) identified seven primary measures or indicators and used the analytic hierarchy process to apply these in the electronics industry. Cho et al. (2012) established a service supply chain performance measurement model and discussed metrics and indicators at the strategic, tactical, and operational levels. They identified eight dimensions through application in the hotel industry. Palang and Tippayawong (2019) established a structure for tourism supply chain performance and found that order process, service performance and supplier relationship management were the most important elements in tourism.

3. Proposed model and hypotheses development

The study model is shown in Figure 2. It contains two independent variables, customer integration and information sharing. The latter is also a mediating variable to explore its effect on supply chain performance. This research model is referenced from the study of (Asamoah et al., 2016). However, one of the independent variables has changed into customer integration in the context of the homestay community. And the dimension of the information sharing constructs derived from (Busagara et al. 2020) which targets the service industry. And the measurement items of supply chain performance have been discussed in (Cho et al. 2012) and (Palang and Tippayawong 2019) to emphasise the distinct characteristic of the homestay supply chain.

3.1 Customer integration and information sharing

There is considerable research on the link between customer integration and information sharing. Koçoğlu et al. (2011) found that improved supply chain coordination was directly related to effective information sharing. They carried out an empirical investigation in Turkey's manufacturing industry and found that integration strengthened the connectedness, coordination, and collaboration between supply chain members, promoting

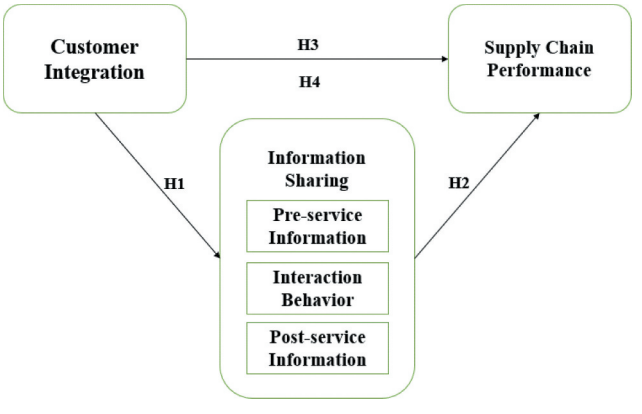

Figure 2. Proposed study model.

effective information sharing. Information flow type and technology also determine supply chain integration's success (Chavez et al. 2015; Lu, 2013). Sundram, Chhetri, and Bahrin (2020) surveyed the Malaysian manufacturing industry and found that information technology can promote strategic supply chain integration activities upstream and downstream. Information sharing also fostered high demand. Zhang, Song, and Huang (2009) noted that information technology could effectively strengthen global cooperation in tourism and create more opportunities. The transparency and real-time communication encouraged by information sharing can reduce operating costs and increase the competitiveness and flexibility of supply chain integration activities across the entire tourism supply chain.

In general, research shows that customer integration activities contribute to the generation of trust and the willingness to establish a platform for supply chain members to exchange information. The transmission and sharing of information are conducive to establishing cooperative relationships and promoting practical supply chain integration (Shou et al. 2018). Therefore, customer integration and information sharing are mutually beneficial, and both are essential in supply chain management. We chose to examine the links between customer integration and three types of information sharing: pre-service information sharing, interaction behaviour and post-service information sharing (Busagara et al. 2020). We hypothesised:

H1: Customer integration is positively related to information sharing.

H1a: Customer integration is positively related to pre-service information sharing.

H1b: Customer integration is positively related to interaction behaviour.

H1c: Customer integration is positively related to post-service information sharing.

3.2 Information sharing and supply chain performance

As information sharing gradually increases across supply chains, there is more and more consensus on its benefits (Baihaqi and Sohal 2013; Chavez et al. 2015; Huo, Zhao, and Zhou 2013; Huo, Haq, and Gu 2020; Koçoğlu et al. 2011; Li and Lin 2006; Nakasumi 2017). These include reduced uncertainty about the external environment and demand, accelerated information flow leading to the reduced bullwhip effect. Cost and response time, increased trust and collaboration levels, and improved supply chain learning capacity maintain long-term competitive advantage and contribute to improved performance across the supply chain.

Most studies have found a positive link between information sharing and supply chain performance (Hendy et al. 2020; Huo, Zhao, and Zhou 2013; Koçoğlu et al. 2011; Sundram, Chhetri, and Bahrin 2020). For instance, Sundram, Chhetri, and Bahrin (2020) found that when information is effectively circulated and exchanged, it can help reduce inventory and schedule cycles and increase substitutes, leading to improved supply chain performance. Huo, Zhao, and Zhou (2013) also found that sharing information with customers

was positively related to better supply chain performance. Busagara et al. (2020) found that sharing post-service and interactive information with customers positively affected service development among travel agents.

However, some academics hold different views. Baihaqi and Sohal (2013) found no direct link between information sharing and organisational business performance and suggested that this relationship could be achieved through collaborative activities with supply chain partners. Şahin and Topal (2019) further divided business performance into cost and financial dimensions and found indirect and direct effects. Bailey and Francis (2008) considered that information sharing could not provide significant performance improvement without supporting other supply chain practices.

We, therefore, suggest that information sharing has distinct effects on supply chain performance depending on the type of information, the sharing activity, and the degree of integration among supply chain members. More research is needed on the link between the two constructs, especially in the tourism sector. We therefore hypothesised:

H2: Information sharing is positively related to supply chain performance.

H2a: Pre-service information sharing is positively related to supply chain performance.

H2b: Interaction behaviour is positively related to supply chain performance.

H2c: Post-service information sharing is positively related to supply chain performance.

3.3 Customer integration and supply chain performance

Previous studies have shown mixed results about the link between customer integration and supply chain performance, with both direct and indirect connections seen. Some studies showed positive effects (Koçoğlu et al. 2011; Mofokeng and Chinomona 2019; Sundram, Chhetri, and Bahrin 2020; Vachon and Klassen 2008; Vickery et al. 2003). For example, Chavez et al. (2015) found that operational performance in quality, delivery, and flexibility can be directly improved by frequent interaction with customers. Qin, Hu, and Zhu (2018) found that supply chain integration in homestay services positively affected the homestay community's dynamic capabilities. Some scholars have suggested that customer integration activities can be accelerated and promoted through supply chain performance evaluation (Cho et al. 2012).

Others, however, hold different views (Cousins and Menguc 2005; Shou et al. 2018; Swink, Narasimhan, and Wang 2007). Swink, Narasimhan, and Wang (2007) found that customer integration positively influenced overall business performance. However, strategic customer integration positively affected customer satisfaction and negatively affected market performance, implying that managers should balance customer and financial outcomes. Alfalla-Luque, Marin-Garcia, and Medina-Lopez (2015) also proved that customer integration directly and positively affected customer satisfaction but found no direct link with flexibility, delivery, quality, or inventory.

Some scholars have also found indirect links between the two variables and proposed that the relationship may be mediated by customer service (Vickery et al. 2003), value co-creation (Qin, Hu, and Zhu 2018), or customer response speed (Chiang, Chen, and Wu 2015). For instance, Vickery et al. (2003) found that customer service had a fully mediating effect on the relationship between supply chain integration and performance in the automotive industry. Chiang, Chen, and Wu (2015) found that customer response speed mediated customer integration–supply chain integration relationship.

These contradictory results may be because performance measurement is not standard (Chan 2003). Chavez et al. (2015) also noted that customer integration on performance depends on the measured dimensions and methods. Koufteros, Cheng, and Lai (2007) suggested that it also results from differences in subject size, industries, and supply chains. This supports the need for more empirical studies in tourism. We therefore hypothesised:

H3: Customer integration is positively related to supply chain performance.

3.4 Relationship between the three constructs

There are also links between all three constructs. Some scholars have identified a direct and positive triangular relationship between the three (Chiang, Chen, and Wu 2015; Hidayat et al. 2019; Koçoğlu et al. 2011; Sundram, Chhetri, and Bahrin 2020). Others, however, have seen information sharing as a mediator for the relationship between customer integration and supply chain performance. Chang et al. (2016) suggested that the mixed results about the relationship between customer integration and supply chain performance may also result from the lack of consideration or incorrect selection of mediating and moderating variables. Some scholars have investigated the moderating role, and many studied the mediating role of information sharing between the two constructs. Researchers have found full, partial or no mediating roles.

Asamoah et al. (2016) suggested that information sharing fully mediated the relationship between supply chain integration and performance. Qin, Zhu, and Wang (2019) also found that knowledge sharing fully mediated the relationship between tourism supply chain integration and innovative capability. However, Prajogo and Olhager (2012) noticed direct and indirect (through information integration) effects on the link between long-term relationships and supply chain performance, suggesting partial mediation. Chavez et al. (2015) found both partial and full mediating effects of information sharing on the relationship between customer integration and operational performance. They concluded that customer integration could only contribute to cost improvement when information quality is good. This study therefore hypothesised:

H4: Information sharing mediates the relationship between customer integration and supply chain performance.

Table 1 summarises the relationships and studies discussed.

Table 1. Summary of literature review.

Main Issues	Relationship	Studies
Customer integration and information sharing	Customer integration has a positive effect on information sharing.	Asamoah et al. (2016); Cousins and Menguc (2005); Mahadevan, Samaranayake, and Matawie (2010)
	Information sharing has a positive effect on customer integration.	Danese and Romano (2013); Sundram, Chhetri, and Bahrin (2020); Zhang, Song, and Huang (2009)
Information sharing and supply chain performance	Information sharing has a positive effect on supply chain performance.	Busagara et al. (2020); Frohlich and Westbrook (2001); Hendy et al. (2020); Huo, Zhao, and Zhou (2013); Sundram, Chhetri, and Bahrin (2020)
	The positive effect of information sharing on supply chain performance is questionable.	Bailey and Francis (2008); Baihaqi and Sohal (2013); Şahin and Topal (2019)
Customer integration and supply chain performance	Customer integration has a positive effect on supply chain performance.	Chavez et al. (2015); Flynn, Huo, and Zhao (2010); Mofokeng and Chinomona (2019); Qin, Hu, and Zhu (2018); Vachon and Klassen (2008); Vickery et al. (2003)
	The positive effect of customer integration on supply chain performance is questionable.	Alfalla-Luque, Marin-Garcia, and Medina-Lopez (2015); Shou et al. (2018); Swink, Narasimhan, and Wang (2007)
All three variables	There is a positive triangular relationship between customer integration, information sharing, and supply chain performance.	Chiang, Chen, and Wu (2015); Cousins and Menguc (2005); Hidayat et al. (2019); Koçoğlu et al. (2011); Sundram, Chhetri, and Bahrin (2020)
	Information sharing fully mediates the relationship between customer integration and supply chain performance.	Asamoah et al. (2016); Chavez et al. (2015); Qin, Zhu, and Wang (2019)
	Information sharing partially mediates the relationship between customer integration and supply chain performance.	Chavez et al. (2015); Prajogo and Olhager (2012)

4. Research methodology

4.1 Data collection

We used a questionnaire survey to test the study model. The questionnaire and consent form were randomly distributed via email to homestay owners, customers, practitioners and researchers in mainland China as the sampling strategy used by Qin (2018&2019). As (Long et al. 2018) stated, there are 10 major homestay communities in China. To gain a more holistic view, samples are collected from each community.

4.2 Questionnaire development

We used scales that have previously been verified in other studies, and the initial questionnaire was designed in English. Some questions were modified to fit the research participants, and some phrases were amended to fit the Chinese context. The questionnaire was translated into Chinese and revised to reflect the comments of tourism and supply chain professors and small-scale preliminary tests among homestay customers.

The questionnaire was in five parts. The first part explained the purpose of the research and sought consent from the participants to use the questionnaire data, explaining that all information would be stored carefully. The second part was about integration between

community-based homestays and customers. It used measures for customer integration adapted from Flynn, Huo, and Zhao (2010). Therefore, customer integration was measured using eight items, modified to reflect the tourism and hotel supply chain context. The third part explored information sharing between community-based homestays and customers. The measures were adapted from Busagara et al. (2020) and covered three stages: pre-service and post-service information and interaction behaviour during the service. Each dimension included four items. The fourth part explored the supply chain performance of community-based homestays. Measurement items were adapted from Palang and Tippayawong (2019) and Cho et al. (2012) and used five items. The last part asked about respondents' personal information, including their gender, age, occupation, and region. The second, third and fourth parts of the questionnaire used seven-point Likert-type scales (Table 2).

5. Data analysis

SPSS 23.0 software was used for statistical analysis. Exploratory and confirmatory factor analysis were used to assess reliability and validity. Multiple correlations and regression analysis were used to examine the relationships between variables. We also examined mediation effects and Process version 3 for SPSS designed by Hayes (2017). A *t*-test and a series of one-way analysis of variance were used to analyse demographic differences.

5.1 Profiles of survey participants

A total of 208 complete and usable questionnaires were collected. The demographic profile of the survey participants is shown in Table 3.

The sample covered all ten homestay communities in mainland China which is illustrated in Figure 3 (Long et al. 2018). From the data listed in Table 3, the samples have been divided into 4 groups, the largest group of respondents were homestay customers (47.60%, n = 99), followed by homestay owners or practitioners(30.29%, n = 63), others (17.70%, n = 37), and industry experts or scholars (4.33%, n = 9). In this study, 60.58% of respondents were women, and 39.42% were men. The majority of respondents (80.77%) were either 18–25 or 26–40 years old. And the number of homestays in Beijing-Tianjin-Hebei Region is the largest (29.33%,n = 61), followed by others (25%,n = 52), Yantze River Delta (19.24%,n = 40), Pearl River Delta Region (12.98%, n = 29), Hunan-Guizhou-Guangxi Region (8.17%, n = 17), and Hui-Clutural Circle (4.32%, n = 9).

5.2 Reliability and validity

Before hypothesis testing, the data's reliability and validity were evaluated using SPSS 23.0, AMOS software. The results are shown in Table 4.

The questionnaire items were adapted from other scales, so their content validity was previously assessed (Busagara et al. 2020; Cho et al. 2012; Flynn, Huo, and Zhao 2010; Palang and Tippayawong 2019). The questionnaire was also preliminarily tested among homestay experts and customers to evaluate its content validity, and some wording and design modifications were made as a result.

Table 2. Measurement items in the questionnaire.

Constructs	Dimensions	Items	Contents	Sources
Customer Integration		CI1	The level of linkage between homestay and customer through information networks.	Flynn, Huo, and Zhao (2010)
		CI2	The level of computerisation for customer's ordering.	
		CI3	The level of sharing of market information between homestay and customer.	
		CI4	The level of communication between homestay and customer.	
		CI5	The frequency of period contacts between homestay and customer	
		CI6	Homestay Follow-up with customer for feedback.	
		CI7	Customers share demand information with a homestay.	
		CI8	Homestay shares inventory information with the customer.	
Information Sharing	Pre-service Information	IS1	Customers ask others about homestay services	Busagara et al. (2020)
		IS2	Customers search for information on where homestay services are located	
		IS3	Customers explain what they want to homestay employees	
		IS4	Customers give employees proper information regarding expected services	
	Interaction Behaviour	IS5	Customers are polite to service providers during services	
		IS6	Customers are kind to service providers during services	
		IS7	Service providers are friendly to customers during services	
		IS8	Service providers are considerate to customers during services	
	Post-service Information	IS9	Customer feedback helps homestay improve new services after their diffusion	
		IS10	Customer after-service information allows homestay to be accurate in developing new services	
		IS11	When customers receive good service, they comment on it	
		IS12	When customers encounter a problem during service, they let the service provider know	
Service Supply Chain Performance		SCP1	Service delivery performance evaluation	Palang and Tippayawong (2019); Cho et al. (2012)
		SCP2	Service flexibility	
		SCP3	Range of services	
		SCP4	The customer query time	
		SCP5	Post-process services	

Table 3. Profile of respondents (n = 208).

	Variables	Homestay Customer	Homestay Owner or Practitioners	Homestay Researcher or Scholar	Others
Total	Number(%)	99(47.6%)	63(30.29%)	9(4.33%)	37(17.79%)
Gender	Male	39(18.75%)	25(12.02%)	4(1.92%)	15(7.21%)
	Female	60(28.85%)	38(18.27%)	5(2.40%)	22(10.58%)
Age	18 ~ 25	38(18.27%)	24(11.54%)	3(1.44%)	14(6.73%)
	26 ~ 40	42(20.19%)	27(12.98%)	4(1.92%)	16(7.69%)
	41 or older	19(9.14%)	12(5.77%)	2(0.96%)	7(3.37%)
Region	Beijing-Tianjin-Hebei	29(13.94%)	18(8.66%)	3(1.44%)	11(5.29%)
	Yangtze River Delta	19(9.14%)	12(5.77%)	2(0.96%)	7(3.37%)
	Pearl River Delta	14(6.73%)	9(4.33%)	1(0.48%)	5(2.40%)
	Hunan-Guizhou-Guangxi	8(3.85%)	5(2.40%)	1(0.48%)	3(1.44%)
	Hui-Cultural Circle	4(1.92%)	3(1.44%)	0(N/A)	2(0.96%)

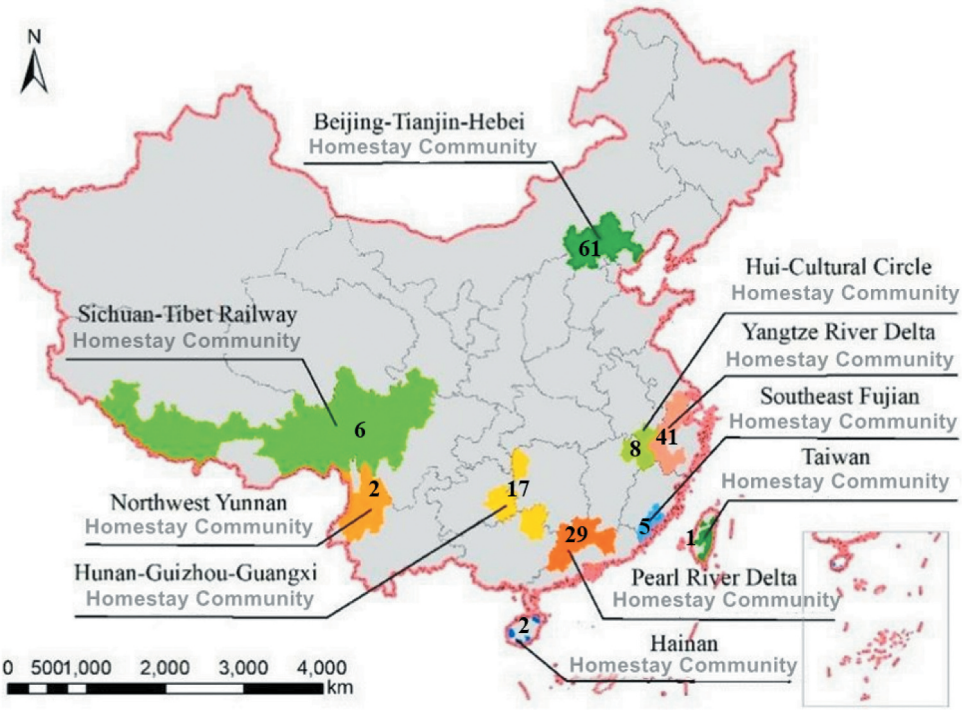

Figure 3. Homestay communities in Mainland China were adapted from Long et al. 2018.

The results of the Kaiser–Meyer–Olkin (KMO) test and Bartlett's test of sphericity showed high validity with the significance of 0.000 (< 0.05) and KMO of 0.946 (> 0.8). The factor loadings of all items were higher than 0.5, from 0.551 (IS10) to 0.835 (CI3), and all items displayed lower loadings on the constructs they were not intended to measure (Flynn, Huo, and Zhao 2010). However, four items (CI2, CI7, IS2, IS9) failed to meet this requirement and displayed lower factor loadings, so they were removed from further analysis.

Average variance extracted (AVE) and composite reliability (CR) were also assessed. The AVE of all factors was more than 0.5, and CR more than 0.8, showing adequate convergent validity. The fit for the model is also good, with CMIN/DF = 1.696 (< 3), root mean square error of approximation (RMSEA) 0.058 (< 0.10), goodness of fit index (GFI) 0.925 (> 0.9), comparative fit index (CFI) 0.973 (> 0.9), normed fit index (NFI) 0.937 (> 0.9), and NNFI 0.965 (> 0.9).

The reliability of the data is validated using Cronbach's alpha. All factors showed a high-reliability level with alpha values above 0.8, ranging from 0.853 (Supply Chain Performance) to 0.912 (Information Sharing). Further, discriminant validity is conducted. We proposed to adopt a recent approach to perform the discriminant validity test using the Heterotrait-monotrait (HTMT) ratio of the correlations (Henseler, Ringle, and Sarstedt 2015). Thus, the HTMT of the ith and jth constructs is given by Equation (1):

$$\mathrm{HTMT}_{ij} = \frac{1}{K_i K_j}\sum_{g=1}^{K_i}\sum_{h=1}^{K_j} r_{ig,jh} \Big/ \sqrt{\frac{2}{K_i(K_i-1)}\sum_{g=1}^{K_i-1}\sum_{h=g+1}^{K_i} r_{ig,jh} \times \frac{2}{K_j(K_j-1)}\sum_{g=1}^{K_j-1}\sum_{h=g+1}^{K_j} r_{ig,jh}} \quad (1)$$

Table 4. Results of reliability and validity.

Factor	Items	Factor loading	Mean	S.D.	AVE	CR	Cronbach's α
Customer Integration (CI)	CI1	0.780	5.26	1.286	0.559	0.893	0.879
	CI3	0.835	5.27	1.280			
	CI4	0.796	5.38	1.161			
	CI5	0.757	4.79	1.508			
	CI6	0.795	4.96	1.414			
	CI8	0.796	5.09	1.472			
Information Sharing (IS)							
Pre-service Information	IS1	0.751	5.39	1.257	0.669	0.858	0.912
	IS3	0.724	5.55	1.265			
	IS4	0.809	5.52	1.255			
Interaction Behaviour	IS5	0.832	5.60	1.117			
	IS6	0.721	5.59	1.200			
	IS7	0.762	5.64	1.116			
	IS8	0.575	5.49	1.282			
Past-service information	IS10	0.551	5.35	1.306			
	IS11	0.810	5.69	1.168			
	IS12	0.810	5.77	1.213			
Supply Chain Performance (SCP)	SCP1	0.780	5.39	1.001	0.544	0.855	0.853
	SCP2	0.791	5.23	1.131			
	SCP3	0.808	5.25	1.173			
	SCP4	0.783	5.41	1.164			
	SCP5	0.814	5.21	1.282			

Where Ki and Kj are denoted as the number of indicators of construct i and j, respectively.

Table 5 illustrates the HTMT results among each pair of the measured variables. The results have revealed that the HTMT criterion was from 0.830 to 0.926, in which CI-IS and CI-SCP were smaller than the HTMT0.85 criterion (Kline 2011) and IS-SCP constructs indicated the HTMTinference discriminant validity. The survey data were then used for further analysis.

5.3 Hypothesis testing

Correlation analysis was used before regression analysis to test correlations between variables. The results in Table 6 show that each variable was significantly related to others.

Table 7 shows that all hypotheses' regression coefficients were significant at $p < 0.01$, showing that all hypotheses were supported.

Customer integration positively affected information sharing ($t = 16.020$, $p = 0.000 < 0.01$), and all three dimensions separately, supporting H1, H1a, H1b, and H1c. Information sharing positively affected supply chain performance ($t = 19.893$, $p = 0.000 < 0.01$). All three dimensions separately also positively affected supply chain performance, supporting hypothesis H2, H2a, H2b, and H2c. Customer integration also positively affected supply chain performance ($t = 16.941$, $p = 0.000 < 0.01$), which supported hypothesis H3.

Table 5. The HTMT results.

Variables	CI	IS	SCP
Customer Integration	-		
Information Sharing	0.830	-	
Supply Chain Performance	0.878	0.926	-

Table 6. Results of correlation analysis.

		Mean	S.D.	CI	IS	SCP
CI	Pearson Correlation Sig. (2-tailed)	5.126	1.073	1	.745** .000	.763** .000
IS	Pearson Correlation Sig. (2-tailed)	5.556	0.911	.745** .000	1	.811** .000
SCP	Pearson Correlation Sig. (2-tailed)	5.297	0.916	.763** .000	.811** .000	1

**.Correlation is significant at the 0.01 level (2-taile).

Table 7. Results of regression analysis.

	Hypothesised paths	Coefficients	Hypothesis support
H1	CI→IS	0.632a	Supported
H1a	CI→PreIS	0.682a	Supported
H1b	CI→IBIS	0.611a	Supported
H1c	CI→PostIS	0.604a	Supported
H2	IS→SCP	0.815a	Supported
H2a	PreIS→SCP	0.608a	Supported
H2b	IBIS→SCP	0.718a	Supported
H2c	PostIS→SCP	0.593a	Supported
H3	CI→SCP	0.651a	Supported

**$p < 0.01$

The direct effects between customer integration and information sharing, information sharing and supply chain performance, customer integration and supply chain performance were all positive and significant. This suggests that information sharing may have a mediating role, which was examined using the method of (Baron and Kenny 1986) (Table 8).

Customer integration directly influenced supply chain performance in the absence of the mediating factor ($\beta = 0.651$; $t = 16.941$). When information sharing was included as a mediating factor, the direct impact of customer integration on supply chain performance was still positive and significant at $p < 0.01$, and the R square of supply chain performance rose from 0.582 to 0.714. The direct impact of customer integration on information sharing ($\beta = 0.632$; $t = 16.020$) and information sharing on supply chain performance ($\beta = 0.815$; $t = 19.893$) were also both positive. The results of the mediation effect are summarised in Table 9.

Information sharing, therefore, had a significant partial mediating effect on the relationship between customer integration and supply chain performance, which partially supports hypothesis H4. Therefore, all the study hypotheses were supported or partially supported, and the model is summarised in Figure 4.

5.4 Demographic differences

Table 10 shows the effect of gender, age, occupation and region on the relationships and constructs.

Table 8. Results of mediation analysis.

Relationship	Mediating Factor	Coefficient	t	R^2
CI→SCP	NO Factor	0.651**	16.941	0.582
CI→SCP	IS	0.305**	6.384	0.714
CI→IS	-	0.632**	16.02	-
IS→SCP	-	0.815**	19.893	-

**$p < 0.01$

Table 9. Summary of mediation analysis.

Relationship	Results	c Total Effect	a*b Indirect Effect	c′ Direct Effect	a*b/c Proportion	Hypothesis Support
CI = >IS = >SCP	Partical Mediation	0.651**	0.346	0.305**	53.20%	H4 Supported

Table 10 shows that men had significantly higher customer integration scores, information sharing and supply chain performance than women ($p < 0.05$). There were no statistically significant differences in information sharing and supply chain performance by age. However, there were significant differences in customer integration by age at the 0.01 level ($F = 4.834$, $p = 0.009$). Those aged 26–40 years scored higher than older or younger people. There were also significant differences between all three variables by occupation. The multiple comparative analysis shows a trend for all three homestay experts> owner > customer > others. Finally, there were no significant regional differences in any of the constructs.

6. Discussion

This paper aimed to explore the direct and indirect effects (through information sharing) of customer integration on supply chain performance in the context of homestay. The study hypotheses were all either wholly or partially accepted, suggesting that customer integration has a significant direct impact on information sharing and supply chain performance. Information sharing has a partial mediating role in the relationship between customer integration and supply chain performance.

6.1 The positive link between customer integration and information sharing

There was a significant positive link between customer integration and all three dimensions of information sharing for the homestay supply chain. This finding is consistent with those of Chavez et al. (2015) and Koçoğlu et al. (2011), who also found positive links between these variables. It also supports the work of Mahadevan, Samaranayake, and Matawie (2010). They

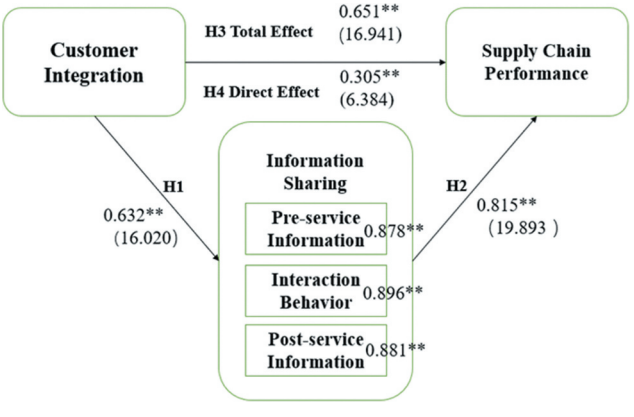

Figure 4. Results of hypothesis testing.

Table 10. Results of demographic difference.

Profile of Participants (Mean ± S.D.)	Customer Integration	Information Sharing	Supply Chain Performance
Gender			
male (n = 82)	5.52 ± 1.06	5.75 ± 0.94	5.47 ± 0.91
Female (n = 126)	4.87 ± 1.01	5.43 ± 0.87	5.18 ± 0.90
F	19.513	6.588	4.956
P	0.000a*	0.011*	0.027*
Age			
18 ~ 25 (n = 79)	4.84 ± 0.93	5.38 ± 0.86	5.10 ± 0.78
26 ~ 40 (n = = 89)	5.33 ± 1.13	5.68 ± 0.90	5.40 ± 0.89
41 or older (n = 40)	5.25 ± 1.11	5.63 ± 1.00	5.44 ± 1.15
F	4.834	2.53	2.92
P	0.009**	0.082	0.056
Occupation			
customer (n = 99)	5.01 ± 0.86	5.59 ± 0.72	5.29 ± 0.79
owner (n = 63)	5.76 ± 0.86	5.81 ± 0.94	5.60 ± 0.84
expert (n = 9)	6.09 ± 0.57	6.37 ± 0.42	6.16 ± 0.79
0thers (n = 37)	4.13 ± 1.12	4.83 ± 0.99	4.57 ± 0.95
F	29.422	14.090	15.321
P	0.000**	0.000**	0.000**
Region			
Beijing-Tianjin-Hebei (n = 61)	5.36 ± 1.03	5.63 ± 0.85	5.29 ± 0.84
Yangtze River Delta (n = 41)	4.95 ± 1.21	5.43 ± 1.05	5.18 ± 1.15
Pearl River Delta (n = 29)	4.70 ± 1.04	5.14 ± 0.93	4.95 ± 0.88
Hunan-Guizhou-Guangxi (n = 17)	5.31 ± 0.92	5.75 ± 0.80	5.46 ± 0.70
Hui-Culture Circle (n = 8)	5.10 ± 1.07	5.68 ± 0.70	5.30 ± 0.89
Others (n = 52)	5.17 ± 1.03	5.72 ± 0.86	5.53 ± 0.84
F	1.844	2.033	1.797
P	0.106	0.075	0.115

ap < 0.05 ** p < 0.01

concluded that the level of integration between supply chain members affects the degree of information sharing and that integration activities contribute to the supervision and safety protection of information flow. Customer integration, therefore, improves information sharing across multiple dimensions. It provides both customers and service providers with a platform for seamless transmission and sharing of information so that mutual trust and understanding are generated, and smooth and in-depth communication is realised, leading to efficient information sharing (Chavez et al. 2015).

Therefore, this study extended the previous research by emphasising the mutual relationship between customer integration and information sharing. Homestay managers who want to improve the level of information sharing with key customers should increase both frequency and closeness of contact. They could also provide incentives for information exchange and establish strategic and cooperative partnerships to understand and trust each other, leading to more visibility, accessibility, and opportunities among supply chain members.

6.2 The positive link between information sharing and supply chain performance

There were positive and significant links between the dimensions of information sharing and supply chain performance for homestay communities, which is consistent with many previous studies (Busagara et al. 2020; Hendy et al. 2020; Huo, Zhao, and Zhou 2013; Koçoğlu et al. 2011; Sundram, Chhetri, and Bahrin 2020). Primarily, our results support those of Busagara et al. (2020) and Yi et al. (2013) that more interaction and connectivity

between customers and suppliers build mutual trust, understanding, and willingness to share information, leading to tolerance, participation, and better service quality and performance for homestays. Our results also confirm those of Nasr, Burton, and Gruber (2018) and Yi and Gong (2013) on post-service information sharing. They found that authentic post-service feedback from customers is important for service performance evaluation and making strategic decisions. Moreover, among the three dimensions of information sharing, interactive information had the strongest influence on supply chain performance, followed by pre-service information and then post-service information. This finding emphasises the exceptional value of interactive behaviour during the service, enabling services to be delivered better through face-to-face or virtual communication and customer contact (Grönroos and Voima 2013). Therefore, homestay managers should prioritise interactive information sharing to achieve the most significant performance improvement at the lowest cost.

However, there are inconsistencies among our study and previous academic researches. For instance, Busagara et al. (2020) found a positive effect on the development of new services from interaction behaviour and post-service information sharing, but our findings suggest that all three dimensions of information sharing have a significant positive impact on the supply chain performance of community-based homestays. Moreover, Busagara et al. (2020) suggested that pre-service information is too vague and general to help the development of new services. However, our findings suggest that pre-service information can positively affect the flexibility and delivery of homestay services. This difference may be derived from the distinctions of the samples, which in our research are focusing on specific homestay communities.

Consequently, this research provided a more holistic view of the relationship between information sharing and the supply chain performance of homestays. As (Prayag and Lee 2019) stated, emotions are the key factor of the interactive information between customers and service providers in hotels. The homestay service providers should bond their service with the customers' emotional needs to receive a tight connection with customers and stimulate the supply chain performance.

6.3 The links between the three constructs of homestay supply chain

We found both direct and indirect (through information sharing) links between customer integration and supply chain performance for community-based homestay. Customer integration had a significant and positive effect on supply chain performance. Many scholars have studied this relationship with mixed results. This contradiction was attributed by Chavez et al. (2015) to the inconsistency of supply chain performance standards. Our findings are similar to some previous studies (Chavez et al. 2015; Flynn, Huo, and Zhao 2010; Koçoğlu et al. 2011; Mofokeng and Chinomona 2019; Qin, Hu, and Zhu 2018; Sundram, Chhetri, and Bahrin 2020; Vachon and Klassen 2008), which all found a positive correlation between supply chain integration and performance. Also, we identified customer integration as one of the most significant homestay supply chain integration dimensions. Integration activities include sharing market information, communicating regularly, and exchanging demand and inventory information to promote flexibility and

service delivery efficiency (Prayag and Lee 2019). Information sharing also had a partial mediation role in the relationship between integration and performance and its direct impact on performance.

This finding complements the previous studies of the mediation effects of information sharing between integration and homestay supply chain performance. For instance, simple information sharing activities are insufficient to provide large performance improvements in homestays (Baihaqi and Sohal 2013; Bailey and Francis 2008; Chavez et al. 2015). Instead, owners and managers need to use both customer integration and information sharing activities to integrate as a platform for information sharing. They should, therefore, establish integrated strategic relationships with information sharing to improve demand transparency and reduce bullwhip and lag effects. This will eventually contribute to homestay supply chain performance improvement.

We also found that demographic differences influenced the evaluation of the three constructs of community-based homestay. There were significant gender differences in evaluating the three constructs, with men scoring significantly higher than women. This suggests that men pay more attention to interactive and integration activities, information communication and exchange during the service and are generally more satisfied with homestay services' performance. However, only customer integration was affected by age differences. Scores for those aged between 26 and 40 were significantly higher than for older or younger respondents. This may be because people over the age of 26 are more likely to travel as a family so that they may pay more attention to interaction with local people and a family-like atmosphere during their stay. However, those aged between 18 and 25 pay more attention to price and a safe and comfortable environment (Agyeiwaah et al., 2013). There were also significant differences between buyers (customers) and suppliers (including homestay practitioners and scholars). The suppliers had higher scores than buyers, and buyers scored higher than other occupations. This highlights differences in perceptions of activities and suggests that more detailed research in the future may be helpful. It also suggests that suppliers should think about their customers' needs to make investments more effective and meaningful and provide better customer experiences.

6.4 Theoretical and managerial implications

This research has innovative and complementary theoretical implications and enormous management implications for homestay practitioners. First of all, this study provides a theoretical supplement to the literature in supply chain management and tourism management. This study performed empirical research on tourism supply chain integration and information sharing. The study extends the theoretical implications by expanding the current tourist supply chain management to community-based homestay tourism. The information integration in the tourism industry can be explained theoretically based on the link between the three constructs, emphasising the positive triangular relationship between them and the partial mediating role of information sharing. The information-sharing can be explained by three dimensions, emphasising the importance of interactive behaviour in customer participation, value co-creation and performance improvement. It was revealed that the supply chain performance can be explained by customer integration, in which information integration and sharing played a critical role in mediating the outcomes.

The theoretical implications contribute to supply chain management practices in the tourism industry, especially the homestay sector. The study provides meaningful insights and managerial implications for supply chain integration and information sharing activities, including the needs for pre-and post-service information and interaction behaviour. The research gives insights into the managerial implication that homestay managers who want to improve their supply chain performance should improve customer integration and information sharing activities and establish strategically and close collaborative relationships with customers to ensure the seamless flow of information. The strategies, including the adoption of information technologies and electronic platforms such as blockchain technology, enterprise information system, mobile platforms, etc., could be essential to manage the information sharing and enable the customer's integration in the field. This study also provides a managerial recommendation that homestay managers can prioritise interactive behaviours where resources are limited, so that value can be co-created with customers to optimise the supply chain performance at the lowest possible cost.

7. Conclusions and recommendations

7.1 Conclusions

Studies focusing on supply chain management are now turning to service industries. The effect of supply chain integration and information sharing on service supply chain performance has gradually attracted more scholars' attention. There have been many empirical studies in the manufacturing industry, but comparatively few in the tourism industry, and the findings showed mixed results. This article, therefore, aimed to explore the link between customer integration, information sharing and supply chain performance in tourism.

The study involved empirical research using 208 questionnaires from community-based homestays in mainland China. It investigated customer integration as one of the most critical dimensions of supply chain integration and three vital dimensions of information sharing (pre-service information, interaction behaviour and post-service information) – their impact on supply chain performance of community-based homestays. The research findings supported or partially supported all the hypotheses proposed in the model and addressed all the research questions. The outcomes showed a triangular positive relationship between the three constructs, fully supporting the hypotheses. We also proposed a mediating role for information sharing on the link between customer integration and supply chain performance and found a partial mediating effect, which partially supported this hypothesis. The research findings of this study have key contributions both theoretically and practically to the supply chain field in extending the knowledge between the three constructs in customer information integration in the community-based homestay and providing recommendations practical to improve the homestay practitioners.

7.2 Limitations and recommendations for future research

Although this paper empirically investigated supply chain management activities among community-based homestays in mainland China and has made significant contributions, the study still has some limitations.

First of all, it only considered one aspect of external integration. Previous studies have identified other significant aspects (Huo, Zhao, and Zhou 2013; Qin, Zhu, and Wang 2019). When customer integration is combined with other forms of supply chain integration, activities may interact and lead to better supply chain performance. Future research should include wider aspects of supply chain integration, such as external integration with partners and suppliers and internal integration within the homestay community.

Secondly, we only investigated the behaviour and content of information shared between homestay operators and customers but did not consider information quality and technology aspects. Chavez et al. (2015) regarded information quality and IT as essential aspects of information sharing, which affected the information shared's richness and nature. Future research should consider wider aspects of information and study its effects on establishing buyer-seller relationships and supply chain performance from a broader perspective.

Thirdly, we did not consider the financial aspects of supply chain performance. It is not clear whether customer integration and information sharing activities will reduce costs. Future research should consider these broader aspects of supply chain performance. Finally, due to the Covid-19 pandemic, samples are limited. Although the research covers all the 10 major homestay communities in China, the limited number of homestay samples might influence the statistical results. Overall, this research has supplemented and contributed to the literature on supply chain and tourism management. The empirical research results have provided theoretical and practical insights for homestay practitioners and meaningful future research suggestions.

Conflict-of-interest statement

The authors have no conflicts of interest to declare.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Yuk Ming Tang http://orcid.org/0000-0001-8215-4190
Ka Yin Chau http://orcid.org/0000-0002-0381-8401

References

Agyeiwaah, E., O. Akyeampong, and E. Amenumey. 2013. "International Tourists' Motivations to Choose Homestay: Do Their Socio-demographics Have Any Influence?" *Tourism and Hospitality Research* 13 (1): 16–26. doi:10.1177/1467358413517895.

Alfalla-Luque, R., J. A. Marin-Garcia, and C. Medina-Lopez. 2015. "An Analysis of the Direct and Mediated Effects of Employee Commitment and Supply Chain Integration on Organisational Performance." *International Journal of Production Economics* 162: 242–257. doi:10.1016/j.ijpe.2014.07.004.

Asamoah, D., F. Andoh-Baidoo, and B. Agyei-Owusu (2016). "Examining the Relationships between Supply Chain Integration, Information Sharing, and Supply Chain Performance: A Replication Study." *Twenty-second Americas Conference on Information System*, San Diego, California, 4, pp. 2749–2758.

Baihaqi, I., and A. S. Sohal. 2013. "The Impact of Information Sharing in Supply Chains on Organisational Performance: An Empirical Study." *Production Planning & Control* 24 (8–9): 743–758. doi:10.1080/09537287.2012.666865.

Bailey, K., and M. Francis. 2008. "Managing Information Flows for Improved Value Chain Performance." *International Journal of Production Economics* 111 (1): 2–12. doi:10.1016/j.ijpe.2006.11.017.

Baron, R. M., and D. A. Kenny. 1986. "The Moderator-mediator Variable Distinction in Social the Moderator-mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51 (6): 1173–1182. doi:10.1037/0022-3514.51.6.1173.

Barratt M., and Barratt R. 2011. "Exploring internal and external supply chain linkages: Evidence from the field." *Journal of Operations Management* 29 (5): 514–528.

Busagara, T., N. Mori, L. Mossberg, D. Jani, and T. Andersson. 2020. "Customer Information Sharing and New Service Development: Is There a Link?" *The Bottom Line* 33 (2): 133–147. doi:10.1108/BL-09-2019-0112.

Chan, F. T. 2003. "Performance Measurement in a Supply Chain." *The International Journal of Advanced Manufacturing Technology* 21 (7): 534–548. doi:10.1007/s001700300063.

Chang, W., A. E. Ellinger, K. K. Kim, and G. R. Franke. 2016. "Supply Chain Integration and Firm Financial Performance: A Meta-analysis of Positional Advantage Mediation and Moderating Factors." *European Management Journal* 34 (3): 282–295. doi:10.1016/j.emj.2015.11.008.

Chau, K. Y., Y. M. Tang, X. Y. Liu, Y. K. Ip, and Y. Tao. 2021. "Investigation of Critical Success Factors for Improving Supply Chain Quality Management in Manufacturing." *Enterprise Information Systems* 15 (10): 1418–1437. doi:10.1080/17517575.2021.1880642.

Chavez, R., W. Yu, C. Gimenez, B. Fynes, and F. Wiengarten. 2015. "Customer Integration and Operational Performance: The Mediating Role of Information Quality." *Decision Support Systems* 80: 83–95. doi:10.1016/j.dss.2015.10.001.

Chiang, A. H., W. H. Chen, and S. Wu. 2015. "Does High Supply Chain Integration Enhance Customer Response Speed?" *The Service Industries Journal* 35 (1–2): 24–43. doi:10.1080/02642069.2014.979406.

Cho, D. W., Y. H. Lee, S. H. Ahn, and M. K. Hwang. 2012. "A Framework for Measuring the Performance of Service Supply Chain Management." *Computers & Industrial Engineering* 62 (3): 801–818. doi:10.1016/j.cie.2011.11.014.

Cousins, P., and B. Menguc. 2005. "The Implications of Socialisation and Integration in Supply Chain Management." *Journal of Operations Management* 24 (5): 604–620. doi:10.1016/j.jom.2005.09.001.

Danese, P., and P. Romano. 2013. "The Moderating Role of Supply Network Structure on the Customer Integration-efficiency Relationship." *International Journal of Operations & Production Management* 33 (4): 372–393. doi:10.1108/01443571311307226.

Devaraj, S., L. Krajewski, and J. C. Wei. 2007. "Impact of eBusiness Technologies on Operational Performance: The Role of Production Information Integration in the Supply Chain." *Journal of Operations Management* 25 (6): 1199–1216. doi:10.1016/j.jom.2007.01.002.

DeWitt, T., L. C. Giunipero, and H. L. Melton. 2006. "Clusters and Supply Chain Management: The Amish Experience." *International Journal of Physical Distribution & Logistics Management* 36 (4): 289–308. doi:10.1108/09600030610672055.

Dragan, D., T. Kramberger, and D. Topolšek (2015). "Supply Chain Integration and Firm Performance in the Tourism Sector." In *Pre-conference proceedings of the 12th International Conference on Logistics & Sustainable Transport*, Celje, Slovenia.

Flynn, B. B., B. Huo, and X. Zhao. 2010. "The Impact of Supply Chain Integration on Performance: A Contingency and Configuration Approach." *Journal of Operations Management* 28 (1): 58–71. doi:10.1016/j.jom.2009.06.001.

Frohlich, M., and R. Westbrook. 2001. "Arcs of Integration: An International Study of Supply Chain Strategies." *Journal of Operations Management* 19 (2): 185–200. doi:10.1016/S0272-6963(00)00055-3.

Grönroos, C., and P. Voima. 2013. "Critical Service Logic: Making Sense of Value Creation and Co-creation." *Journal of the Academy of Marketing Science* 41 (2): 133–150. doi:10.1007/s11747-012-0308-3.

Hayes, A. F. 2017. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-based Approach*. Guilford Press.

Hendy, T., R. Resdiansyah, F. A. Johanes, and F. M. Rustono. 2020. "Exploring the Role of ICT Readiness and Information Sharing on Supply Chain Performance in Coronavirus Disruptions." *Technology Reports of Kansai University* 62 (5): 2581–2588.

Henseler, J., C. M. Ringle, and M. Sarstedt. 2015. "A New Criterion for Assessing Discriminant Validity in Variance-based Structural Equation Modelling." *J. Of the Acad. Mark. Sci* 43 (1): 115–135. doi:10.1007/s11747-014-0403-8.

Hidayat, C., M. R. Ramadhan, A. Rilamsyah, F. Abdillah, and S. Hamali (2019). "The Role of Supply Chain Integration on Information Sharing and Its Impact on the Supply Chain Performance (The Study on Beverage Distribution Company)." In *2019 International Conference on Information Management and Technology (ICIMTech)*, Denpasar, Bali , Indonesia, 1, pp. 395–399.

Hong, Y., G. Cai, Z. Mo, W. Gao, L. Xu, Y. Jiang, and J. Jiang. 2020. "The Impact of COVID-19 on Tourist Satisfaction with B&B in Zhejiang, China: An Importance-Performance Analysis." *International Journal of Environmental Research and Public Health* 17 (10): 3747. doi:10.3390/ijerph17103747.

Huo, B., M. Z. U. Haq, and M. Gu. 2020. "The Impact of Information Sharing on Supply Chain Learning and Flexibility Performance." *International Journal of Production Research* 59 (5): 1411–1434.

Huo, B., X. Zhao, and H. Zhou. 2013. "The Effects of Competitive Environment on Supply Chain Information Sharing and Performance: An Empirical Study in China." *Production and Operations Management* 23 (4): 552–569. doi:10.1111/poms.12044.

Ismail, M. N. I., M. H. Hanafiah, N. Aminuddin, and N. Mustafa. 2016. "Community-based Homestay Service Quality, Visitor Satisfaction, and Behavioural Intention." *Procedia-Social and Behavioral Sciences* 222: 398–405. doi:10.1016/j.sbspro.2016.05.192.

Jamaludin, M., N. Othman, and A. R. Awang. 2012. "Community-based Homestay Programme: A Personal Experience." *Procedia-Social and Behavioral Sciences* 42: 451–459. doi:10.1016/j.sbspro.2012.04.210.

Kannan, V. R., and K. C. Tan. 2010. "Supply Chain Integration: Cluster Analysis of the Impact of Span of Integration." *Supply Chain Management: An International Journal* 15 (3): 207–215. doi:10.1108/13598541011039965.

Kline, R. B. 2011. *Methodology in the Social Sciences.Principles and Practice of Structural Equation Modelling*. 3rd ed. New York, United States: Guilford Press.

Koçoğlu, İ., S. İmamoğlu, H. İnce, and H. Keskin. 2011. "The Effect of Supply Chain Integration on Information Sharing: Enhancing the Supply Chain Performance." *Procedia - Social and Behavioral Sciences* 24: 1630–1649. doi:10.1016/j.sbspro.2011.09.016.

Koufteros, X. A., T. E. Cheng, and K. H. Lai. 2007. ""Black-box" and "Grey-box" Supplier Integration in Product Development: Antecedents, Consequences and the Moderating Role of Firm Size." *Journal of Operations Management* 25 (4): 847–870. doi:10.1016/j.jom.2006.10.009.

Kunjuraman, V., and R. Hussin. 2017. "Challenges of Community-based Homestay Programme in Sabah, Malaysia: Hopeful or Hopeless?" *Tourism Management Perspectives* 21: 1–9. doi:10.1016/j.tmp.2016.10.007.

Li, S., and B. Lin. 2006. "Accessing Information Sharing and Information Quality in Supply Chain Management." *Decision Support Systems* 42 (3): 1641–1656. doi:10.1016/j.dss.2006.02.011.

Long, F., J. Liu, S. Zhang, H. Yu, and H. Jiang. 2018. "Development Characteristics and Evolution Mechanism of Homestay Agglomeration in Mogan Mountain, China." *Sustainability* 10 (9): 2964. doi:10.3390/su10092964.

Lynch, P. A. 2005. "The Commercial Home Enterprise and Host: A United Kingdom Perspective." *International Journal of Hospitality Management* 24 (4): 533–553. doi:10.1016/j.ijhm.2004.11.001.

Mahadevan, K., P. Samaranayake, and K. Matawie (2010). "Supply Chain Integration, Information Sharing and Supply Chain Visibility-the Remedy for Supply Chain Uncertainty in Australian Organisations," *2010 8th International Conference on Supply Chain Management and Information*, Hong Kong, pp. 1–9.

Mofokeng, T. M., and R. Chinomona. 2019. "Supply Chain Partnership, Supply Chain Collaboration and Supply Chain Integration as the Antecedents of Supply Chain Performance." *South African Journal of Business Management* 50 (1): 1–10. doi:10.4102/sajbm.v50i1.193.

Nakasumi, M. (2017). "Information Sharing for Supply Chain Management Based on Blockchain Technology." *2017 IEEE 19th Conference on Business Informatics (CBI)*, Thessaloniki, 1, pp.140–149.

Nasr, L., J. Burton, and T. Gruber. 2018. "Developing a Deeper Understanding of Positive Customer Feedback." *Journal of Services Marketing* 32 (2): 142–160. doi:10.1108/JSM-07-2016-0263.

Palang, D., and K. Y. Tippayawong. 2019. "Performance Evaluation of Tourism Supply Chain Management: The Case of Thailand." *Business Process Management Journal* 25 (6): 1193–1207. doi:10.1108/BPMJ-05-2017-0124.

Prajogo, D., and J. Olhager. 2012. "Supply Chain Integration and Performance: The Effects of Long-term Relationships, Information Technology and Sharing, and Logistics Integration." *International Journal of Production Economics* 135 (1): 514–522. doi:10.1016/j.ijpe.2011.09.001.

Prayag, G., and C. Lee. 2019. "Tourist Motivation and Place Attachment: The Mediating Effects of Service Interactions with Hotel Employees." *Journal of Travel & Tourism Marketing* 36 (1): 90–106. doi:10.1080/10548408.2018.1494087.

Pusiran, A. K., and H. Xiao. 2013. "Challenges and Community Development: A Case Study of Homestay in Malaysia." *Asian Social Science* 9 (5): 1–17. doi:10.5539/ass.v9n5p1.

Qin, L., J. Hu, and K. Zhu. 2018. "Impact Mechanism of B & B Service Supply Chain Integration on the Dynamic Ability of B & B Cluster—mediating Role of Value Co-creation and Resource Interaction." *Enterprise Economy*. 37(6):in Chinese. 107–113.

Qin, L., K. Zhu, and Y. Wang. 2019. "Impact of Tourism Service Supply Chain Integration on Tourism Service Innovation Capabilities: A Case of Mediating and Moderating Effect Test." *Journal of the Guilin University of Technology*. 39(3):in Chinese. 751–757.

Ramli, R., M. H. Miraz, K.-R. K. Mahamud, M. F. Omar, and K. Kayat. 2019. "Collaborative-based Web Recommender System for Homestay Program: A Bridging Tool in A Tourism Supply Chain." *Int. J Sup. Chain. Mgt Vol* 8 (6): 978.

Raweewan, M., and W. G. Ferrell Jr. 2018. "Information Sharing in Supply Chain Collaboration." *Computers & Industrial Engineering* 126: 269–281. doi:10.1016/j.cie.2018.09.042.

Şahin, H., and B. Topal. 2019. "Examination of Effect of Information Sharing on Businesses Performance in the Supply Chain Process." *International Journal of Production Research* 57 (3): 815–828. doi:10.1080/00207543.2018.1484954.

Shou, Y., Y. Li, Y. Park, and M. Kang. 2018. "Supply Chain Integration and Operational Performance: The Contingency Effects of Production Systems." *Journal of Purchasing and Supply Management* 24 (4): 352–360. doi:10.1016/j.pursup.2017.11.004.

Sigala, M. 2014. "Customer Involvement in Sustainable Supply Chain Management: A Research Framework and Implications in Tourism." *Cornell Hospitality Quarterly* 55 (1): 76–88. doi:10.1177/1938965513504030.

Sundram, V. P. K., P. Chhetri, and A. S. Bahrin. 2020. "The Consequences of Information Technology, Information Sharing and Supply Chain Integration, Towards Supply Chain Performance and Firm Performance." *Journal of International Logistics and Trade* 18 (1): 15–31. doi:10.24006/jilt.2020.18.1.015.

Swink, M., R. Narasimhan, and C. Wang. 2007. "Managing beyond the Factory Walls: Effects of Four Types of Strategic Integration on Manufacturing Plant Performance." *Journal of Operations Management* 25 (1): 148–164. doi:10.1016/j.jom.2006.02.006.

Tang, Y. M., K. Y. Chau, D. Xu, and X. Y. Liu. 2021. "Consumer Perceptions to Support IoT Based Smart Parcel Locker Logistics in China." *Journal of Retailing and Consumer Services* 62: 102659. doi:10.1016/j.jretconser.2021.102659.

Tian, M., B. Huo, Y. Park, and M. Kang. 2021. "Enablers of Supply Chain Integration: A Technology-organization-environment View." *Industrial Management & Data Systems* 121 (8): 1871–1895. doi:10.1108/IMDS-09-2020-0564.

Tsai, Y.-T., and R. G. Lasminar. 2021. "Proactive and Reactive Flexibility: How Does Flexibility Mediate the Link between Supply Chain Information Integration and Performance?" *International Journal of Engineering Business Management* 13: 184797902110076. doi:10.1177/18479790211007624.

Vachon, S., and R. Klassen. 2008. "Environmental Management and Manufacturing Performance: The Role of Collaboration in the Supply Chain." *International Journal of Production Economics* 111 (2): 299–315. doi:10.1016/j.ijpe.2006.11.030.

Vickery, S. K., J. Jayaram, C. Droge, and R. Calantone. 2003. "The Effects of an Integrative Supply Chain Strategy on Customer Service and Financial Performance: An Analysis of Direct versus Indirect Relationships." *Journal of Operations Management* 21 (5): 523–539. doi:10.1016/j.jom.2003.02.002.

Xiong, G. 2016. "Thoughts on Development of B&B Cluster: A Supply Chain Perspective." *Logistics Technology*. 35(1):in Chinese. 146–148.

Yi, Y., and T. Gong. 2013. "Customer Value Co-creation Behaviour: Scale Development and Validation." *Journal of Business Research* 66 (9): 1279–1284. doi:10.1016/j.jbusres.2012.02.026.

Yilmaz, Y., and U. Bititci. 2006. "Performance Measurement in the Value Chain: Manufacturing V. Tourism." *International Journal of Productivity and Performance Management* 55 (5): 371–389. doi:10.1108/17410400610671417.

Yung, K. L., G. T. S. Ho, Y. M. Tang, and W. H. Ip. 2021a. "Inventory Classification System in Space Mission Component Replenishment Using Multi-attribute Fuzzy ABC Classification." *Industrial Management & Data Systems* 121 (3): 637–656. doi:10.1108/IMDS-09-2020-0518.

Yung, K. L., Y. M. Tang, W. H. Ip, and W. T. Kuo. 2021b. "A Systematic Review of Product Design for Space Instrument Innovation, Reliability, and Manufacturing." *Machines* 9 (10): 244. doi:10.3390/machines9100244.

Zhang, C., and S. Li. 2006. "Secure Information Sharing in Internet-based Supply Chain Management Systems." *The Journal of Computer Information Systems* 46 (4): 18–24.

Zhang, X., H. Song, and G. Huang. 2009. "Tourism Supply Chain Management: A New Research Agenda." *Tourism Management* 30 (3): 345–358. doi:10.1016/j.tourman.2008.12.010.

Zheng, K. N., Z. P. Zhang, Y. Chen, and J. J. Wu. 2021. "Blockchain Adoption for Information Sharing: Risk Decision-making in the Spacecraft Supply Chain." *Enterprise Information Systems* 15 (8): 1070–1091. doi:10.1080/17517575.2019.1669831.

Zhuo, Z., K. Y. Chau, S. Huang, and Y. K. Ip. 2020. "Mathematical Modeling of Optimal Product Supply Strategies for Manufacturer-to-group Customers Based on Semi-real Demand Patterns." *International Journal of Engineering Business Management* 12: 184797902094148. doi:10.1177/1847979020941489.